# Dyslexia recognition in the child and family

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**Abstract**

Registered research design and conditional interpretation policy; no outcomes observed.

**Keywords:** Pre-registration, research design

## Dyslexia recognition in the child and family

Pre-registration: no experimental outcomes have been observed.

## Dyslexia recognition in the child and family: study protocol and statistical analysis plan

### 1. Study identity and registration history

This is an adaptive, pre-data analysis plan for existing Danish administrative records, amended on 9 September 2026. It concerns recognition at the national dyslexia assessment boundary, independently useful descriptions of assessed children, and separately measured child, family and early-adult circumstances. It is not prospective data collection or source-paper replication. The supplied, previously distributed native World was sealed and unexecuted. Its user-directed freeze is historical provenance; the current user authorizes this disclosed refinement. No independent acceptance of the amendments, public registry deposit or institutional approval is asserted. Investigator identities, affiliations, funding and registry identifiers were not supplied.

The dated amendment preserves 29 Atom IDs, all membership and 24 primary endpoint/horizon comparisons. It strengthens the registered Molecule argument, allocates main/SI/protocol material, binds already registered reach and distribution summaries, and repairs inconsistent presentation/protocol pointers. There is no added estimator, hypothesis family, subgroup or scientific unit. Native Atom protocols, activation expressions and ordered local result regions, together with the native Molecule interpretation, remain authoritative.

## 2. Data existence, access and prior knowledge

The planning boundary inherits the original full-FSV assumption covering 531 schema pages. Only tables explicitly allowed by that boundary may be planned. Documentation of a variable or historical period does not establish delivered tables, exact versions, person linkage, complete observation, sample size or identifying variation. The scientific preparation used public schema/documentation, prior literature, the supplied scientific baseline and editorial exemplars. No confidential rows, observed study outcome summaries or runtime estimates were accessed. All empirical outputs remain pending.

The data contract records exact allowed fields and required dictionaries for assessment; population, death and migration; school attendance, surveys, tests and grades; hospital and community services; known family links; income and employee hours; educational spells and residence. The source record distinguishes new retrieval from inherited full-text knowledge. The updated nearest Danish dyslexia paper was accessible as an author listing/abstract, not a complete current manuscript. Published results are prior knowledge, never comparison targets for tuning this ordinary adaptive study. No contact with authors occurred.

HANDICNOTA and VEUV do not establish a comprehensive historical intervention or dose measure. No complete support receipt, unaided reading, advocacy time, private expenditure, adult subjective wellbeing, full NEET, mature-adult outcomes or arbitrary broad physical-disease panel is invented. The retained physical-symptom questions concern headache and stomach ache. An unsupported construct is stated as a limitation, not silently replaced or dropped from the study's explanation.

## 3. Background, theory and importance

Recognition may change opportunities and how difficulties are understood, as well as the services recorded after assessment. Relief from self-blame, altered expectations, stigma, assistance, referral and access are competing routes. Parents may seek their own assessment, change paid activity or enter care; siblings may experience a changed school or family environment. Shared liability and common conditions can also generate family associations without a causal effect of recognition. Education, current employee wages and household resources at early-adult ages need not move together.

The national-test development paper explains classification as an institutionally chosen threshold rather than a biological discontinuity. Its 2026 correction changes validation statistics; it supplies no runtime evidence for this study. Earlier Danish threshold work already studies school outcomes, and Danish descriptive work already covers child/family circumstances. This study therefore treats school comparisons as informative benchmarks and the separate child–family measurements as an integrated, qualified research question. Novelty is provisional, not a claim of priority. Literature supports these rival accounts but cannot determine their future signs or identify a mechanism from cross-domain coefficients.

## 4. Research questions, hypotheses and claim scope

The primary question is whether crossing the recoverable historical classification-policy boundary changes separately recorded school experience, care, relatives' responses and early-adult circumstances among the registered local targets. Each of the 24 endpoint/horizon comparisons is a nondirectional primary hypothesis: either increase or decrease is scientifically informative; a valid interval containing zero is uncertainty, not equivalence. The 15 primary experimental units group related outcomes without averaging them or converting them into a domain-success measure.

The four descriptive units describe school (101), care (109), family (113) and adulthood (118), independently of whether a causal margin is viable. Assessment integrity (001), historical initial-margin provenance (002), population/relative/horizon orientation (010), and support-measurement boundaries (011) address separate consequential questions. Grade validity is one independent experiment per grade 4–9 (501–506). The complete endpoint roster and mappings are in endpoint-index.json, derived from native registrations; coverage.md records every member. The three cross-domain comparisons in the Molecule are exploratory interpretation of registered outputs, not additional estimators, tests or confirmatory mechanisms.

## 5. Setting, population, eligibility and sampling

The descriptive population comprises children aged 9–17 at their first retained national assessment dated 1 February 2015 through 31 December 2024. Age comes from a valid birth date. Descriptive calendar groups are 2015–2018, 2019–2021 and 2022–2024; category red/yellow/green/unknown remains explicit. Each child enters once. Exact duplicate earliest records collapse; conflicting earliest scores or categories remain unknown for description and cannot enter the margin. A later record cannot replace an ambiguous earliest one. The retained record does not establish lifetime initial testing.

The policy cohort is initial assessment during 1 March–30 June 2015, ordinary public-school grades 4–9 and age 9–17, with grade from documented test-level semantics checked against the previous complete school month. Age or a future test/grade never supplies the assessment grade. Grade 3 remains excluded because the registered historical margin cannot be presumed comparable. The historical mapping, inclusive threshold and initial-record retention evidence must be established. No future clinical outcome, death, migration, employment or follow-up completeness is used to select a favorable baseline cohort.

Baseline grades 4–7 are required for school reports, attendance and reading; 4–8 for teacher-assessed Danish; 4–9 for the other policy targets. All grades required by an endpoint remain in its fixed set; a failed grade cannot be dropped and weights recomputed. A grade unnecessary to an endpoint does not gate it. Endpoint-specific relative/age/horizon eligibility is determined before outcome values and rechecks support for that target. Sample size is determined by these rules and delivered records; catalog counts are not study counts or power evidence.

Parents are the fixed known MOR_ID/FAR_ID roster in the last December before assessment. A known one-parent roster remains a one-parent target, not an invented missing second parent. Outcomes are averaged over all known parents; unavailable

follow-up does not change the denominator. Eligible siblings share a nonmissing recorded baseline parent and meet baseline age 9–14 and grade 4–7 requirements. The first eligible index child per connected baseline-parent family is chosen chronologically with the registered SHA tie rule/salt. Child-weighted relative outcomes retain this index. Family income instead uses the child's current December family identifier in the outcome year and does not require a known parent. See D7/D11 for exact relation and clustering rules.

## 6. Exposure, assignment and comparison

For grades 4–9 respectively, the registered red score cutoffs are 66,70,73,77,79,81. Let x = SCORE − c_grade and Z = 1[x  0]. Equality belongs to the red side; the original-score left is red. The implementation uses r = −x so that the estimation library's right side corresponds to red. The estimand is the local red-minus-yellow boundary contrast. It is not the effect of the 2015 national rollout, a biological dyslexia threshold, an individual treatment dose or a support-receipt effect.

If the complete category record agrees exactly with assignment, the registered sharp-recording case applies. Otherwise a valid recorded-classification jump must satisfy the registered adjusted lower-bound criterion greater than .10 for eligible_nonsharp. That case still identifies only the reduced-form threshold-policy contrast: no division by a classification or treatment jump is allowed. The exact yellow upper boundaries and score interpretation remain in I1/native mapping protocols.

A causal reading requires continuity of potential outcomes and relevant observation processes within grade, no precise sorting or selective retained/approved tests, a recovered initial-assessment rule, and no unrelated policy change at the same threshold. These assumptions are not established by balanced observables. Spillovers and family responses are interpreted under the existing allocation environment; no interference-free direct-treatment effect is presumed. Figure 8's specification depicts these existing constants and distinct follow-up clocks, without invented density or take-up evidence.

## 7. Outcomes, measurements and operationalization

All 24 primary endpoints remain distinct. The data contract D1–D11 supplies exact fields, keys, valid-date code lists, source dictionaries, ties, windows, denominators, construction and missingness. This is part of every native protocol, not optional background. No new field may be substituted because it gives a usable estimate.

School social experience is frequent loneliness and low belonging; somatic experience is frequent stomach ache and headache. The first complete post-assessment school year and the documented survey version govern item selection. Q9/Q10/Q11 are candidate historical items with frequent categories Meget tit/Tit coded one; occasional/rare/never coded zero. Belonging uses Q33 disagreement categories coded one and the other three substantive responses zero, only after wording/SKEMA verification. Refusals are missing. The first eligible survey start timestamp governs selection, not completeness. Total and sickness absence are ratios of summed nonoverlapping documented days to active days, requiring the full expected school-month universe and valid nesting. Percentages are not pupil-level monthly averages.

Reading is recalculated overall Danish reading THETA at the next scheduled grade 6 or 8 assessment, with the registered baseline-grade schedule. Construct, origin/unit and item-link calibration must support pooling across the complete fixed target before values; otherwise the exact boundary/unresolved rule applies, while stratified descriptions remain possible. No standardization or original/transition-test substitution repairs this. Teacher-assessed Danish is final grade-9 standpunkt in the scheduled year, equal weighting over all official Danish disciplines on the documented seven-point scale $\{-3,0,2,4,7,10,12\}$. Exam grades do not substitute; 2020 remains a labeled descriptive stratum. Neither achievement measure isolates unaided learning.

Child hospital outcomes are any recorded depressive encounter (valid DF32/DF33 code lists) and any anxiety/stress encounter (DF40/DF41/DF43), using the registered main/action or secondary roles, deduplicated across legacy records by person/date/code/role. Referral/tentative codes are not diagnoses. Events lie after t0 and at or before t0+730, before documented exit as D3 defines. Legacy and new hospital models require their own keys and role/era semantics; failure of LPR3 cannot veto the legacy spring-2015 contrast. Community specialist and GP outcomes use SSSY net contacts in complete ISO billing weeks wholly inside the registered window; specialty and GP honorarium exclusions are exact in D6. A billing week is not a treatment date, and recorded care is not latent health or disease incidence.

Family endpoints are parent care, sibling belonging, household equivalized disposable income, parental employee hours, parental wages and later retained parental national assessment. Parent care/assessment follow the child-specific 730-day clock with the fixed known roster; later assessment is not first lifetime diagnosis or adult instruction. Parent hours and wages are annual values in the year after the child's test and are averaged over the fixed roster, preserving genuine zeros only with a complete employee universe and preserving signed wages. Family income is FAIK.FAMAEKVIVADISP_13/1000 for the child's current December family, with exact-year delivery/correction provenance. It measures documented income or the adjudicated recorded-income proxy, never consumption or welfare. Unknown provenance is not certified correction; missing binding supplies no numeric family-income statement. Parent-link gaps do not independently veto this household endpoint.

Early adulthood comprises enrollment in qualifying upper-secondary-or-higher education on the 18th birthday, attained qualifying education on the 20th birthday, employee participation and wages during the entire calendar year turning 20, equivalized disposable income during that year, and co-residence with a fixed known parent on the 20th birthday. Official DISCED15 levels and valid spell dates govern KOTRE/UDDF/UDDA; completion is not inferred from an arbitrary exit code. Employee participation means positive registered hours, not full NEET or all employment. Wages retain nonemployee zeros only where the documented universe makes zero meaningful; there is no employed-only main estimand. Shared valid birthday addresses establish co-residence; missing addresses remain unknown unless an observed parent establishes yes. All follow-up ends by 31 December 2024.

## 8. Evidence sequence and planned displays

The Blueprint gives the paragraph/display contract. Main begins with the puzzle, institutions and Figure8's assignment/clocks, then Figure1's retained-assessment composition and reach. It establishes the initial-margin and grade requirements, explains uncertainty, and uses Figure6's complete native-unit policy contrasts to organize school, care, family and adult questions. Full descriptions are scientifically valuable in their own right and appear in SI Figures2–5 beside complete domain methods/tables. Figure7/Table6 show all registered variants; TableS1 gives grade validity and TableS2 observation/estimation detail.

Descriptive binary proportions use available descriptive intervals. Continuous measures show mean/interval separately from median/interquartile range, using already registered summaries; the latter is dispersion, not confidence. Required D10 strata remain separate, including birth/outcome year, reading grade/calibration and hospital era. No new distributions, event-study curves, joint outcomes, pooled incompatible scales or within-person trajectories are fitted for a display. Full decision branches belong here and in the native appendix/result map; operational interfaces belong in engineering docs. Preview values are conspicuously hypothetical, separate from pending result slots, and never runtime fallbacks.

## 9. Estimands and statistical models

Descriptions retain each exact D10 stratum, report eligible/observed/missing/undefined counts, binary proportions and continuous mean/SD/median/q25/q75. Relative results remain child weighted. Intervals use 1,999 family-cluster percentile bootstrap resamples with seed 20150905. Fewer than 30 clusters or unavailable clustering retains valid levels without a fabricated interval; there are no descriptive p-values or causal category claims.

The primary RD is local linear with triangular weights and local-quadratic bias correction, separately by side and required grade, aggregated using fixed pre-outcome grade-count weights from the registered |x| 6 baseline target. No covariate adjustment, alternative pooling or new subgroup is added. I3 supplies all exact arguments to R rdrobust 4.0.0 rdbwselect (p=1,q=2,bwselect=cerrd,kernel=tri,vce=hc0,cluster=NULL and its remaining fixed arguments). h and b are selected once, separately capped at6, and never reselected to rescue failure.

For each side/grade, I3 defines local design matrices R1,R2, weighted operators A1,A2, a=e0 A1, d=e0 A1r² and corrected observation weight l=a−d e2 A2. The corrected mean is lY. Quadratic-fit residuals on the h/b support union produce signed influence weights; red-minus-yellow contrasts and frozen grade weights produce the overall estimand. The implementation must match the registered reference operator, including h<b,h>b,h=b and inclusive equality, within absolute tolerance 1e−8. Exact formulas and all feasibility conditions in I3 are incorporated here; they cannot be replaced by a generic package default or an OLS fallback.

## 10. Uncertainty, multiplicity and design sensitivity

Variance is school cluster plus fixed-family cluster minus school-family-intersection cluster, with each term's own G/(G−1), no additional N/K correction or recentering. At least30 effective schools,30 effective families and2 intersections, finite positive variance and the registered support/rank conditions are required. Degrees of freedom are min(G_school,G_family)−1. Insufficient support, zero/negative variance or invalid computation is unestimable, not a zero standard error. At least10 distinct positive-kernel score values on each side in each h/b support, ranks2/3 and condition number 10^12 are required.

There are fixed Bonferroni families: 24 primary contrasts at familywise .05; separately24 ascertainment contrasts at .05; six density diagnostics at .01; six classification diagnostics at .01; and48 baseline-continuity diagnostics at .01. Failed or inactive slots do not reduce any denominator. Primary adjusted p-values are min(1,24p); intervals use the corresponding simultaneous allocation. Bounds use the registered one-sided allocation .05/(2×24). Nonprimary variants use individual95% intervals and have no joint coverage claim. There is no equivalence margin or proof of no effect. Conditional80% detectable contrast is (t[1−.05/(2×24),df]+.84)SE only when a valid SE exists; it is not observed power or a sample-size gate.

## 11. Missingness, exclusions and competing events

The exact D2 key assertions precede joins. Date ambiguity, conflicting duplicates and unsupported dictionaries are resolved only by the registered semantic rules, never by which record has the desired outcome. A complete administrative universe is required to interpret absence of a row as zero. Survey nonresponse, absent tests, incomplete months, unknown addresses, unobserved relatives and insufficient follow-up are not zeros. Descending from an unavailable endpoint to a convenient proxy is not allowed.

For bounded outcomes with missing but defined values, the registered extreme-value construction supplies lower/upper effects: favorable and unfavorable assignments differ by original red/yellow side. The observation-indicator bandwidth is selected once when varying; an all-observed case uses the outcome selector; all-missing cases are unestimable. Bounds carry no invented point estimate or p-value. For unbounded missing outcomes, the main result is selection limited; available-case estimates are exploratory sensitivity evidence, not the all-target effect. An outcome undefined after death remains selection limited even if its numerical range is bounded.

Event risk is (t0,min(t0+730,death,emigration)] with D3's ordering: an event recorded before exit may count, and same-day unknown event/exit ordering remains unknown. The nominal 730-day observation universe must nevertheless be documented complete. Non-event outcomes do not silently condition on future survival/residence. Billing weeks must be wholly inside the eligible window. Each endpoint records missing, undefined and competing-exit dispositions separately; death/emigration counts are not automatically additive. Observation diagnostics neither establish MAR nor choose the outcome to report.

## 12. Diagnostics, sensitivity and rival explanations

Each grade separately audits original-score precision .5, at least20 distinct values per side in |x| 6, at least30 school/family clusters and maximum point mass .20 under I5. No jitter or alternate estimator rescues a failed grade. On supported margins, density, baseline continuity and category-response checks execute independently. A density flag does not erase completed baseline evidence. R rddensity3.0 and every fixed option in I5 govern the density calculation. Baseline age, sex, 2014 equivalized income and pre-care plus their four missingness indicators supply eight slots per grade. Baseline care strictly precedes t0: [t0−365,t0). Exact source/year income provenance is adjudicated before values.

Globally constant observed indicators report arithmetic and scope without a manufactured p-value. Structural completeness requires documented universe semantics; all missing is unavailable. Different constants on the two sides flag an arithmetic difference. Any valid flag wins over incomplete other checks; a not-flagged result requires the registered complete combination. Exact recorded classification equality is an arithmetic sharp-recording result, not an estimated infinite first stage.

Each endpoint retains primary, half-bandwidth, wider-bandwidth (1.5 times selected h/b capped at6) and donut (exclude exact zero) specifications. Grade sets, targets, weights and scientific ceilings do not change. The first computable contradiction specified in I4—sign reversal, nonprimary point outside the primary interval, or disjoint relevant bounds—makes sensitivity consequential even if another variant fails. Stability requires a valid primary, all variants computable and unchanged ceilings. Otherwise robustness is unresolved. A stable result does not establish continuity, absence of selection or a mechanism.

## 13. Adaptive schedule and result-dependent decisions

Exact activation expressions remain in all native Atom registrations and are reproduced by the host's scientific appendix. Initially001 and011 can execute. Historical-margin002 requires001ready. Independent orientation010 may execute after001 completes, including its documented terminal no_result; the descriptive units require001ready or limited and do not require a causal margin. Grade501–506 diagnostics allow002compatible, selected or retention_unresolved, because their diagnostic evidence remains valuable without a valid causal starting point.

Policy activation requires001ready,002compatible and every grade in that endpoint unit's registered grade set eligible_sharp or eligible_nonsharp. There is no all-six-grade requirement for a grades4–7 target. Endpoint measurement, scope, ascertainment, primary and robustness components obey their own scientific conditions inside the Atom; they are not extra Atoms or graph nodes. Failure of a companion, optional care era, reading scale or known-parent linkage cannot veto unrelated valid evidence. No automatic retries or outcome-dependent alternatives are introduced.

Native local state and operational terminal are distinct. Unknown necessary evidence stays pending; false activation is not_activated; transport, access or software failure yields no_result with no statistical local state. A verified incompatibility can be a scientific boundary. Descriptive roots distinguish

complete/partial/boundary evidence. Policy roots apply the existing ordered sensitivity/mixed-direction/directional/uncertain/boundary/restricted/otherwise regions while retaining endpoint-specific results. Root summaries cannot overwrite a surviving endpoint's direction, bounds, selection or robustness. Suppression is downstream of governed adjudication and cannot leak a sign through narrative. Execution scheduling and manuscript order are separate.

## 14. Interpretation under alternative results

The native Molecule applies restrictions first, then compatible primary and supplementary claims; it preserves every component's partial, missing or failed disposition. No common success score is computed. The following readable account is accompanied by the exact native algorithms in the scientific appendix and the complete result map.

HEALTH compares loneliness with depressive and anxiety/stress encounters using one-to-one primary, own robustness and verified scope bindings. A qualified decrease in loneliness paired with at least one qualified care increase supports the registered divergent pattern; all qualifying pairs are retained in the fixed order. An unavailable unused care endpoint does not veto a usable pair. Concordance requires all three qualified decreases and both known pair scopes. Qualified directions require adjusted point intervals or bounds and the endpoint's own stable robustness. Non-significance, unestimability, selected evidence and sensitivity do not qualify. Exact scope equality permits within-target language; known differences require cross-target side-by-side language. Unknown scope only disqualifies the relevant pair. Required pending/inactive evidence retains its status. No latent-health improvement, within-person discordance, detection share or mediation is identified.

FAMILY gives the registered recognition-response interpretation to a qualified positive parental-assessment point result without waiting for care. The narrower family-response branch requires a stable negative parental-assessment point result, a stable directional parent-care point result and verified identical baseline/index/parent-roster/child-730-day scope. Directional bounds remain valid primary evidence but deliberately do not qualify for either named point-result branch. An interval containing zero does not show a reduction. A care change is not itself a burden mechanism. The exact ordered source-status and scope rules remain in the Molecule.

MATERIAL compares education18 and attainment20, each with wages20 and resources20, forming the four registered pairs. Each available numeric result retains its own original target, clock, uncertainty and sensitivity restriction. A valid interval containing zero remains numeric evidence, unlike a selected, unestimable, boundary, failed, inactive or pending result. Employee participation and co-residence are independent evidence, not prerequisites for a pair. Birthday18, birthday20 and calendar-year20 measures are differently timed even where predicates otherwise match. The design forbids common-population refitting and does not infer financing, welfare or a difference between coefficients. No unavailable pair erases another usable pair.

Uncertain estimates motivate a statement about limits of resolution, not absence of consequences. Contradictory or fragile estimates qualify only the affected claims. If

the historical margin cannot be identified, independent descriptions and diagnostics remain a legitimate study contribution. If a domain lacks observations, that limitation remains explicit. A policy null is never inferred from nonactivation, operational failure or a measurement boundary.

## 15. Reproducibility, code and deviations

The execution handoff and entry-point index map every Atom and output to retained reference sources and determined numbered template targets. Experiment and visualization sources use separate NN-name-template sequences; shared code is allowed. The current reference implementation uses World-relative paths, explicit governed input/output interfaces and exact registered software references. Reusable synthetic checks and hypothetical display sources accompany it; generated test inputs and logs remain outside delivery. The Transcriber handoff records actual execution and final host-rendered inspection, without implying that empirical data have been delivered or analyzed.

Future outputs use the registered logical prereg/runtime keys, resolved by an explicit output adapter into the governed action workspace; the World remains read only and has exactly atoms/,molecules/,docs/,README.md. Activation-respecting dispatch is the default; an explicit direct-dispatch request bypasses scheduling only, never scientific prerequisites, boundaries, fixed error families or no-result predecessor rules. Current-source checks cannot be satisfied by stale seals or generated mock results. Reusable generators/tests may be delivered; generated synthetic datasets and QA logs remain internal.

Any later deviation must record date, reason, affected protocols/bindings and knowledge of data/results. A necessary operational repair that preserves the defined science is distinguished from a new scientific decision. Transcriber cannot supply a source-silent threshold, code list, inference default or target change. Such unresolved matters retain their existing documented branch rather than acquiring a convenient fallback.

## 16. Ethics, access and dissemination

This stage uses only public scientific/schema documentation and the authorized baseline. Future personal-data analysis requires the actual governed permissions and provider disclosure process; neither is established by schema access or packaging. Approval IDs, funding, conflicts and affiliations remain administratively unresolved rather than asserted absent. Public results may include only appropriately cleared aggregates and release-safe metadata, not identifiers, confidential links or suppressed directions. The explanatory manuscript will contain main text plus scientific SI in one PDF; a separate readable protocol PDF will append the complete current native scientific registrations. Both remain explicitly pre-data until governed empirical execution.

STROBE/RECORD-style clarity about setting, eligibility, linkage, code lists, measurement and missingness is useful reporting guidance for these observational records;

this statement is not a claim of certified compliance or a new startup gate. Registration, synthetic testing, compilation and source packaging do not establish causal validity or independent scientific acceptance. Editorial exemplar PDFs, old versions, review transcripts, audit/build logs and mock datasets are excluded from delivery.

### References and complete scientific appendix

Checked source locators and actual access levels are in literature.md and search-log.md. Exact operationalization is in data-contract.md; exact estimation and diagnostic rules in identification.md; output/result governance in governance.md. These sources and all29 native Atoms plus the complete Molecule are the scientific appendix source set. The compiled readable protocol includes their current protocols, activation expressions, ordered local regions, membership and interpretation as the complete native scientific appendix. This narrative and the final appendix describe the same amended science, with all empirical results pending.

## Registered protocol appendices

The preceding protocol and statistical analysis plan are the reader-facing explanation. The exact Atom protocols, local result rules, and Molecule registration below retain the executable scientific authority.

### Graph overview

Dependency edges summarize the graph, not unconditional activation. Exact logical conditions and all local outcomes follow below; the separate graph atlas shows each Atom's branches.

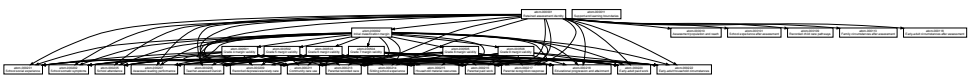


**Fig. 1** Registered Atom dependencies

# Literature and institutional basis

This concise source account retains scientifically useful baseline knowledge. Unless explicitly updated below, full-text access and page statements in the inherited summaries refer to the 5 September 2026 source record, not fresh reading by the current role. Original requests, previous drafts and review history remain internal. The current search log records actual 9 September access. No source supplies runtime availability or study outcomes.

## Positioning and competing theories

Recognition could relieve self-blame and improve access to instruction, while stigma, altered expectations or assessment assistance could change reported experience and demonstrated performance. Referral could increase recorded care without worsening health. Family advocacy, shared liability and parents' own recognition provide competing routes to changes in relatives' care and paid activity. Educational participation can coexist with lower current earnings or parental co-residence; neither establishes a welfare loss. These are hypotheses, not predicted signs. The study asks whether separately recorded dimensions support or constrain a common policy account. It cannot recover latent health, unaided literacy or mediation by comparing coefficients.

The closest Danish threshold study is Nielsen and Ibsen's 2023 chapter 4, **The Effect of Supporting Children with Dyslexia**, in Ibsen's *Essays in Economics of Education*. Original Aarhus thesis, full text, especially PDF pp.181–185: its data, sample restrictions and RD specification were read in the inherited source record. It already covers reading/math tests, grades, attendance, school wellbeing and continuation. It used additional assessment-survey and membership information; those fields are not presumed in FSV. Its clinical and future-outcome exclusions, strict score inequality and support-receipt interpretation are not adopted. School outcomes here are conceptual-replication benchmarks; exact sample/result reproduction is not claimed.

The updated **Unlocking Potential: The Impact of Dyslexia Diagnosis and Support on Educational Outcomes and Well-Being** is identified in ESPE 2026 abstract 440, PDF p.100, abstract access. It announces upper-secondary completion, age-20 NEET and wellbeing, so those are not priority claims here. The updated full manuscript was not obtained, and no author was contacted. Novelty of the symptom/service distinction and classification-related family/material outcomes remains provisional; unavailable full text and unpublished work prevent claims of being first.

Kraka Economics (2024), *Ordblinde i Danmark – Opvækst og uddannelse*, full text methods/context, PDF pp.30 and32, documents close child/family health, work and sibling comparisons. Its OLS-adjusted associations make broad dyslexia-health/family disadvantage non-novel. The proposed margin is a different estimand, conditional on evidence it can be recovered.

Kjeldsen et al. (2019), *Reading and writing difficulties and self-rated health among Danish adolescents*, full text via Europe PMC: the FOCA study is cross-sectional and measures self-reported difficulties and health. Its mediation analysis is not identification of a recognition pathway, and FOCA instruments are not added to FSV. Wilmot

et al. (2023), *Understanding Mental Health in Developmental Dyslexia: A Scoping Review*, full text via Europe PMC, supplies psychosocial mechanisms and coverage limitations. It does not certify causal identification or absence of prior classification work.

Aro, Özbek and Torppa (2024), *Predicting adult-age mental health with childhood reading and math disability: do resilience and coping styles matter?*, full text via Europe PMC: voluntary Finnish follow-up and childhood emotional/attention exclusions limit transfer. Its reading-disability findings challenge an inevitable persistent-harm narrative without supporting equivalence. Parenting Stress and Broader Phenotype in Parents of Children with ADHD, Dyslexia or Typical Development (2019) was identified in PMC metadata in the inherited 5 September source record; earlier full-text screening is background, so no newly verified result is claimed here. Wilmot et al., mothers' perspectives was a metadata lead in the baseline and was retrieved via PMC BioC on 9 September (abstract and concluding discussion read); it motivates attention to family experience without supplying a Danish treatment effect.

A new 2026 search hit, *The effect of reading problems on emotional and behavioral problems in children: the chain mediating role of parenting stress and parental anxiety/depressive symptoms*, was retrieved in full text through Europe PMC. It uses a two-wave Chinese sample and questionnaire/PROCESS mediation, not a Danish assignment margin. It strengthens the family-mechanism neighborhood but does not justify mediation claims here. UK pain research in the supplied background was not re-read beyond bibliographic discovery, so the modest somatic endpoint choice rests on the documented school items and the stated stress hypothesis rather than transferred effect sizes.

## Institutional verification

Ministry, May 2016 note on use of Ordblindetesten, full text p.1, is the inherited historical authority for launch-period thresholds. Only its rule table and period statement enter the design; published totals do not establish sample feasibility. January 2018 official guide hosted by the reading centre, browser-indexed text of opening sections, confirms individual suspected-dyslexia testing, spring testing and professional approval. Direct downloads and subsequent page retrieval returned 404; its numerical table is **not** treated as verified here. The January 2024 EMU PDF URL returned 404 in the browser and HTML rather than PDF via requests; no full-text verification is claimed from that response.

February 2026 professional guide, browser full text, especially pp.9–12, supports the composite-score interpretation, approval requirement and current seasonal norms. Its rules are not backdated. STIL warehouse documentation, full text pp.2–3, documents national introduction in February 2015, other assessment tools, approved-result retention and possible replacement of a grade-3 result. It retains categories; the FSV table additionally lists SCORE. Whether the FSV delivery follows that retention is unresolved, not inferred. The archive catalogue for Ordblindetesten was viewed as documentation discovery only; non-FSV archive tables were not inspected or added.

SPS Ordblindetesten guidance, full web text, distinguishes tests, evaluation and repeat-test exceptions. UVM OBU questions, web text, describes supplementary

assessment for some yellow scores from January 2021. These cannot prove historical receipt. November 2024 parent-screening pilot guidance, cover/calendar inspected in the inherited 5 September source record, establishes a recent planned initiative, not rollout participation, an instrument or post-pilot income follow-up. The adult-instruction literature and VEUV schema history motivate an explicit service boundary; they do not justify appending an unrelated adult study.

Official older-pupil questionnaire, June 2016, browser full text, verifies the selected item wording and answer labels. Direct download failed; browser text supplies item evidence only. FSV numeric coding and year-specific correspondence remain a validation requirement. DST SPEC2 dictionary, full text, verifies community specialties. DST health-insurance statistical processing, full text, cautions about billing corrections, chronic-care honoraria and changes in contact subdivision. No published contact totals are imported.

Local original LPR3 researcher-model guide (18 December 2023), pp.3–4, verifies contact/forløb key distinctions; the SKS table-structure PDF verifies fixed-width positions and valid dates. Selected DF32/33/40/41/43 codes were retrieved narrowly from the byte-preserved SKScomplete file with a checksum. Phenotype dates are recorded in sks-phenotype.json. These are operational definitions, not validated sensitivity/specificity estimates in assessed children.

## Methodological anchors

Calonico, Cattaneo, Farrell and Titiunik (2017), *rdrobust: Software for Regression-Discontinuity Designs*, method/software documentation, and Cattaneo, Idrobo and Titiunik (2020), practical RD guide, targeted methodological text, support local polynomial estimation and clustering/precision cautions. Their existence does not validate this score margin. The multiway influence-function implementation and inclusive-zero adapter are registered engineering requirements with synthetic validation, not a claim that an unmodified convenience call implements this protocol. The package's adaptive foundations were read, including Dwork et al. (2015), DOI 10.1126/science.aaa9375, for the warning about adaptive data reuse; no reusable-holdout procedure is claimed here.

