

Reading as Enclosure

A Constructive Separation of Self-Return and Evidential Licensing

Kirill Shebetov

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CENTRAL SEPARATION

First, the proof.

Then, the controlled intervention.

Only then, the boundary of reading.

Abstract

This study examines the exact Russian string «Почему внимание животного слиплось со звуком и теперь чтение его клетка» (“Why did the animal’s attention fuse with the sound, with reading now its enclosure?”). Three constructed strings, A_1 – A_3 , are placed after it for the controlled run; a separate fourth string, A_4 , serves as the final stress test of self-application and is not included in Car_{ex} . The source string is treated as W_0 —an item of testable written material, not as an established report about attention, an animal, sound, reading, or an enclosure. At the declared level, W_0 contains the corresponding forms; their lexical classification, binding to a participant, predication, and causal reading are distinct transitions.

An evidential-dependency graph $D(K,P)$ is introduced that distinguishes an exact occurrence, a verifiable annotation record, its candidate content, binding, predication, and the re-entry of that predication as a ground. It is proved that no vertex of a closed attributive set belongs to the grounded closure D^* . A CELL is defined as an inclusion-minimal, strongly connected, closed core with active self-return; a finite procedure enumerates every such CELL. The procedure separately returns a structural verdict Q_S , the evidential status Q_F of each candidate formula, and an order marker p ; none of these outputs substitutes for either of the others. The central demonstration presents an exact I_{ex} with a single CELL $\{\beta, \pi\}$, $Q_S = \text{PRESENT}$, and $\beta, \pi \notin D^*$, so both candidate formulas have status $\text{NOT-LICENSED}@K,P$. After the hashed extension Δ_{ex} adds a synthetic input structurally independent of the internal cycle, the materialized I_{ex}^+ yields $Q_S = \text{ABSENT}$, $\beta, \pi \in D^*$, and $\text{LICENSED}@K,P$ for both formulas.

The proof and intervention precede any interpretive application. The established boundary is then applied to strings concerning «звук» (“sound”), a photograph, and «вид со стороны» (“a view from outside”), as well as to the symmetric pair «собака испытывает боль» / «собака не испытывает боль» (“the dog is in pain” / “the dog is not in pain”). No exception is made for either the positive or the negative candidate predication: absence of the form does not license absence of what is named, and presence of the form does not license the presence of what is named. The result locates the point at which what has been read returns as a ground for its own reading; it establishes no mental state, causal mechanism, medical fact, or comparative assessment of species.

The contribution is not a new criterion for cycles, external support, or minimal unfounded cores. It is a reproducible contract that connects an exact written carrier, typed attributive self-return, separate evidential licensing, an internally checkable order of ground introduction, hashed cycle-breaking, and a bounded test that its own report receives no special privilege. Mapping in Crossref and OpenAlex through 27 August 2026 yielded 1 890 records, 1 565 after deduplication, and 249 for two independent, blinded, model-assisted screening passes. No confirmed work combining F1–F6 and F7’ within a single contract was identified in the completed layers. The citation-only layer separately processed 2 704 routing work units using two fixed rules with different triggers; their union advanced 138 units, and all 138 underwent strict review at the abstract level. The Russian-language supplement retained 16 unique records and 14 eligible works. No confirmed full match was identified. This is the result of a disclosed search with explicit bounds on its evidential basis, not unconditional proof of historical priority.

Keywords: constructive separation; recursive evidential closure; CELL; self-attribution; written form; binding; evidential licensing; provenance; order of ground introduction; controlled cycle-breaking; bounded self-check.

1. The Formula as Posed: The Record Before the Answer

The word «почему» (“why”) introduces a request for a causal explanation. The study therefore does not begin with an answer. It first fixes the entire string and asks which of its parts are present at the declared level and which relations

are introduced by subsequent reading. The technical label W_0 designates the exact UTF-8 sequence; it does not become that sequence's content.

EXACT SOURCE MATERIAL

W_0

Почему внимание животного слиплось со звуком и теперь чтение его клетка

The sequences «внимание», «животного», «слиплось», «звуком», «чтение», «его», and «клетка» are mechanically located in W_0 . Even classifying these sequences as Russian words is not contained in the bytes of W_0 ; it belongs to the declared procedure. The co-occurrence of forms does not present the positions they name or establish any psychological, acoustic, causal, or spatial relation among them.