## Current verification and remaining limits — 9 September 2026

The current role reopened the author's research listing and ESPE 2026 abstract440, physical p.100. School wellbeing and later education are prior-art territory; the complete updated manuscript remains unavailable. The publisher correction, dated22 May2026, was read with its corrected Table3; it corrects validation sensitivity/specificity and does not amend this study's historical assignment rule. PMC BioC full text of the original national-test paper was retrieved, and its score/threshold construction, discussion and limitations were read. These support a distinction between institutional classification and treatment, not a new causal claim.

The DST family-income definition was read, including its historical2014–2016 assistance-input error warning and correction in other named products. It cannot certify correction in the future FAIK delivery. Wilmot and colleagues' mothers study was

retrieved through PMC; abstract and concluding discussion were read. The Australian qualitative sample, concentration in one city, pandemic timing and co-occurring conditions limit transfer. It supports considering family experience and rival explanations, not predicting Danish parent-care effects or adding a burden scale. The scoping-review abstract was screened through OpenAlex; the earlier full-text reading remains inherited knowledge. Live discovery was bounded, not a systematic review or novelty certification.

The SKS phenotype source and software pins are retained source definitions from the baseline, not empirical records or new execution claims. D6 and I3/I5 determine their use. Transcriber must preserve valid-date code semantics and verify the exact registered numerical operator. Current schema source locators and checksums are in resource-index.json.

# Data contract: recognition, reports and recorded circumstances

This document supplies shared definitions incorporated explicitly by the member Atom protocols. It authorizes no data access. The run boundary enumerates all 531 FSV tables; all were searched on 5 September 2026. None is runtime validated. `docs/sources/resource-index.json` and `docs/sources/schema/` give exact FSV page paths, fields, documented calendars and history. `docs/sources/exact-code-documentation.json` contains narrowly retrieved Danish TIMES definitions; `docs/sources/sks-phenotype.json` contains the selected versioned SKS phenotype. These are documentation, not estimates or sample evidence. Dataset inventory observation totals are not study counts.

## D1. Frozen populations and clocks

The descriptive population is persons with a retained `UDD_ORDBLINDETEST` record dated 2015-02-01 through 2024-12-31 and age 9 through 17 inclusive on `DATO`. Age is completed years from `BEF.FOED_DAG`, not calendar-year subtraction. A retained record is not necessarily a first assessment or first lifetime diagnosis. Keep the earliest retained date per PNR. Remove byte-identical duplicate rows; conflicting scores/categories on that earliest date make exposure uncertain. Such persons remain in the exposure audit and unclassified descriptive group, but cannot enter score comparisons. Do not use later results to replace earlier ones. Records before February 2015, invalid dates/keys, or dates preceding birth are counted as anomalies and excluded from substantive cohorts, with reasons.

The provisional causal population is the subset first assessed during 2015-03-01 through 2015-06-30, aged 9–17, in ordinary public-school grades 4–9. This deliberately narrow historical window is chosen because an original ministry note documents the launch-period rule. It is not a claim that later rules differ or that 2015 is sufficiently large. No outcome-driven expansion to later cohorts is authorized. Grade 3 is described but excluded from this margin because later-test replacement is explicitly documented. Excluding grade 3 does not resolve possible earlier grade-3 assessment of a later pupil: The retention component of atom-000002 must establish that history.

Grade at test must be encoded in the delivered `UDDANNELSESNIVEAU` under an authoritative crosswalk identifying actual assessment grade, not later attainment. Independently compare with `UDD_FOLKESKOLE_FRAVAER_STIL.KLASSETRIN`, `KLASSETYPE`, `INSTITUTIONSNUMMER`, `MAANED`, `SKOLEAAR` in the immediately preceding complete calendar month. The preceding-month school record defines ordinary public-school eligibility. An unlabeled or postdated education-level variable, unresolved class-type encoding, or disagreement leaves that person's grade unresolved. Do not derive grade from age, later surveys, future grades or best agreement with the cutoff. atom-000002 establishes the common documentary mapping, not an empirical requirement that all grades exist. Grade-specific support, sorting, balance and label judgments have their own Atoms. Each endpoint uses its full prespecified grade set (4–7 for school reports/attendance/reading, 4–8 for Danish teacher grades, 4–9 for other outcomes); no failing grade within that set is dropped. An absent grade outside an endpoint set does not restrict it.

All follow-up ends by 2024-12-31 even if a table header mentions 2025 or 2026. This aligns income and migration documentation and avoids promising future complete data. A table's snapshot date is not its first event date. Read the vintage manifest before querying governed rows. The 2015 causal cohort has care follow-up through 2017, school outcomes in 2015/16 or the predetermined next test year, and potentially age-18/20 outcomes. A child aged 9 in spring 2015 cannot reach 20 by 2024; a child aged 16 can. This is arithmetic, not an observed cohort distribution.

## D2. Join and version discipline

PNR is the linkage class, not a public identifier. Assert consistent pseudonymization domains and types without attempting re-identification. `CPRTJEK/CPRTYPE` are used only under the delivered dictionary; never guess exclusion codes. Join event-to-person many:one; each date of birth must agree across all BEF snapshots. Choose the latest documented vintage available when the runtime extraction is frozen and use that vintage consistently within each register. Record checksum, vintage, dictionary URL/date and value sets before opening outcome values. "Latest" cannot mean switching after seeing results.

Collapse event outputs to one row per index child and registered endpoint before an analysis join, then assert one:one. A legitimate diagnosis expansion is one contact:many diagnoses; never count the expanded rows as people or contacts. Assert row counts before/after joins, unmatched proportions, unique-key counts and timestamp ordering. Conflicting duplicates are quarantined, never averaged arbitrarily. Unresolved duplicate semantics yield `measurement_boundary` if documented incompatible, otherwise `otherwise`; a permission, transport or software failure yields terminal `no_result` without a local scientific state.

School-month absence: key `(PNR, INSTITUTIONSNUMMER, SKOLEAAR, MAANED, KLASSETRIN, KLASSETYPE)` after identical-duplicate removal. Multiple schools within a month may be summed only if metadata establish nonoverlapping enrollment days. Otherwise that month is missing. Survey: use earliest valid `STARTTIDSPUNKT` within the registered follow-up window; require `SLUTTIDSPUNKT >= STARTTIDSPUNKT`. Two nonidentical responses at identical first timestamp make the response missing. `SKEMA`

and KLASSETRIN must match the older-pupil questionnaire. Do not select the most complete or favorable survey.

School survey history was converted to annual status datasets in June 2026; institution identifiers were repaired in March 2025. Absence source data were corrected in May 2026. UDKLASSE_ID cannot be compared across vintages without rebuilding earlier identifiers; it supplies no assessment-grade field and is not used to manufacture grade. School clustering uses the preceding-month institution. All these points are documentation warnings, not observed defects.

## D3. Observation, death and emigration

BEF establishes presence at a dated snapshot. VNDS.PNR, HAEND_DATO, INDUD_KODE supplies immigration/emigration events through 2024; the direction code must be verified in the delivered Danish dictionary. DOD.PNR, DODDATO supplies death. BEFBOP.PNR, ADRESSE_ID, BOP_VFRA, BOP_VTIL supplies dated addresses, not automatically international migration. Do not use unlabeled LIFELINES event codes. Initialize residence from the last BEF snapshot strictly before time zero; process migration chronologically, with exit/death taking precedence on a tied day. A contradictory sequence is unknown, not uninterrupted residence.

For an event endpoint, define occurrence during (t0, min(t0+730 days, first emigration, death)], counting an event on an exit day only if event ordering is documented; otherwise that day's event is unknown. This is a risk of an event **recorded before exit**, with death/emigration as competing events, not independent censoring and not lifetime illness risk. Require the administrative table to be complete through the nominal horizon. Never exclude later emigrants or decedents from this denominator. Report the competing-event proportions. A pre-existing diagnosis is not an exclusion unless the endpoint expressly asks first newly recorded diagnosis; this study's main contact endpoints include recurrent care.

For school reports, attainment, household states and annual resources, lack of observation after exit remains unknown. Do not code it as low symptoms, nonattainment, zero resources, or independence. Conceptually defined bounded responses use the missing-data bounds in I3; outcomes undefined after death instead receive the selection-limited disposition specified there. Unbounded income/hours outcomes with any unresolved postbaseline missingness have a selection_limited causal disposition; available-case values remain descriptive. Do not require a future observed outcome to enter the baseline cohort.

## D4. Survey endpoints

Use only UDD_TRIVSEL_STORE_KLASSER and the official older-pupil questionnaire, June 2016 version. The source directly identifies items 1 (liking school), 9 (loneliness), 10 (stomach ache), 11 (headache) and 33 (school belonging). It does **not** prove that FSV Q-numbers map to these items or that numeric code 1 means the first answer. The executable mapping is exact item wording plus response label, crosswalked to candidate fields Q1/Q9/Q10/Q11/Q33 and SKEMA; reject inconsistent, absent or changed wording rather than substitute another index. Preserve the official

label-to-number map and its dates in the runtime dictionary audit before any values are seen. FAKTOR/I indices and younger-pupil questions are not substitutes.

Retain four separate binary endpoints: frequent loneliness Q9; frequent stomach ache Q10; frequent headache Q11; low belonging Q33. For Q9/10/11, `Meget tit` or `Tit` = 1, `En gang imellem` (including documented orthographic spacing), `Sjældent` or `Aldrig` = 0. For Q33, `Uenig` or `Helt uenig` = 1; the other three substantive agreement labels = 0. Refusal and invalid/missing responses are missing. No scale is called clinical depression or general quality of life.

Window: the first complete school year beginning after t0, from 1 August through 31 July, subject to the 2024 cap. Include baseline grades 4–7 for this prospective school-report target, so ordinary progression remains within the older questionnaire. Do not exclude actual repeaters, leavers or absentees based on later school status; missing responses are part of ascertainment. Descriptive age/grade-unknown records are reported separately and do not enter grade-specific contrasts. Sibling belonging uses the same definition on a sibling roster fixed before the child's test.

## D5. Attendance and assessed achievement

Total absence is `100 * sum(DAGEIALTFRA)/sum(DAGEAKTIV)` and sickness absence is `100 * sum(DAGESYG)/sum(DAGEAKTIV)`, two separate endpoints over the first full post-test school year, baseline grades 4–7. These are recorded school-day proportions; sickness absence is not diagnosed disease. Require documented units and `0 <= DAGESYG <= DAGEIALTFRA <= DAGEAKTIV` for each nonoverlapping month, denominator positive, and all expected enrollment-month records. A documented zero-school-day vacation month contributes zero to both sums; an absent monthly record is not such a month. Unresolved missing months make the annual endpoint missing; descriptive observed-month summaries are explicitly a different denominator. Retain `DAGELOVFRA` and `DAGEULOVFRA` only for the arithmetic reconciliation audit, not additional endpoint tests.

Reading performance: `UDD_NATTEST_GENBEREGNEDE.PNR, FAG, FAGID, KLASSETRIN, TEST_DATOTID, THETA, GENBEREGNET, NORM, KRITERIE, SKOLEAAR`. Use the recalculated national Danish-reading measure, not original and recalculated results together. Include baseline grades 4–7; the target grade is 6 for baseline 4/5 and 8 for baseline 6/7, and the target school year is t0's school year plus the difference in grades. Require the official FAG/FAGID and norm dictionary to identify one overall reading THETA. If THETA denotes an unidentified domain or the target assessment was not scheduled, register a measurement/horizon boundary, not a new subject. Use the earliest target-grade test in that school year; absent scheduled tests are missing. Units are the delivered documented THETA scale; no post-treatment standardization. Original-test profile scores and post-2022 transition-test scores cannot substitute. Performance with accommodations is assessed achievement, not unaided decoding.

Grade-9 Danish assessment: `UDFK.PNR, SKOLEAAR, KLTRIN, GRUNDSKOLEFAG, GRUNDSKOLEKARAKTER, FAGDISCIPLIN, BEDOEMMELSESFORM, PROEVEFORM, SKALA, KARAKTERAARSAG, VERSION`. Target the school year t0's school year plus `9-baseline_grade`; for baseline grade 9 use the following year's target instead only in descriptions, never as the causal endpoint because t0 may follow assessment.

Causal grade endpoint therefore uses baseline grades 4–8. Retain `GRUNDSKOLEFAG = Dansk`, official `SKALA = 7`, numeric marks in {-3,0,2,4,7,10,12}; the exact BEDOEMMELSESFORM code must mean final teacher assessment (`standpunktskarakter`) in the year-specific dictionary. Equal-weight the distinct documented Danish disciplines with one final grade each; require all disciplines in that year's official roster. No recoding of cancelled examinations into grades. This endpoint is teacher-assessed Danish attainment, not an exam-only literacy effect. The absence of an exact form/discipline dictionary is a boundary. The spring-2015 cohort's scheduled grade years run through 2020; pandemic-specific changes must be documented and the 2020 stratum reported separately, never dropped for its result.

## D6. Health-service constructs and code versions

Specialist diagnoses: `PSYK_ADM` and `LPR_ADM` fields PNR, RECNUM, D_INDDTO, D_UDDTO, VERSION; corresponding `PSYK_DIAG/LPR_DIAG` fields RECNUM, C_DIAG, C_DIAGTYPE, VERSION. Assert each administration RECNUM maps to one PNR in a common vintage. Keep diagnosis roles whose documented labels mean action/main or secondary diagnosis; exclude referral, tentative and administrative-only roles. Link many diagnoses to one contact, then collapse to unique person/calendar admission date. Union old psychiatric/general records by person/date/normalized code/role to prevent overlap inflation. An event is an encounter with any included diagnosis, not disease onset.

Freeze ICD-10/SKS prefixes DF32 and DF33 for depressive encounters, and DF40, DF41 and DF43 for anxiety/stress-related encounters, as separate endpoints. Exclude all other prefixes, including DF81 dyslexia, ADHD, bipolar disorder and psychotic disorders. This is a focused burden construct, not all mental illness. Use exact valid-from/valid-to dates from `docs/sources/sks-phenotype.json` with dates inclusive; preserve original strings and leading D. Strip whitespace only. If a delivered field omits the SKS D, restore it only when its dictionary explicitly identifies ICD-10 without that administrative prefix. A code absent from the frozen valid-date list is not silently promoted. Parent care uses the union of these two groups, as an explicitly combined encounter endpoint on the fixed parent roster.

The causal 24-month follow-up is wholly before 2019. It uses LPR2/PSYK, so an LPR3 mapping failure cannot suppress that contrast. Descriptive later cohorts use `LPR_A_KONTAKT.PNR, DW_EK_KONTAKT, KONT_STARTTIDSPUNKT, KONT_SLUTTIDSPUNKT` joined to `LPR_A_DIAGNOSE.DW_EK_KONTAKT, DIAG_KODE, DIAG_KODE_TYPE, DIAG_KODE_TYPE_TEKST`. Require common-vintage one-contact:many-diagnosis keys and labels for the same diagnosis roles. Classify each nominal follow-up window using the documented provider handover date: legacy when the whole window precedes handover, new when it starts at/after handover, and transition otherwise. Retrieve and freeze that effective date from the delivered source manifest before reading events; a year-only header does not establish it. Report legacy, transition and new windows separately; never pool them within a cohort/category mean. For depressive_encounter, anxiety_stress_encounter and parent_care, descriptives.csv additionally contains era, and its unique key is (cohort, era, category). The frozen display combinations are 2015–2018 legacy/transition,

2019–2021 transition/new, and 2022–2024 new. Transition estimates require both era mappings and retain an explicit comparability warning. An unavailable era mapping affects its rows independently. Other endpoints use ordinary cohort/category rows. Do not assume DW_EK keys match across a model reload. The December 2023 LPR3 researcher guide supports contact-level linkage, not an empirical cross-era validation.

Community specialist services: `SSSY.PNR, HONUGE, SPEC2, SPECIALE, KONTAKT, YDLANT, VERSION`; optional BEHANDLINGSDATO only from its verified vintage. Exact documented SPEC2 values 24 (psychiatry), 26 (child psychiatry), 35 (district psychiatry), 63 (psychologist) define one public-reimbursed specialist-contact endpoint. GP contacts use SPEC2 80 and positive net KONTAKT, excluding service codes whose last four SPECIALE digits are 0130/0131/0132/0133 (chronic-care honoraria); public-reimbursed contact is not all primary care. Keep the two outcomes separate. Sum billing corrections within `(PNR,HONUGE,SPECIALE)` before classifying a positive net contact; unresolved negative totals make the cell unknown. Never count base payments as visits or treat YDLANT as KONTAKT. HONUGE is fee week, so primary timing is **billing-week**: include only whole ISO weeks strictly after the week containing t0 and wholly before t0+730/exit. Require documented ISO-year/week encoding. The incomplete edge weeks are excluded uniformly. The primary population excludes neither prior contacts nor prior diagnoses. In 2021+ descriptions, treatment-date results are an ascertainment audit, not a substituted primary clock.

## D7. Families and resources

Freeze parents from `BEF.MOR_ID/FAR_ID` in the last annual December snapshot strictly before t0, linked many children:one parent PNR. Include both recorded parent roles and resident/nonresident parents; do not interpret these as all legal carers. A conflicting or missing relation is unknown. Freeze siblings as children sharing at least one nonmissing recorded parent ID in that snapshot; exclude the index child. Do not infer siblinghood from matching missing IDs. Baseline siblings aged 9–14 and documented grades 4–7 form the school-belonging target; later births do not enter. Average each parent's binary care outcome equally within an index child's parent set, and each eligible sibling's belonging equally within the sibling set, so large families do not gain extra outcome weight. Record the number of known and unknown relatives; absent relative outcomes are not removed from the denominator. A family with no eligible sibling is outside the sibling estimand, established at baseline.

For family-effect analyses, scan assessments in chronological order and select the first eligible index in each connected component formed by baseline recorded-parent links. Same-day ties use lexicographic SHA256 of the governed pseudonym with fixed salt `recognition-2015-index-v1`; never a score or outcome. Later tests in that family remain potential responses and are not exclusions or controls. Shared liability, school spillovers and repeated later recognition remain limitations.

Family material resources: follow the index child's actual December family each outcome year using `(PNR, snapshot date) -> BEF.FAMILIE_ID -> FAIK.(FAMILIE_ID, reference year)`; assert many:one and reference alignment. Outcome is `FAMAEKVIVADISP_13`, annual equivalized disposable resources in nominal DKK, divided by 1000 for display. The primary year is `year(t0)+1`. Do

not hold post-treatment household composition fixed. Definitions include the registry's equivalization and housing components; this is neither cash consumption nor direct parental transfers. `IND.AEKVIVADISP_13` is the separate early-adult person's equivalized resource endpoint; `IND.LOENMV_13` is wage income, not disposable resources. Preserve negative incomes; never log-drop them or winsorize using observed effects. Record the code vintage and crosswalk; `_13` denotes the documented income definition, not a restriction to 2013 observations.

Parent paid hours use BFL PNR, AJO_LOENTIMER, AJO_LOENTIME_KODE, AJO_JOB_START_DATO, AJO_JOB_SLUT_DATO and the documented job identifiers AJO_SE_NR_FRA_PROD_JOB/AJO_PROD_NR_FRA_PROD_JOB in the annual slice `year(t0)+1`. Sum paid hours over unique compressed jobs; do not sum overlapping quarterly cumulative deliveries. Require a manifest identifying disjoint annual reporting units. Keep imputed and reported hours together for the registered total and report the imputed share. No record means zero employee hours only for validated full population coverage; it never means no self-employment or zero caregiving time. Compute the mean over the fixed parent set, not just employed parents.

Parent subsequent assessment is any later retained `UDD_ORDBLINDETEST.DATO` in `(child t0, child t0+730]`, averaged over the fixed parent roster. This is **retained national-test recording**, not first lifetime parental diagnosis, a pilot offer or adult-course receipt. The 2025 parental-screening pilot lies outside these causal windows. VEUV has an explicit 2026 history entry naming dyslexia instruction, but no verified historical OBU course-code/coverage contract was recovered. OBU participation/completion is therefore a registered service-measurement boundary, not an invented endpoint.

D7 clarification: parent_wages is the unweighted mean, across the fixed baseline parent roster for each index child, of IND.LOENMV_13 in the calendar year after the child test, divided by 1,000. Preserve negative registered adjustments, nominal year and missing parents; complete parent-specific annual measurement is required before a full-roster mean is defined. It is a separate family paid-income judgment from BFL paid hours and from current-household equivalized resources.

## D8. Educational transitions and early adulthood

Transition endpoint: a `KOTRE` enrollment spell in upper-secondary or higher formal education covering the 18th birthday; fields PNR, ELEV3_VFRA, ELEV3_VTIL, UDD, AUDD, AFG_ART, VERSION. Attainment endpoint: `UDDF.HFAUDD` spell valid on the 20th birthday (`HF_VFRA <= birthday < HF_VTIL`) classified at least upper-secondary completion. Confirm against same-date eligible `UDDA.HFAUDD/HF_VFRA` status when available; inconsistencies are missing. The authoritative DISCED-15/HFAUDD/UDD crosswalk must explicitly classify level 3 or above, excluding preparatory/nonqualification courses. No numeric range guessed from UDD/AUDD is authorized. This frozen semantic rule permits mechanical crosswalking, not choosing programs after inspecting outcomes. If the dated crosswalk cannot be verified, the endpoint is a measurement boundary. `AFG_ART=1` is an exit code, not automatically a passed qualification. Unknown attainment cannot be treated as primary school only.

The 18th/20th birthday must occur after t0 and by 2024-12-31; annual economic endpoints require the **whole calendar year containing the 20th birthday** to be after t0 and within 2024. Early-adult employment is positive employee hours in that annual BFL slice; earnings is annual IND.LOENMV_13/1000; resources is IND.AEKVIVADISP_13/1000. Report birth-calendar-year strata and nominal units; no lifetime earnings claim. Co-residence is shared nonmissing BEFBOP.ADRESSE_ID with either fixed baseline parent on the 20th birthday, requiring unique covering address intervals for child and parents. An unmapped parent/address makes co-residence unknown unless another known parent already establishes coresidence. It measures shared address, not dependence, preferences or welfare. Do not condition on actual graduation, employment, leaving home or intact households. Full NEET, self-employment, mature-adult outcomes, general quality of life, advocacy time, private spending and support intensity are outside the verified measurement contract; retained endpoints cover participation and resources without pretending to measure them.

## D9. Income correction and reading calibration

Before opening income values, adjudicate the specific delivery/table/variable/reference-year correction status. Each grade-margin experiment applies the D9 income audit to IND.AEKVIVADISP_13 for baseline 2014. The family descriptive experiment and the household-resource policy experiment apply it to FAIK.FAMAEKVIVADISP_13 separately for each used reference year, including primary 2016. No 2016 result relabels another year. The official DST variable pages document erroneous/missing tax-free assistance inputs in 2014–2016 and corrections in distribution/SDG products. Those products are not substituted for the allowed IND/FAIK tables.

`corrected` requires a dated provider release note or provenance manifest identifying the exact delivered variable, all relevant reference years, correction of the documented tax-free-assistance problem, and traceable delivery identifier/checksum. A recent delivery date, `_13` suffix, agreement with a published total, or an unrelated corrected product is insufficient. `known_uncorrected` requires an explicit uncorrected designation or documented ancestry from the affected version without the correction. `unresolved` applies when neither criterion is met, including contradictory provenance. No municipality is excluded and no historical correction is reconstructed from outcomes. Corrected data are used only inside the already allowed table. In the other two routes, the frozen endpoint is the *recorded equivalized-income proxy in the specified delivery*, in nominal thousand DKK; no intended-resource or welfare interpretation is licensed. The proxy remains a consequential recording judgment, subject to all ordinary measurement/missingness/RD gates. Baseline balance then tests continuity of recorded income only: it cannot clear sorting in true resources. A numerical proxy jump does not distinguish a resource change from historical recording error. Keep correction status on all outputs, in the Molecule restrictions and manuscript. If the variable itself is absent, ordinary measurement-boundary rules apply. Correction uncertainty alone is not an operational failure.

The reading policy experiment and school descriptive experiment own their applicable reading-comparability audit; a causal failure never gates the descriptive version.

Before scores are read, require official technical documentation plus the delivery dictionary to identify the same overall Danish-reading construct, latent-scale origin and unit, item calibration/linking, NORM and GENBEREGNET vintage across *every* target-grade and scheduled-year stratum in the 2015 primary target. Record a source locator for each link. A common column name or similar observed distributions does not establish comparability. If all links are documented, the single pooled primary THETA contrast is retained. If comparability is contradicted, the pooled reading primary records measurement_boundary. If it is unresolved, the primary records otherwise/common_calibration_unverified, not known incompatibility. In both cases retain grade/year/calibration-specific descriptions without combining their means. No observed-score standardization, grade-specific causal test, alternate domain, or transformation is added. The reading endpoint slot remains one of 24 regardless of scientific Atom grouping. Individual descriptive strata with unidentified constructs remain unavailable; a missing label never becomes an invented calibration.

## D10. Display strata and frozen scope metadata

All descriptive tables retain the G2 base keys plus `birth_year`, `calendar_year`, `target_grade`, `calibration_id`, `era`, `correction_status`. Use literal `all` when a key is inapplicable; never NA in a key. Decimal years and grades are strings. `calendar_year` for a school outcome is the ending year of the scheduled school year. For reading, always separate target_grade 6/8, calendar_year and documented calibration_id (a dictionary identifier frozen before values; unresolved = `unknown`). For Danish teacher grades, always separate calendar_year and target_grade 9; the 2020 row is labeled pandemic year. For all age-18/20 endpoints always separate birth_year and calendar_year (birth_year+18 or +20). For annual family resources/hours/wages always separate calendar_year=year(t0)+1; retain correction_status for resources. No descriptive pool of nominal amounts across years is authorized. Other descriptions retain cohort/category and hospital era as D6. Sort numeric keys ascending, then calibration identifier lexically, then category red/yellow/green/unknown; cohort order remains 2015–2018,2019–2021,2022–2024. Output a status row for each administratively eligible stratum, including a zero eligible-count boundary, and one all-key horizon_boundary row when a cohort cannot reach a horizon. All rows are generated by the registered computation, never aggregated by a plotting program.

The primary effects.csv remains exactly one aggregate per endpoint/horizon. It uses the I3 fixed pre-outcome baseline weights, including age-calendar eligibility as D8. It is explicitly a weighted average over those nominal calendar years, not a constant-price income or common-year effect. Required calendar/grade/calibration summaries are descriptive; no extra confirmatory stratum contrasts are created. Figures 2/4/5 and Tables 2–5 bind these strata; the main forest uses only the single primary aggregate. Each primary also emits scope.json: target_id, eligibility_rule, index_rule, sorted_required_grades, grade_weights, baseline_set_digest (salted governed digest never person IDs), nominal_horizon_rule, horizon_class, observation_cap, unit, correction_status, interpretation_ceiling, calibration_id, and metadata_status. Grade weights equal eligible counts in |x|<=6 divided by their sum, frozen before outcome reads. Require every prespecified target grade to have eligible support; an empty grade

yields a target-support boundary for this pooled estimand, not renormalization onto the surviving grades. Scope digests remain governed; public comparisons emit equality flags only. There is no data-dependent common-population refit.

D7 roster implementation clarification: the identifiable-parent estimand averages the fixed one or two *known recorded parent IDs* at baseline. At least one valid ID is required for a parent endpoint; zero known IDs is a baseline-relative horizon/population boundary. An unlinked parent role is unknown and is reported as such in the baseline scope audit, never coded as no parent or no care. It is not an additional postbaseline denominator member whose identity is invented. Every known roster member remains in the outcome denominator when that member's outcome is missing, using bounds/selection restrictions. This is explicitly a known-recorded-parent estimand, not all biological/legal carers; baseline one/two-known-parent strata are described in D7 fixed-relative audit. Parent-related interpretation is limited accordingly.

For the affected family_resources display, G2 gives the exact correction-to-interpretation mapping and the governed one-to-one export binding. Each primary and sensitivity row inherits the same scope record; unavailable metadata cannot license numerical resource narration.

D9/D10 descriptive income binding clarification: atom-000113 binds each family-income stratum to the exact FAIK.FAMAEKVIVADISP_13 delivery and reference year before displaying values. G2 defines source_table, source_variable, reference_year, delivery_id, provenance_id, scope_id, metadata_status and interpretation_ceiling. The D9 family-income audit local judgment concerns2016 only; its supplementary year records (or the identically specified atom-000113 pre-value documentation audit) supply other years. For each year, require exact provenance of the intended definition and resolution of that year's applicable documented errors before corrected/resource wording. Absence of a listed historical error is not itself a certificate of correction. An adjudicated unresolved correction permits the recorded-income proxy; an unavailable provenance binding permits no numerical statement. Conflicting metadata is rejected. Year-specific corrected, known_uncorrected, unresolved and unavailable rows may coexist, always in separate year/delivery panels; no across-year monetary pool or correction-state propagation is allowed. Complete descriptive nominal years are2016–2024; a2025 horizon from a2024 test remains unavailable under D3.

## D11. Scientific-unit scope and internal measurement independence

The fixed endpoints retain D1–D10 without an all-component prerequisite. The current Atom registrations identify which endpoint files they own. Ascertainment, calibration, provenance, relative linkage, horizon checks and robustness are internal parts of the supporting experiment. Every empirical endpoint keeps its own primary, ascertainment and robustness component verdict and status. A grouped unit's summary never substitutes its own sign for another endpoint's direction.

For household family_resources, required linkage is index-child/current-December-family to FAIK; knowing a parent ID is not necessary to define that

outcome. Use baseline recorded-parent connected components for index selection and clustering where available, with an index child without any known parent treated as its own singleton component and the incompleteness explicitly reported. Never create links from missing parent IDs. This same graph does not establish actual genetic independence of unlinked children. Parent care/hours/wages/assessment and sibling_belonging retain their D7 known-relative targets; coresidence20 retains its separate dated-parent/address requirement. A failed relative endpoint cannot erase current-household income. Family index selection uses the available baseline component graph consistently across that experiment; no later parent discovery repairs the graph.

A hospital-era audit may produce legacy_only, new_only, both, boundary or otherwise; preserve those component states in the relevant descriptive/care experiments. A new-era failure cannot gate legacy 2015 policy effects. Reading calibration concerns only reading, not teacher grades, attendance or school reports. Year-specific income provenance concerns the corresponding delivery/year and never another endpoint's data validity.

# Identification and inference

## I1. Scientific target and historical assignment

One question organizes the study: among Danish children assessed for dyslexia, how does administrative recognition relate to reported school experiences, recorded care, educational opportunities and family/material circumstances, and where can a documented classification margin identify a local policy effect?

The preferred causal target is the effect of **crossing the national-test classification rule under the prevailing policy environment**. Recorded classification, eligibility, received assistance and the underlying reading difficulty are different objects. No fuzzy-RD ratio, support-receipt IV, diagnosis-timing effect, general school-entry test, rollout DiD or biological discontinuity is registered. A label jump below one changes the interpretation to a threshold-policy effect, not an automatic treatment-on-treated effect.

The original ministry note of May 2016 explicitly describes February 2015–24 February 2016 and lists upper red thresholds: grades 3,4,5,6,7,8,9+ = 62,66,70,73,77,79,81; upper yellow thresholds = 69,73,78,81,84,86,88. For the spring-2015 candidate cohort, define `x = SCORE - c(grade)` and `Z = 1[x <= 0]`. The primary margin is red versus adjacent yellow. Inclusive assignment at zero is mandatory; never copy a strict inequality from a predecessor. A positive effect means the red side minus the yellow side. The current 2026 guide introduces seasonal norms and cannot validate intervening historical years. Restricting the causal candidate to spring 2015 is an evidence-based scope decision. Documentation of the historical threshold does not establish the score field's transformation, precision, actual approval or retention process.

Score is the national phonological composite, not percentage correct, general admission ability or severity of all dyslexia. The 2023 test-development article describes two phonological tasks and a separate vocabulary check. The

May2026 correction (DOI10.1007/s11881-026-00376-z) revises validation Table3 sensitivity/specificity calculations, not the separately sourced launch-period rule used here. Validation accuracy is not continuity or retention evidence. No subtests, vocabulary score, approval flag, previous alternative diagnoses or support intensity are supplied by the current ten-field FSV page. The predecessor had additional ministry survey and NOTA data that are not inferred here. Current support guidance requires assessment/application judgment, permits exceptions and cautions about retesting. Therefore alternative diagnoses and support on both sides are plausible.

## I2. Causal assumptions and gates

Required assumptions are continuity of potential outcomes and observation processes in the original score within grade, absence of precise sorting or score-dependent approval/retention, a well-defined initial assessment margin, and no unaccounted independently assigned policy discontinuity at the same score. Co-occurring responses generated by classification are part of the policy effect. Family/school interference limits the treatment contrast: this is the direct assignment effect under the observed allocation environment, potentially including induced family recognition, not an isolated individual biological treatment.

The retained-event experiment establishes the assessment cohort, the initial-margin experiment jointly audits historical mapping and retention, and each grade-margin experiment integrates score support, density, baseline continuity and label response. Necessary compatibility is evaluated before causal interpretation. Unknown evidence remains unknown. Descriptive and outcome-specific checks use their own dependencies. No outcome or grade stratum is removed for an unfavorable diagnostic. Operational failures have no scientific state and do not create a null.

## I3. Registered estimation operator

`DESCRIBE(endpoint)` operates separately on retained-record calendar cohorts 2015–2018, 2019–2021 and 2022–2024, and recorded red/yellow/green/unknown categories. Do not combine categories when coding is unknown. Hospital-based child and parent-care descriptions additionally stratify by the frozen recording-era combinations in D6; no cross-era average is authorized. Within each cell report eligible count, observed count, missing count, mean, SD, median and 25th/75th percentiles (binary endpoints report proportion); means of parent/sibling averages are child-weighted. No category comparison is causal and no descriptive p-values are computed. Cluster percentile intervals use 1,999 resamples of baseline family components, seed 20150905; if fewer than 30 components or the cluster identities cannot be validated, retain the computable descriptive mean/counts with interval unavailable and the exact reason, subject to disclosure. Missing clustering information does not suppress a valid level description. A census description is not accompanied by a claim that its interval represents every measurement uncertainty. Age-eligible plots may have empty later-cohort rows.

`RD(endpoint)` is fixed by the equations here; docs/code/rd_operator.py implements the numerical fixed-bandwidth core. Use R **rdrobust 4.0.0**, source release

`https://cran.r-project.org/src/contrib/rdrobust_4.0.0.tar.gz`, for bandwidth selection and a one-grade reference. Package identity/hash is recorded in docs/sources/software-reference.json. This is a reference pin, not an assertion that the custom multiway covariance is a package default.

For each required baseline grade, restrict to |x|<=6 and transform r=-x, making r>=0 the red side including exact zero. Select h,b once via `rdbwselect(y, r, c=0, p=1, q=2, deriv=0, bwselect="cerrd", kernel="tri", vce="hc0", cluster=NULL, covs=NULL, weights=NULL, masspoints="adjust", bwcheck=20, bwrestrict=TRUE, stdvars=FALSE, scaleregul=1, sharpbw=FALSE, all=FALSE)`. Set common-side h=min(selected h,6) and b=min(selected b,6), then refit once; never reselect after capping or increase either bandwidth to rescue a fit. Require finite positive h,b, at least 10 unique positive-kernel score values per side in each h and b window, rank 2 and 3 respectively and matrix condition number <=1e12. Full-window safeguards remain additional requirements. A constant outcome follows the explicit constant/degenerate rule rather than forcing the selector. Bandwidth selection ignores clustering; final inference does not. CER theory for that pilot is not claimed to deliver exact finite-cluster conditional coverage.

Let R1_i=(1,r_i), R2_i=(1,r_i,r_i^2), W_h,i=max(1-|r_i|/h,0)/h and W_b analogously. On each side use the union of positive h/b supports; rows outside get weight zero. A1=(R1'W_h R1)^(-1)R1'W_h; A2=(R2'W_b R2)^(-1)R2'W_b. Set a=e0'A1, d=e0'A1 r^2, and l=a-d e2'A2. The conventional intercept is a y, the bias-corrected intercept is l y. Compute beta2=A2 y and residual u_i=y_i-R2_i beta2 on the whole union, including points outside b but inside h. No leverage/nearest-neighbor/residual degrees-of-freedom correction is applied (HC0 residual construction). Grade contrast tau_g=l_red y_red-l_yellow y_yellow. Grade influence contribution is signed l_i u_i; pooling multiplies by w_g=N_g/sum N_g where N_g is baseline-eligible |x|<=6 count before outcome inspection, not the observed count. Preserve every required grade. Sum contributions for duplicate uses of an index child before clustering.

For the pooled scalar contribution psi_i, form U_C=sum_{i in C} psi_i for each preceding-month school, each baseline family component and each school-family intersection. Covariance V=G_S/(G_S-1)*sum U_S^2 + G_F/(G_F-1)*sum U_F^2 - G_SF/(G_SF-1)*sum U_SF^2. There is no additional (N-1)/(N-K) multiplier and no centering of cluster sums. This fully specified finite-cluster correction is a study choice. Count effective clusters from observations in the union with nonzero design l, regardless of whether their realized residual is zero. Require >=30 effective schools and >=30 effective family components overall, >=2 intersections, and all required stratum support/rank checks. Use df=min(G_S,G_F)-1, SE=sqrt(V), two-sided p=2t_df survival(|tau/SE|). A scalar V<=0, nonfinite V, singular fit, or insufficient fitted support gives a scientific unestimable disposition with no directional interval; a thrown software/access exception is terminal no_result. Do not project a negative covariance onto positive values. Partial bounds use the same operator and specified outer-limit allocation.

One-grade checks against `rdrobust(y,r,h=h,b=b,p=1,q=2,vce="hc0",cluster=NULL,kernel="tri",m` must reproduce conventional and bias-corrected contrasts and robust HC0 variance sum(psi_i^2), with absolute/relative tolerance 1e-8. Exercise h<b, h>b, h=b and a score=0 row. The package's unclustered normal reference interval is not substituted for the custom clustered t interval. Separately check the three cluster sums and factors against direct matrix arithmetic, including overlapping school/family clusters. Failed numerical identity tests prohibit release until an equivalent implementation is repaired, without changing the estimator. See G3.

Binary outcomes and absence rates have known ranges [0,1] and [0,100]. Report the observation-indicator discontinuity alongside every endpoint. If any outcome is missing, estimate two extreme functions on each side, replacing missing values with the range minimum or maximum, then form the lower contrast = red-min minus yellow-max and upper contrast = red-max minus yellow-min. Use the same operator with the common bandwidths specified below for both extremes and a union confidence interval from simultaneous one-sided endpoint limits. This bounds the all-eligible report/record contrast without a missing-at-random assumption; it does not identify a hypothetical latent health score or effects among always-survivors. Available-case RD is displayed only as selection-limited sensitivity, never the primary point effect. For unbounded THETA, resources, wages and hours, unresolved missingness precludes a full-population causal point claim; display the available-case jump under `selection_limited`. No post-treatment inverse-probability model or arbitrary income bound is introduced. Teacher grades use their known [-3,12] range.

Implementation clarification: the inclusive-zero adapter can use `r = -x`; the library's right-minus-left contrast then equals red-minus-yellow and assigns zero to red without an artificial epsilon. Transform all side labels, bandwidths and influence functions consistently. For bounded missing responses, select bandwidths once on the observation-indicator outcome and freeze them for both extreme functions; when that indicator is constant but some outcomes are missing (all unobserved), there is no outcome selector and inference is unestimable. When it is constant one (all observed), use the outcome selector. Do not invent uncertainty for a degenerate outcome. Estimate each extreme contrast with the same pooling and cluster operator. The lower limit is the one-sided lower confidence limit for red-min minus yellow-max; the upper limit is the one-sided upper limit for red-max minus yellow-min. Each uses alpha = 0.05/(2*24). Their union is the reported confidence region. This allocation remains fixed when other outcomes fail.

Bounded-response calculations require the endpoint to be conceptually defined for every member of the target population. Death before a scheduled school report or age-specific circumstance makes that endpoint undefined; it is not ordinary missingness that can be repaired by assigning the scale endpoints. Such truncation yields `selection_limited`, including for a bounded endpoint; any survivor estimate is explicitly selected. In contrast, an event before death/emigration within 730 days is a defined competing-event outcome under D3, without claiming independent censoring or an always-survivor effect.

An endpoint with a complete validated event universe may have zero events; a degenerate event outcome must not get a zero-width confidence interval from a failed

fit. Report no directional evidence and the fit limitation. A genuinely empty baseline risk set is an evidenced horizon/population boundary. A table not reachable because of permissions is `no_result`, not a data gap. At runtime distinguish confirmed field absence from an unresolved dictionary and from operational failure.

## I4. Multiplicity, precision and adaptations

The 24 causal endpoint slots are fixed at birth, one test per endpoint/horizon. They form one study-wide FWER family at 0.05; use Bonferroni 0.05/24 for two-sided directional intervals and p-adjusted=min(1,24*p). The four scientific reporting groups are school, child care, family and early adulthood; they are not separate opportunities to claim a study-wide success. Infeasible, inactive and failed slots retain their place in the denominator. Missing-data bound endpoints split each slot's error budget over the two endpoint limits. Ascertainment contrasts use a separate 24-slot diagnostic family at 0.05 and never trigger replacement of a registered primary outcome. A composite synthesis is not another primary hypothesis test.

No clinical or welfare equivalence threshold is defensible from the accessed evidence across these different constructs. Consequently **no Atom can conclude equivalence or no meaningful effect**. A precise or imprecise interval including zero is `uncertain`; provide its magnitude and width. Directional states license only a signed local contrast in the registered units. Discuss practical importance with the reported interval and measurement ceiling, never significance alone. No sample counts, detectable effects or variance are assumed. Runtime output includes the approximate 80%-power detectable contrast `(t_(1-alpha/(2*24)) + 0.84)*SE` when a valid SE exists, explicitly a conditional design-sensitivity calculation, not observed power or a pass gate.

Outcome availability and hard design diagnostics select whether an analysis can be interpreted, but never select an endpoint, preferred sign, cohort extension or alternative primary model. All eligible confirmatory slots run regardless of other endpoint results. The descriptive results are not used to choose hypotheses. The unconditional error budget is kept for all planned slots; it does not grant selective conditional-on-passing coverage. State this qualification when describing the causal branch.

Each endpoint has an internal registered robustness component inside its scientific experiment: repeat with half and 1.5 times primary h/b (upper cap 6), retaining the same grade weights, plus exclude exact-cutoff observations as a donut diagnostic. Donut estimates change the local extrapolation target and cannot rescue the primary. Display all four specifications and their intervals. Primary uses its 24-slot Bonferroni interval; each nonprimary sensitivity uses a two-sided 95% clustered t interval (bounds split 0.05 across their endpoints). These exploratory intervals have no joint coverage across specifications or endpoints; no p-value or discovery is selected from them. These are registered sensitivity analyses without new confirmatory discoveries; apply first-match precedence: any computable variant reversing a nonzero scalar primary sign, placing its point outside the primary interval, or producing bounds disjoint from primary makes `sensitive`, even if another variant fails. Retain both sensitivity and failure reasons. With no such contradiction, stable requires every variant computable

with unchanged claim ceilings; otherwise the local state is otherwise (unresolved). This priority never upgrades missing evidence to stability. Density, baseline balance and the red-label first stage are not reused as evidence of health effects.

Molecule interpretation rules compare already registered endpoint states and estimates. They may describe symptom/care divergence or education/resources divergence. They never regress a health outcome on treatment-induced education to claim mediation, nor subtract coefficients to isolate detection. No holdout is claimed: these dependent interpretations are exploratory constraints on the story, not new tests. New endpoints or historical windows require a timestamped versioned extension disclosing evidence already seen.

## I5. Grade-specific diagnostic policy and constant indicators

The six grade-margin Atoms, atom-000501 through atom-000506, integrate score support, density, baseline continuity and recorded classification separately for grades 4–9. The Molecule and Table S1 compose their component results; no aggregate state gates an endpoint. School-report/attendance/reading targets require grades 4–7, teacher grades require 4–8, and other primary targets require 4–9. Endpoint-specific fitted support is checked again using its fixed baseline-relative/age target. No grade is selected by outcomes. Grade 9 failure cannot suppress a grades-4–7 contrast. Descriptive Atoms remain independent; ascertainment evidence is produced inside each policy experiment without requiring primary or robustness success.

Density diagnostics use R rddensity **3.0**, X=r=-x, c=0,p=2,q=3,kernel="triangular",fitselect="unrestricte
Select the two bandwidths once on the full |x|<=6 sample, cap each at 6 and refit with explicit h; failed postcap local/unique checks are unresolved, never enlarged. Report hat$left$, $hat$right, hat$diff$and$sd_j$kdiff; diff is red-minus-yellow density per original score point, not a log-density ratio. Require finite difference and strictly positive finite SE. Six fixed grade slots use Bonferroni p_adjusted=min(1,6*p), diagnostic FWER .01, with 1-.01/6 two-sided normal intervals. Unavailable slots retain their allocation. No outcome or family-care fit is needed.

Baseline continuity uses four predetermined variables per grade: age in days, KOEN under its frozen binary dictionary, 2014 recorded equivalized income with D9 status, and a 365-day pretest D6 care indicator. Their missingness indicators form four further slots. The 48 slots (six grades times eight) use Bonferroni diagnostic FWER .01, p_adjusted=min(1,48*p) and 1-.01/48 two-sided t intervals. This fixed conservative allocation permits independent grade branches. No outcome-family alpha is reused. Slots that cannot be tested never shrink 48.

For each missingness indicator first distinguish: (a) documentary completeness plus arithmetic all-observed -> structural_complete, no estimate/SE/p; (b) all zeros observed without universal completeness provenance -> constant_observed, no test or inferential balance claim; (c) all ones -> unavailable_field, original-variable contrast unavailable; (d) informative 0/1 variation -> fit I3; (e) mapping/access/numerical failure -> explicit unresolved/no_result as appropriate. For an available original variable constant on the full grade sample, report constant_observed with range/count and no test; it gives no distributional sorting information. Different constants on the two sides are NOT globally constant: attempt the specified comparison, flag a deterministic

observed side difference as `arithmetic_difference` and constrain continuity without inventing a p-value. Original variables use available baseline values while their missingness slots retain the full baseline denominator. A wholly unavailable field, missing dictionary or nonconstant numerical fit failure leaves the grade balance judgment unresolved unless another valid comparison is already flagged. First match: any adjusted p<.01 or arithmetic_difference -> flagged; else all slots either valid unflagged fits, structural_complete, or global constant_observed -> not_flagged with exact noninferential limitations; else otherwise. In particular all-complete missingness does not disable the causal branch or establish equivalence. Recorded-income proxy balance never establishes continuity of intended resources.

Classification uses exact dictionary agreement as noninferential sharp_recording; otherwise each grade uses I3 with .01/6 two-sided alpha and the lower bound must exceed .10. Six grade slots retain their allocation. Unknown categories cannot be excluded to manufacture agreement. Endpoint effects remain reduced-form threshold-policy effects without a fuzzy ratio.

### I6. Unit-level versus endpoint-level evidence

Scientific grouping leaves every endpoint-level estimand and error allocation fixed. Each policy Atom first resolves its component primary regions (measurement_boundary, horizon_boundary, selection_limited, increase, decrease, uncertain or otherwise; operational failure has no scientific state), its ascertainment regions, and its I4 robustness regions. The Atom then applies its declared first-match vector partition. A unit-level directional or mixed_direction state licenses only the specifically qualified endpoints named in components.csv and their component judgments. It does not certify all endpoints or hide partial failures. A sensitive unit may contain valid evidence on another endpoint, reported under that endpoint's own restrictions.

The Molecule reads these frozen component results for the three exploratory comparisons. No endpoint sign activates another hypothesis, no new contrast is fit, and no native graph state is invented for an internal coding step. These compositions do not claim conditional coverage after design or sensitivity selection.

## Governance and complete reporting

The package is a draft closed adaptive policy registered before access to confidential records. The World has exactly atoms/, molecules/, docs/ and README.md at its root. Atom payloads own protocols, activations and local result regions. Molecule membership owns the entire roster from birth. Molecule registration owns composable interpretation. Compiled manuals, graph YAML, DOT diagrams, atlas and PDFs are reader views. The conceptual study DAG is separate from the epistemic activation graph. The paper and figure code present the same science and cannot create additional endpoints or estimators.

The current Blueprint role read the normalized brief, full substantive prompt, explicit boundary and supplied scientific baseline. Required skills, package/paper/adaptive references and the current stage evidence bundle were read without changing controller-owned files. Education, health-economics, family-demography

and labor profiles and the economics house rules informed the design. STROBE, RECORD and CODE-EHR are the health reporting floor; the time-zero and source tracing principles of STaRT-RWE/HARPER inform policy-effect reporting. This is neither a randomized trial nor an explicit target-trial emulation. No medication endpoint is analyzed, so RECORD-PE is not invoked as a claim of compliance. Reporting standards do not establish identification.

## G1. Execution states and order

Evaluate Boolean activation using three-valued logic. `NOT unknown` is unknown. Run every TRUE Atom after its evidence dependencies terminate as required. A scientific local state exists only after the registered evidence has been produced and adjudicated by the first-matching result-region rule. `done` means a local scientific state exists, including a verified boundary. `no_result` means execution failed operationally (access, software, timeout, interrupted work); it is not a statistical result and supplies no local state. At end of execution record each member as completed with local key, `not_activated` with the full condition trace, pending/unresolved, or terminal `no_result` with a reason. Unknown inputs are never changed to false to close the graph. No automatic retry outside the governed execution system is authorized.

Runtime disposition records live at `prereg/runtime/atom-NNNNNN/status.json`. Every member has a status row with atom, activation, input_state_trace, terminal, local_state, reason, registered_version and timestamp. No such result records are populated at authoring. Each completed Atom writes `judgment.json` with the matched local key, ordered criteria, evidence paths and exact claim ceiling. The runtime may append result evidence to the original Atom while leaving its preregistration payload unchanged. Do not republish an inactive/failed Atom as an insignificant experiment.

## G2. Output interfaces

Scientific source paths are relative to the World root. Runtime path strings are logical future-output keys mapped outside the World under G6. Raw/intermediate person-level files remain in the restricted runtime and are never placed in this public package. Aggregate tables must pass the actual provider's disclosure rules before export; no public numeric minimum is substituted for provider review. A suppressed value remains NA with status `suppressed`, not zero.

Every numeric output additionally contains `local_state` (scientific key or empty), `inference_status` and `status` (display/disclosure status). Scientific results are adjudicated inside the governed environment before suppression. `computation_status` is completed/unavailable/no_result; `disclosure_status` is released/suppressed/pending. A suppressed display has NA numbers even when its internal result is described/increase/etc.; public narration gives the permitted disposition without leaking suppressed signs or values. No released count is required to activate computation.

**Endpoint descriptions.** `descriptives.csv` keys are outcome,cohort,category,horizon,unit,birth_year,calendar_year,target_grade,calibration_id,era,correction_sta

all required. D10 fixes applicable strata; other keys use `all`. Columns n_eligible,n_observed,n_missing are nonnegative integers or suppressed NA; estimate,lower,upper,sd,median,q25,q75 are floats/NA. Include status,reason and computation/disclosure fields. n_observed+n_missing=n_eligible for defined endpoint denominators; n_undefined is additionally reported and separately excluded only from descriptive observed-value denominators, never baseline eligibility. Primary inference handles undefined outcomes as registered. Ordinal teacher grades and unbounded numeric endpoints include all distribution summaries. Binary risks/relative means display percent levels and percentage-point contrasts; output unit pp is a scale label, not a causal descriptive difference.

**Single primary.** `effects.csv` has one row keyed outcome,horizon,unit,specification=primary. Fields estimate,lower,upper,se,p_raw,p_adjusted,n_left,n_right,school_
All numerical fields float/NA except counts/df. Freeze left=original x<=0 RED and right=original x>0 YELLOW in all output n_left/observed_fraction_left; the computational r adapter reverses library sides. Also emit explicit n_red,n_yellow aliases and assert equality. Valid complete point rows have finite estimate,SE>0, ordered limits and both p-values. Bounds have NA estimate/se/p, valid lower/upper, inference_status=bounds, and bound_lower/bound_upper for estimated extreme contrasts. Selection-limited rows have NA main numerics; selected estimates live separately. Scientific uncertain+valid_interval has a valid zero-containing interval. Scientific uncertain+unestimable has status=unestimable and NA estimate/limits/SE/p/detectable_contrast; reason enumerates constant_outcome,rank_failure,insufficient_fit_support,nonpositive_covariance,or_no_selector.
Other failures retain exact reasons. Operational no_result has no local_state. No nonexistent p/limits are narrated. Scope/correction/calibration statuses constrain wording regardless of sign.

**Components needed for replication.** Every RD fit writes `estimator-components.csv`, key outcome,specification,component,grade,side; component=point/lower_extreme/upper_extreme/observation/available_case
or one of the eight baseline checks, side=red/yellow. Fields
h_selected,b_selected,h,b,cap,n_baseline,n_h,n_b,n_unique_h,n_unique_b,n_union,grade_weight_numerator
Counts use exact pre-outcome eligible denominators, weights sum to1 over the entire target. h/b refer to frozen source score units. The selected/capped pair is required even when h!=b. Variance-components.csv key outcome,specification,component stores school_term,family_term,intersection_term,G_school,G_family,G_intersection,variance,df,status,reason.
Restricted row-level influence vectors remain governed and are never exported. Reference source/hash and software versions enter audit.json.

**Robustness and selected cases.** `robustness.csv` keys outcome,specification,unit; specification order primary,half_bandwidth,wider_bandwidth,donut.
Add horizon,estimate,lower,upper,interval_alpha,inference_status,status,reason,local_state,scope_id,correction_
Primary alpha=.05/24, other alpha=.05; no joint multi-specification coverage. Components also carry the same specification keys. `selection-sensitivity.csv` keys outcome,horizon,specification,unit and fields estimate,lower,upper,se,n_observed,n_eligible,inference_status,status,reason,scope_id;

available-case numeric contrasts, when estimable, use exploratory95% clustered intervals and never replace primary. Selection-limited main figures keep NA values. No new scientific judgment is assigned to selected-case signs.

**Family-income display metadata.** For family_resources, the primary effects and every robustness row carry the same correction_status, interpretation_ceiling, metadata_status and scope_id copied from the frozen primary scope.json. The governed exporter checks one-to-one scope binding, equality to D9 family-income audit correction.csv for FAIK.FAMAEKVIVADISP_13/year2016, the calendar_year_after_test horizon and 1000_DKK unit before export. Public scope_id is a release-safe opaque label of at most80 characters; no baseline-set digest is exported. `metadata_status=verified` means this binding and the provenance adjudication are verified, not that correction is established. Allowed pairs: corrected/documented_resources; known_uncorrected/recorded_income_proxy; unresolved/recorded_income_proxy. Missing or inaccessible metadata uses unavailable/unavailable_metadata, metadata_status=unavailable, scope_id=unavailable and NA numeric values; the display retains the explicit status/reason. A wholly absent input is shown as no accepted output, never zero. There is no assumption that another specification repairs correction. Require equality across supplied specification rows; a mismatch rejects rendering until the same frozen scope is supplied.

Figures6/7 accept intended resource wording only for corrected/documented_resources with verified metadata. Otherwise the visible endpoint label is Recorded equivalized-income proxy, and an untruncated note states correction_status and no intended-resource or welfare interpretation. Unavailable metadata gets a neutral Family income label and no resource interpretation. Figure7 validates interval_alpha=.05/24 for primary and .05 for each sensitivity; its legend continues to distinguish adjusted primary and individual exploratory intervals. Every unavailable specification row retains that planned alpha and known metadata. For endpoints other than family_resources, interpretation_ceiling and correction fields preserve their existing registered scope (all when inapplicable); this display repair creates no new scientific test or correction assumption. Scope.json includes interpretation_ceiling under this same mapping. The restriction applies to manuscript prose and tables as well as figures.

**Ascertainment and exits.** Each endpoint's internal ascertainment component owns `ascertainment.csv`, one row for its endpoint: outcome,horizon,unit=pp,grade_scope,n_eligible,n_observed_red,n_observed_yellow,n_total_red,n_total_y
All counts use baseline denominators; proportions are fractions0–1 and contrast/limits percentage points. Undefined follow-up and death/emigration are distinct fields and may overlap (not additive categories). Death/emigration risk denominator is the full baseline eligible count for child events; parent-event endpoints sum roster denominators with equal-parent weighting and label denominator_unit=parent_weighted_index. Each primary and description also emits `exits.csv` keyed outcome,cohort,category,grade,side,horizon,event with event=death/emigration/undefined/unknown_residence, numerator,denominator,proportion,status,reason. Side=red/yellow/all; grade/cohort/category use all when pooled. Report these fractions descriptively, with

no unregistered significance test. Nominal whole-window completeness is checked separately from person exit.

**Other diagnostics.** `diagnostics.csv` is an enumerated long table keyed atom,check,grade,side,cohort,category,reference_year,component. Required nonnumeric keys use all if inapplicable. Columns value,lower,upper,se,p_raw,p_adjusted,numerator,denominator,unit,inference_status,status,reason,source_locato numerical NA never means failed null. The check dictionary is: atom-000001 date_valid_fraction/person_link_fraction/score_defined_fraction/category_defined_fraction/earliest_date_co atom-000002 mapping_documented/grade_agreement_fraction/ambiguous_grade_fraction/inclusive_boundary_ atom-000002 retention component initial_history_documented/selection_rule_known/later_replacement_possib grade-margin components component_state; atom-000010 reach component horizon_eligible/horizon_not_yet_age/horizon_calendar_ended/horizon_unknown_birth; D7 fixed-relative audit resident_parent_fraction/nonresident_parent_fraction/one_known_parent_fraction/two atom-000010 age9to11/age12to14/age15to17; atom-000011 comprehensive_support/intensity/obu_historical_codes/unaided_learning; D6 hospital-era audit old_key/old_roles/old_codes/new_key/new_roles/new_codes/era_overlap_semantics. Endpoint Atoms use eligible/observed/missing/undefined/era_check/correction_check/calibration_check; component=endpoint and specific keys D10. Fraction denominators are all assessed/eligible persons in the indicated key, except repeated_record_fraction uses persons with documented history; source flags use numerator/denominator NA and value0/1 only if evidenced. State-valued component rows use value NA and status=the component state. Preserve status for uncomputed metrics. Generic audit JSON does not substitute for these tables.

`support.csv`: key grade,side; fields n,n_unique,max_gap,max_mass_share,rounding_unit,school_clusters,fan `density.csv` and `classification.csv` columns are fixed in their Atom protocols; all required typed grade/side denominators and p-values are retained. `balance.csv`: key grade,check, where check=age/sex/income2014/prior_care or those names suffixed _missing; fields estimate,se,lower,upper,p_raw,p_adjusted,n_total,n_observed,n_missing,minimum,maximum,minimum_red,maxim Structural/constant rows have no SE/p/limits, but arithmetic extrema and denominators. Use the fixed48 error budget even for noninferential slots. `correction.csv` and `calibration.csv` are documentation tables with the exact fields in the internal D9 correction/calibration procedures and no empirical estimates. Each table is bound in the manuscript supplementary slots.

Profile uses `profile.csv`: cohort,category,count,fraction,status,reason; all12 cohort/category cells remain. Patterns use the precise pair keys and compatibility metadata in the Molecule registration, plus first_atom,second_atom,first_state,second_state,interpretation,status. Per-Atom audit.json preserves sources, transformations, dictionaries, joining assertions and timestamps. Scope.json fields are D10. Outputs live under prereg/runtime/atom-NNNNNN/; every unavailable/inactive Atom has status.json even if no scientific table exists. Plotting consumes accepted aggregates only and cannot estimate, combine strata or infer omitted values.

## G3. Audit, synthetic checks and deviations

Before the restricted analysis, create synthetic records solely to check: duplicate diagnosis joins do not multiply persons; score exactly equal to a cutoff is red; a future survey never becomes baseline; leap-day birthdays use 28 February in nonleap years; missing parents do not create sibling links; tied family tests use the fixed hash; death/emigration wins an unresolved same-day event; missing survey response is not a negative symptom; negative billing adjustments cancel like services; changing quarterly BFL slices cannot double annual hours; and an incomplete annual income horizon never yields zero resources. These fixtures test operations, not anticipated scientific effects. Compare the one-grade local estimator and influence-function SE against the pinned reference implementation, and verify Bonferroni denominators stay 24 when endpoints fail.

Validate graph acyclicity, all local keys, unknown-evidence logic, complete membership and slot/output bindings without confidential data. Syntax-check every figure program; exercise the render API with empty/status-only inputs and reject malformed uncertainty. Actual result slots remain pending. Transcriber must embed conspicuously hypothetical, reproducible presentation previews for every planned figure and table at its manuscript location. Preview values remain separate from empirical evidence and are never a runtime fallback. Compilation does not constitute scientific acceptance, empirical validation or a completed preregistration execution.

Keep deviations in `prereg/runtime/deviations.jsonl`: item, trigger, time, evidence_seen, old_rule, new_rule, rationale, inferential_status and affected_atoms. Cosmetic path/encoding repairs preserving semantics are implementation changes. Changing score, grade, cutoff, population, phenotype, endpoint, horizon, weighting or inference is scientific; it requires a separately dated scientific amendment under the applicable authority and cannot be backdated. Revisions preserve retained Atom IDs. Funding, affiliations, provider agreements and conflicts are not supplied by this design task and must be explicitly completed before publication; do not invent "none". No contact with researchers/providers, external upload, publication, commit, push or release was performed or authorized.

## G4. Scope omissions and claim ceilings

School achievement, participation, belonging, loneliness, headache and stomach ache are retained as distinct educational/experienced dimensions. Depressive and anxiety/stress encounters and community care are distinct recording processes. Family care, sibling experience, resources, paid activity and parental retained testing are separate consequential responses. Educational transition, attainment, employee participation, earnings, resources and co-residence describe early adulthood only where birth dates allow. Broader physical morbidity is not replaced by an arbitrary disease list; pain reports supply the theory-linked physical-health dimension. Adult subjective wellbeing, advocacy time, private tutoring expenditure, complete support receipt/intensity, unaided literacy, full NEET and mature-adult outcomes lack verified constructs or appropriate follow-up. The service-boundary Atom records the limitations of HANDICNOTA and VEUV rather than equating their absence with

no assistance. These omissions follow documented measurement limits and the single child-family question, not candidate ranking or favorable results.

**Descriptive family-income export and display (atom-000113; Figure4).** In addition to G2/D10 descriptive keys, require source_table=FAIK, source_variable=FAMAEKVIVADISP_13, reference_year=calendar_year, delivery_id, provenance_id, scope_id, interpretation_ceiling and metadata_status. Before export assert a many-descriptive-rows:one adjudicated provenance record join on table/variable/reference_year/delivery_id; source records contain delivery_checksum/source_locator/criterion and a unique provenance_id. Validate a one-to-one scope label per original descriptive stratum. Year2016 may bind D9 family-income audit's primary record; every other year binds its own record. Do not require a shared correction state across years or use the2016 scope as a substitute. metadata_status=verified permits exactly corrected/documented_resources or known_uncorrected/recorded_income_proxy or unresolved/recorded_income_proxy. Full labels and untruncated restriction notes are required even on suppressed rows. Public identifiers are opaque labels at most80 characters and never governed baseline digests.

Unavailable binding has correction_status=unavailable, interpretation_ceiling=unavailable_metadata, metadata_status=unavailable, delivery_id=provenance_id=scope_id=unavailable and all empirical numbers NA; source_table/source_variable and the known calendar/reference year remain. An all-key horizon-boundary row uses reference_year=calendar_year=all. Retain the actual unavailable/suppressed/no_result status and reason; never call this an adjudicated unresolved correction. Omitted columns, contradictory ceilings, mismatched reference years, conflicting same-delivery/year adjudications or values without binding must raise an interface error. Figure4 splits family-income panels by year, delivery and binding: corrected panels use documented resources; known_uncorrected/unresolved panels say Recorded equivalized-income proxy and No intended-resource or welfare interpretation; unavailable panels have neutral labels and no resource interpretation. No new means or other estimates are formed by the renderer. Different years may have different ceilings. All paper slots and captions obey this row-specific mapping.

**Symptom/care composition (Molecule registration).** Use only its ordered pair-qualified policy and two-row patterns.csv contract. A qualified loneliness decrease with either qualified care increase can resolve divergent despite an unused care boundary or operational failure; report that unused endpoint explicitly. Concordant requires all three qualified decreases. Required-primary nonactivation remains not_activated; pending or unknown evidence stays pending. Known different targets/horizons give cross_target narration of side-by-side observed directions, not a common-population, health, detection or mediation finding. Restrictions attach to the endpoint/pair they concern and cannot silently veto an otherwise qualified pair or erase an unavailable one.