To test the stronger case, the constructed set A_1 – A_3 is placed after W_0 . A separate string, A_4 , is added as the final stress test of the self-report and belongs neither to Car_{ex} nor to the controlled cycle. These strings do not describe an observed episode and are not attributed to any author or participant. Their function is to make a possible cyclic dependency—and the boundary of its self-description—visible and falsifiable.

Label	Exact string	UTF-8; SHA-256
W_0	Почему внимание животного слиплось со звуком и теперь чтение его клетка	132 bytes; e778...15cd
A_1	Форма «животного» в W_0 обозначает читателя W_0 .	85 bytes; 295c...8d66
A_2	Читатель W_0 читает форму «животного» в W_0 как себя.	93 bytes; e2d6...013f
A_3	Форма «животного» в W_0 обозначает читателя W_0 , потому что читатель W_0 читает форму «животного» в W_0 как себя.	199 bytes; 76cd...276d
A_4	Чтение W_0 стало клеткой читателя W_0 .	66 bytes; f36b...d814

W_0 <doc A_1 <doc A_2 <doc A_3 <doc A_4

The symbol <doc records only the placement of strings in the assembled document. It establishes no event time, authorship, causation, understanding, or dependency. Dependency is represented separately by the relation USE; co-designation is represented separately by SAME. This separation prevents order from silently becoming explanation.

2. Scope of Evidential Licensing

2.1. Carrier, Representation, and Occurrence

Let $C_i = \langle id_i, b_i, m_i, h_i \rangle$ be a fixed carrier: an identifier, an exact byte sequence, a declared type, and a SHA-256 digest. A representation level λ is selected for it in advance: bytes, Unicode scalar values, grapheme clusters, audio-file samples, image frames, or exact intervals. An occurrence $o = \langle C_i, \lambda, [s,e] \rangle$ designates only a half-open interval within the selected representation.

$$o = \langle C_i, \lambda, [s,e] \rangle; \quad \text{form}(o) = \text{rep}_\lambda(C_i)[s:e]$$

If text is supplied, the procedure does not thereby receive an audio file. If a WAV file is supplied, it receives the bytes, encoding parameters, and sample intervals, but no transcript unless a separate record provides one. If a photograph is supplied, what is presented is an image file; the string «это я со стороны» (“this is me from outside”) remains a different record. Carriers may be linked, but the link must have a source and a rule.

2.2. Local Rule

Let I be an input contract enumerating the material, levels, scope, annotations, bridges, and decision policy. I determines the admitted-record state $K(I)$; P is the verdict-computation policy included in I , not a fact in K . The study adopts a local stipulation: the occurrence of a form does not by itself license a binding to what a reading attributes to that form. An external ground may be added; it then enters $K(I)$ as a separate resource and is not concealed behind its textual label.

SYMMETRIC BOUNDARY

Relative to K(l), presence of a form does not license presence of what is named; absence of a form does not license its absence.

This is neither a theory that reference is impossible nor the claim that “nothing exists outside the text.” The status is relative to the data in I, K(l), and P. The forms “object,” “carrier,” “referent,” “ground,” “rule,” and “K” in this article are subject to the same boundary: their occurrence does not license their own reading beyond the declared apparatus.

2.3. Technical Meanings of “Reading” and “Enclosure”

Hereafter, “reading” means a registered annotation READ(o,l): occurrence o has been classified as form l under a declared rule. This record does not report that anyone saw, heard, understood, or sustained attention to anything (Shebetov, 2026a). Accordingly, the same designation is applied to a written, acoustic, or pictorial carrier only after the level and procedure have been specified.

“Enclosure” is technical shorthand for CELL: an inclusion-minimal CORE. A CORE is a closed, strongly connected attributive set with active self-return. The term denotes neither an experience, a disorder, a bodily constraint, nor a property of an animal. If a CELL is detected, a structural result relative to K(l) and P has been established—and nothing more.

3. Related Results and the Position of the Contribution

The cited studies report differences between conditions under their declared measures. The comparison here concerns the statements of those results; it does not establish what they name beyond the corresponding procedures.