## G5. Current output namespaces and authority

At a native Atom root, status.json and judgment.json concern the scientific unit. Internal endpoint files live under

`prereg/runtime/<current-Atom>/endpoints/<endpoint>/<descriptive|primary|ascertainment|robu`
All G2 numerical table names and columns remain unchanged within those namespaces. Internal judgment.json records a component verdict, not a native registered_state; it cannot be referenced by state() or scheduled as an Atom. A complete component roster is written even when some work is unavailable. `components.csv` preserves component_state, component_terminal, inference_status and reasons; operational no_result always has an empty scientific key. Unit-level top state is the ordered aggregation in its Atom registration, with every independent component still reported.

Grade support, density, balance, classification and income-provenance outputs live under the corresponding named subdirectory of that grade's Atom. Their source rules and error budgets are I5 and D9. Assessment reach and relative-composition descriptions live under atom-000010/reach and atom-000010/relatives. D6/D9 measurement audit copies local to descriptive and policy experiments are governed applications of the same frozen definition; they are not prerequisites on each other's completion. Documentary records with identical table/variable/year/delivery hashes may be reused, but a state or year cannot be propagated by analogy.

Molecule comparisons introduce no Atom and no primary slot. The authoritative comparison policy is inside molecule-000001 preregistration.storyline and its composable rules. Optional reader outputs under `prereg/runtime/molecule-000001/` are `health-patterns.csv`, `material-patterns.csv`, `family-patterns.csv` and `grade-summary.csv`; these merely arrange member evidence and retain member/endpoint/component identifiers. They do not own a competing interpretation or execution graph. Each emitted row has source_atoms, source_endpoints, source_component_paths, interpretation_status and reason; the precise comparison columns are in the Molecule.

A top-level Atom otherwise state may report scientifically unresolved component documentation when some evidence was produced. It must not disguise wholly unexecuted work. If all scientific components fail to execute, use native terminal no_result. An internal primary that cannot activate because a dated construct is demonstrably invalid has the registered boundary; a native Atom whose Boolean condition is false is not_activated. Unknown prerequisites remain pending.

Blueprint delivers the current native science, determined argument, manuscript source, filled SAP and scientific interfaces. Transcriber/host realize the main-plus-SI manuscript and separate protocol with the complete current native scientific appendix, produce explicitly hypothetical exhibits, execute synthetic engineering checks outside delivery, and inspect the final rendered PDFs. No old PDF, manual or seal is reused as evidence of current completion.

## G6. Portable output namespace and editorial authority

All literal prereg/runtime/… strings in native protocols are registered logical output keys. They are not a fifth directory in this World. An explicit execution adapter maps those keys to the governed action output root (including the host data/outputs interface where applicable), preserves the Atom/component suffix, and records that mapping; it never writes runtime data into the scientific World. Source citations

beginning docs/ are relative to the World root. Presentation and implementation cannot change a native output meaning. The amendment, Blueprint allocation and figures/tables contracts are current exposition; exact Atom and Molecule branches remain authoritative.

# Execution supplement

# Retained input contract — current science governs

Transcriber must port source integrity and path handling against the amended World before runtime. See current execution handoff. Earlier seal mechanics below describe retained reference behavior; no stale seal or current runnable claim is supplied.

# Runtime input contract

This JSON manifest is an operational file interface. The immutable Atom/Molecule protocols remain the scientific authority. It contains explicit local paths to approved deliveries and documented semantic mappings, never guessed mounts or new analysis parameters. No confidential runtime input is supplied in this bundle.

## Manifest shape

```
{
  "format": "dyslexia-runtime-inputs-v1",
  "synthetic": false,
  "scope_salt": "PROVIDER-GOVERNED-SECRET",
  "tables": {
    "BEF": {
      "vintage": "exact-frozen-delivery-vintage",
      "dictionary": "population",
      "person_domain": "one-consistent-governed-PNR-domain",
      "complete_through": "2024-12-31",
      "slices": [{
        "path": "/explicit/approved/BEF-2014-12.parquet",
        "sha256": "actual-file-sha256",
        "delivery_id": "actual-opaque-delivery-id",
        "snapshot": "2014-12-31"
      }]
    }
  },
  "dictionaries": {
    "population": {
      "path": "/explicit/approved/population-dictionary.json",
      "sha256": "actual-dictionary-file-sha256"
    }
  },
  "engines": {
    "rscript": "/explicit/path/to/Rscript",
    "source_archives": {
      "rdrobust": "/explicit/path/rdrobust_4.0.0.tar.gz",
      "rddensity": "/explicit/path/rddensity_3.0.tar.gz"
    }
  },
  "evidence": {
```

```
    "atom-000001": {
      "path": "/explicit/action/atom-000001",
      "sha256": "actual-evidence-json-sha256"
    }
  }
}
```

The example's strings are placeholders. Nothing is automatically accepted as verified. Relative paths resolve against this manifest, not the World. Tables are CSV or parquet; CSV values are read as lossless strings with empty cells missing. PNR must be strings throughout; identifier domains must agree. Missing identifier values are not matched to each other. Dated values use ISO strings; numeric variables retain their source units until the prescribed display conversion. Unparseable individual values remain missing/anomalous according to the relevant constructor.

Each table has one frozen vintage and a source dictionary name. Its slices explicitly identify delivery_id and, where applicable, snapshot (BEF/UDDA), reference_year (IND/FAIK/BFL), and reporting_unit (BFL). Mechanical _snapshot/_reference_year/_reporting_unit/_delivery_id annotations are added by the loader; input files may not invent underscore fields. A table header is not evidence of event completeness. complete_through is an attestation that the nominal register horizon is delivered and complete; event tables, diagnosis tables, migration/death, annual and state endpoints are checked. full_population has endpoint-specific use only: no BFL record can mean zero employee hours, and no qualifying education spell can mean zero only under validated full-population coverage.

An absent tables entry means the required runtime input is unavailable, not scientific zero. Documented absence can be represented with state=absent and source_locator, or absent_fields plus source_locator. That yields a measurement boundary. An inaccessible file is operational failure. Contradictory hashes, identifier types, repeated key mappings or vintage bindings are rejected rather than silently corrected.

An empty `slices: []` list supplies no extract and is operational `no_result`, even with `complete_through` or `full_population` metadata. A genuinely delivered, checksum-bound zero-row file with the required headers and validated coverage can establish no recorded events/hours under the relevant endpoint rules. Annual BFL coverage additionally needs a supplied slice for the actual target reference year; a different year's file cannot establish zero hours. Delivery/definition checks occur before horizon checks: an explicitly source-absent survey, reading, teacher, billing, employment, income, education or address table keeps its measurement boundary; a delivered table with insufficient nominal follow-up keeps its horizon boundary. This does not redefine `complete_through` or turn metadata into runtime access.

## Documentary mapping files

Every dictionary file begins with:

```
{"state":"verified","source_locator":"exact official URL/file/page/date and
↪  delivery documentation"}
```

Use state=unresolved or incompatible when that is the evidence. A verified assertion is the runtime provider's source-backed input, not an author-certified Danish dictionary. An omitted required mapping emits STOP_UNRESOLVED_SOURCE at its D/I locator. Do not copy the synthetic dictionaries into an empirical manifest: every synthetic locator and code is explicitly fake.

The following fields are the implemented source interface. Numeric code mappings must use source strings as JSON keys. Official labels/validity dates belong in the supplied documents.

| Dictionary | Required semantic content |
|---|---|
| assessment | national_test=true, date_semantics=assessment_date. score_scale=original_composite, category_field=TESTRESULTAT or TESTRESULTATNIVEAU, categories mapping to red/yellow/green/unknown, grade_codes mapping to actual test grade. For historical margin: inclusive_cutoff_verified, historical_rule_source; for support: rounding_unit in original score units; deterministic_categories only with documentary authority. Cutoffs and time windows cannot be overridden. |
| population | Dated BEF snapshot identity, birth-field semantics, parent-role dictionary and vintage provenance. No guessed CPRTJEK/CPRTYPE exclusions are applied. |
| school | grade_codes, ordinary_class_types, school_years mapping a source school-year code to its starting calendar year, month_codes mapping source month codes to month1–12. The immediately preceding complete calendar month defines school/grade comparison; later records cannot repair it. |

| Dictionary | Required semantic content |
|---|---|
| retention | initial_history_documented, selection_rule_known, later_replacement_possible; earlier_grade3_resolved and either complete_initial_histories_first_attempts_auditable_approval or earliest_approved_preclassification_no_score_replacement for the compatible route. outcome_or_score_selected_initial_unrecoverable identifies the registered selected route. These are documentary claims, not inferred from one row per person. |
| migration | directions mapping INDUD_KODE to immigration/emigration. Optional same_day_event_order=event_before_exit or exit_before_event requires explicit source ordering; omitted tied-day events are unknown. |
| survey | questionnaire_version exactly June 2016 older-pupil questionnaire; skema_codes, grade_codes; items keyed Q9/Q10/Q11/Q33, each with source_item_number, source_wording, field_wording, responses mapping delivered codes to exact Danish labels, and Q33 other_substantive_agreement_labels (exactly three). Matching labels/wording require official source verification. |
| absence | units=days, expected_months mapping school-year start to a list of YYYY-MM enrollment months, multiple_school_days_nonoverlapping. Missing vacation-month rows are not zero. |

| Dictionary | Required semantic content |
|---|---|
| reading | strata keyed targetGrade/endingYear. Each supplies construct_verified, scheduled, calibration_id, FAG,FAGID,GENBEREGNET,NORM,SKOLEAAR, source_locator. Common primary scale also requires origin_unit_verified and link_verified for all 6/2016,6/2017,8/2016,8/2017 strata; common_calibration_incompatible is an explicit contrary-documentation flag. Missing common links do not erase separately identified descriptive strata. |
| teacher | years keyed scheduled ending year. Each supplies school_year_code, final_teacher_code, disciplines, danish_code, scale_code (7). This must identify final Danish teacher assessments, not examinations. All discipline rows must exist uniquely. |
| hospital_legacy / hospital_new | contact_keys_verified=true, roles mapping source role codes to action/main/secondary or explicit excluded labels, code_system=SKS_with_D or ICD10_without_D. The immutable SKS code/date list supplies phenotype validity; no new diagnoses or classification version can enter here. |
| hospital_handover | effective_date from the provider manifest. Later descriptions split legacy/transition/new windows. The date is never guessed from a year header. |

| Dictionary | Required semantic content |
|---|---|
| billing | iso_week_encoding=YYYYWW, verified against HONUGE. SPEC2 endpoint definitions and chronic-honorarium exclusions are frozen in code from D6. Optional treatment_date_verified=true must cite the BEHANDLINGSDATO vintage; the audit requires a unique valid treatment date per net fee cell. Unresolved multi-date correction allocation stops only that audit. Treatment-date fields are not substituted for billing-week timing. |
| employment | disjoint_annual_reporting_units=true, full_population, imputed_codes, reported_codes. BFL slices must identify annual reporting units; identical compressed-job spans in different units are unresolved overlapping delivery evidence. |
| income_provenance | records described below, before income values are read. |
| education | classification=DISCED-15, enrollment_end_inclusive verified from KOTRE; UDD and HFAUDD maps from source codes to dated entries with valid_from, valid_to, level, qualifying, completed. No numeric code ranges are inferred. UDDF end is exclusively fixed by D8. |
| addresses | end_inclusive documenting BOP_VTIL semantics. Each person must have one nonmissing covering address. |
| sex | codes mapping KOEN to the frozen binary baseline variable. |
| baseline_completeness | variables age,sex,income2014,prior_care: true only for documentary universal completeness, not observed all-zero missingness. |

| Dictionary | Required semantic content |
|---|---|
| endpoint_completeness | endpoints mapping endpoint keys to true only with documentary universal completeness; absent flags give constant_observed, not inferred completeness. |
| support | Optional comprehensive_construct_documented with source_locator may support the documentation-only additional_documentation verdict. It creates no treatment-effect estimator or support endpoint. |

A table's dictionary may be a dedicated verified table-identity document; the named semantic dictionaries above are also consulted where required. Dates/labels must be frozen before outcome inspection. Where a source cannot establish a choice, do not supply a convenient replacement; preserve the returned source boundary.

## Exact income binding

income_provenance.records contains separate entries for each used table/variable/reference_year/delivery_id: - table, variable, reference_year, delivery_id and delivery_checksum matching an actual slice SHA256; - unique provenance_id, dated source_locator and criterion; - explicit_corrected, applicable_issues_resolved, intended_definition_verified, explicit_uncorrected documentary booleans.

Corrected requires the first three corrected conditions and no explicit uncorrected designation. Explicit uncorrected without corrected evidence gives known_uncorrected. Neither, or contradictory evidence, gives unresolved. The last two routes permit only the recorded-income proxy with its restriction. An unavailable exact binding gives no numerical income claim. Year2014 IND balance, year2016 FAIK primary and every descriptive/age20 reference year are adjudicated separately. The parser never regards a recent vintage or absence of a listed issue as a correction certificate.

Preserve source-table names, income definition and all negative values. The equivalized-resource input is divided by1,000 only for display. Wage income is LOENMV_13, independently of the correction audit for equivalized disposable resources.

## Evidence and privacy

Evidence entries bind an accepted output directory by its evidence.json hash. The seal covers every supplied result file and frozen registration/material/input identities. Native mutable result bodies/current interpretations are not preregistration identity.

Changing a protocol, membership, source material, input checksum or dictionary checksum invalidates the binding. Copying unchanged inputs/World/code to another machine does not. Paths, engine locations and evidence locations never enter scientific identity. A verified input identity refers to the supplied delivery contract, not to permission to access it.

The seal also binds `execution_identity`, anchored by a current execution-identity artifact that Transcriber must generate in classified engineering documentation after final source changes; the old baseline anchor is deliberately not delivered. Execution sources and the registration authority must match that anchor before analysis; native top-level Atom/Molecule IDs must match their file/roster identities. Mutable result-body or current-interpretation updates leave faithful evidence valid. A wrong native ID, changed protocol, changed scientific source, corrupt result file or different input binding does not. The anchor is an authoring/review artifact, never a runtime manifest option for accepting arbitrary source bytes.

Outputs are governed aggregates with disclosure pending. Scope baseline_set_digest is a salted governed comparison token; it is not a public identifier. No raw rows, IDs, individual residuals or influence vectors enter public JSON. R temporary input CSVs stay inside the supplied governed action directory and are removed after the call. Never point output at a public location for a confidential run. This author bundle exports no empirical result.

The synthetic generator documents one complete executable example of all interface fields, using explicit fake source locators and fabricated identifiers. It is a test fixture, not Danish schema evidence or a resolution of any genuine source gap.

Spell endpoints for education, addresses and compressed jobs accept literal ISO civil dates beyond pandas' nanosecond array range (for example9999-12-31) without guessing that a special code means infinity. Source-coded sentinels such as99999999 remain invalid until the provider supplies a documented normalization. Supply timezone-naive ISO values in the registered source calendar; the executor does not invent a timezone conversion. Invalid spell timing remains unknown, not a no-enrollment/zero-hours/independent-household record. Invalid hospital/parent-assessment timing cannot establish a negative event; an independently known positive event remains positive.

## Reference execution

The 29 numbered experiment templates are callable wrappers over the complete shared Python/R implementation. The entry-point index maps every Atom, endpoint and output. INPUTS.md specifies the explicit governed manifest, dictionaries, versions, observation universes, source hashes and predecessor evidence. Native registrations and shared D1–D11/I1–I6/G2 govern the science. No study records or observed outcomes were used to prepare these sources.

### Dispatch and outputs

From a shell, substitute explicit authorized paths:

```
python -B WORLD/docs/execution/09-school-social-experience-template.py \
  --world WORLD --inputs GOVERNED/input-manifest.json \
  --output GOVERNED/action-201 --dispatch-policy activation_respecting
```

The equivalent shared call adds `--atom atom-000201` to `run.py`. Default `activation_respecting` evaluates the native expressions; unknown evidence stays pending and false activation stays inactive. Explicit `--dispatch-policy direct` bypasses outer scheduling only. It preserves scientific eligibility and records local prerequisite construction separately from predecessor evidence. Explicit failed predecessors are not silently retried. This is not permission to access data.

Output directories must be outside the World. Logical `prereg/runtime/atom-ID/component/...` keys are mapped to an explicit action directory, retaining component suffixes. The reusable fixtures demonstrate the full manifest; they are never production defaults. Root judgment/status and component outputs preserve endpoint-specific terminal, local state, inference, reason and scope. A root summary cannot overwrite a surviving endpoint's qualified result. Operational failure has no statistical null state. Suppression cannot disclose signs through prose.

`compose.py --world WORLD --inputs GOVERNED/composition-inputs.json --output GOVERNED/composition` evaluates the exact HEALTH/FAMILY/MATERIAL algorithms using typed component and scope records. It performs no refit. `figures.py` supplies a runtime smoke interface; numbered visualization sources consume released G2 aggregates without estimation. Their separate contracts are in figures.yaml and tables.yaml.

## Source and numerical requirements

`cohort.py`, `outcomes.py` and `diagnostics.py` implement sample/endpoint construction and independent diagnostics. `analysis.py`, `inference.py`, `engines.py` and `engines.R` implement the fixed registered estimators and error families. rd_operator.py implements the inclusive-zero bias-corrected operator and registered multiway covariance. decision_rules.py defines local partitions. `reporting.py` and `export.py` maintain typed output semantics.

The registered references are **rdrobust 4.0.0** and **rddensity 3.0** with source hashes in software-reference.json. The reference engine may load verified exact source archives into an isolated R workspace when the installed versions differ. It does not substitute the installed rdrobust 3.0.0 or a generic covariance for the registered operator. `authority.json` and execution identity bind the current native sources and code; these are integrity metadata, not independent approval.

## Reusable synthetic verification

```
python -B WORLD/docs/execution/run_tests.py --world WORLD \
  --output OUTSIDE_WORLD/tests \
  --rdrobust-source OUTSIDE_WORLD/rdrobust_4.0.0.tar.gz \
  --rddensity-source OUTSIDE_WORLD/rddensity_3.0.tar.gz
```

`synthetic.py`, `run_tests.py` and `semantic_checks.py` are reusable sources. Generated records, test products and logs stay outside delivery. The suite exercises all

29 dispatch mappings, all 24 endpoint paths, numerical R references, missingness and roster arithmetic, exact-year income ceilings, independent reading/care scope, partial evidence, fixed error families and the three comparison algorithms. The handoff distinguishes completed checks from limitations. Synthetic success does not establish actual data availability, identifying variation or causal validity.

## Entry-point and source allocation

Current shared experiment entry: run.py, called once for an explicit Atom ID with the governed inputs/outputs described in README. Scientific inputs and exact outputs are the native protocol, D1–D11/I1–I6/G2 and INPUTS; this index creates no scientific units. Every numbered experiment source below exists and routes to its registered Atom. The shared dispatcher implements all component outputs; numbering creates no additional scientific units.

### Experiment source sequence

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 01 | atom-000001 | Can dated retained national dyslexia assessments be distinguished from invalid or ambiguous records? | 01-retained-assessment-identity-template.py | Native root/component diagnostics and judgments |
| 02 | atom-000002 | Does the historical rule define a recoverable initial-assessment policy margin in the delivered national-test records? | 02-initial-classification-margin-template.py | Native root/component diagnostics and judgments |

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 03 | atom-000010 | Who appears in retained childhood assessments, which relatives are represented, and which life-course horizons can those cohorts reach? | 03-assessment-population-and-reach-template.py | Native root/component diagnostics and judgments |
| 04 | atom-000011 | Can this boundary identify support received, adult dyslexia instruction or unaided learning? | 04-support-and-learning-boundaries-template.py | Native root/component diagnostics and judgments |
| 05 | atom-000101 | What recorded school experience after assessment can be described, and which dimensions remain unobserved? | 05-school-experience-after-assessment-template.py | loneliness; stomach_ache; headache; low_belonging; total_absence; sickness_absence; reading_theta; danish_grade |
| 06 | atom-000109 | What recorded child care pathways can be described, and which dimensions remain unobserved? | 06-recorded-child-care-pathways-template.py | depressive_encounter; anxiety_stress_encounter; community_specialist; gp_contact |

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 07 | atom-000113 | What recorded family circumstances after assessment can be described, and which dimensions remain unobserved? | 07-family-circumstances-after-assessment-template.py | parent_care; sibling_belonging; family_resources; parent_hours; parent_assessment; parent_wages |
| 08 | atom-000118 | What recorded early-adult circumstances after assessment can be described, and which dimensions remain unobserved? | 08-early-adult-circumstances-after-assessment-template.py | education18; attainment20; employee20; wages20; resources20; coresidence20 |
| 09 | atom-000201 | Does marginal classification change school social experience? | 09-school-social-experience-template.py | loneliness; low_belonging |
| 10 | atom-000202 | Does marginal classification change school somatic symptoms? | 10-school-somatic-symptoms-template.py | stomach_ache; headache |
| 11 | atom-000205 | Does marginal classification change school attendance? | 11-school-attendance-template.py | total_absence; sickness_absence |

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 12 | atom-000207 | Does marginal classification change assessed reading performance? | 12-assessed-reading-performance-template.py | reading_theta |
| 13 | atom-000208 | Does marginal classification change teacher-assessed danish? | 13-teacher-assessed-danish-template.py | danish_grade |
| 14 | atom-000209 | Does marginal classification change recorded depressive/anxiety care? | 14-recorded-depressive-anxiety-care-template.py | depressive_encounter; anxiety_stress_encounter |
| 15 | atom-000211 | Does marginal classification change community care use? | 15-community-care-use-template.py | community_specialist; gp_contact |
| 16 | atom-000213 | Does marginal classification change parental recorded care? | 16-parental-recorded-care-template.py | parent_care |
| 17 | atom-000214 | Does marginal classification change sibling school experience? | 17-sibling-school-experience-template.py | sibling_belonging |
| 18 | atom-000215 | Does marginal classification change household material resources? | 18-household-material-resources-template.py | family_resources |

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 19 | atom-000216 | Does marginal classification change parental paid work? | 19-parental-paid-work-template.py | parent_hours; parent_wages |
| 20 | atom-000217 | Does marginal classification change parental recognition response? | 20-parental-recognition-response-template.py | parent_assessment |
| 21 | atom-000218 | Does marginal classification change educational progression and attainment? | 21-educational-progression-and-attainment-template.py | education18; attainment20 |
| 22 | atom-000220 | Does marginal classification change early-adult paid work? | 22-early-adult-paid-work-template.py | employee20; wages20 |
| 23 | atom-000222 | Does marginal classification change early-adult household circumstances? | 23-early-adult-household-circumstances-template.py | resources20; coresidence20 |
| 24 | atom-000501 | Can the grade-4 score margin support a credible local classification-policy contrast? | 24-grade-4-margin-validity-template.py | Native root/component diagnostics and judgments |

| NN | Atom | Scientific purpose | Template target | Endpoint/output mapping |
|---|---|---|---|---|
| 25 | atom-000502 | Can the grade-5 score margin support a credible local classification-policy contrast? | 25-grade-5-margin-validity-template.py | Native root/component diagnostics and judgments |
| 26 | atom-000503 | Can the grade-6 score margin support a credible local classification-policy contrast? | 26-grade-6-margin-validity-template.py | Native root/component diagnostics and judgments |
| 27 | atom-000504 | Can the grade-7 score margin support a credible local classification-policy contrast? | 27-grade-7-margin-validity-template.py | Native root/component diagnostics and judgments |
| 28 | atom-000505 | Can the grade-8 score margin support a credible local classification-policy contrast? | 28-grade-8-margin-validity-template.py | Native root/component diagnostics and judgments |
| 29 | atom-000506 | Can the grade-9 score margin support a credible local classification-policy contrast? | 29-grade-9-margin-validity-template.py | Native root/component diagnostics and judgments |

## Visualization source sequence

Visualization numbering is independent of experiment numbering. The current figure input definitions are figures.yaml; complete table contracts are tables.yaml. Every source must support explicitly hypothetical preview inputs separately from governed runtime aggregate inputs, with no fallback between modes.

| NN | Display | Current source | Template target / determined role |
|---|---|---|---|
| 01 | Figure 1 | figure1.py | 01-figure-1-template.py; profile and long reach diagnostics |
| 02 | Figure 2 | figure2.py | 02-figure-2-template.py; descriptive summaries and quartiles where continuous |
| 03 | Figure 3 | figure3.py | 03-figure-3-template.py; descriptive summaries and quartiles where continuous |
| 04 | Figure 4 | figure4.py | 04-figure-4-template.py; descriptive summaries and quartiles where continuous |
| 05 | Figure 5 | figure5.py | 05-figure-5-template.py; descriptive summaries and quartiles where continuous |
| 06 | Figure 6 | figure6.py | 06-figure-6-template.py; all 24 policy contrasts |
| 07 | Figure 7 | figure7.py | 07-figure-7-template.py; four fixed specifications |

| NN | Display | Current source | Template target / determined role |
|---|---|---|---|
| 08 | Figure 8 | Registered assignment and clock constants | 08-figure-8-template.py; registered assignment and clocks; no estimator |

Tables 1–6 and S1–S2 use 09-tables-template.py. Its `table_sources()` and display index bind every table to typed aggregates. Source numbering is separate from experiment numbering. compose.py implements the Molecule comparisons without regression.