Line of research	What was reported	What does not follow automatically
Reading and interference	Incongruent color words increased the time required to name the ink color (Stroop, 1935).	The inevitability of reading under all conditions; an “enclosure” as an experience.
Speech and written cues	On acoustic word–nonword continua, participants more often selected the phonetic category that formed an English word (Ganong, 1980); congruent text altered ratings of degraded-speech clarity (Sohoglu et al., 2014).	Identity between an acoustic carrier and the word “sound,” or a causal transition from sound to word.
Labels and perception	A congruent verbal label improved detection of a hidden object, whereas an incongruent label impaired it (Lupyan & Ward, 2013).	Creation of the object by the label, or presentation of what is named by a single word.
Self-reference	A shape experimentally associated with the self was prioritized in a matching task (Sui et al., 2012); using non-first-person language to refer to oneself altered distancing and task performance (Kross et al., 2014).	That the shape became a participant outside the task; that language produces every external perspective.
Images and perspective	In a visuotactile VR procedure, participants reported identification with a virtual body, and a behavioral measure of self-location shifted toward it (Lenggenhager et al., 2007); goals have been associated with the choice of perspective in personal photographs (Niese et al., 2024).	A universal “view of others,” or the exclusivity of text as its source.
Nonhuman animals	In response to snake alarm calls, Japanese tits more often approached a stick moving like a snake; “visual search image” is the author’s interpretation of the behavior (Suzuki, 2018). One border collie selected a novel object after hearing a novel label in exclusion trials (Kaminski et al., 2004).	A human meaning of the word, internal reading, or the presence or absence of pain.

Across two lexical-decision experiments, Abramson and Goldinger (1997) found effects of implicit vowel duration and initial-consonant duration; they interpreted these effects as evidence that representations activated during silent reading more closely resemble inner speech than abstract phonological codes. This does not establish that every instance of reading is accompanied by a consciously experienced voice. Bastian et al. (2017) manipulated verbal working memory: articulatory suppression reduced the likelihood that mind wandering would be noticed spontaneously,

whereas verbal material increased the likelihood that it would be noticed retrospectively. These results do not establish the absence of unnoticed states, nor do they turn a report into a certificate for what it names beyond the procedure.

The broad idea that one's relation to oneself is socially mediated has clear antecedents: Cooley's looking-glass self (1902), Mead's self-as-object (1934), and Hacking's looping effects of classifications (1996). The distinction between a carrier and what it describes is discussed in debates over use and mention (Azzouni, 2025). Exact addressing of text and spans has already been standardized in RFC 5147, NIF, and W3C Web Annotation (Wilde & Dürst, 2008; Hellmann et al., 2013; W3C, 2017), while provenance, order, and provenance-of-provenance are addressed in W3C PROV. Trusty URIs provide established precedents for hash-addressable artifacts and self-reference; CWLProv does so for reproducible hashed runs (Kuhn & Dumontier, 2014; Khan et al., 2019). None of these elements is claimed here as novel in isolation.

Iterative rule closure is not presented as a new logical apparatus: the construction uses the finite positive least-fixed-point case (van Emden & Kowalski, 1976). Lin and Zhao (2004) and Lee (2005) already connect cyclic support with external support and loop formulas. Anger, Gebser, and Schaub (2006) refer to inclusion-minimal nonempty unfounded sets as cores and relate them to active elementary loops; Gebser, Lee, and Lierler (2011) provide the journal treatment. The novelty therefore lies neither in the distinction between a cycle and its ground nor in a minimal cyclic core as such.

POSITIONING THE CONTRIBUTION

The contribution is the integrated F1–F6+F7' contract and its three-part output. I_ex: CELL { β, π } PRESENT with β, π NOT-LICENSED. I_ex*: CELL ABSENT with β, π LICENSED. Each component has clear antecedents; the priority claim concerns only the exact assembly.

Formal argumentation has separately developed evidential support, recursive attacks and supports, and support cycles (Oren & Norman, 2008; Cohen et al., 2015; Cayrol et al., 2018; Gottifredi et al., 2018; Lagasquie-Schiex, 2023; Alfano et al., 2024). A change in graph status after an argument is added is likewise not new (Cayrol et al., 2010). The contribution is assessed only for the exact F1–F6+F7' configuration: a byte-level carrier and spans; READ/ATTR/SAME/USE; CELL plus separate evidential licensing; event provenance p ; a hashed before/after pair; and a non-privileged self-report. The protocol and matrix are disclosed in Appendix E and the companion package.

3.1. Mapping the Priority Claim

As of the cutoff date, 27 August 2026, 12 thematic query families were run in Crossref and OpenAlex, along with three exact conjunctive queries in OpenAlex. Deduplication reduced 1 890 retrieved records to 1 565; a deterministic router excluded 1 316, and 249 underwent two independent, blinded, model-assisted screenings of titles and abstracts. Three-class agreement was 0.823 and Cohen's κ was 0.700; a conservative union advanced 130 records, and 52 high-signal records underwent strict in-depth review. A separate matrix covers the 23 lines of work closest under the normative criteria. Citation chasing from 21 seeds produced 2 751 unique records; reconciliation yielded 2 704 citation-only work units. All underwent two preserved deterministic routing passes; 138 were advanced and strictly reviewed on the basis of abstracts: 0 yes / 138 no / 0 unclear, with no full-text exclusions. The crawler-visible Russian-language supplement retained 32 query-record observations, 16 unique records, and 14 eligible works: 0 confirmed / 14 not_confirmed. The 123 unavailable OpenAlex IDs remain unresolved technical cases, not negative evidence. No confirmed full match was identified.

OpenAlex returned zero results for Q07 and Q13–Q15. These are four results specific to the query strings, index, date, and syntax—not negative proof. Of the 27 source $\times$ query responses, 17 reached the limit of 100; in 16 cases, reported_total exceeded returned. For Crossref Q01–Q12, totals were 452 442–7 906 907, but these counts refer to query.bibliographic with partial matches and do not represent the number of exact-phrase results.

An admissible priority statement is: “No confirmed prior work was identified in the completed mapping layers that combines F1–F6 and the bounded F7' non-privileging check within a single reproducible contract.” A cautious short form is: “the first integrated procedure of this exact type identified in the literature mapped through 27 August 2026, subject to the disclosed bounds of the evidential basis.” Citation decisions remain abstract-scope exclusions, and the Russian-language not_confirmed decisions do not become strong negative findings.

BOUNDARY OF THE PRIORITY CLAIM

The claim of a first identified integration is bounded by the completed layers, the cutoff date, the F1–F6+F7' criteria, and the stated evidential basis. It is not proof of historical priority.

4. The Input Contract and Five Transition Types

4.1. Contract I, State K(I), and Policy P

$$I = \langle \text{Car}, \text{RecSrc}, \lambda, \sigma, \prec, \Omega, Q_S, Q_F, \text{Ann}, \text{Def}, \text{Stip}, \text{Br}, P, c, \rho \rangle$$

Here Car is the complete set of object-level carriers under study; RecSrc is a separate set of procedural sources for verifiable records; Ann contains the annotations; Def is the registry of candidate vertices; Stip contains the explicitly marked stipulations of the control construction; and Br contains the bridge rules. The symbols λ and σ specify the levels of representation and the segmentation; $\prec$ specifies the order of registration; and Ω specifies the finite domain of evaluation. Q_S is the exact structural query, whereas Q_F is a finite list of candidate formulas, each of which receives its own status. A stipulation constructs a test condition and is not presented as an observation about the world or the reader.

P is the verdict policy; c stores base_capture and the integrity controls. ρ is event provenance rather than a free three-valued tag: E0 is input_registration with no predecessor and no assertion that it is 'post-result'; E1 links the completed base run to D.1; only E2 declares the post-result intervention with a reference to the D.2 hash; and E3 links the resolution run to D.3/D.4. Event IDs are unique; all predecessors resolve; the graph is acyclic; and all hash references match. This chain makes the internally declared order of artifacts checkable and detects substitution of a linked file, but without an external timestamp or commitment it does not establish calendar time of creation or historical priority. Card(I) remains RecSrc, not Car.

The D.1–D.5 digests are external comparison values: at each build, they are read from formal_rebuild/manifest.json and independently recomputed. Formal rebuild 1.2 changed the D1–D5 serializations, schema, verifier, and mutation suite from 4 to 25 controls; for the frozen fixtures, only derived.base and derived.resolution coincide, not the layer bytes, and general semantic equivalence has not been demonstrated. The release 1.2.3 manifest separately binds the exact bytes of two DOCX files (path, language, size, SHA-256, and dc:title) and declares the EN manuscript a translation of the RU source. The links are one-way: neither manuscript contains a self-hash. They establish byte identity and the declared source/translation relation, but not authorship, origin, semantic equivalence, or calendar priority; neither manuscript is retroactively added to Car or RecSrc.