## Complete registered Molecule

```
id: molecule-000001
molecule_mode: prereg
molecule_shape: boundary_map
topic: Dyslexia recognition consequences
rating: B-
draft: false
membership:
- atom: atom-000001
  role: supplementary
  description: Can dated retained national dyslexia assessments be
  ↪  distinguished
    from invalid or ambiguous records?
- atom: atom-000002
  role: supplementary
  description: Does the historical rule define a recoverable
  ↪  initial-assessment
    policy margin in the delivered national-test records?
- atom: atom-000010
  role: secondary
  description: Who appears in retained childhood assessments, which relatives
    are represented, and which life-course horizons can those cohorts reach?
- atom: atom-000011
  role: supplementary
  description: Can this boundary identify support received, adult dyslexia
    instruction or unaided learning?
- atom: atom-000101
  role: secondary
  description: What recorded school experience after assessment can be
  ↪  described,
    and which dimensions remain unobserved?
- atom: atom-000109
  role: secondary
  description: What recorded recorded child care pathways can be described,
    and which dimensions remain unobserved?
- atom: atom-000113
  role: secondary
  description: What recorded family circumstances after assessment can be
    described, and which dimensions remain unobserved?
```

```
- atom: atom-000118
  role: secondary
  description: What recorded early-adult circumstances after assessment can
    be described, and which dimensions remain unobserved?
- atom: atom-000201
  role: primary
  description: Does marginal classification change school social experience?
- atom: atom-000202
  role: primary
  description: Does marginal classification change school somatic symptoms?
- atom: atom-000205
  role: primary
  description: Does marginal classification change school attendance?
- atom: atom-000207
  role: primary
  description: Does marginal classification change assessed reading
  ↪  performance?
- atom: atom-000208
  role: primary
  description: Does marginal classification change teacher-assessed danish?
- atom: atom-000209
  role: primary
  description: Does marginal classification change recorded depressive/anxiety
    care?
- atom: atom-000211
  role: primary
  description: Does marginal classification change community care use?
- atom: atom-000213
  role: primary
  description: Does marginal classification change parental recorded care?
- atom: atom-000214
  role: primary
  description: Does marginal classification change sibling school experience?
- atom: atom-000215
  role: primary
  description: Does marginal classification change household material
  ↪  resources?
- atom: atom-000216
  role: primary
  description: Does marginal classification change parental paid work?
- atom: atom-000217
  role: primary
  description: Does marginal classification change parental recognition
  ↪  response?
- atom: atom-000218
  role: primary
  description: Does marginal classification change educational progression
    and attainment?
- atom: atom-000220
  role: primary
  description: Does marginal classification change early-adult paid work?
- atom: atom-000222
  role: primary
  description: Does marginal classification change early-adult household
  ↪  circumstances?
- atom: atom-000501
  role: supplementary
  description: Can the grade-4 score margin support a credible local
  ↪  classification-policy
    contrast?
```

```
- atom: atom-000502
  role: supplementary
  description: Can the grade-5 score margin support a credible local
  ↪  classification-policy
    contrast?
- atom: atom-000503
  role: supplementary
  description: Can the grade-6 score margin support a credible local
  ↪  classification-policy
    contrast?
- atom: atom-000504
  role: supplementary
  description: Can the grade-7 score margin support a credible local
  ↪  classification-policy
    contrast?
- atom: atom-000505
  role: supplementary
  description: Can the grade-8 score margin support a credible local
  ↪  classification-policy
    contrast?
- atom: atom-000506
  role: supplementary
  description: Can the grade-9 score margin support a credible local
  ↪  classification-policy
    contrast?
literature: []
frontier:
  rule: Among children assessed for dyslexia in Denmark, how does marginal
    administrative recognition affect school experience, recorded care, family
    responses and age-eligible life-course circumstances, and which parts
    remain descriptive or unmeasurable?
  avoid: No inherent-dyslexia effect, support-dose IV, universal screening
    effect, mature-child adulthood extrapolation, mediation decomposition
    or manufactured null.
  directions: []
preregistration:
  mode: adaptive
  question: Among children assessed for dyslexia in Denmark, how does marginal
    administrative recognition affect school experience, recorded care, family
    responses and age-eligible life-course circumstances, and which parts
    remain descriptive or unmeasurable?
  scope: Retained child assessments ages 9-17 during 2015-2024; provisional
    spring-2015 initial grade-specific margin, fixed baseline relatives and
    outcome-specific follow-up capped at 2024. Closed pre-data adaptive graph.
  storyline: |
```

```
The child-family question is whether formal dyslexia recognition at the
↪ historical assessment margin changes separately recorded school
↪ experience, service contact, family responses and early-adult
↪ circumstances. Recognition can alter understanding, opportunities,
↪ reporting and referral together. The evidence must therefore
↪ distinguish a change in classification from a particular treatment,
↪ and recorded care from latent health. Begin with who is retained in
↪ national assessments and which relatives and follow-up horizons are
↪ represented; these independent descriptions are valuable even when
↪ the causal margin cannot be recovered. Establish historical initial-a
↪ ssessment provenance and each endpoint's complete required grade set
↪ before interpreting local contrasts. Then ask successively how school
↪ experience and assessed performance compare, whether recorded care
↪ adds a different perspective, how responses extend to parents and sib
↪ lings, and what education and material circumstances can be described
↪ at the separately registered adult horizons. These are related reader
↪ questions, not a mediation chain or a shared longitudinal target.

Main text carries this puzzle, essential design, the complete substantive
↪ domain sequence and conclusion-changing limitations. Scientific SI
↪ supplies full measurement, grade validity, descriptive distributions,
↪ ascertainment and sensitivity evidence. The protocol and this
↪ registration retain every activation and interpretation branch,
↪ including qualified partial evidence. Engineering interfaces belong
↪ in docs/execution/. The paragraph/display allocation in
↪ docs/story/blueprint.md implements this storyline; it cannot change
↪ the algorithms below. All 29 existing members and 24 primary
↪ endpoint/horizon contrasts survive; no new estimator, subgroup,
↪ composite outcome, common-population refit or alpha allocation is
↪ introduced. Figure 8 explains existing clocks and assignment
↪ constants; the added reach and quartile displays consume already
↪ registered summaries. See docs/provenance/pre-data-amendment.md for
↪ the dated amendment and knowledge limits.

All interpretation composes restrictions first, then compatible primary
↪ and supplementary claims; residual narration enumerates missing scope
↪ without overriding surviving evidence. Source component judgments,
↪ not a unit's coarse summary label, establish each endpoint direction.
↪ Evidence reuse below is exploratory interpretation of already
↪ registered outputs, with no model, new target, difference of
↪ coefficients, hypothesis test, holdout or additional alpha.
↪ Suppressed signs and values cannot be published through narrative.

Grade summary: read support/support.csv, density/density.csv, balance/bal
↪ ance.csv and classification/classification.csv from all six
↪ grade-margin units, plus their component/root statuses. Preserve six
↪ grade rows and the eight balance slots per grade. A missing or failed
↪ grade stays visible; never require all six grades to permit a grades-
↪ 4-7 outcome. No second all-grade pass gate exists. grade-summary.csv
↪ may contain grade, component, component_state, component_terminal,
↪ inference_status, reason and source_path only; it performs no refit.
```

```
HEALTH COMPARISON. Inputs are loneliness from atom-000201 and
↪ depressive_encounter/anxiety_stress_encounter from atom-000209, each
↪ at its endpoints/<key>/primary, ascertainment and robustness paths.
↪ Read one effects row, one primary component judgment/status, one
↪ scope record and one robustness judgment/status per endpoint; assert
↪ one-to-one exact endpoint/horizon joins. Required primary
↪ nonactivation means interpretation_status=not_activated with its
↪ trace, never no_result or a scientific null. Unknown required primary
↪ or required robustness stays pending. A completed primary in
↪ increase/decrease/uncertain/selection_limited requires its internal
↪ robustness to finish or terminate no_result; unexpected robustness
↪ not_activated is a scheduler-contract error and remains pending.
↪ Boundary/otherwise or primary no_result needs no robustness; such
↪ expected inactivity permits a partial comparison. These are
↪ reader-composition statuses, not new native local states.

Qualify each endpoint separately: primary increase/decrease, valid
↪ simultaneous point or bounds interval agreeing with its direction,
↪ and its OWN robustness=stable. Point intervals require a finite point
↪ within ordered limits; bounds can omit the point. Primary
↪ selection_limited, uncertain (whether a zero-containing interval or
↪ unestimable), boundary, otherwise or operational no_result cannot
↪ contribute a direction. Sensitive, unresolved or failed robustness
↪ restricts only its own endpoint. Malformed contradictory supplied
↪ values raise an input-contract error; they never become a scientific
↪ boundary. Apply this to governed values before public suppression.

For each loneliness/care pair compare complete verified D10 scope fields:
↪ target_id, eligibility_rule, index_rule, baseline_set_digest,
↪ sorted_required_grades, exact pre-outcome grade-weight
↪ numerator/denominators, observation_cap, horizon_class and
↪ nominal_horizon_rule. TRUE equality means within_target; known
↪ inequality means cross_target with differing fields; unknown metadata
↪ means scope_unresolved and disqualifies only that pair. The
↪ registered loneliness grade4-7/school-year and care grade4-9/730-day
↪ targets differ. No common-population refit is allowed.

Ordered health narration: (1) divergent when a qualified loneliness decre
↪ ase accompanies at least one qualified care increase with known pair
↪ scope. Report ALL qualifying pairs in depressive then anxiety/stress
↪ order. An unused care boundary, selection limitation, uncertainty,
↪ sensitive robustness, no_result or unknown scope does not veto a
↪ qualified pair; state that unused endpoint's exact disposition. (2)
↪ With no divergent pair, concordant requires THREE qualified decreases
↪ and both scopes known. (3) Every other completed combination is
↪ unresolved, not no effect. Known different targets always require
↪ side-by-side cross_target wording, with no latent-health,
↪ detection-share, common-population or mediation conclusion. Partial
↪ care plus a care decrease never establishes concordant.
```

```
health-patterns.csv has exactly two reader rows when composition
↪ completes: comparison=loneliness_depressive/
↪ loneliness_anxiety_stress; first_atom,second_atom,first_endpoint,seco
↪ nd_endpoint,first_state,second_state,first_terminal,second_terminal,f
↪ irst_robustness_state,second_robustness_state,first_robustness_termin
↪ al,second_robustness_terminal,first_horizon,second_horizon,first_targ
↪ et_id,second_target_id,first_qualified,second_qualified,pair_qualifie
↪ d,scope_compatible,scope_label,compatibility_reason,pair_pattern,used
↪ _in_synthesis,interpretation_status,interpretation,reason. Boolean
↪ qualification flags, TRUE/FALSE/unknown scope and ordered pair labels
↪ preserve partial evidence. An unrun composition emits only a reader
↪ disposition, not findings.

MATERIAL COMPARISON. Pair education18 and attainment20 from atom-000218
↪ with wages20 from atom-000220 and resources20 from atom-000222, in
↪ that four-pair order. Employee participation and co-residence remain
↪ separately narrated outcomes and are not prerequisites. Read each
↪ pair's primary/robustness/scope records under its endpoint namespace.
↪ Valid zero-containing intervals are still numerical evidence;
↪ sensitive robustness remains an explicit restriction. Any
↪ selection_limited, boundary, unestimable, no_result, not_activated or
↪ pending primary makes that pair unavailable, without erasing other
↪ pairs. Scope equality uses the same D10 predicate and additionally
↪ the fixed horizon classes birthday18, birthday20 and annual20. Their
↪ registered differences imply different_scope; UNKNOWN metadata gives
↪ scope_unresolved. Contradictory compatible metadata is rejected,
↪ never permission to refit. Preserve all four rows with comparison,
↪ first_atom,second_atom,first_endpoint,second_endpoint,first_state,sec
↪ ond_state,scope_compatible,compatibility_reason,first_horizon,second_
↪ horizon,interpretation_status,interpretation,reason. No
↪ within-population divergence, financing, insurance or welfare
↪ mechanism follows from side-by-side signs. Resource provenance
↪ restrictions attach to each income row.

FAMILY RECOGNITION COMPARISON. Read parent_assessment from atom-000217
↪ and parent_care from atom-000213, including primary, robustness and
↪ verified D7/D10 scope records. First, a valid adjusted POINT interval
↪ wholly above zero for parent_assessment plus stable own robustness
↪ supports recognition_response immediately; do not await care, work,
↪ resources or sibling outcomes. This intentionally retains the
↪ registered point-interval-only recognition narration: a valid
↪ directional bounds result remains a separately reported primary
↪ result but does not enter this named comparison. Second, a point
↪ interval wholly below zero for assessment with stable robustness
↪ permits family_response only when parent care has its own directional
↪ adjusted point interval, stable robustness and identical verified bas
↪ eline_set_digest, index_rule, parent-roster definition and child730
↪ horizon. Otherwise the joint interpretation remains unresolved; a
↪ zero-containing assessment interval never becomes a decrease or nonin
↪ crease. Neither resolved pattern isolates caregiving or rules out
↪ alternative unrecorded recognition. Optional care pending does not
↪ disable the early increase route; required nonactivation and unknowns
↪ retain their exact reader dispositions. family-patterns.csv records
↪ comparison=parent_recognition/parent_care_with_recognition, source
↪ endpoint/Atom paths, states, inference_status, robustness_states,
↪ scope_compatible, compatibility_reason, interpretation_status,
↪ interpretation and reason. No pilot effect is estimated.
```

```
  All comparison algorithms are derived implementations of these rules,
  ↪ never a second scientific authority. Status-only and synthetic truth
  ↪ tables test symmetric partial-care cases; sensitive versus stable, se
  ↪ lected, boundary, operationally failed, inactive and unknown inputs;
  ↪ zero-containing intervals with either point sign; discordant/unknown
  ↪ scopes; and early parental recognition with optional care pending. No
  ↪ fixture enters a manuscript slot or accepted plot-ready result.
interpretation:
- kind: restriction
  condition: 'TRUE'
  says: Every claim is limited to its exact endpoint population, horizon,
    measurement and disclosure status. Grade passes do not prove continuity;
    classification is not inherent dyslexia or receipt of support. No
    ↪ equivalence
    or welfare conclusion follows from nonsignificance. Apply all component
    restrictions even when another endpoint in that Atom is directional.
- kind: restriction
  condition: state(atom-000002) == "selected" OR state(atom-000002) ==
  ↪ "boundary"
    OR state(atom-000002) == "retention_unresolved" OR state(atom-000002)
    == "otherwise"
  says: The initial-margin causal interpretation is not cleared.
  ↪ Independently
    valid descriptive and diagnostic evidence remains reportable.
- kind: restriction
  condition: 'TRUE'
  says: Income known_uncorrected/unresolved rows mean recorded-income proxy
    only, with no intended-resource or welfare interpretation. Unavailable
    metadata permits no numeric narration. Enforce by
    ↪ variable/delivery/reference-year
    even on suppressed cells. Reading calibration failures restrict pooled
    reading only. New hospital-era problems restrict the affected eras only.
    Missing relatives restrict the specific relative outcomes only.
- kind: supplementary
  condition: done(atom-000010)
  says: Report the descriptive experiment Assessment population and reach
    with all prespecified strata and independent unavailable dimensions.
    No causal, population-prevalence or first-diagnosis inference.
- kind: supplementary
  condition: done(atom-000101)
  says: Report the descriptive experiment School experience after assessment
    with all prespecified strata and independent unavailable dimensions.
    No causal, population-prevalence or first-diagnosis inference.
- kind: supplementary
  condition: done(atom-000109)
  says: Report the descriptive experiment Recorded child care pathways with
    all prespecified strata and independent unavailable dimensions. No
    ↪ causal,
    population-prevalence or first-diagnosis inference.
- kind: supplementary
  condition: done(atom-000113)
  says: Report the descriptive experiment Family circumstances after
  ↪ assessment
    with all prespecified strata and independent unavailable dimensions.
    No causal, population-prevalence or first-diagnosis inference.
- kind: supplementary
  condition: done(atom-000118)
  says: Report the descriptive experiment Early-adult circumstances after
    assessment with all prespecified strata and independent unavailable
```

```
    dimensions. No causal, population-prevalence or first-diagnosis
    ↪ inference.
- kind: primary
  condition: done(atom-000201)
  says: Report Does marginal classification change school social experience?
    using every endpoint component, interval/bound or boundary,
    ↪ ascertainment,
    and robustness restriction under atom-000201. Unit
    ↪ directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪ experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000202)
  says: Report Does marginal classification change school somatic symptoms?
    using every endpoint component, interval/bound or boundary,
    ↪ ascertainment,
    and robustness restriction under atom-000202. Unit
    ↪ directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪ experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000205)
  says: Report Does marginal classification change school attendance? using
    every endpoint component, interval/bound or boundary, ascertainment,
    and robustness restriction under atom-000205. Unit
    ↪ directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪ experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000207)
  says: Report Does marginal classification change assessed reading
  ↪ performance?
    using every endpoint component, interval/bound or boundary,
    ↪ ascertainment,
    and robustness restriction under atom-000207. Unit
    ↪ directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪ experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000208)
  says: Report Does marginal classification change teacher-assessed danish?
    using every endpoint component, interval/bound or boundary,
    ↪ ascertainment,
    and robustness restriction under atom-000208. Unit
    ↪ directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪ experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000209)
```

```
  says: Report Does marginal classification change recorded
  ↪  depressive/anxiety
    care? using every endpoint component, interval/bound or boundary,
    ↪  ascertainment,
    and robustness restriction under atom-000209. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000211)
  says: Report Does marginal classification change community care use? using
    every endpoint component, interval/bound or boundary, ascertainment,
    and robustness restriction under atom-000211. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000213)
  says: Report Does marginal classification change parental recorded care?
    using every endpoint component, interval/bound or boundary,
    ↪  ascertainment,
    and robustness restriction under atom-000213. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000214)
  says: Report Does marginal classification change sibling school
  ↪  experience?
    using every endpoint component, interval/bound or boundary,
    ↪  ascertainment,
    and robustness restriction under atom-000214. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000215)
  says: Report Does marginal classification change household material
  ↪  resources?
    using every endpoint component, interval/bound or boundary,
    ↪  ascertainment,
    and robustness restriction under atom-000215. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000216)
  says: Report Does marginal classification change parental paid work? using
    every endpoint component, interval/bound or boundary, ascertainment,
```

```
    and robustness restriction under atom-000216. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000217)
  says: Report Does marginal classification change parental recognition
    response? using every endpoint component, interval/bound or boundary,
    ascertainment, and robustness restriction under atom-000217. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000218)
  says: Report Does marginal classification change educational progression
    and attainment? using every endpoint component, interval/bound or
    ↪  boundary,
    ascertainment, and robustness restriction under atom-000218. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000220)
  says: Report Does marginal classification change early-adult paid work?
    using every endpoint component, interval/bound or boundary,
    ↪  ascertainment,
    and robustness restriction under atom-000220. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: primary
  condition: done(atom-000222)
  says: Report Does marginal classification change early-adult household
    circumstances? using every endpoint component, interval/bound or
    ↪  boundary,
    ascertainment, and robustness restriction under atom-000222. Unit
    ↪  directional/mixed_direction/sensitive
    states never transfer a sign to another endpoint; unavailable companion
    endpoints stay explicit. This claim composes with other scientific
    ↪  experiments
    without a shared success index.
- kind: supplementary
  condition: (done(atom-000201) OR terminal(atom-000201) == "no_result")
    AND (done(atom-000209) OR terminal(atom-000209) == "no_result")
  says: Apply the registered HEALTH COMPARISON to the exact endpoint
  ↪  components;
    pair qualification retains partial-care knowledge and cross_target
    ↪  limits.
    No new scientific Atom or test is generated.
- kind: supplementary
  condition: done(atom-000217)
```

```
  says: Apply the FAMILY RECOGNITION COMPARISON. Its qualified
  ↪  early-recognition
    route can resolve with care pending; uncertain assessment is never
    ↪  nonincrease.
    Report all other family endpoints independently.
- kind: supplementary
  condition: done(atom-000218) OR done(atom-000220) OR done(atom-000222)
  says: Apply the MATERIAL COMPARISON pair by pair to available accepted
    component outputs. Preserve distinct birth/annual horizons and every
    unavailable pair; never pool or refit for common scope.
- kind: residual
  condition: 'TRUE'
  says: Enumerate every current member and internal component as completed,
    bounded, not_activated, pending or operational no_result with exact
    reasons. Report unresolved cross-domain scope without overriding
    ↪  independent
    results. The final argument can remain descriptive, mixed or unresolved;
    no all-study positive/null verdict is inferred.
```

Member Atom registrations and this Molecule payload own the science.

## Current interpretation

All current members and their components are registered and pending. No empirical findings exist.

## atom-000001: Retained assessment identity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions. Population/unit: all allowed

national-test records, audited before restriction, then D1 child records. Tables/fields: UDD_ORDBLINDETEST.PNR,DATO,SCORE,TESTRESULTAT,TESTRESULTATNIVEAU,UDDANNE BEF.PNR,FOED_DAG. The ten-field page labels these test fields incompletely. Read the delivery dictionary before values. Assert event date, national-test identity and person linkage; summarize each distinct missing/incompatible field and early-date discrepancy. Apply D1 exact-duplicate and same-date conflict rules. A retained national test is not first lifetime diagnosis. Estimate descriptive fractions of dated child records with interpretable score/category, with family-cluster intervals only if clustering is validated; otherwise counts only. No hypothesis test or multiplicity claim. Output diagnostics.csv: date_valid_fraction, person_link_fraction, score_defined_fraction, category_defined_fraction, earliest_date_conflict_fraction, prelaunch_record_fraction; these are runtime fractions, not presumed values. Synthetic test: two identical rows collapse, conflicting same-day scores become ambiguous, date before birth is excluded. Independent consequence: descriptive chronology remains possible even if SCORE is unavailable.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000001/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000001
topic: Retained assessment identity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
```

```
preregistration:
  version: 1
  mode: adaptive
  question: Can dated retained national dyslexia assessments be distinguished
    from invalid or ambiguous records?
  rationale: 'A consequential shared measurement judgment: whether retained
    dated national assessments identify children for any downstream study.
    Score/category limitations permit dated-record description and do not
    automatically close it. Routine record checks are internal evidence for
    this judgment.'
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - UDD_ORDBLINDETEST
  activation: 'TRUE'
  verdicts:
  - key: data_gap
    region: Authoritative delivery confirms that PNR, actual assessment DATO
      or national-test identity is absent/incompatible.
    says: No person-indexed assessment cohort under this contract.
  - key: ready
    region: Dated person assessment semantics and both SCORE and category
      dictionary are verified; invalid individual records have the
      ↪  prespecified
      disposition.
    says: The retained-event cohort can be constructed; actual first-test
      and causal status remain unresolved.
  - key: limited
    region: Dated person assessment semantics are verified but score and/or
      categories are unavailable or unresolved.
    says: Describe retained dated assessments in an unknown-category group;
      do not infer classification or a score margin.
  - key: otherwise
    region: otherwise
    says: The evidence is unresolved under the frozen rule. No favorable or
      negative finding is inferred; report the exact reason.
```

# Registered experiment

Can dated retained national dyslexia assessments be distinguished from invalid or ambiguous records?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000001`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000002: Initial classification margin

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Internal order: audit mapping and retention separately after dated assessment identity. Retention does not select a cutoff. Save mapping and retention component verdicts in distinct component judgments; apply the following full original-scale and selection procedures. The grade experiments may run on mapped selected/unresolved histories as diagnostics, but causal outcomes require compatible.

### mapping

- key: boundary region: Documentation confirms SCORE is transformed/incompatible, actual test grade cannot be identified within allowed fields, or launch-period rules do not apply to these records. says: The registered RD cannot be implemented; later-year rules are not a substitute.
- key: mapped region: The original score scale, historical inclusive rules, actual-grade meaning and ordinary-public-school source semantics are documented. Each used grade code has a verified crosswalk; unknown individual codes remain unknown under D1, with support judged separately per grade. says: A historical running

variable is defined; retention, score support and local continuity remain separate assumptions.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Scope: provisional spring-2015 cohort D1, one first-assessment candidate per child. Institutional source: 2016 ministry note p.1, table of upper red/yellow bounds in I1. Use SCORE in its original composite units, actual assessment grade in UDDANNELSESNIVEAU, and prior-month absence KLASSETRIN/KLASSETYPE/INSTITUTIONSNUMMER/MAANED/SKOLEAAR as the independent grade/ordinary-public-school check. Check documentary scale identity before calculating x=SCORE-c_g. Exact c_g for grades 4–9 is 66,70,73,77,79,81 and assignment is SCORE<=c_g; upper yellow bounds are 73,78,81,84,86,88. No age-to-grade approximation or cutoff inferred from best category fit. Report disagreements and unknown grade as separate cases. Require a source establishing that the delivered level is actual test grade; background grade reconstructed after test cannot qualify. No cutoff/version substitutions. Output diagnostics.csv: mapping_documented, grade_agreement_fraction, ambiguous_grade_fraction, inclusive_boundary_confirmed, per-grade scope counts. Synthetic tests check each threshold minus epsilon/equal/plus epsilon, and grade disagreement cannot be resolved with future achievement. This component maps assignment, not actual approval or support. No statistical estimator; documentary equality is the criterion.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000002/mapping/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

The mapped state concerns verified source semantics for grades4–9, not a requirement that each grade has observed rows. Individual grade disagreements remain excluded from score comparisons as D1. Empty/insufficient grades have their own support Atoms. No outcome value establishes this mapping. ## retention - key: selected region: Documented extraction replaces/deletes initial assessments using later

assessments, category, subsequent support or outcome-related approval without an recoverable initial record. says: Selection invalidates the registered initial-margin causal branch. - key: compatible region: Complete provenance meets the explicit initial-attempt/approval/retention criteria and no unresolved replacement mechanism remains. says: The documented retained-test process is compatible with the initial-assessment design, conditional on remaining continuity assumptions. - key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Scope: spring-2015 target, record-generation process as well as rows; D1 first retained date is only a candidate. Inspect delivery/extraction documentation for approval and all test histories, especially later replacement of a third-grade result. UDD_ORDBLINDETEST has no explicit approval/retest flag. STIL warehouse rules are a warning, not proof of the FSV process. Pass only if provenance demonstrates either complete initial assessment histories with frozen first attempts and auditable approval OR retention of the earliest approved result with documented preclassification approval criteria and no score-dependent replacement, including earlier third-grade tests. When histories exist within the allowed table, count dates per PNR and grade-3 replacements; when absent, do not infer no retesting from one row/person. A later successful score may never become baseline. Output diagnostics.csv: initial_history_documented, selection_rule_known, later_replacement_possible, repeated_record_fraction where computable. Include a prose provenance judgment in judgment.json. Statistical tests cannot validate undocumented retention; no p-value. Synthetic test: later retest must not alter the initial score; deliberate omission of initial tests must prevent compatible state. This independent judgment can block causal claims while preserving retained-record descriptions.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000002/retention/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000002
topic: Initial classification margin
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does the historical rule define a recoverable initial-assessment
    policy margin in the delivered national-test records?
  rationale: Mapping and retained-first-assessment provenance jointly define
    the same scientific assignment margin. They remain separately auditable
    within the unit; neither is an outcome experiment.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  activation: state(atom-000001) == "ready"
  verdicts:
  - key: boundary
    region: The mapping component establishes its boundary. Retention
    ↪  findings,
      if any, remain reported.
    says: This historical margin is not constructible.
  - key: selected
    region: Mapping=mapped and retention=selected.
    says: The recorded margin can be described, but outcome-dependent
    ↪  initial-record
      selection blocks causal use.
  - key: compatible
    region: Mapping=mapped and retention=compatible.
    says: The initial margin is institutionally compatible; grade-specific
      validation and continuity assumptions remain necessary.
  - key: retention_unresolved
    region: Mapping=mapped and retention is unresolved or an internally
    ↪  recorded
      operational failure.
    says: The score rule can be audited; causal use awaits compatible
    ↪  initial-record
```

```
    provenance.
- key: otherwise
  region: otherwise
  says: No compatible initial policy margin is established; retain the
  ↪  component
    reasons without a policy null.
```

## Registered experiment

Does the historical rule define a recoverable initial-assessment policy margin in the delivered national-test records?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000002`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000010: Assessment population and reach

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Run on any completed/failed assessment-identity judgment. If identity is not ready/limited, mark the profile unavailable with its exact reason; still inspect public calendar/reference semantics and document which reach/kinship claims remain possible. No outcome experiment depends on this descriptive summary: it repeats the

applicable D1/D3/D7 checks locally. Family-link failure does not suppress profile or child calendar evidence.

## profile

- key: described region: Dated-person cohort and computed governed category/unknown counts are produced. says: Describe recorded assessment composition only.
- key: boundary region: A verified empty eligible retained cohort or incompatible required dates prevents this description. says: Report the population boundary without an assessment-prevalence claim.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Descriptive illustration, not testing access rates in all Danish children. Activate on a dated-person assessment cohort even if score/categories fail. Use D1 cohort groups 2015–2018,2019–2021,2022–2024 and category red/yellow/green/unknown; preserve grade/age-unknown records in the audit. Count persons per cohort/category and divide by the full retained child cohort in that calendar band. First retained record defines a person once. Describe age at assessment with fixed bands9–11,12–14,15–17 in a separate diagnostics.csv; do not infer prevalence or unmet need among untested pupils. No p-values or causal comparison. Output profile.csv columns in G2; all 12 category/cohort cells appear even if suppressed/unavailable. Synthetic duplicate and unknown-category checks. This illustration remains useful when all causal analyses fail and is the first empirical figure. Its fractions are of retained assessments only.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000010/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

### reach

- key: complete_scope region: All registered clocks and horizon eligibility indicators can be constructed and at least one eligible risk set exists in every requested family. says: The planned horizons can be enumerated, not guaranteed precise or complete at the person level.
- key: bounded_scope region: At least one clock/horizon is documented unavailable or has an empty eligible risk set, while another family is constructible. says: Report the endpoint-specific age/calendar limits and retain independently observable families.
- key: boundary region: No registered follow-up horizon can be defined with the available date documentation. says: This delivery supports at most baseline assessment description, not follow-up claims.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. This internal reach analysis is independent of causal score validity. Use test DATO, BEF.FOED_DAG and documented per-table observation ends; do not open outcome values. Compute each child's first full school year, 730-day nominal care horizon, year(t0)+1 and 18th/20th birthdays/calendar years. Check observation clocks in VNDS/DOD/BEFBOP as D3. Tabulate eligible vs not-yet-age-eligible vs calendar-ended vs unknown birth date for each registered endpoint and cohort; do not report a count until runtime. Output diagnostics.csv with check=endpoint/horizon and eligibility/coverage fractions; missing endpoints have their own flags, not a global rejection. Incomplete observation is an informative boundary, never no effect. No causal estimator, power test or significance criterion. Synthetic fixtures include age9 in2015 versus age16 in2015, year20 beyond2024, leap-day birth and emigration. A later table header cannot override the common 2024 cap. This Atom gives the paper its age/coverage explanation without requiring an RD to work.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000010/reach/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000010/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000010
topic: Assessment population and reach
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Who appears in retained childhood assessments, which relatives
    are represented, and which life-course horizons can those cohorts reach?
  rationale: One descriptive orientation experiment locates the assessed
  ↪  population
    in calendar time and family context. Its component-specific evidence is
    useful even if no causal contrast runs. It does not test assessment access
    in all Danish children.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - DOD
  - IND
  - KOTRE
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: done(atom-000001) OR terminal(atom-000001) == "no_result"
  verdicts:
  - key: described
    region: Profile, reach and baseline-relative composition each have a
    ↪  computed
      scientific description; unavailable individual strata remain explicit.
    says: Describe assessment composition and observable life-course reach,
      without population prevalence or causal claims.
  - key: partial
    region: At least one of the three components supplies a scientific
    ↪  description
```

```
    and another cannot.
  says: Report each available aspect and every unavailable aspect
  ↪  separately;
    no all-or-nothing scope gate.
- key: boundary
  region: All three components have evidenced empty/incompatible population
    or clock boundaries.
  says: No represented cohort or follow-up can be described under this
  ↪  contract.
- key: otherwise
  region: otherwise
  says: Report unresolved scope without invented counts, follow-up or
  ↪  relationships.
```

## Registered experiment

Who appears in retained childhood assessments, which relatives are represented, and which life-course horizons can those cohorts reach?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000010`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000011: Support and learning boundaries

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or

disclose protected directions. Documentation-only independent judgment covering D5/D7/G4. Inspect all three dyslexia schema hits: UDD_ORDBLINDETEST has no receipt/intensity/phonological subtest or vocabulary fields; HANDICNOTA.PNR,MEDLEMSTYPE,INDMDATO has documented2023–2025 coverage; VEUV.PNR,KURSKOD,KURSTXT,UDD,KURSIST_VFRA,KURSIST_VTIL,AFSLUTN,VERSION history mentions dyslexia instruction but not a verified historical OBU code/completeness contract. National-test and UDFK performance cannot isolate accommodations. Read actual field definitions and the official application/OBU guidance; no row query is needed for a documentary absence. Distinguish limited library membership, classification, eligibility and receipt. Output diagnostics.csv rows comprehensive_support, intensity, obu_historical_codes, unaided_learning with evidenced/unresolved flags and judgment.json source locators. There is no support-effect IV under any state. If unforeseen valid measures appear, the old closed graph is not extended automatically: their discovery is documented for a future extension. No p-values or equivalence claims. Synthetic check: Nota membership never populates comprehensive_support=1.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000011/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000011
topic: Support and learning boundaries
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
```

```
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can this boundary identify support received, adult dyslexia
  ↪  instruction
    or unaided learning?
  rationale: An independent consequential boundary judgment separates
  ↪  classification-policy
    effects from support receipt and unaided learning. It limits claims across
    all outcomes under any sign, and remains useful without a score sample.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - HANDICNOTA
  - UDD_ORDBLINDETEST
  - UDFK
  - VEUV
  activation: 'TRUE'
  verdicts:
  - key: limited_markers
    region: Documentation confirms only selected institutional markers and
      lacks the comprehensive receipt/intensity/unaided constructs specified
      here.
    says: Do not attribute effects to a particular support dose or unaided
      learning; limited markers remain service-boundary knowledge.
  - key: additional_documentation
    region: New authoritative documentation specifies a relevant receipt
    ↪  construct,
      but no treatment-receipt design is registered here.
    says: Record it for a reviewed extension; no automatic support-effect
      claim or new endpoint.
  - key: otherwise
    region: otherwise
    says: The evidence is unresolved under the frozen rule. No favorable or
      negative finding is inferred; report the exact reason.
```

# Registered experiment

Can this boundary identify support received, adult dyslexia instruction or unaided learning?

Prospective registration. No study values or empirical results have been observed.

## Reference implementation

Entry point and supported/unresolved components for `atom-000011`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

# atom-000101: School experience after assessment

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Endpoint components execute independently in the order below. D3 horizon and D7 relative-link checks are internal per endpoint, never a common family prerequisite. Household-income construction can run without an identified parent roster when child/current-family and clustering requirements are available; relative outcomes require their own fixed known-parent/sibling roster. If clustering is unavailable, I3 permits valid descriptive levels with uncertainty unavailable. Each endpoint applies its original first-match regions below, writes its own component judgment and retains every era/stratum status. Root state is the ordered descriptive vector judgment above.

## Internal reading-calibration

- key: comparable region: Every required 2015 target-grade/year/calibration link meets D9 documentary criteria. says: One pooled reading contrast has a documented common scale, conditional on other gates.
- key: incompatible region: At least one required link is authoritatively inconsistent. says: Pooled reading effect is restricted; separately labeled descriptions remain useful.
- key: unresolved region: No contradiction is established but at least one required common-calibration link is unverified. says: Common scale is not established; no pooled reading claim.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or

favorable inference. Population is the fixed school grades4–7 target and its D5 scheduled grades6/8 years. Unit=construct/calibration link, not pupil. Inspect UDD_NATTEST_GENBEREGNEDEFAG,FAGID,THETA,KLASSETRIN,NORM,GENBEREGNET,SKOLEAAR,TEST_DATOTID metadata before values. Apply D9 common-origin/unit/item-link criteria. Assert each scheduled stratum maps to one documented calibration identifier; no duplicate or conflicting mappings are averaged. Output calibration.csv: target_grade,calendar_year,calibration_id,construct,origin_unit_verified,link_verified,source_locator,status,reas No model or test; equivalence of observed score distributions cannot be evidence. Synthetic test: identical THETA field names with absent linking evidence yields unresolved. The primary reading Atom records measurement_boundary for incompatible and otherwise/common_calibration_unverified for unresolved; descriptive strata retain exact units. No additional causal estimands or standardization.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/reading-calibration/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Endpoint loneliness

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe frequent loneliness among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=loneliness; reporting family=school; one registered horizon=first_full_school_year. Construction uses D4 exactly: Baseline grades4–7; Q9 exact wording and frequent labels. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Reported loneliness may change through experience, interpretation or response assistance. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/loneliness/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/loneliness/descriptive/.

## Endpoint stomach_ache

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe frequent stomach ache among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=stomach_ache; reporting family=school; one registered horizon=first_full_school_year. Construction uses D4 exactly: Baseline grades4–7; Q10 exact wording and frequent labels. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit;

apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: A pain report is not a diagnosed physical disease or general morbidity. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/stomach_ache/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/stomach_ache/descriptive/.

## Endpoint headache

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe frequent headache among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=headache; reporting family=school; one registered horizon=first_full_school_year. Construction uses D4 exactly: Baseline grades4–7; Q11 exact wording and frequent labels. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Headache reports

can reflect stress, other causes and reporting changes. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/headache/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/headache/descriptive/.

## Endpoint low_belonging

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe low school belonging among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=low_belonging; reporting family=school; one registered horizon=first_full_school_year. Construction uses

D4 exactly: Baseline grades4–7; Q33 disagreement labels, not an inferred factor score. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Belonging is a consequential school experience and a prior-work benchmark. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/low_belonging/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify

row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/low_belonging/descriptive/.

## Endpoint total_absence

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe total school absence among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=total_absence; reporting family=school; one registered horizon=first_full_school_year. Construction uses D5 exactly: Baseline grades4–7; annual total absent days / active days, range0–100. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than

a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Attendance measures participation; it is not a pure health or learning measure. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/total_absence/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/total_absence/descriptive/.

## Endpoint sickness_absence

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.

- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe sickness absence among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=sickness_absence; reporting family=school; one registered horizon=first_full_school_year. Construction uses D5 exactly: Baseline grades4–7; annual sickness days / active days, range0–100. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Sickness classification of school absence can change without a diagnosed disorder. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition;

baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/sickness_absence/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/sickness_absence/descriptive/.

## Endpoint reading_theta

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe assessed reading among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=reading_theta; reporting family=school; one registered horizon=scheduled_next_reading_test. Construction uses D5 exactly: Baseline grades4–7; targetgrade6 ifbaseline4/5,8 if6/7; fixed expected school year, earliest scheduled test. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=THETA. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Assessed performance cannot separate unaided decoding from access/accommodations. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/reading_theta/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint

descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/reading_theta/descriptive/.

## Endpoint danish_grade

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe teacher-assessed danish among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=danish_grade; reporting family=school; one registered horizon=scheduled_grade9_year. Construction uses D5 exactly: Baseline grades4–8; mean final Danish teacher disciplines in scheduled grade9 year, range[-3,12]. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=grade_points. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts.

Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Teacher grades reflect assessed achievement and expectations; exam performance is not substituted. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000101/endpoints/danish_grade/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000101/endpoints/danish_grade/descriptive/.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.


```
id: atom-000101
topic: School experience after assessment
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
```

```
question: What recorded school experience after assessment can be described,
  and which dimensions remain unobserved?
rationale: The descriptive school experiment asks how social experience,
  pain, participation and assessed performance are recorded among assessed
  children, without assigning a classification effect. Related displays
  orient interpretation while preserving each measurement.
assumption: Administrative recognition can affect opportunities, reporting
  and service contact through multiple routes; exact source semantics and
  continuity require evidence, not an estimator label. See literature.md
  and identification.md.
target_strength: descriptive
target_shape: comparison
ratings:
  importance: 4
  novelty: 3
  feasibility: 3
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- DOD
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_NATTEST_GENBEREGNEDE
- UDD_ORDBLINDETEST
- UDD_TRIVSEL_STORE_KLASSER
- UDFK
- VNDS
activation: state(atom-000001) == "ready" OR state(atom-000001) == "limited"
verdicts:
- key: described
  region: Every registered endpoint supplies at least one computed governed
    descriptive stratum; all unobserved cells remain explicit.
  says: Describe the endpoint vector in original units and separate scopes;
    no composite or causal contrast.
- key: partial
  region: At least one endpoint supplies a computed governed descriptive
    stratum and another endpoint supplies none.
  says: Report available endpoint-specific descriptions and each independent
    measurement, horizon or operational limitation.
- key: boundary
  region: No description is computable and every endpoint has an evidenced
    measurement/horizon/population boundary.
  says: Report which documented dimensions cannot be measured or reached;
    no statistical null.
- key: otherwise
  region: otherwise
  says: Preserve unresolved documentation or execution reasons; unknown
    evidence is not a negative result.
```

## Registered experiment

What recorded school experience after assessment can be described, and which dimensions remain unobserved?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000101`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000109: Recorded child care pathways

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Endpoint components execute independently in the order below. D3 horizon and D7 relative-link checks are internal per endpoint, never a common family prerequisite. Household-income construction can run without an identified parent roster when child/current-family and clustering requirements are available; relative outcomes require their own fixed known-parent/sibling roster. If clustering is unavailable, I3 permits valid descriptive levels with uncertainty unavailable. Each endpoint applies its original first-match regions below, writes its own component judgment and retains every era/stratum status. Root state is the ordered descriptive vector judgment above.

### Internal hospital-era

- key: both region: Legacy and new model keys, roles and phenotype dates each validate separately. says: Both eras support separately reported encounter constructs; equivalence across eras is not assumed.
- key: legacy_only region: Legacy mapping validates and new mapping is documented incompatible or unresolved. says: 2015 causal care windows and legacy descriptions remain possible; new-era claims are bounded.

- key: new_only region: New mapping validates but legacy mapping is documented incompatible or unresolved. says: New-era descriptions remain possible; the registered 2015 hospital effect cannot run.
- key: boundary region: Both models are demonstrably incompatible with the registered person-contact phenotype. says: No hospital-coded endpoint under this contract; school symptoms/community services remain independent.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Independent construct diagnostic, D6. Read legacy administration/diagnosis RECNUM semantics and the LPR3 DW_EK_KONTAKT dictionary, diagnosis-role labels, validity-date SKS mapping and reference periods. At runtime assert old contact:many-diagnosis and new contact:many-diagnosis cardinalities; compare label semantics and code inclusion but do not use agreement of effects to declare harmonization. Report old psychiatric/general overlap by person/date/code, missing roles and model vintage. A valid legacy model is sufficient for spring 2015+730days and does not depend on LPR3. Post2019 descriptions use the new model separately; no pooled cross-era causal contrast is registered. Output diagnostics.csv rows old_key,old_roles,old_codes,new_key,new_roles,new_codes,era_overlap_semantics. No p-values. Synthetic repeated diagnoses must produce one person-day; same key with two people fails the join; expired SKS code cannot be included. This judgment concerns observed clinical coding, not sensitivity/specificity for latent disorder.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000109/hospital-era/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Endpoint depressive_encounter

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.

- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe depressive encounters among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=depressive_encounter; reporting family=care; one registered horizon=days1_to730_before_exit. Construction uses D6 exactly: DF32/DF33 valid-date action/secondary diagnoses, collapse person/contact date; all prior histories retained. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Recorded depressive care cannot identify incidence or severity of depression. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4

for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000109/endpoints/depressive_encounter/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000109/endpoints/depressive_encounter/descriptive/.

## Endpoint anxiety_stress_encounter

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe anxiety stress encounters among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=anxiety_stress_encounter; reporting family=care; one registered horizon=days1_to730_before_exit. Construction uses D6 exactly: DF40/DF41/DF43 valid-date action/secondary diagnoses; a separate endpoint from depression. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never

whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Anxiety/stress-coded encounters reflect symptoms, referral, access and coding. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000109/endpoints/anxiety_stress_encounter/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000109/endpoints/anxiety_stress_encounter/descriptive/.

## Endpoint community_specialist

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe community specialist contact among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=community_specialist; reporting family=care; one registered horizon=whole_billing_weeks_to730. Construction uses D6 exactly: Positive corrected KONTAKT in SPEC2{24,26,35,63}; billing-week chronology. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Public-reimbursed specialist use excludes private/unrecorded care and is not latent mental health. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000109/endpoints/community_specialist/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000109/endpoints/community_specialist/descriptive/.

## Endpoint gp_contact

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this

local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe general practitioner contact among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=gp_contact; reporting family=care; one registered horizon=whole_billing_weeks_to730. Construction uses D6 exactly: SPEC2=80, net positive KONTAKT, exclude chronic honoraria0130–0133; billing week. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: GP contact may represent recognition/help-seeking and cannot be assigned a beneficial/adverse health sign. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference;

local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000109/endpoints/gp_contact/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000109/endpoints/gp_contact/descriptive/.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.


```
id: atom-000109
topic: Recorded child care pathways
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: What recorded recorded child care pathways can be described, and
    which dimensions remain unobserved?
  rationale: The descriptive care experiment distinguishes hospital-coded
    distress from public-reimbursed service use and their recording eras;
    no source is a proxy for all latent health.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
```

```
tables:
- BEF
- DOD
- LPR_ADM
- LPR_A_DIAGNOSE
- LPR_A_KONTAKT
- LPR_DIAG
- PSYK_ADM
- PSYK_DIAG
- SSSY
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" OR state(atom-000001) == "limited"
verdicts:
- key: described
  region: Every registered endpoint supplies at least one computed governed
    descriptive stratum; all unobserved cells remain explicit.
  says: Describe the endpoint vector in original units and separate scopes;
    no composite or causal contrast.
- key: partial
  region: At least one endpoint supplies a computed governed descriptive
    stratum and another endpoint supplies none.
  says: Report available endpoint-specific descriptions and each independent
    measurement, horizon or operational limitation.
- key: boundary
  region: No description is computable and every endpoint has an evidenced
    measurement/horizon/population boundary.
  says: Report which documented dimensions cannot be measured or reached;
    no statistical null.
- key: otherwise
  region: otherwise
  says: Preserve unresolved documentation or execution reasons; unknown
    evidence is not a negative result.
```

## Registered experiment

What recorded recorded child care pathways can be described, and which dimensions remain unobserved?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000109`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000113: Family circumstances after assessment

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate

only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Endpoint components execute independently in the order below. D3 horizon and D7 relative-link checks are internal per endpoint, never a common family prerequisite. Household-income construction can run without an identified parent roster when child/current-family and clustering requirements are available; relative outcomes require their own fixed known-parent/sibling roster. If clustering is unavailable, I3 permits valid descriptive levels with uncertainty unavailable. Each endpoint applies its original first-match regions below, writes its own component judgment and retains every era/stratum status. Root state is the ordered descriptive vector judgment above.

## Internal hospital-era

- key: both region: Legacy and new model keys, roles and phenotype dates each validate separately. says: Both eras support separately reported encounter constructs; equivalence across eras is not assumed.
- key: legacy_only region: Legacy mapping validates and new mapping is documented incompatible or unresolved. says: 2015 causal care windows and legacy descriptions remain possible; new-era claims are bounded.
- key: new_only region: New mapping validates but legacy mapping is documented incompatible or unresolved. says: New-era descriptions remain possible; the registered 2015 hospital effect cannot run.
- key: boundary region: Both models are demonstrably incompatible with the registered person-contact phenotype. says: No hospital-coded endpoint under this contract; school symptoms/community services remain independent.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Independent construct diagnostic, D6. Read legacy administration/diagnosis RECNUM semantics and the LPR3 DW_EK_KONTAKT dictionary, diagnosis-role labels, validity-date SKS mapping and reference periods. At runtime assert old contact:many-diagnosis and new contact:many-diagnosis cardinalities; compare label semantics and code inclusion but do not use agreement of effects to declare harmonization. Report old psychiatric/general overlap by person/date/code, missing

roles and model vintage. A valid legacy model is sufficient for spring 2015+730days and does not depend on LPR3. Post2019 descriptions use the new model separately; no pooled cross-era causal contrast is registered. Output diagnostics.csv rows old_key,old_roles,old_codes,new_key,new_roles,new_codes,era_overlap_semantics. No p-values. Synthetic repeated diagnoses must produce one person-day; same key with two people fails the join; expired SKS code cannot be included. This judgment concerns observed clinical coding, not sensitivity/specificity for latent disorder.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/hospital-era/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not

validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Internal income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For FAIK.FAMAEKVIVADISP_13, primary year=2016; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected,

unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Year-specific descriptive provenance: in addition to the primary 2016 judgment, correction.csv contains one adjudicated record for each delivered FAIK.FAMAEKVIVADISP_13 reference year 2016–2024 used by atom-000113. No 2016 local state is propagated to another year. Apply D9 separately to the exact delivery-variable-year; preserve known year-specific recording issues, including the separately documented 2019 correction, rather than assuming every issue is the 2014–2016 error. corrected requires an exact dated provider provenance statement establishing the intended definition and resolution of applicable documented issues in that delivered year; merely being outside 2014–2016 or newly delivered is insufficient. known_uncorrected requires explicit affected-version evidence for that year; otherwise unresolved. This retains the three existing dispositions without assuming favorable later years. Add delivery_checksum and provenance_id (unique release-safe record identifier) to correction.csv; retain full source_locator and criterion in the governed record. Its unique key is (table,variable,reference_year,delivery_id), one record per key. Conflicting source claims are one adjudicated unresolved record, never duplicate conflicting rows. An omitted/inaccessible record is unavailable binding, distinct from

an adjudicated unresolved correction. atom-000113 may perform this same documentation check locally when the primary-2016 diagnostic is unrun; it must preserve the same key and criteria in its own income-provenance.csv, not infer a local result for this Atom. Descriptive work is not globally gated by this Atom. The local D9 family-income audit state remains the 2016 judgment only; supplementary years are interface provenance, not new effect tests. ## Endpoint parent_care - key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred. - key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary. - key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect. - key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe parents recorded care among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=parent_care; reporting family=family; one registered horizon=child_days1_to730. Construction uses D6/D7 exactly: Mean over fixed recorded parents of any DF32/33/40/41/43 encounter; not restricted to resident mothers. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal

successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Parental recorded care cannot quantify caregiving burden; own recognition is a rival route. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/parent_care/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/parent_care/descriptive/.

## Endpoint sibling_belonging

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe sibling school belonging among assessed children or their

baseline relatives, with no causal interpretation. Endpoint key=sibling_belonging; reporting family=family; one registered horizon=first_full_school_year. Construction uses D4/D7 exactly: Mean low-belonging outcome among fixed baseline siblings aged9–14 in grades4–7; no eligible siblings means outside this estimand. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Sibling experience is independently consequential and does not identify resource diversion. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/sibling_belonging/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/sibling_belonging/descriptive/.

## Endpoint family_resources

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe family disposable resources among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=family_resources; reporting family=family; one registered horizon=calendar_year_after_test. Construction uses D7 exactly: FAIK.FAMAEKVIVADISP_13/1000 via child current December FAMILIE_ID in year(t0)+1. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose

suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=1000_DKK. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Current equivalized family resources include household composition; they are not consumption or transfers. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/family_resources/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect.

Mandatory income binding before values, export and Figure4: incorporate D9, D10 and G2's descriptive income metadata contract. Retain calendar_year=year(t0)+1 separately; only nominal complete years through 2024 can have values. For each stratum, join to EXACTLY one adjudicated provenance record

by (FAIK,FAMAEKVIVADISP_13,reference_year=calendar_year,delivery_id). Use D9 family-income audit correction.csv where its year-specific record is available; otherwise perform the same pre-value D9 documentation check within this Atom and emit income-provenance.csv with identical fields. This is part of constructing this description and is not a new hypothesis or a dependence on the primary2016 correction state. Never transfer a correction disposition between years or deliveries. Preserve source locators, delivery checksum and criteria in the governed audit. Contradictory documented correction evidence is an adjudicated unresolved disposition; contradictory/missing export metadata are an interface error and must not be plotted as if adjudicated.

Every descriptives.csv row additionally carries source_table=FAIK, source_variable=FAMAEKVIVADISP_13, reference_year, delivery_id, provenance_id, scope_id, interpretation_ceiling and metadata_status. Verified binding uses a decimal reference_year equal to calendar_year; public delivery_id/provenance_id/scope_id are nonempty opaque release-safe labels of at most80 characters linked one-to-one in the exporter to governed source/checksum/scope records. Distinct years may have distinct states, and categories in the same delivery-year must share the same adjudication. metadata_status=verified means the join and adjudication are verified, not that correction was established. Allowed mappings are corrected/documented_resources, known_uncorrected/recorded_income_proxy, unresolved/recorded_income_proxy. Corrected permits documented disposable-resource language only for that year; both proxy routes explicitly say recorded equivalized-income proxy and No intended-resource or welfare interpretation. They cannot identify actual resource change or correct historical reporting error.

An unavailable binding uses metadata_status=unavailable, correction_status=unavailable, interpretation_ceiling=unavailable_metadata and delivery_id=provenance_id=scope_id=unavailable. Keep known source_table/source_variable and reference_year=calendar_year (all only for the all-key horizon-boundary row); all empirical numeric fields are NA, with an explicit status/reason. Do not downgrade a supplied contradictory row into this route: reject the malformed export. Underlying description may remain described if an internal governed summary exists; public unavailable/suppressed rows do not alter its local state. If no stratum can be computed because the documentation check itself remains unperformed, otherwise or operational no_result applies by cause; it is not a statistical null. Figure4 uses separate year/delivery panels and the exact ceiling note, retaining corrected, proxy and unavailable years together without pooling or a shared2016 state. A wholly absent input gets a neutral family-income panel and unavailable-binding note. Figures never recompute or combine these means.

Required checks: corrected, known_uncorrected, adjudicated unresolved, unavailable binding and mixed-year status-only rows; reject omitted metadata, wrong variable/year/horizon, inconsistent ceiling, unknown binding, conflicting same-year provenance, and numerical values on unavailable rows. Verify a2016 known_uncorrected row with every number suppressed still displays the proxy and welfare restriction. Verify changing only another year's correction state does not relabel the2016

row. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/family_resources/descriptive/.

## Endpoint parent_hours

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe parents paid hours among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=parent_hours; reporting family=family; one registered horizon=calendar_year_after_test. Construction uses D7 exactly: Mean annual sum AJO_LOENTIMER over fixed parents; retain imputed hours, report share, include validated employee zeros. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=hours. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts.

Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Employee hours cannot measure self-employment, advocacy time or total family welfare. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/parent_hours/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/parent_hours/descriptive/.

## Endpoint parent_assessment

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe parents retained assessment among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=parent_assessment; reporting family=family; one registered horizon=child_days1_to730. Construction uses D7 exactly: Mean fixed-parent indicator of later retained national-test DATO; no pilot/reason inference. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Subsequent retained assessment is a possible family-recognition response, not first lifetime dyslexia. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure

yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/parent_assessment/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/parent_assessment/descriptive/.

## Endpoint parent_wages

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe parents wage income among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=parent_wages; reporting family=family; one registered horizon=calendar_year_after_test. Construction uses D7 exactly: Mean IND.LOENMV_13/1000 over fixed parents inyear(t0)+1, not employed-only; same resource missingness/annual-slice rules. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing

audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=1000_DKK. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Wages are separate from paid hours and resources; neither identifies advocacy costs. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000113/endpoints/parent_wages/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000113/endpoints/parent_wages/descriptive/.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000113
topic: Family circumstances after assessment
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: What recorded family circumstances after assessment can be
  ↪  described,
    and which dimensions remain unobserved?
  rationale: The descriptive family experiment locates child assessment within
    relatives' care, schooling, work, recognition and household income. Each
    component retains its own relative roster and claim ceiling.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - BFL
  - DOD
  - FAIK
  - IND
  - LPR_ADM
  - LPR_A_DIAGNOSE
  - LPR_A_KONTAKT
  - LPR_DIAG
  - PSYK_ADM
  - PSYK_DIAG
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - UDD_TRIVSEL_STORE_KLASSER
  - VNDS
  activation: state(atom-000001) == "ready" OR state(atom-000001) == "limited"
  verdicts:
  - key: described
    region: Every registered endpoint supplies at least one computed governed
      descriptive stratum; all unobserved cells remain explicit.
    says: Describe the endpoint vector in original units and separate scopes;
      no composite or causal contrast.
  - key: partial
```

```
  region: At least one endpoint supplies a computed governed descriptive
    stratum and another endpoint supplies none.
  says: Report available endpoint-specific descriptions and each independent
    measurement, horizon or operational limitation.
- key: boundary
  region: No description is computable and every endpoint has an evidenced
    measurement/horizon/population boundary.
  says: Report which documented dimensions cannot be measured or reached;
    no statistical null.
- key: otherwise
  region: otherwise
  says: Preserve unresolved documentation or execution reasons; unknown
    evidence is not a negative result.
```

## Registered experiment

What recorded family circumstances after assessment can be described, and which dimensions remain unobserved?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000113`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000118: Early-adult circumstances after assessment

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is

an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Endpoint components execute independently in the order below. D3 horizon and D7 relative-link checks are internal per endpoint, never a common family prerequisite. Household-income construction can run without an identified parent roster when child/current-family and clustering requirements are available; relative outcomes require their own fixed known-parent/sibling roster. If clustering is unavailable, I3 permits valid descriptive levels with uncertainty unavailable. Each endpoint applies its original first-match regions below, writes its own component judgment and retains every era/stratum status. Root state is the ordered descriptive vector judgment above.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Endpoint education18

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe formal education at 18 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=education18; reporting family=adulthood; one registered horizon=18th_birthday. Construction uses D8 exactly: Covering KOTRE spell classified DISCED15 level3+ by dated UDD crosswalk. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response

remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Educational participation at 18 is a benchmark and does not establish completed attainment. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/education18/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/education18/descriptive/.

## Endpoint attainment20

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.

- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe attainment by 20 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=attainment20; reporting family=adulthood; one registered horizon=20th_birthday. Construction uses D8 exactly: Valid HFAUDD spell on20th birthday classified at least upper-secondary completion, not an exit code alone. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Completion overlaps prior work; it does not establish material security. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4

for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/attainment20/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/attainment20/descriptive/.

## Endpoint employee20

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe employee participation at 20 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=employee20; reporting family=adulthood; one registered horizon=calendar_year_turning20. Construction uses D8 exactly: Any positive validated employee paid hours in calendar year containing20th birthday; no graduation/employment selection. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never

whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Employee participation is one component of inclusion and excludes unmeasured self-employment. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/employee20/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/employee20/descriptive/.

## Endpoint wages20

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe wage income at 20 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=wages20; reporting family=adulthood; one registered horizon=calendar_year_turning20. Construction uses D8 exactly: Annual IND.LOENMV_13/1000, preserve negatives and verified zeros, no employed-only restriction. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=1000_DKK. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Lower current wages may coexist with education; no lifetime-return or welfare inference. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/wages20/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/wages20/descriptive/.

## Endpoint resources20

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded

observed distribution and its ascertainment; it does not establish a classification effect.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe equivalized resources at 20 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=resources20; reporting family=adulthood; one registered horizon=calendar_year_turning20. Construction uses D8 exactly: Annual IND.AEKVIVADISP_13/1000 in20th-birthday calendar year. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=1000_DKK. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Resources reflect family composition and registry equivalization, not direct parental insurance. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/resources20/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/resources20/descriptive/.

## Endpoint coresidence20

- key: measurement_boundary region: The exact registered construct is demonstrably absent/incompatible in every otherwise eligible source era. says: This endpoint is not measurable under the stated contract; no descriptive or causal effect is inferred.
- key: horizon_boundary region: The construct is defined but no baseline-eligible child/relative has the registered complete nominal horizon. says: Report the age/calendar/population boundary.
- key: described region: At least one prespecified cohort/stratum has a defined construct and a computed governed summary; public suppression does not change this local state. All other cells retain their own statuses. says: Describe the bounded observed distribution and its ascertainment; it does not establish a classification effect.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Question/status: describe parental co-residence at 20 among assessed children or their baseline relatives, with no causal interpretation. Endpoint key=coresidence20; reporting family=adulthood; one registered horizon=20th_birthday. Construction uses D8 exactly: Shared valid address with either fixed baseline recorded parent; preserve unknown addresses. Required schemas are listed in this Atom and exact fields/row units/code versions are in those incorporated clauses; no alternate field or index is permitted. Eligibility uses only baseline age/grade/kinship and fixed calendar, never whether this outcome is observed. Distinguish 2015–2018,2019–2021,2022–2024 and red/yellow/green/unknown retained categories; unknown grade eligibility is reported separately, not guessed.

Ordered pseudocode: read frozen dictionaries and map the specified construct; construct D1 index population and, where relevant,D7 first-index family roster; compute expected horizon under D3; join events/statuses using D2 cardinalities; build the exact endpoint and missing flag; write a full eligible/observed/missing audit; apply DESCRIBE from I3 to all registered cohort/category cells; disclose suppression/boundary labels; write descriptives.csv with G2 columns and diagnostics.csv for denominator and era checks. Binary values are multiplied by100 for display, including equal-parent/sibling mean risks; absence rates are already percent. Display unit=pp. Never impute unknown values as zero. An individual missing response remains in the eligible count; an unavailable construct/year is a boundary rather than a low outcome. Any confidence interval is descriptive cluster sampling uncertainty, not causal or measurement-error coverage. The exact interval/seed/cluster rules are I3; no descriptive p-values or equivalence claim.

Synthetic check: replace the endpoint with missing in one fixture and ensure eligible count unchanged, observed count decreases and estimate is not filled with zero; shift its timestamp before t0 and ensure it cannot become a post-test event. Check family weighting when there are1 versus2 recorded parents and for unequal sibling counts. Output names: audit.json,judgment.json,descriptives.csv,diagnostics.csv. The causal successor may activate only under its own scientific gates; these displayed means never select its hypothesis, horizon or favorable sign. Permitted claim: Co-residence does not identify constraint, dependence, preference or reduced autonomy. If measurement fails here, this exact endpoint remains a visible boundary; other families continue.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000118/endpoints/coresidence20/descriptive/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

D10 stratum keys are mandatory. A summary suppressed in public remains described if computed internally; record computation_status separately from disclosure status. Public plotting rows are NA/suppressed. This descriptive result is never a prerequisite for its primary effect. Binding: all endpoint

descriptive files and component judgments are under prereg/runtime/atom-000118/endpoints/coresidence20/descriptive/.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000118
topic: Early-adult circumstances after assessment
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: What recorded early-adult circumstances after assessment can be
    described, and which dimensions remain unobserved?
  rationale: The descriptive life-course experiment locates age-eligible
  ↪  education,
    paid work, household income and co-residence in their birth and calendar
    cohorts. Unequal reach is part of the evidence, not an outcome-selected
    cohort.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - BFL
  - DOD
  - IND
  - KOTRE
  - UDDA
  - UDDF
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" OR state(atom-000001) == "limited"
  verdicts:
  - key: described
    region: Every registered endpoint supplies at least one computed governed
      descriptive stratum; all unobserved cells remain explicit.
    says: Describe the endpoint vector in original units and separate scopes;
      no composite or causal contrast.
  - key: partial
```

```
  region: At least one endpoint supplies a computed governed descriptive
    stratum and another endpoint supplies none.
  says: Report available endpoint-specific descriptions and each independent
    measurement, horizon or operational limitation.
- key: boundary
  region: No description is computable and every endpoint has an evidenced
    measurement/horizon/population boundary.
  says: Report which documented dimensions cannot be measured or reached;
    no statistical null.
- key: otherwise
  region: otherwise
  says: Preserve unresolved documentation or execution reasons; unknown
    evidence is not a negative result.
```

## Registered experiment

What recorded early-adult circumstances after assessment can be described, and which dimensions remain unobserved?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000118`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000201: School social experience

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes school social experience. Use all grades 4,5,6,7. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## loneliness / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000201, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This

budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/loneliness/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000201/endpoints/loneliness/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/loneliness/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## loneliness / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.

- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=loneliness; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; Q9 exact wording and frequent labels. Incorporate D4 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered

robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Reported loneliness may change through experience, interpretation or response assistance. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/loneliness/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000201. Exact component path: prereg/runtime/atom-000201/endpoints/loneliness/primary/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/loneliness/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## loneliness / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret

the contrast as sensitive to the registered local-support choice; no variant replaces primary.

- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for loneliness, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000201 and incorporated D4. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Reported loneliness may change through experience, interpretation or response assistance.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/loneliness/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000201/endpoints/loneliness/robustness/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/loneliness/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## low_belonging / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000201, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling

to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/low_belonging/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000201/endpoints/low_belonging/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/low_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## low_belonging / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.

- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=low_belonging; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; Q33 disagreement labels, not an inferred factor score. Incorporate D4 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must

support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Belonging is a consequential school experience and a prior-work benchmark. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/low_belonging/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values;

exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000201. Exact component path: prereg/runtime/atom-000201/endpoints/low_belonging/primary/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/low_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## low_belonging / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for low_belonging, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000201 and incorporated D4. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Belonging is a consequential school experience and a prior-work benchmark.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4

for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000201/endpoints/low_belonging/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000201/endpoints/low_belonging/robustness/. Cross-component primary files are read from prereg/runtime/atom-000201/endpoints/low_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.


```
id: atom-000201
topic: School social experience
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
```

```
mode: adaptive
question: Does marginal classification change school social experience?
rationale: Loneliness and school belonging jointly ask whether children's
  social experience of school changes. They remain separate binary reports,
  with separate ascertainment and directions.
assumption: Administrative recognition can affect opportunities, reporting
  and service contact through multiple routes; exact source semantics and
  continuity require evidence, not an estimator label. See literature.md
  and identification.md.
target_strength: causal
target_shape: comparison
ratings:
  importance: 5
  novelty: 3
  feasibility: 2
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- DOD
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- UDD_TRIVSEL_STORE_KLASSER
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
```

```
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change school social experience?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000201`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000202: School somatic symptoms

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json,

judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes school somatic symptoms. Use all grades 4,5,6,7. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## stomach_ache / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000202, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events.

For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/stomach_ache/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000202/endpoints/stomach_ache/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/stomach_ache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## stomach_ache / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.

- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=stomach_ache; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; Q10 exact wording and frequent labels. Incorporate D4 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: A pain report is not a diagnosed physical disease or general morbidity. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/stomach_ache/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000202. Exact component path: prereg/runtime/atom-000202/endpoints/stomach_ache/primary/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/stomach_ache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## stomach_ache / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for stomach_ache, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000202 and incorporated D4. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. A pain report is not a diagnosed physical disease or general morbidity.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal

no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/stomach_ache/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000202/endpoints/stomach_ache/robustness/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/stomach_ache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## headache / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000202, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events.

For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/headache/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000202/endpoints/headache/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/headache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## headache / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.

- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=headache; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; Q11 exact wording and frequent labels. Incorporate D4 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Headache reports can reflect stress, other causes and reporting changes. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/headache/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000202. Exact component path: prereg/runtime/atom-000202/endpoints/headache/primary/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/headache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## headache / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for headache, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000202 and incorporated D4. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Headache reports can reflect stress, other causes and reporting changes.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal

no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000202/endpoints/headache/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000202/endpoints/headache/robustness/. Cross-component primary files are read from prereg/runtime/atom-000202/endpoints/headache/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000202
topic: School somatic symptoms
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change school somatic symptoms?
  rationale: Headache and stomach ache jointly operationalize experienced
    somatic symptom burden at school. Neither is a broad physical-morbidity
    diagnosis.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
```

```
target_strength: causal
target_shape: comparison
ratings:
  importance: 5
  novelty: 3
  feasibility: 2
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- DOD
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- UDD_TRIVSEL_STORE_KLASSER
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
```

```
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change school somatic symptoms?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000202`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000205: School attendance

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes school attendance. Use all grades 4,5,6,7. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## total_absence / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000205, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This

budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/total_absence/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000205/endpoints/total_absence/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/total_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## total_absence / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.

- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=total_absence; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; annual total absent days / active days, range0–100. Incorporate D5 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=bounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never

be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Attendance measures participation; it is not a pure health or learning measure. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/total_absence/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000205. Exact component path: prereg/runtime/atom-000205/endpoints/total_absence/primary/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/total_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## total_absence / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for total_absence, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000205 and incorporated D5. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Attendance measures participation; it is not a pure health or learning measure.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/total_absence/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000205/endpoints/total_absence/robustness/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/total_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## sickness_absence / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000205, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit

outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/sickness_absence/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000205/endpoints/sickness_absence/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/sickness_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## sickness_absence / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.

- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=sickness_absence; family=school; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Baseline grades4–7; annual sickness days / active days, range0–100. Incorporate D5 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=bounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time

window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Sickness classification of school absence can change without a diagnosed disorder. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/sickness_absence/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal

component of atom-000205. Exact component path: prereg/runtime/atom-000205/endpoints/sickness_absence/primary/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/sickness_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## sickness_absence / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for sickness_absence, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000205 and incorporated D5. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Sickness classification of school absence can change without a diagnosed disorder.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4

for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000205/endpoints/sickness_absence/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000205/endpoints/sickness_absence/robustness/. Cross-component primary files are read from prereg/runtime/atom-000205/endpoints/sickness_absence/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.


```
id: atom-000205
topic: School attendance
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
```

```
mode: adaptive
question: Does marginal classification change school attendance?
rationale: Total and sickness absence jointly describe participation lost
  from recorded active school days. The sickness component is retained
  ↪  separately
  and cannot be interpreted as clinical disease.
assumption: Administrative recognition can affect opportunities, reporting
  and service contact through multiple routes; exact source semantics and
  continuity require evidence, not an estimator label. See literature.md
  and identification.md.
target_strength: causal
target_shape: comparison
ratings:
  importance: 5
  novelty: 3
  feasibility: 2
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- DOD
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
```

```
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change school attendance?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000205`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000207: Assessed reading performance

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json,

judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes assessed reading performance. Use all grades 4,5,6,7. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal reading-calibration

- key: comparable region: Every required 2015 target-grade/year/calibration link meets D9 documentary criteria. says: One pooled reading contrast has a documented common scale, conditional on other gates.
- key: incompatible region: At least one required link is authoritatively inconsistent. says: Pooled reading effect is restricted; separately labeled descriptions remain useful.
- key: unresolved region: No contradiction is established but at least one required common-calibration link is unverified. says: Common scale is not established; no pooled reading claim.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Population is the fixed school grades4–7 target and its D5 scheduled grades6/8 years. Unit=construct/calibration link, not pupil. Inspect UDD_NATTEST_GENBEREGNEDE FAG,FAGID,THETA,KLASSETRIN,NORM,GENBEREGNET,SKOLEAAR,TEST_DATOTID metadata before values. Apply D9 common-origin/unit/item-link criteria. Assert each scheduled stratum maps to one documented calibration identifier; no duplicate or conflicting mappings are averaged. Output calibration.csv: target_grade,calendar_year,calibration_id,construct,origin_unit_verified,link_verified,source_locator,status,reas No model or test; equivalence of observed score distributions cannot be evidence. Synthetic test: identical THETA field names with absent linking evidence yields unresolved. The primary reading Atom records measurement_boundary for incompatible and otherwise/common_calibration_unverified for unresolved; descriptive strata retain exact units. No additional causal estimands or standardization.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000207/reading-calibration/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## reading_theta / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000207, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Ascertainment requires each source-stratum construct and observation flag, not common-scale pooling or historical income correction. A reading calibration-link failure does not prevent judging whether a documented scheduled reading test was observed. Income correction uncertainty does not prevent judging presence of its recorded

variable. Common-scale and intended-resource interpretations remain restricted in the primary Atom. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000207/endpoints/reading_theta/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000207/endpoints/reading_theta/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000207/endpoints/reading_theta/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## reading_theta / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata.

says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.

- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=reading_theta; family=school; fixed horizon=scheduled_next_reading_test; display unit=THETA. Population and exact coding: Baseline grades4–7; targetgrade6 ifbaseline4/5,8 if6/7; fixed expected school year, earliest scheduled test. Incorporate D5 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case

sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Assessed performance cannot separate unaided decoding from access/accommodations. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000207/endpoints/reading_theta/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason.

Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000207. Before any reading fit, if D9 reading-calibration audit is incompatible, return measurement_boundary for the pooled common-scale construct. If D9 reading-calibration audit is unresolved, return otherwise with reason common_calibration_unverified; unresolved documentary evidence is not known incompatibility. Descriptives stay stratified. If D9 reading-calibration audit no_result, required verification was not executed: this dependent verification cannot become a boundary or corrected guess; report no_result. Exact component path: prereg/runtime/atom-000207/endpoints/reading_theta/primary/. Cross-component primary files are read from prereg/runtime/atom-000207/endpoints/reading_theta/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## reading_theta / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for reading_theta, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000207 and incorporated D5. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=THETA, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be

computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Assessed performance cannot separate unaided decoding from access/accommodations.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000207/endpoints/reading_theta/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000207/endpoints/reading_theta/robustness/. Cross-component primary files are read from prereg/runtime/atom-000207/endpoints/reading_theta/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000207
topic: Assessed reading performance
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change assessed reading performance?
  rationale: The next scheduled reading assessment concerns demonstrated
  ↪  reading
    performance across a prespecified linked scale. Its calibration question
    is internal; it remains distinct from later teacher assessments with a
    different target grade set.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - DOD
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_NATTEST_GENBEREGNEDE
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
    ↪  "eligible_nonsharp")
  verdicts:
  - key: sensitive
    region: At least one endpoint has a computed I4 sensitivity contradiction.
      This precedence applies even if another endpoint/variant fails.
    says: Name every affected endpoint and variant; retain all primary
    ↪  estimates
      and independent component failures without replacing a primary.
  - key: mixed_direction
    region: No preceding region; at least one qualified increase and one
    ↪  qualified
      decrease among this experiment's endpoints. Qualified means valid
      ↪  primary
      interval/bounds and stable own robustness.
```

```
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change assessed reading performance?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000207`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000208: Teacher-assessed Danish

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate

only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes teacher-assessed danish. Use all grades 4,5,6,7,8. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## danish_grade / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.

- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000208, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000208/endpoints/danish_grade/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000208/endpoints/danish_grade/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000208/endpoints/danish_grade/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## danish_grade / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=danish_grade; family=school; fixed horizon=scheduled_grade9_year; display unit=grade_points. Population and exact coding: Baseline grades4–8; mean final Danish teacher disciplines in scheduled grade9 year, range[-3,12]. Incorporate D5 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce

missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=grade; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Teacher grades reflect assessed achievement and expectations; exam performance is not substituted. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000208/endpoints/danish_grade/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display

status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000208. Exact component path: prereg/runtime/atom-000208/endpoints/danish_grade/primary/. Cross-component primary files are read from prereg/runtime/atom-000208/endpoints/danish_grade/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## danish_grade / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for danish_grade, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000208 and incorporated D5. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=grade_points, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad

policy conclusion. Teacher grades reflect assessed achievement and expectations; exam performance is not substituted.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000208/endpoints/danish_grade/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000208/endpoints/danish_grade/robustness/. Cross-component primary files are read from prereg/runtime/atom-000208/endpoints/danish_grade/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000208
topic: Teacher-assessed Danish
atom_result: prereg
atom_strength: null
```

```
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change teacher-assessed danish?
  rationale: Teacher-assessed Danish at scheduled grade 9 is a distinct
  ↪  educational
    assessment horizon and population from the reading test. Its conclusion
    can stand when reading calibration fails.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - DOD
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - UDFK
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
    ↪  "eligible_nonsharp")
  verdicts:
  - key: sensitive
    region: At least one endpoint has a computed I4 sensitivity contradiction.
      This precedence applies even if another endpoint/variant fails.
    says: Name every affected endpoint and variant; retain all primary
    ↪  estimates
      and independent component failures without replacing a primary.
  - key: mixed_direction
    region: No preceding region; at least one qualified increase and one
    ↪  qualified
      decrease among this experiment's endpoints. Qualified means valid
      ↪  primary
      interval/bounds and stable own robustness.
    says: Report the discordant endpoint directions in their original
    ↪  units/scopes;
      do not average or assign a common welfare sign.
```

```
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪ failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪ restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪ target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪ insignificance.
```

## Registered experiment

Does marginal classification change teacher-assessed danish?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000208`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000209: Recorded depressive/anxiety care

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never

coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes recorded depressive/anxiety care. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal hospital-era

- key: both region: Legacy and new model keys, roles and phenotype dates each validate separately. says: Both eras support separately reported encounter constructs; equivalence across eras is not assumed.
- key: legacy_only region: Legacy mapping validates and new mapping is documented incompatible or unresolved. says: 2015 causal care windows and legacy descriptions remain possible; new-era claims are bounded.
- key: new_only region: New mapping validates but legacy mapping is documented incompatible or unresolved. says: New-era descriptions remain possible; the registered 2015 hospital effect cannot run.
- key: boundary region: Both models are demonstrably incompatible with the registered person-contact phenotype. says: No hospital-coded endpoint under this contract; school symptoms/community services remain independent.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Independent construct diagnostic, D6. Read legacy administration/diagnosis RECNUM semantics and the LPR3 DW_EK_KONTAKT dictionary, diagnosis-role

labels, validity-date SKS mapping and reference periods. At runtime assert old contact:many-diagnosis and new contact:many-diagnosis cardinalities; compare label semantics and code inclusion but do not use agreement of effects to declare harmonization. Report old psychiatric/general overlap by person/date/code, missing roles and model vintage. A valid legacy model is sufficient for spring 2015+730days and does not depend on LPR3. Post2019 descriptions use the new model separately; no pooled cross-era causal contrast is registered. Output diagnostics.csv rows old_key,old_roles,old_codes,new_key,new_roles,new_codes,era_overlap_semantics. No p-values. Synthetic repeated diagnoses must produce one person-day; same key with two people fails the join; expired SKS code cannot be included. This judgment concerns observed clinical coding, not sensitivity/specificity for latent disorder.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/hospital-era/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## depressive_encounter / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.

- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000209, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/depressive_encounter/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000209/endpoints/depressive_encounter/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/depressive_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## depressive_encounter / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=depressive_encounter; family=care; fixed horizon=days1_to730_before_exit; display unit=pp. Population and exact coding: DF32/DF33 valid-date action/secondary diagnoses, collapse person/contact date; all prior histories retained. Incorporate D6 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code

and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Recorded depressive care cannot identify incidence or severity of depression. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/depressive_encounter/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval

spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000209. Exact component path: prereg/runtime/atom-000209/endpoints/depressive_encounter/primary/. Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/depressive_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## depressive_encounter / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for depressive_encounter, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000209 and incorporated D6. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the

expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Recorded depressive care cannot identify incidence or severity of depression.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/depressive_encounter/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000209/endpoints/depressive_encounter/robustness/. Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/depressive_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## anxiety_stress_encounter / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.

- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000209, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result

constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/ascertainmen
Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## anxiety_stress_encounter / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=anxiety_stress_encounter; family=care; fixed horizon=days1_to730_before_exit; display unit=pp. Population and exact coding: DF40/DF41/DF43 valid-date action/secondary diagnoses; a separate endpoint from depression. Incorporate D6 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular

support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Anxiety/stress-coded encounters reflect symptoms, referral, access and coding. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and

verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000209. Exact component path: prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/primary/. Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## anxiety_stress_encounter / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for anxiety_stress_encounter, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000209 and incorporated D6. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available

scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Anxiety/stress-coded encounters reflect symptoms, referral, access and coding.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/robustness/.
Cross-component primary files are read from prereg/runtime/atom-000209/endpoints/anxiety_stress_encounter/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000209
topic: Recorded depressive/anxiety care
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change recorded depressive/anxiety
    care?
  rationale: Depressive and anxiety/stress encounters jointly ask about
  ↪  recorded
    distress-related hospital care. The two phenotype directions and
    ↪  legacy/new-era
    limitations remain separate; no combined clinical outcome is introduced.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - DOD
  - LPR_ADM
  - LPR_A_DIAGNOSE
  - LPR_A_KONTAKT
  - LPR_DIAG
  - PSYK_ADM
  - PSYK_DIAG
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
    ↪  "eligible_nonsharp")
```

```
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

# Registered experiment

Does marginal classification change recorded depressive/anxiety care?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000209`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000211: Community care use

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes community care use. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

### community_specialist / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000211, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference;

local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/community_specialist/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000211/endpoints/community_specialist/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/community_specialist/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## community_specialist / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot

study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=community_specialist; family=care; fixed horizon=whole_billing_weeks_to730; display unit=pp. Population and exact coding: Positive corrected KONTAKT in SPEC2{24,26,35,63}; billing-week chronology. Incorporate D6 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Public-reimbursed specialist use excludes private/unrecorded care and is not latent mental health. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered

schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/community_specialist/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000211. Exact component path: prereg/runtime/atom-000211/endpoints/community_specialist/primary/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/community_specialist/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## community_specialist / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for community_specialist, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000211 and incorporated D6. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do

not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Public-reimbursed specialist use excludes private/unrecorded care and is not latent mental health.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/community_specialist/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component

path: prereg/runtime/atom-000211/endpoints/community_specialist/robustness/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/community_specialist/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## gp_contact / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000211, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the

explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/gp_contact/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000211/endpoints/gp_contact/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/gp_contact/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## gp_contact / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=gp_contact; family=care; fixed horizon=whole_billing_weeks_to730; display unit=pp. Population and exact coding: SPEC2=80, net positive KONTAKT, exclude chronic honoraria0130–0133; billing week. Incorporate D6 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: GP contact may represent recognition/help-seeking and cannot be assigned a beneficial/adverse health sign. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the

explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/gp_contact/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000211. Exact component path: prereg/runtime/atom-000211/endpoints/gp_contact/primary/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/gp_contact/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## gp_contact / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for gp_contact, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness

are exactly those of atom-000211 and incorporated D6. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. GP contact may represent recognition/help-seeking and cannot be assigned a beneficial/adverse health sign.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000211/endpoints/gp_contact/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit

with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000211/endpoints/gp_contact/robustness/. Cross-component primary files are read from prereg/runtime/atom-000211/endpoints/gp_contact/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000211
topic: Community care use
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change community care use?
  rationale: GP and psychiatric/psychology billing contacts jointly ask how
    public-reimbursed community service use changes. General and specialist
    contacts retain separate clocks, categories and claims; they are not
    ↪  diagnoses.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - DOD
  - SSSY
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
```

```
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
```

```
says: The experiment remains unresolved. Preserve every component state,
  terminal and unavailable reason; operational failure is not
  ↪ insignificance.
```

## Registered experiment

Does marginal classification change community care use?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000211`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000213: Parental recorded care

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes parental recorded care. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when

primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal hospital-era

- key: both region: Legacy and new model keys, roles and phenotype dates each validate separately. says: Both eras support separately reported encounter constructs; equivalence across eras is not assumed.
- key: legacy_only region: Legacy mapping validates and new mapping is documented incompatible or unresolved. says: 2015 causal care windows and legacy descriptions remain possible; new-era claims are bounded.
- key: new_only region: New mapping validates but legacy mapping is documented incompatible or unresolved. says: New-era descriptions remain possible; the registered 2015 hospital effect cannot run.
- key: boundary region: Both models are demonstrably incompatible with the registered person-contact phenotype. says: No hospital-coded endpoint under this contract; school symptoms/community services remain independent.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Independent construct diagnostic, D6. Read legacy administration/diagnosis RECNUM semantics and the LPR3 DW_EK_KONTAKT dictionary, diagnosis-role labels, validity-date SKS mapping and reference periods. At runtime assert old contact:many-diagnosis and new contact:many-diagnosis cardinalities; compare label semantics and code inclusion but do not use agreement of effects to declare harmonization. Report old psychiatric/general overlap by person/date/code, missing roles and model vintage. A valid legacy model is sufficient for spring 2015+730days and does not depend on LPR3. Post2019 descriptions use the new model separately; no pooled cross-era causal contrast is registered. Output diagnostics.csv rows old_key,old_roles,old_codes,new_key,new_roles,new_codes,era_overlap_semantics. No p-values. Synthetic repeated diagnoses must produce one person-day; same key with two people fails the join; expired SKS code cannot be included. This judgment concerns observed clinical coding, not sensitivity/specificity for latent disorder.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal

no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000213/hospital-era/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000213/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## parent_care / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000213, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000213/endpoints/parent_care/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000213/endpoints/parent_care/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000213/endpoints/parent_care/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_care / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead.

says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=parent_care; family=family; fixed horizon=child_days1_to730; display unit=pp. Population and exact coding: Mean over fixed recorded parents of any DF32/33/40/41/43 encounter; not restricted to resident mothers. Incorporate D6/D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Parental recorded care cannot quantify caregiving burden; own recognition is a rival route. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000213/endpoints/parent_care/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000213. Exact component path: prereg/runtime/atom-000213/endpoints/parent_care/primary/. Cross-component primary files are read from prereg/runtime/atom-000213/endpoints/parent_care/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_care / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason.

Registered robustness judgment for parent_care, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000213 and incorporated D6/D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Parental recorded care cannot quantify caregiving burden; own recognition is a rival route.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000213/endpoints/parent_care/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit

with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000213/endpoints/parent_care/robustness/. Cross-component primary files are read from prereg/runtime/atom-000213/endpoints/parent_care/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000213
topic: Parental recorded care
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change parental recorded care?
  rationale: Parental health-service responses concern a different affected
    unit and cannot be absorbed into the child-care effect or parental work.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - DOD
  - LPR_ADM
  - LPR_A_DIAGNOSE
  - LPR_A_KONTAKT
  - LPR_DIAG
```

```
- PSYK_ADM
- PSYK_DIAG
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
```

```
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change parental recorded care?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000213`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000214: Sibling school experience

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes sibling school experience. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment,

primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000214/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## sibling_belonging / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000214, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000214/endpoints/sibling_belonging/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000214/endpoints/sibling_belonging/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000214/endpoints/sibling_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## sibling_belonging / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead.

says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=sibling_belonging; family=family; fixed horizon=first_full_school_year; display unit=pp. Population and exact coding: Mean low-belonging outcome among fixed baseline siblings aged9–14 in grades4–7; no eligible siblings means outside this estimand. Incorporate D4/D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Sibling experience is independently consequential and does not identify resource diversion. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000214/endpoints/sibling_belonging/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000214. Exact component path: prereg/runtime/atom-000214/endpoints/sibling_belonging/primary/. Cross-component primary files are read from prereg/runtime/atom-000214/endpoints/sibling_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## sibling_belonging / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for sibling_belonging, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000214 and incorporated D4/D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Sibling experience is independently consequential and does not identify resource diversion.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000214/endpoints/sibling_belonging/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000214/endpoints/sibling_belonging/robustness/. Cross-component primary files are read from prereg/runtime/atom-000214/endpoints/sibling_belonging/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000214
topic: Sibling school experience
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change sibling school experience?
  rationale: Siblings' school belonging is an independently consequential
    spillover question on a baseline sibling roster; parental-care or resource
    failures cannot suppress it.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - DOD
```

```
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- UDD_TRIVSEL_STORE_KLASSER
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
```

```
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change sibling school experience?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000214`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000215: Household material resources

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes household material resources. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component

is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For FAIK.FAMAEKVIVADISP_13, primary year=2016; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference;

local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000215/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Year-specific descriptive provenance: in addition to the primary 2016 judgment, correction.csv contains one adjudicated record for each delivered FAIK.FAMAEKVIVADISP_13 reference year 2016–2024 used by atom-000113. No 2016 local state is propagated to another year. Apply D9 separately to the exact delivery-variable-year; preserve known year-specific recording issues, including the separately documented 2019 correction, rather than assuming every issue is the 2014–2016 error. corrected requires an exact dated provider provenance statement establishing the intended definition and resolution of applicable documented issues in that delivered year; merely being outside 2014–2016 or newly delivered is insufficient. known_uncorrected requires explicit affected-version evidence for that year; otherwise unresolved. This retains the three existing dispositions without assuming favorable later years. Add delivery_checksum and provenance_id (unique release-safe record identifier) to correction.csv; retain full source_locator and criterion in the governed record. Its unique key is (table,variable,reference_year,delivery_id), one record per key. Conflicting source claims are one adjudicated unresolved record, never duplicate conflicting rows. An omitted/inaccessible record is unavailable binding, distinct from an adjudicated unresolved correction. atom-000113 may perform this same documentation check locally when the primary-2016 diagnostic is unrun; it must preserve the same key and criteria in its own income-provenance.csv, not infer a local result for this Atom. Descriptive work is not globally gated by this Atom. The local D9 family-income audit state remains the 2016 judgment only; supplementary years are interface provenance, not new effect tests. ## family_resources / ascertainment - key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference. - key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible. - key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim. - key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random. - key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate. - key: otherwise

region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000215, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Ascertainment requires each source-stratum construct and observation flag, not common-scale pooling or historical income correction. A reading calibration-link failure does not prevent judging whether a documented scheduled reading test was observed. Income correction uncertainty does not prevent judging presence of its recorded variable. Common-scale and intended-resource interpretations remain restricted in the primary Atom. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000215/endpoints/family_resources/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000215/endpoints/family_resources/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000215/endpoints/family_resources/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## family_resources / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=family_resources; family=family; fixed horizon=calendar_year_after_test; display unit=1000_DKK. Population and exact coding: FAIK.FAMAEKVIVADISP_13/1000 via child current December FAMILIE_ID in year(t0)+1. Incorporate D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain

unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Current equivalized family resources include household composition; they are not consumption or transfers. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000215/endpoints/family_resources/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains

the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000215. Read D9 family-income audit status before values. Corrected licenses the intended documented measure; known_uncorrected/unresolved uses the frozen recorded-income proxy with correction_status preserved. An operationally failed status check prevents value analysis (no_result), not an assumed correction.

Mandatory figure interface: the G2 family-income display contract is part of this protocol. Copy correction_status, interpretation_ceiling, metadata_status and scope_id from the same frozen primary scope into every effects/robustness row, including unavailable specifications. Correction metadata cannot change with bandwidth or sign. In the governed exporter assert one-to-one scope binding and equality with D9 family-income audit; public scope_id is an opaque release-safe label, not a person-set digest. Corrected maps to documented_resources, known_uncorrected/unresolved maps to recorded_income_proxy. Missing evidence produces an explicit unavailable_metadata ceiling with NA values, never a resource claim. Preserve horizon and interval_alpha on each robustness row: primary .05/24, sensitivities .05. Figures6/7 must display the proxy and correction restriction visibly under G2. No estimator, endpoint or uncertainty allocation changes. Exact component path: prereg/runtime/atom-000215/endpoints/family_resources/primary/. Cross-component primary files are read from prereg/runtime/atom-000215/endpoints/family_resources/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## family_resources / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for family_resources, not an additional primary

discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000215 and incorporated D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=1000_DKK, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Current equivalized family resources include household composition; they are not consumption or transfers.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000215/endpoints/family_resources/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No

joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys.

Mandatory figure interface: the G2 family-income display contract is part of this protocol. Copy correction_status, interpretation_ceiling, metadata_status and scope_id from the same frozen primary scope into every effects/robustness row, including unavailable specifications. Correction metadata cannot change with bandwidth or sign. In the governed exporter assert one-to-one scope binding and equality with D9 family-income audit; public scope_id is an opaque release-safe label, not a person-set digest. Corrected maps to documented_resources, known_uncorrected/unresolved maps to recorded_income_proxy. Missing evidence produces an explicit unavailable_metadata ceiling with NA values, never a resource claim. Preserve horizon and interval_alpha on each robustness row: primary .05/24, sensitivities .05. Figures6/7 must display the proxy and correction restriction visibly under G2. No estimator, endpoint or uncertainty allocation changes. Exact component path: prereg/runtime/atom-000215/endpoints/family_resources/robustness/. Cross-component primary files are read from prereg/runtime/atom-000215/endpoints/family_resources/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000215
topic: Household material resources
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change household material resources?
  rationale: Current household equivalized income addresses material
  ↪  circumstances
    and reconstitution; parents' earnings do not substitute for it. Provenance
    limits belong inside this experiment.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
```

```
  and identification.md.
target_strength: causal
target_shape: comparison
ratings:
  importance: 5
  novelty: 3
  feasibility: 2
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- BEFBOP
- DOD
- FAIK
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
```

```
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change household material resources?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000215`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000216: Parental paid work

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is

an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes parental paid work. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the

explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## parent_hours / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000216, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome

without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_hours/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000216/endpoints/parent_hours/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_hours/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_hours / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing

exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.

- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=parent_hours; family=family; fixed horizon=calendar_year_after_test; display unit=hours. Population and exact coding: Mean annual sum AJO_LOENTIMER over fixed parents; retain imputed hours, report share, include validated employee zeros. Incorporate D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Employee hours cannot measure self-employment, advocacy time or total family welfare. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_hours/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000216. Exact component path: prereg/runtime/atom-000216/endpoints/parent_hours/primary/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_hours/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_hours / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for parent_hours, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000216 and incorporated D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=hours, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Employee hours cannot measure self-employment, advocacy time or total family welfare.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_hours/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000216/endpoints/parent_hours/robustness/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_hours/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_wages / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000216, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit

outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_wages/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000216/endpoints/parent_wages/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_wages/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_wages / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.

- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=parent_wages; family=family; fixed horizon=calendar_year_after_test; display unit=1000_DKK. Population and exact coding: Mean IND.LOENMV_13/1000 over fixed parents inyear(t0)+1, not employed-only; same resource missingness/annual-slice rules. Incorporate D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded

missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Wages are separate from paid hours and resources; neither identifies advocacy costs. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_wages/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values;

exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000216. Exact component path: prereg/runtime/atom-000216/endpoints/parent_wages/primary/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_wages/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_wages / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for parent_wages, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000216 and incorporated D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=1000_DKK, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Wages are separate from paid hours and resources; neither identifies advocacy costs.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4

for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000216/endpoints/parent_wages/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000216/endpoints/parent_wages/robustness/. Cross-component primary files are read from prereg/runtime/atom-000216/endpoints/parent_wages/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.


```
id: atom-000216
topic: Parental paid work
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
```

```
mode: adaptive
question: Does marginal classification change parental paid work?
rationale: Paid hours and wage income describe parents' paid-work response
  through quantity and remuneration. Their joint interpretation preserves
  units and discordance and cannot measure unpaid advocacy time.
assumption: Administrative recognition can affect opportunities, reporting
  and service contact through multiple routes; exact source semantics and
  continuity require evidence, not an estimator label. See literature.md
  and identification.md.
target_strength: causal
target_shape: comparison
ratings:
  importance: 5
  novelty: 3
  feasibility: 2
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- BEFBOP
- BFL
- DOD
- IND
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
```

```
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change parental paid work?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000216`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000217: Parental recognition response

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These

fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes parental recognition response. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values.

Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000217/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## parent_assessment / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000217, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for

each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000217/endpoints/parent_assessment/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000217/endpoints/parent_assessment/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000217/endpoints/parent_assessment/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_assessment / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata.

says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.

- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=parent_assessment; family=family; fixed horizon=child_days1_to730; display unit=pp. Population and exact coding: Mean fixed-parent indicator of later retained national-test DATO; no pilot/reason inference. Incorporate D7 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer

bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Subsequent retained assessment is a possible family-recognition response, not first lifetime dyslexia. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000217/endpoints/parent_assessment/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance

reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000217. Exact component path: prereg/runtime/atom-000217/endpoints/parent_assessment/primary/. Cross-component primary files are read from prereg/runtime/atom-000217/endpoints/parent_assessment/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## parent_assessment / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for parent_assessment, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000217 and incorporated D7. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Subsequent retained assessment is a possible family-recognition response, not first lifetime dyslexia.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000217/endpoints/parent_assessment/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000217/endpoints/parent_assessment/robustness/. Cross-component primary files are read from prereg/runtime/atom-000217/endpoints/parent_assessment/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000217
topic: Parental recognition response
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
```

```
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change parental recognition response?
  rationale: Subsequent retained parental assessment tests an own-recognition
    response, which can inform family interpretation without waiting for
    ↪  parental
    care, income or work.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
  - DOD
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
    ↪  "eligible_nonsharp")
  verdicts:
  - key: sensitive
    region: At least one endpoint has a computed I4 sensitivity contradiction.
      This precedence applies even if another endpoint/variant fails.
    says: Name every affected endpoint and variant; retain all primary
    ↪  estimates
      and independent component failures without replacing a primary.
  - key: mixed_direction
    region: No preceding region; at least one qualified increase and one
    ↪  qualified
      decrease among this experiment's endpoints. Qualified means valid
      ↪  primary
      interval/bounds and stable own robustness.
    says: Report the discordant endpoint directions in their original
    ↪  units/scopes;
      do not average or assign a common welfare sign.
  - key: directional
```

```
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪ failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪ restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪ target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪ insignificance.
```

## Registered experiment

Does marginal classification change parental recognition response?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000217`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000218: Educational progression and attainment

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never

coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes educational progression and attainment. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## education18 / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.

- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000218, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/education18/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000218/endpoints/education18/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/education18/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## education18 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=education18; family=adulthood; fixed horizon=18th_birthday; display unit=pp. Population and exact coding: Covering KOTRE spell classified DISCED15 level3+ by dated UDD crosswalk. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce

missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Educational participation at 18 is a benchmark and does not establish completed attainment. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/education18/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display

status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000218. Exact component path: prereg/runtime/atom-000218/endpoints/education18/primary/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/education18/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## education18 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for education18, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000218 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy

conclusion. Educational participation at 18 is a benchmark and does not establish completed attainment.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/education18/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000218/endpoints/education18/robustness/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/education18/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## attainment20 / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.

- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000218, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/attainment20/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000218/endpoints/attainment20/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/attainment20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## attainment20 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=attainment20; family=adulthood; fixed horizon=20th_birthday; display unit=pp. Population and exact coding: Valid HFAUDD spell on20th birthday classified at least upper-secondary completion, not an exit code alone. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain

unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Completion overlaps prior work; it does not establish material security. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/attainment20/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains

the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000218. Exact component path: prereg/runtime/atom-000218/endpoints/attainment20/primary/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/attainment20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## attainment20 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for attainment20, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000218 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the

primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Completion overlaps prior work; it does not establish material security.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000218/endpoints/attainment20/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000218/endpoints/attainment20/robustness/. Cross-component primary files are read from prereg/runtime/atom-000218/endpoints/attainment20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000218
topic: Educational progression and attainment
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change educational progression and
    attainment?
  rationale: Formal education at 18 and attained qualification by 20 jointly
    address progression and completion. Their distinct age/calendar
    ↪  eligibility,
    directions and unavailable horizons remain separate; neither requires
    the other to be observed.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - DOD
  - KOTRE
  - UDDA
  - UDDF
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
    ↪  "eligible_nonsharp")
  verdicts:
```

```
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

# Registered experiment

Does marginal classification change educational progression and attainment?

Prospective registration. No study values or empirical results have been observed.

## Reference implementation

Entry point and supported/unresolved components for `atom-000218`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

# atom-000220: Early-adult paid work

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes early-adult paid work. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## employee20 / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.

- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000220, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/employee20/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000220/endpoints/employee20/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/employee20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## employee20 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=employee20; family=adulthood; fixed horizon=calendar_year_turning20; display unit=pp. Population and exact coding: Any positive validated employee paid hours in calendar year containing20th birthday; no graduation/employment selection. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family

indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Employee participation is one component of inclusion and excludes unmeasured self-employment. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/employee20/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000220. Exact component path: prereg/runtime/atom-000220/endpoints/employee20/primary/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/employee20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## employee20 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for employee20, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000220 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or

bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Employee participation is one component of inclusion and excludes unmeasured self-employment.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/employee20/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000220/endpoints/employee20/robustness/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/employee20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000220, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference;

local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/wages20/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000220/endpoints/wages20/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/wages20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## wages20 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring

2015 historical margin only. Endpoint=wages20; family=adulthood; fixed horizon=calendar_year_turning20; display unit=1000_DKK. Population and exact coding: Annual IND.LOENMV_13/1000, preserve negatives and verified zeros, no employed-only restriction. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Lower current wages may coexist with education; no lifetime-return or welfare inference. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered

schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/wages20/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000220. Exact component path: prereg/runtime/atom-000220/endpoints/wages20/primary/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/wages20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## wages20 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for wages20, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000220 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary

24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=1000_DKK, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Lower current wages may coexist with education; no lifetime-return or welfare inference.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000220/endpoints/wages20/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000220/endpoints/wages20/robustness/. Cross-component primary files are read from prereg/runtime/atom-000220/endpoints/wages20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000220
topic: Early-adult paid work
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change early-adult paid work?
  rationale: Employee participation and wages in the year of turning 20
  ↪  jointly
    describe paid-work entry and remuneration. Zero employee hours is not
    comprehensive nonemployment, and studying is not failure.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BFL
  - DOD
  - IND
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  - VNDS
  activation: state(atom-000001) == "ready" AND state(atom-000002) ==
  ↪  "compatible"
    AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
    ↪  "eligible_nonsharp")
    AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
    ↪  "eligible_nonsharp")
```

```
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

# Registered experiment

Does marginal classification change early-adult paid work?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000220`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000222: Early-adult household circumstances

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scope and order: this experiment asks whether marginal national-test classification changes early-adult household circumstances. Use all grades 4,5,6,7,8,9. Each endpoint below is a separate slot in the unchanged 24-slot primary family; its ascertainment belongs to the separate 24-slot diagnostic family. No endpoint value activates another endpoint. After the native grade activation passes, first perform each endpoint's own calendar/construct/relative/provenance checks, then ascertainment, primary estimation, and mandatory robustness whenever its primary component is increase/decrease/uncertain/selection_limited. An evidenced primary boundary makes its robustness internally not_activated. Ascertainment can finish even when primary or robustness fails, and primary does not require an insignificant ascertainment test. Robustness no_result never becomes stable. Aggregate only after every scheduled component completes, is evidenced ineligible, or has a recorded operational terminal. Preserve completed components when another fails; if all scientific work fails operationally use Atom terminal no_result.