$$K_0(I) \subseteq K_1(I) = K_0(I) \oplus \text{Rec}(\text{Ann}) \oplus \text{Reg}(\text{Def}) \subseteq K_2(I) = K_1(I) \oplus \text{Br}$$

Let $\text{Ann_q} = \{a \in \text{Ann} : \text{type}(a) \in \{\text{ATTR}, \text{SAME}\}\}$. For each content-bearing annotation $a \in \text{Ann_q}$, the verifiable record $\hat{a}$ is distinguished from its candidate content $q(a)$. $K_1(I)$ adds $\hat{a}$: the fact that such an annotation has been registered. This does not place candidate $q(a)$ in the grounded closure D^* . USE remains a verifiable dependency record and receives no separate candidate vertex. The structural graph may contain $q(a)$ and declared edges between such candidates, but $q(a)$ becomes licensed only under policy P with grounded premises. Below, β (Bind) and π (Pred) denote candidate contents $q(a)$, not records $\hat{a}$.

For the content-bearing types ATTR and SAME, normative identity is determined exclusively by claim_id, resolved through Def. A given claim_id must have exactly one typed payload; any conflict yields UNVERIFIED. Payloads with identical surface forms but different claim_id values remain distinct vertices. The candidate_display field is provided for readability only and does not participate in node merging.

The identifier spaces Ann.id, record_node, and claim_id are pairwise disjoint. Thus, the same string label cannot simultaneously designate an annotation, its verifiable record, and its candidate content; violation of this invariant yields UNVERIFIED.

$$\begin{aligned} a \in \text{Ann_q}: \quad & q(a) = N_claim_id(a); \quad \text{payload}(a) = \text{Def}[claim_id(a)] \\ a_i, a_j \in \text{Ann_q}: \quad & q(a_i) = q(a_j) \Leftrightarrow claim_id(a_i) = claim_id(a_j) \end{aligned}$$

A later record expands K(I) but does not retroactively become part of W_0 . A bridge in Br may license a previously unlicensed binding in $K_2(I)$; this change in the result must be visible in the procedure log rather than concealed in explanatory language.

4.2. Registered Transition Types

Type	Form	What It Establishes	What It Does Not Establish
SEL	SEL(C _i , o)	Selection of an exact region of a carrier.	Lexical meaning or a referent.
READ	READ(o, ℓ)	A declared reading of the region as form ℓ.	Anyone's hearing, understanding, or attention.

Type	Form	What It Establishes	What It Does Not Establish
ATTR	ATTR(k,x,b), $k \in \{\text{BIND}, \text{PRED}\}$	A candidate binding (BIND) or predication (PRED) with respect to position b.	Whether either succeeds externally.
SAME	SAME(b _i ,b _j)	Co-designation of two target positions within K(I).	Identity on the basis of a shared name, account, image, or the form «я».
USE	USE(a _j ,a _i)	Use of an earlier annotation a _i as a ground for candidate a _j .	A dependency based solely on line order or annotation adjacency.

A minimal annotation has the common fields {id, record_node, type, subtype, source, target, record, gate, content_premises, rule, scope, polarity, p}. claim_id is required exactly for ATTR and SAME and prohibited for SEL, READ, and USE. SEL/READ additionally bind target_scope to an exact span; USE requires target_claim and referenced_annotation. The normative sources for rule/gate/content_premises are policy.rules and bridges; their duplicated projections in Ann must agree, or the result is UNVERIFIED. Rules(P) means exactly policy.rules; carrier_reading_rules are input-validation constraints and do not create hyperedges in H.

The family of scope intervals need not cover the carrier and does not constitute a partition. Gaps and overlaps are permitted, provided that each half-open interval is itself valid and addressed by its annotation; neither a gap nor an overlap alone creates identity, USE, or any other edge.

4.3. Five Conditions for Licensing

1. All carriers under study in Car and all procedural record sources in RecSrc are enumerated and uniquely identified. Carriers have their own hashes; Card(I) is linked by an external input_card_sha256.
2. For each carrier, the level of representation, the encoding or signal parameters, the segmentation, and the exact spans are declared.
3. The transition types and the scope of the operators—quotation, negation, interrogation, conditionality, and correction—are specified before the result is issued or are marked as late additions.
4. The order of registration, USE evidential dependencies, and SAME co-designation are recorded separately; for SAME, an independent ground or an explicitly marked stipulation is specified.
5. The finite domain Ω , the registry Def, the stipulations Stip, the bridges Br, the policy P, and the provenance record p are disclosed in sufficient detail for an independent implementation to reproduce the verdict.

If any mandatory condition is unmet, the primary result is UNVERIFIED. An incomplete contract does not become ABSENT, and the absence of an edge within the complete domain does not amount to negating a formula outside the graph.

4.4. Extending the Input Contract

Extension Δ is a separate hashable input. $I^+ = \text{Merge}(I, \Delta)$ applies ordered add/append/replace operations to the card named by base_input_card_sha256. The local preconditions of the operations are checked sequentially; the integrity of the ID spaces, scope entries, and cross-references is checked after the entire list, so an intermediate renaming of Card does not yield a semantic result. An error in a path, type, ID, or final reference yields UNVERIFIED.

Appendix D.3 specifies the ordered Merge operations via JSON Pointer. In the contract itself, order.items defines the domain, while order.precedes contains the generating pairs of the strict partial order; the validator checks resolvability, acyclicity, transitive closure, and $\text{Min} \leq$. D.4 is a pure materialization of D.1+D.3 and receives a separate merged_input_sha256. The manifest checks canonical serialization, hash links, and the exactness of Merge; D*, CELL, TARGET-ALIGNED, or J* do not follow from hash verification alone. These results and the event DAG are recomputed separately by verify_contract.py; mutation_tests.py executes 25 controls and detects all 25 (25/25). Both reports have status PASS.

5. Graph of Evidential Dependencies

5.1. Nodes and the Base Chain

Each rule r is divided into verifiable gates $\text{Gate}(r)$, content premises $\text{Prem}_c(r)$, a single conclusion $\text{Conc}(r)$, and the input field edge_bindings. The last of these defines a function bind_r: for every content edge between ATTR-candidates, it specifies exactly one triple consisting of the source ATTR annotation, the target ATTR annotation, and

the USE record. The validator rejects a missing or duplicated edge key. Thus, equality $q(a_1)=q(a_3)$ does not create cross-dependencies among all annotations with the same candidate. A rule is active relative to K only if it is well-formed and all its gates are already in G : $\text{Rules_K}(P)=\{r \in \text{Rules}(P) : \text{WF}(r) \wedge \text{Gate}(r) \subseteq G\}$. Here and below, K abbreviates $K(I)$ for the fixed input contract I .

$$\begin{aligned} E_ATTR(r) &= \{(x, \text{Conc}(r)) : x \in \text{Prem_c}(r), x, \text{Conc}(r) \in q(\text{Ann_ATTR})\} \\ \text{bind_r} : E_ATTR(r) &\rightarrow \text{Ann_ATTR} \times \text{Ann_ATTR} \times \text{Ann_USE} \\ \Phi_r(x, y; \langle a_s, a_t, u \rangle) &\Leftrightarrow q(a_s)=x \wedge q(a_t)=y \wedge \text{type}(a_s)=\text{type}(a_t)=\text{ATTR} \wedge \text{type}(u)=\text{USE} \wedge \\ &u=\text{USE}(a_t, a_s) \wedge \hat{a}_s, \hat{a}_t, \hat{u} \in \text{Gate}(r) \wedge \text{target_claim}(u)=\text{claim_id}(a_t) \wedge \\ &\text{referenced_annotation}(u)=\text{id}(a_s) \wedge \text{record}(a_s) \prec \text{record}(a_t) \\ \text{WF}(r) &\Leftrightarrow \text{dom}(\text{bind_r})=E_ATTR(r) \wedge \forall (x, y) \in E_ATTR(r) \Phi_r(x, y, \text{bind_r}(x, y)) \end{aligned}$$

An absent edge_bindings field renders the input incomplete and yields UNVERIFIED. An explicitly empty field in a complete card does not conceal a dependency: if $E_ATTR(r)$ is nonempty, it makes $\text{WF}(r)=\text{false}$, so neither the rule nor its edge becomes active.