## Internal relatives

- key: usable region: Pretest linkage semantics verified; all known relations have unique valid mappings and unknown roles are explicitly marked. says: Fixed recorded-parent/sibling targets can be studied with their baseline scope limitations.
- key: boundary region: Documentation establishes no dated parental linkage or incompatible key classes, so no baseline family target can be constructed. says: Family outcomes cannot be attributed to the index child under this delivery; child outcomes remain eligible.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Use D7 fixed pretest BEF snapshot, MOR_ID/FAR_ID, FOED_DAG, PNR, FAMILIE_ID and BEFBOP dated address intervals. Parent IDs must share the child PNR linkage class. Assert each child has at most one recorded value per parent role per snapshot; missing roles are unknown, not childless/no carer. Construct sibling sets by nonmissing shared parent; establish baseline school-grade eligibility with prior-month absence. Scan index assessments chronologically with fixed hash ties as D7. Report resident/nonresident parent links, one/two known roles, eligible sibling sets, conflicts and baseline missingness. This is the scope of recorded kinship, not validation of genetic relatedness or caregiving. Output diagnostics.csv with linkage proportions and conflict dispositions. No substantive outcome needed; no p-values. Synthetic fixture: two children with missing fathers are not siblings, subsequent births are excluded, later parental diagnosis cannot change roster. A complete roster at birth does not guarantee future response. Family branch uses only scientifically interpretable pretest links.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/relatives/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000222, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference;

local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/resources20/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000222/endpoints/resources20/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/resources20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## resources20 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015

historical margin only. Endpoint=resources20; family=adulthood; fixed horizon=calendar_year_turning20; display unit=1000_DKK. Population and exact coding: Annual IND.AEKVIVADISP_13/1000 in20th-birthday calendar year. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=unbounded; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Resources reflect family composition and registry equivalization, not direct parental insurance. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition;

baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/resources20/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000222. Exact component path: prereg/runtime/atom-000222/endpoints/resources20/primary/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/resources20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## resources20 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for resources20, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness are exactly those of atom-000222 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do

not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=1000_DKK, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Resources reflect family composition and registry equivalization, not direct parental insurance.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/resources20/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and

preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000222/endpoints/resources20/robustness/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/resources20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## coresidence20 / ascertainment

- key: differential region: Valid observation-indicator Bonferroni24 interval excludes zero. says: Observation varies at the threshold; bounds/selection ceilings remain mandatory, with no latent-health inference.
- key: structural_complete region: Documented complete universe plus all eligible outcomes defined and observed. says: No missing-outcome selection in this recorded construct; measurement error and detection remain possible.
- key: constant_observed region: Observation indicator is globally constant without documentary completeness, including all missing. says: Report its arithmetic value and denominator; no inferential balance or absence-of-selection claim.
- key: not_flagged region: Valid observation interval includes zero. says: No detected discontinuity in this observation indicator; no proof of missing at random.
- key: boundary region: Required horizon, construct or indicator is demonstrably undefined. says: This observation question is bounded; no manufactured missingness rate.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Internal ascertainment diagnostic on exactly the baseline-eligible population and horizon of atom-000222, with the same table/field/version/join/exit definitions, fixed grades and baseline weights. Do not require that primary to finish and do not use its sign. First construct whether the registered endpoint is defined and observed for each baseline index; no value or realized employment changes eligibility. Atom-specific D9 calibration/correction checks still apply. For defined event-before-exit outcomes, complete event universe establishes observation even for zero events. For undefined after-death school/state outcomes, report undefined proportion separately; never classify death as a negative symptom. Apply I5 constant handling to the observation indicator; documentary arithmetic can be structural_complete, observed constants have no p-value. Otherwise apply I3 as a binary outcome without outcome missingness, and 24-slot Bonferroni diagnostic FWER .05. This budget is distinct from the 24 primary outcomes and baseline48. Output ascertainment.csv (G2) plus estimator-components.csv for any fit, diagnostics.csv, audit.json, judgment.json. Include observation fractions by side, undefined/death/emigration counts and denominators, exact horizon and p_raw/p_adjusted only for a valid contrast. A detected or undetected difference cannot choose a new endpoint/model, waive bounds or identify MAR. Synthetic all-complete, all-unobserved, varying indicator and death-undefined fixtures test the local regions. Every state is narrated in Table S2 through its own result slot; no public suppressed value gates computation.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the

explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/coresidence20/ascertainment/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Exact component path: prereg/runtime/atom-000222/endpoints/coresidence20/ascertainment/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/coresidence20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## coresidence20 / primary

- key: measurement_boundary region: The2015 endpoint dictionary, source era or required link is demonstrably incompatible, including missing required grade strata. says: The causal endpoint is unavailable under this frozen margin; broader cohort descriptions do not repair it.
- key: horizon_boundary region: No baseline-eligible2015 index has the prespecified nominal horizon or baseline-relative target. says: The specific age/horizon effect cannot be evaluated.
- key: selection_limited region: Endpoint is unbounded and any unresolved postbaseline endpoint missingness remains, or the endpoint is undefined after a competing exit without defensible bounds. says: Available-case jumps may be described, but no all-eligible causal point or directional claim is licensed.
- key: increase region: A valid study-wide simultaneous primary interval or outer bound interval has lower>0. says: Positive local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: decrease region: A valid study-wide simultaneous primary interval or outer bound interval has upper<0. says: Negative local threshold-policy contrast in these registered units, subject to the measurement and identification restrictions.
- key: uncertain region: A valid interval contains zero, OR a completed arithmetic/rank/support assessment establishes an unestimable/degenerate endpoint with no valid directional interval. Software/access exceptions are no_result instead. says: The registered evidence does not resolve direction; report magnitude, width, missingness and no equivalence conclusion.

- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Inferential status: one prespecified directional slot in the 24-slot study-wide family; conditional causal interpretation for the spring 2015 historical margin only. Endpoint=coresidence20; family=adulthood; fixed horizon=20th_birthday; display unit=pp. Population and exact coding: Shared valid address with either fixed baseline recorded parent; preserve unknown addresses. Incorporate D8 and D1–D3, including individual exclusions, date-based eligibility, join cardinalities, code dictionaries and missingness. D7 first-family indexing applies to relatives' outcomes. No actual graduation, employment, care use, intact family or future response condition determines eligibility.

Estimand: red-minus-adjacent-yellow local policy contrast at the inclusive historical cutoff, pooled across the endpoint's fixed baseline-grade strata with pre-outcome count weights. It is neither the inherent effect of dyslexia nor the effect of a particular support program. Required identifying variation/assumptions are I1/I2 and remain unproved by diagnostic passes. This endpoint uses no postbaseline controls. No fuzzy ratio is allowed even if recorded classification is nonsharp.

Ordered pseudocode: confirm activation and preserve its full state trace; verify this endpoint's2015 calendar/dictionaries before values; form its baseline target and expected outcome row for every eligible index; assert D2 joins, invalid-code and duplicates dispositions; build endpoint plus observation/exit indicators; produce missingness diagnostics without removing the baseline row; apply RD from I3 with endpoint kind=binary; transform binary risk effects by100 once; fit available-case sensitivity only when missingness requires it; calculate Bonferroni directional interval and p-adjusted=min(1,24*p) for a complete point estimand, or the simultaneous outer bound interval for a bounded partially observed endpoint; retain unbounded missingness as selection_limited. Do not choose another cohort, grade stratum, time window or definition if this fit lacks support. All grade strata required by this endpoint must support the fitted operator; no renormalizing after a stratum fails. Report h/b, support, clusters, effective n, censoring/exit fractions and conditional detectable contrast; no power pass threshold.

Output effects.csv, selection-sensitivity.csv (only when applicable), diagnostics.csv, audit.json and judgment.json with G2 interfaces. For identified bounds put estimate/p values NA and use lower/upper as outer limits; a missing point estimate must never be plotted at zero. Required figure: the full causal forest, plus its own registered robustness display if the internal robustness rule is satisfied. Synthetic check: score=0 belongs on red; complete binary endpoint agrees with ordinary RD after transformation; missing bounded endpoint widens the extreme interval; missing unbounded endpoint never produces a full-population causal p-value; dormant slots remain in the 24 denominator. Software failures get no_result, not uncertain. Permitted claim ceiling: Co-residence does not identify constraint, dependence, preference or reduced autonomy. Directional local states do not establish practical importance. A confidence interval spanning zero never licenses no effect or equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the

explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/coresidence20/primary/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mandatory D9/D10 and G2 typed interfaces apply. Public disclosure status and the descriptive Atom do not gate this analysis. Write local_state=uncertain, inference_status=valid_interval, display status=uncertain when a valid interval spans zero; write local_state=uncertain, inference_status=unestimable, display status=unestimable and NA estimate/limits/p when completed evidence establishes no valid interval. Include the specific constant/support/rank/covariance reason. Failure to execute is no_result, never this scientific subcase. Per-grade h,b and weights go in estimator-components.csv; no scalar bandwidth range substitutes for it. scope.json is frozen before outcome values; exits, selected-case and precision outputs use G2. Ascertainment is an internal component of atom-000222. Exact component path: prereg/runtime/atom-000222/endpoints/coresidence20/primary/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/coresidence20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

## coresidence20 / robustness

- key: sensitive region: 'First priority: any computable variant meets the I4 sensitivity contradiction, even if another variant failed. Preserve both reasons.' says: Interpret the contrast as sensitive to the registered local-support choice; no variant replaces primary.
- key: stable region: No sensitivity contradiction, all variants computable with valid uncertainty and unchanged claim ceilings, and primary inference is valid. says: These specified perturbations do not materially contradict the primary contrast; this is not proof of identification or equivalence.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Registered robustness judgment for coresidence20, not an additional primary discovery. Scope, unit, field/code mapping, population, estimand and missingness

are exactly those of atom-000222 and incorporated D8. Read its frozen analysis population, weights, primary h/b and saved aggregate influence outputs; do not reconstruct a more favorable cohort. For each fixed specification in I4 (primary,half_bandwidth,wider_bandwidth,donut), rerun the same local-linear/bias-corrected operator with the specified h/b changes, same grade weights and primary 24-slot interval and exploratory nonprimary 95% intervals as I4; exclude only x==0 for the donut, explicitly changing local extrapolation. Recompute cluster influence variance and missingness bounds as needed. No new covariates, grade filters or bandwidth search. If a specification has insufficient support, its status is unresolved, never silently omitted. No multiplicity claim is made from finding a favorable robustness specification.

Output robustness.csv (G2), audit.json and judgment.json. Display all four rows in the sensitivity figure with units=pp, including noncomputed rows. Compare available scalar primary and variant estimates: a sign reversal or variant point outside the primary interval is sensitive. For partial bounds use disjoint intervals as sensitive; overlapping intervals alone cannot prove equality. All variants must be computed for stable. If primary is selection_limited, variants inherit that ceiling. Synthetic tests keep identical rows in primary and recomputation, respect inclusive zero except the expressly registered donut, and preserve a missing variant row. Consequence: stability is only consistency over these specified choices, while sensitivity limits a broad policy conclusion. Co-residence does not identify constraint, dependence, preference or reduced autonomy.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000222/endpoints/coresidence20/robustness/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

Mixed-evidence precedence is I4: sensitive outranks unresolved when one computable variant contradicts primary; all failed variants remain explicit

with NA display rows. Stable never follows an unestimable primary or missing variant. No joint multi-specification coverage is claimed. Write inference_status and display status under G2, including unestimable numeric rows. Reproduce exact per-grade h/b from estimator-components.csv, and preserve all D10 scope keys. Exact component path: prereg/runtime/atom-000222/endpoints/coresidence20/robustness/. Cross-component primary files are read from prereg/runtime/atom-000222/endpoints/coresidence20/primary/; ascertainment and robustness never overwrite primary judgments or scope.

The root component vector reports each endpoint primary direction/interval type, ascertainment decision, robustness decision, and measurement, horizon, selection and operational restrictions. Within this experiment, differing outcomes remain independently interpretable. Mixed signs across different horizons are side-by-side observed contrasts, not common-population divergence. All graphical and manuscript bindings use the exact endpoint/component directory above.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000222
topic: Early-adult household circumstances
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Does marginal classification change early-adult household
  ↪  circumstances?
  rationale: Equivalized income and parental co-residence jointly describe
    material and residential circumstances in early adulthood. Different
    ↪  annual/birthday
    clocks and independent address/parent-link failures are retained; no
    ↪  dependency
    or welfare index is constructed.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: causal
  target_shape: comparison
  ratings:
    importance: 5
    novelty: 3
    feasibility: 2
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - BEFBOP
```

```
- DOD
- IND
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
- VNDS
activation: state(atom-000001) == "ready" AND state(atom-000002) ==
↪  "compatible"
  AND (state(atom-000501) == "eligible_sharp" OR state(atom-000501) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000502) == "eligible_sharp" OR state(atom-000502) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000503) == "eligible_sharp" OR state(atom-000503) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000504) == "eligible_sharp" OR state(atom-000504) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000505) == "eligible_sharp" OR state(atom-000505) ==
  ↪  "eligible_nonsharp")
  AND (state(atom-000506) == "eligible_sharp" OR state(atom-000506) ==
  ↪  "eligible_nonsharp")
verdicts:
- key: sensitive
  region: At least one endpoint has a computed I4 sensitivity contradiction.
    This precedence applies even if another endpoint/variant fails.
  says: Name every affected endpoint and variant; retain all primary
  ↪  estimates
    and independent component failures without replacing a primary.
- key: mixed_direction
  region: No preceding region; at least one qualified increase and one
  ↪  qualified
    decrease among this experiment's endpoints. Qualified means valid
    ↪  primary
    interval/bounds and stable own robustness.
  says: Report the discordant endpoint directions in their original
  ↪  units/scopes;
    do not average or assign a common welfare sign.
- key: directional
  region: No preceding region; at least one endpoint is a qualified increase
    or decrease. Other endpoints may be uncertain, selected, boundary,
    ↪  failed
    or unresolved.
  says: Report only named qualified directions and every other endpoint's
    disposition. This does not imply the entire domain changed or that all
    endpoints were available.
- key: uncertain
  region: No preceding region; at least one endpoint has a valid primary
    interval/bounds, but no qualified direction.
  says: Report exact intervals and endpoint-specific robustness
  ↪  restrictions;
    zero-containing intervals and unresolved robustness remain different
    cases, neither equivalence.
- key: boundary
  region: No preceding region; every endpoint has an evidenced measurement
    or horizon/population boundary.
  says: This scientific question cannot be evaluated under the frozen
  ↪  target;
    report component-specific reasons, never a null.
- key: restricted
  region: No preceding region; at least one endpoint supplies completed
    evidence of selection_limited or unestimable inference.
  says: Report the surviving selected/unestimable evidence and independent
```

```
    failures; no all-eligible directional claim.
- key: otherwise
  region: otherwise
  says: The experiment remains unresolved. Preserve every component state,
    terminal and unavailable reason; operational failure is not
    ↪  insignificance.
```

## Registered experiment

Does marginal classification change early-adult household circumstances?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000222`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000501: Grade 4 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 4 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes

income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

## income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching

region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000501/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.
- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 4, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000501/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status

and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 4 sample from atom-000501, exact SCORE and r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_yellow diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000501/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.
- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 4, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000501/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.
- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000501, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,p_raw Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000501/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000501
topic: Grade 4 margin validity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-4 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
    diagnostic. Precision, density, baseline continuity and label response
    are evidence for that judgment, not separate experiments. Grades remain
    independent because the registered outcome grade sets differ and a
    ↪  later-grade
    failure must not suppress earlier-grade knowledge.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - IND
  - LPR_ADM
  - LPR_DIAG
  - PSYK_ADM
  - PSYK_DIAG
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
    "selected" OR state(atom-000002) == "retention_unresolved"
  verdicts:
  - key: support_boundary
    region: Support component=discrete under its documented
    ↪  precision/full-window
      rules.
    says: This grade does not support the registered continuity estimator;
      preserve its score description.
  - key: design_flagged
    region: No preceding region; density=flagged or baseline=flagged,
    ↪  including
```

```
    a deterministic side difference.
  says: A registered threat constrains this grade; report other component
    failures as well.
- key: eligible_sharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=sharp_recording.
  says: This grade may enter its prespecified policy targets, conditional
    on initial-margin provenance and untested causal assumptions.
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

## Registered experiment

Can the grade-4 score margin support a credible local classification-policy contrast?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000501`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000502: Grade 5 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units,

horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 5 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

## income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing

variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000502/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.
- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 5, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000502/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 5 sample from atom-000502, exact SCORE and r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_y diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000502/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.
- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 5, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000502/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.
- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000502, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,
  Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000502/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000502
topic: Grade 5 margin validity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-5 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
    diagnostic. Precision, density, baseline continuity and label response
    are evidence for that judgment, not separate experiments. Grades remain
    independent because the registered outcome grade sets differ and a
    ↪  later-grade
    failure must not suppress earlier-grade knowledge.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - IND
  - LPR_ADM
  - LPR_DIAG
  - PSYK_ADM
```

```
- PSYK_DIAG
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
  "selected" OR state(atom-000002) == "retention_unresolved"
verdicts:
- key: support_boundary
  region: Support component=discrete under its documented
  ↪  precision/full-window
    rules.
  says: This grade does not support the registered continuity estimator;
    preserve its score description.
- key: design_flagged
  region: No preceding region; density=flagged or baseline=flagged,
  ↪  including
    a deterministic side difference.
  says: A registered threat constrains this grade; report other component
    failures as well.
- key: eligible_sharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=sharp_recording.
  says: This grade may enter its prespecified policy targets, conditional
    on initial-margin provenance and untested causal assumptions.
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

## Registered experiment

Can the grade-5 score margin support a credible local classification-policy contrast?
Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000502`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000503: Grade 6 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed

evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 6 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

## income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this

Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000503/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.
- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 6, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is

judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000503/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 6 sample from atom-000503, exact SCORE and r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_yellow diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000503/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.
- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 6, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000503/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.
- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000503, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,p_rav Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000503/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000503
topic: Grade 6 margin validity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-6 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
    diagnostic. Precision, density, baseline continuity and label response
    are evidence for that judgment, not separate experiments. Grades remain
    independent because the registered outcome grade sets differ and a
    ↪  later-grade
    failure must not suppress earlier-grade knowledge.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
```

```
  importance: 4
  novelty: 3
  feasibility: 3
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- IND
- LPR_ADM
- LPR_DIAG
- PSYK_ADM
- PSYK_DIAG
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
  "selected" OR state(atom-000002) == "retention_unresolved"
verdicts:
- key: support_boundary
  region: Support component=discrete under its documented
  ↪  precision/full-window
    rules.
  says: This grade does not support the registered continuity estimator;
    preserve its score description.
- key: design_flagged
  region: No preceding region; density=flagged or baseline=flagged,
  ↪  including
    a deterministic side difference.
  says: A registered threat constrains this grade; report other component
    failures as well.
- key: eligible_sharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=sharp_recording.
  says: This grade may enter its prespecified policy targets, conditional
    on initial-margin provenance and untested causal assumptions.
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

# Registered experiment

Can the grade-6 score margin support a credible local classification-policy contrast?

Prospective registration. No study values or empirical results have been observed.

## Reference implementation

Entry point and supported/unresolved components for `atom-000503`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

# atom-000504: Grade 7 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 7 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

## income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.

- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000504/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.

- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 7, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000504/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 7 sample from atom-000504, exact SCORE and

r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_yellow diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000504/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.
- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 7, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical

rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000504/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.
- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000504, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete

known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,p_raw
Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000504/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000504
topic: Grade 7 margin validity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-7 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
```

```
  diagnostic. Precision, density, baseline continuity and label response
  are evidence for that judgment, not separate experiments. Grades remain
  independent because the registered outcome grade sets differ and a
  ↪ later-grade
  failure must not suppress earlier-grade knowledge.
assumption: Administrative recognition can affect opportunities, reporting
  and service contact through multiple routes; exact source semantics and
  continuity require evidence, not an estimator label. See literature.md
  and identification.md.
target_strength: descriptive
target_shape: comparison
ratings:
  importance: 4
  novelty: 3
  feasibility: 3
  data_advantage: 4
  informativeness: 0.5
tables:
- BEF
- IND
- LPR_ADM
- LPR_DIAG
- PSYK_ADM
- PSYK_DIAG
- UDD_FOLKESKOLE_FRAVAER_STIL
- UDD_ORDBLINDETEST
activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
  "selected" OR state(atom-000002) == "retention_unresolved"
verdicts:
- key: support_boundary
  region: Support component=discrete under its documented
  ↪ precision/full-window
    rules.
  says: This grade does not support the registered continuity estimator;
    preserve its score description.
- key: design_flagged
  region: No preceding region; density=flagged or baseline=flagged,
  ↪ including
    a deterministic side difference.
  says: A registered threat constrains this grade; report other component
    failures as well.
- key: eligible_sharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=sharp_recording.
  says: This grade may enter its prespecified policy targets, conditional
    on initial-margin provenance and untested causal assumptions.
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

## Registered experiment

Can the grade-7 score margin support a credible local classification-policy contrast?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000504`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000505: Grade 8 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 8 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

### income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000505/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define

status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.
- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 8, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000505/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 8 sample from atom-000505, exact SCORE and r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_y diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000505/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.

- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 8, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000505/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.

- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000505, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,
  Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000505/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000505
topic: Grade 8 margin validity
atom_result: prereg
```

```
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-8 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
    diagnostic. Precision, density, baseline continuity and label response
    are evidence for that judgment, not separate experiments. Grades remain
    independent because the registered outcome grade sets differ and a
    ↪  later-grade
    failure must not suppress earlier-grade knowledge.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - IND
  - LPR_ADM
  - LPR_DIAG
  - PSYK_ADM
  - PSYK_DIAG
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
    "selected" OR state(atom-000002) == "retention_unresolved"
  verdicts:
  - key: support_boundary
    region: Support component=discrete under its documented
    ↪  precision/full-window
      rules.
    says: This grade does not support the registered continuity estimator;
      preserve its score description.
  - key: design_flagged
    region: No preceding region; density=flagged or baseline=flagged,
    ↪  including
      a deterministic side difference.
    says: A registered threat constrains this grade; report other component
      failures as well.
  - key: eligible_sharp
    region: Support=continuous, density=not_flagged, baseline=not_flagged,
      classification=sharp_recording.
    says: This grade may enter its prespecified policy targets, conditional
      on initial-margin provenance and untested causal assumptions.
```

```
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

## Registered experiment

Can the grade-8 score margin support a credible local classification-policy contrast?

Prospective registration. No study values or empirical results have been observed.

### Reference implementation

Entry point and supported/unresolved components for `atom-000505`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.

## atom-000506: Grade 9 margin validity

This is one scientific experiment. Internal components are not additional Atoms or activation primitives. Execute every prescribed component that is scientifically eligible, independently of other component signs. Component outputs retain their own local decision, inference and operational status; only the native judgment.json at the Atom root supplies the Atom local state. No component failure can erase completed evidence in another component. When no scientific component completes because execution fails, set terminal no_result with no Atom local state. Otherwise aggregate only by the ordered registered regions and record every component's failure, boundary, unknown or inactive disposition. Pending necessary evidence stays pending; it is never coded as negative evidence. Internal failed work is not automatically retried. Incorporate docs/protocol/data-contract.md D1–D10, docs/protocol/identification.md I1–I5 and docs/protocol/governance.md G1–G4 as exact shared protocol definitions. These fix population, dates, table/field dictionaries, code versions, joins, inference, missingness, outputs and synthetic checks. A dictionary crosswalk is semantic verification before outcome values, not a new scientific choice. Keep all endpoint-specific units, horizons and Bonferroni allocations; grouping introduces no average outcome, composite score, new hypothesis or additional alpha. Write root audit.json, status.json, judgment.json and components.csv with component, outcome, component_state, component_terminal, inference_status, reason, evidence_path. Components.csv is an evidence index under this protocol, never a second experiment graph. Suppression is applied after governed adjudication, and cannot govern activation or disclose protected directions.

Scientific scope: grade 9 only; no cross-grade aggregate gates its result. First audit original-score support. If continuous, execute density, baseline and classification components independently; a flagged density does not prevent recording baseline or label evidence. If support fails or is unresolved, their numerical fits are internally not_activated for that exact reason; documented sharp-label equality may still be described but cannot clear support. Baseline correction provenance precedes income values and may be reused across grade units only with identical checksum/table/variable/year. Each grade owns the applied audit; no grade waits for another. Use fixed six density, 48 baseline, six classification multiplicity slots.

## income-provenance

- key: corrected region: D9 exact delivery/variable/year correction provenance is complete. says: Interpret the delivered variable under the documented corrected definition; runtime value and join validity remain separate.
- key: known_uncorrected region: D9 provenance explicitly identifies the uncorrected historical variable. says: Use only the frozen recorded-income proxy interpretation; no intended-resource or welfare conclusion.
- key: unresolved region: Neither correction status is established, including contradictory or absent documentation. says: Retain a correction-unverified recorded-income proxy; do not infer corrected status from vintage or suffix.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Documentation-only pre-outcome judgment, unit delivery-variable-year. Incorporate D9 exactly. Check dated release notes and the allowed table provenance against the official DST income pages cited there. No rows or estimates needed. For IND.AEKVIVADISP_13, primary year=2014; additionally report each affected descriptive year separately. Preserve PNR/year (IND) or FAMILIE_ID/year (FAIK) key class and D2 reference alignment; no row-level joins performed by this Atom. First match corrected, known_uncorrected, unresolved; otherwise covers contradictory execution evidence not a transport failure. No estimator, SE, multiplicity or equivalence test. Write correction.csv: table, variable, reference_year, delivery_id, correction_status, source_locator, criterion, status, reason. Required correction status is decided before related values are opened; no field substitution or municipality removal. Synthetic checks: a recent delivery and _13 alone yield unresolved; an explicit uncorrected manifest yields known_uncorrected; only exact documented propagation qualifies corrected. Effects retain the same numeric proxy under noncorrected states, with restrictions in the Molecule and paper. Missing variable becomes the consuming endpoint measurement_boundary; this Atom does not manufacture income.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered

schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000506/income-provenance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## support

- key: discrete region: Known rounding exceeds 0.5 or this grade fails any registered I5/D1 full-window support safeguard. says: The continuity-based estimator is not defensible under this registered policy; descriptive score distributions remain informative.
- key: continuous region: Original precision and every full-window support safeguard for this grade are met. says: Recorded support permits the proposed local approximation; continuity is still an assumption.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population: D1 spring2015 children with documented baseline grade 9, before outcome inspection. Use UDD_ORDBLINDETEST SCORE,DATO,PNR,UDDANNELSESNIVEAU; prior-month absence INSTITUTIONSNUMMER/KLASSETRIN; BEF parental-link clusters. Only this grade is judged. Apply Molecule score-support summary original safeguards independently: precision <=0.5 original point; >=20 distinct scores on each side of |x|<=6; >=30 schools and >=30 family components in this grade; largest side mass-point fraction <=.20. No jitter or local-randomization substitution. Document maximum gap and rounding, counts and mass shares; no p-values. Output support.csv with G2 typed per-grade/side keys and diagnostics.csv. Constant integer-valued float scores must fail precision/support checks. A grade outside a later endpoint target cannot block that endpoint.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice.

A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000506/support/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## density

- key: flagged region: This grade valid Bonferroni-six density p_adjusted < .01. says: Score sorting flags continuity for endpoints requiring this grade.
- key: not_flagged region: This grade has a valid density difference/SE/p and p_adjusted >= .01. says: No flag on this diagnostic; no proof of absence of sorting.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use the fixed grade 9 sample from atom-000506, exact SCORE and r=-x. Execute I5 rddensity3.0 options, cap/refit and Bonferroni-six allocation; do not wait for other grades or recycle their alpha. Report density in 1/original-score-point, no logarithm. Required output density.csv with grade,h_red,h_yellow,density_red,density_yellow,difference,se,p_raw,p_adjusted,lower,upper,n_red,n_yellow diagnostics.csv mirrors this without inventing a sign for failed fits. Positive finite SE and postcap support are required. No outcomes/joins beyond the inherited one-child score sample. Synthetic checks verify reflection/equality convention and distinct density versus log units. A failure limits this grade, not unrelated grade sets.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000506/density/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## balance

- key: flagged region: Any valid registered grade comparison has p_adjusted<.01 under the fixed48 budget, or an arithmetic_difference exists. says: Predetermined sorting challenges continuity in this grade.
- key: not_flagged region: Every slot is either a valid unflagged contrast, structural_complete, or global constant_observed under I5; no unresolved/unavailable slot remains. says: No registered flag; constant slots supply noninferential evidence only, and proxy income does not clear true-resource continuity.
- key: otherwise region: otherwise says: The registered judgment remains unresolved; report its exact limitation, without negative or favorable inference. Use grade 9, D1 initial margin and D2/D6/D9 exact fields. Four variables: BEF.FOED_DAG-derived age in days, BEF.KOEN, IND.AEKVIVADISP_13 in2014, and any D6 DF32/33/40/41/43 encounter in [t0-365,t0). Baseline care strictly precedes t0; on-day events excluded, so implement [t0-365,t0). Each variable plus its missingness is a separate diagnostic slot. Apply all I5 constant/structural/unavailable/numerical rules and I3 numerical operator with one grade; alpha=.01/48 remains fixed. Correction status from D9 baseline-income audit must be available before reading income: no_result leaves balance otherwise, never corrected by assumption. No conditioning later endpoint eligibility on the observed baseline values; original-variable complete-case fits and full-denominator missingness comparisons remain separate. Output balance.csv with the G2 eight enumerated checks, status, arithmetic extrema, denominators, p-values only for valid fits; diagnostics.csv. Synthetic all-complete, mixed-complete, global constant, differing side constants, unavailable field and nonconstant fit failure must reach the I5 exact routes. No inferred zero SE or balance equivalence.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000506/balance/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## classification

- key: sharp_recording region: All eligible records have known category and category==Z exactly under a verified deterministic category dictionary. says: Threshold assignment coincides with recorded classification in this margin; support receipt remains unmeasured.
- key: nonsharp_jump region: Not sharp_recording; the valid grade-specific 1-.01/6 interval has lower>.10. says: A threshold-policy reduced form is interpretable under the other gates, but not an effect per recorded label or support received.
- key: unresolved_jump region: A valid grade-specific 1-.01/6 interval exists and lower<=.10. says: The proposed meaningful recorded-classification discontinuity is not established; this is not a health or policy null.
- key: otherwise region: otherwise says: The evidence is unresolved under the frozen rule. No favorable or negative finding is inferred; report the exact reason. Population and exact fields as atom-000506, using TESTRESULTAT/TESTRESULTATNIVEAU and their frozen dictionaries. Evaluate complete known-label equality to Z=1[SCORE<=cutoff] first. Exact equality under a deterministic dictionary is sharp_recording without a manufactured SE. Otherwise apply I3 one-grade category jump using I5 six-slot .01 alpha; all missing labels must be bounded as [0,1], never deleted; use two one-sided limits splitting .01/6 when bounds are necessary. A lower bound>.10 permits nonsharp_jump, never a support-effect ratio. Output classification.csv: grade,agreement_fraction,n_agree,n_known,n_total,category_missing_fraction,estimate,lower,upper,se,p_rav Synthetic unknown/disagreeing labels cannot satisfy sharp_recording; SCORE==c remains red.

Implementation contract. Incorporate docs/protocol/data-contract.md D1–D3 for the population clock, versions, identifiers, joins and observation; incorporate the explicitly cited construct clauses below and docs/protocol/identification.md I1–I4 for estimands and inference. These shared definitions are part of this Atom's protocol, not optional guidance. Apply ordered checks before model fitting: delivered schema/dictionary; date and unit semantics; unique keys and duplicate disposition; baseline and horizon eligibility; outcome construction; missingness and inference; local adjudication. Never inspect a postbaseline estimate to repair an earlier choice. A demonstrably incompatible construct is an evidenced boundary; unresolved documentation reaches otherwise. A transport/access/software failure yields terminal no_result with no local state. Apply the listed verdict regions in order, first matching region wins; otherwise is exhaustive. All future outputs go to prereg/runtime/atom-000506/classification/ and remain governed until aggregate disclosure approval. Write audit.json and judgment.json plus the named plot-ready table; G1/G2 define status and column meanings. No numerical result is populated now. Before runtime use G3 synthetic join/date/missingness checks and verify row-order invariance; a failed check

prevents output release. Every result constrains the Molecule under its composable rules; neither failure nor nonactivation means statistical insignificance.

## Remaining registration fields

The `preregistration.protocol` field is reproduced in full immediately above; all remaining fields are reproduced below.

```
id: atom-000506
topic: Grade 9 margin validity
atom_result: prereg
atom_strength: null
atom_shape: null
evidence_paths: []
concepts: []
literature: []
bonds: []
preregistration:
  version: 1
  mode: adaptive
  question: Can the grade-9 score margin support a credible local
  ↪  classification-policy
    contrast?
  rationale: The complete grade-specific margin validation is one shared
  ↪  scientific
    diagnostic. Precision, density, baseline continuity and label response
    are evidence for that judgment, not separate experiments. Grades remain
    independent because the registered outcome grade sets differ and a
    ↪  later-grade
    failure must not suppress earlier-grade knowledge.
  assumption: Administrative recognition can affect opportunities, reporting
    and service contact through multiple routes; exact source semantics and
    continuity require evidence, not an estimator label. See literature.md
    and identification.md.
  target_strength: descriptive
  target_shape: comparison
  ratings:
    importance: 4
    novelty: 3
    feasibility: 3
    data_advantage: 4
    informativeness: 0.5
  tables:
  - BEF
  - IND
  - LPR_ADM
  - LPR_DIAG
  - PSYK_ADM
  - PSYK_DIAG
  - UDD_FOLKESKOLE_FRAVAER_STIL
  - UDD_ORDBLINDETEST
  activation: state(atom-000002) == "compatible" OR state(atom-000002) ==
    "selected" OR state(atom-000002) == "retention_unresolved"
  verdicts:
  - key: support_boundary
    region: Support component=discrete under its documented
    ↪  precision/full-window
      rules.
    says: This grade does not support the registered continuity estimator;
```

```
    preserve its score description.
- key: design_flagged
  region: No preceding region; density=flagged or baseline=flagged,
  ↪  including
    a deterministic side difference.
  says: A registered threat constrains this grade; report other component
    failures as well.
- key: eligible_sharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=sharp_recording.
  says: This grade may enter its prespecified policy targets, conditional
    on initial-margin provenance and untested causal assumptions.
- key: eligible_nonsharp
  region: Support=continuous, density=not_flagged, baseline=not_flagged,
    classification=nonsharp_jump.
  says: Only a reduced-form threshold-policy contrast is licensed, never
    a classification or support-receipt ratio.
- key: classification_unresolved
  region: No preceding region; classification=unresolved_jump from a valid
    registered interval.
  says: The required recorded-classification jump is not established; this
    is not a substantive outcome null.
- key: otherwise
  region: otherwise
  says: The grade is not cleared; preserve partial diagnostic evidence and
    operational failures explicitly.
```

# Registered experiment

Can the grade-9 score margin support a credible local classification-policy contrast?

Prospective registration. No study values or empirical results have been observed.

## Reference implementation

Entry point and supported/unresolved components for `atom-000506`: execution index. See current scientific handoff. This pointer does not amend the registered protocol.