The complete active structure is the directed hypergraph $H(K, P)=(V, \text{Rules_K}(P))$, in which $\text{Prem_c}(r) \rightarrow \text{Conc}(r)$ is a content hyperedge. Its binary projection $D(K, P)=(V, E)$, where $u \rightarrow v$ whenever $u \in \text{Prem_c}(r)$, $v = \text{Conc}(r)$, and $r \in \text{Rules_K}(P)$, is used to test the strong connectivity of each candidate set S . Safe decomposition means exactly the following: first compute the SCCs of D ; then enumerate the nonempty subsets separately within $C \cap V_ATTR$ for each SCC C containing at least one Bind vertex and one Pred vertex. This is complete because every strongly connected S lies entirely within a single SCC. After this reduction, CLOSED and CORE are still checked against the original H and D , not a truncated copy. If a USE record is absent from $\text{Gate}(r)$, the rule and its edges are present in neither H nor D . The grounded closure is computed from the full sets $\text{Prem_c}(r)$, not from the binary projection. Neither the hypergraph nor its projection represents consciousness, the world, or a causal mechanism.

Node	Role	Minimal Check
O	Exact occurrence or media region.	Carrier, level, [s,e], and hash.
C	Classification of a region as a repeatable form.	Segmentation and equality rule.
L	Lexical or other declared classification.	READ with a rule identifier.
$\beta \cdot \text{Bind}$	Candidate content of a binding.	$q(\text{ATTR}(\text{BIND}, \dots))$ and the scope of the binding.
$\pi \cdot \text{Pred}$	Candidate content of a predication.	$q(\text{ATTR}(\text{PRED}, \dots))$, its premises, and its scope.

USE does not create a separate content vertex R . A verifiable record $\text{USE}(a_j, a_i)$ enters the Gate of a rule that, when active, introduces the directed edge $q(a_i) \rightarrow q(a_j)$; $\text{record}(a_i) \prec \text{record}(a_j)$, target_claim points to $\text{claim_id}(a_j)$, and $\text{referenced_annotation}$ points to a_i . Without this record, both the rule and the edge are absent. The presence of USE licenses neither the source nor the target candidate.

$$O \rightarrow C \rightarrow L \rightarrow \beta \rightarrow \pi$$

The base chain becomes recursive when π returns as a ground for β . Word matching alone does not create the reverse edge: a USE registration is required. If β is already a premise of π and π then serves as an internal premise of β , the cycle $\beta \rightarrow \pi \rightarrow \beta$ arises.

$$\beta \rightarrow \pi \rightarrow \beta$$

5.2. Control Cycle A_1 – A_3

In the control contract, sel_0 first addresses the exact occurrence ожив in W_0 at Unicode [16,25) and UTF-8 [30,48), and read_0 registers the declared lexical classification; their records in $\text{Card}(I_ex)$ are operationally included in $\text{Gate}(r_2)$. Annotation a_1 introduces candidate β ; for A_2 , a_2 is registered with π and $u_2=\text{USE}(a_2, a_1)$; for A_3 , a_3 is registered with β and $u_3=\text{USE}(a_3, a_2)$. The exact scope of u_3 contains «потому что», but the dependency is established by USE, not by the form itself. SELFREAD remains the name of a candidate predication within $\text{ATTR}(\text{PRED})$, not a sixth transition type.

Label	Record and Candidate	Declared Dependency
a_1	$q(a_1)=\beta:=\text{ATTR}(\text{BIND}, \text{ожив}, \text{бчит})$	$\hat{a}_1$ fixes the candidate identifier; it does not ground β .
a_2, u_2	$q(a_2)=\pi:=\text{ATTR}(\text{PRED}, \text{SELFREAD}(\text{бчит}, \text{ожив}), \text{бчит}); u_2:=\text{USE}(a_2, a_1)$	$\text{Gate}(r_2)=\{\hat{a}_1, \hat{a}_2, \hat{u}_2\} \cup \hat{S}U_S$; $\text{Prem}_c(r_2)=\{\beta\}$; $\text{Conc}=\pi$; $\text{bind}_r(r_2, \pi)=\{a_1, a_2, u_2\}$.
a_3, u_3	$q(a_3)=\beta; u_3:=\text{USE}(a_3, a_2)$	$\text{Gate}(r_3)=\{\hat{a}_2, \hat{a}_3, \hat{u}_3\}$; $\text{Prem}_c(r_3)=\{\pi\}$; $\text{Conc}=\beta$; $\text{bind}_r(r_3, \pi)=\{a_2, a_3, u_3\}$.
Input/run field	Recorded value	
base_capture	2026-08-26; SHA-256(W_0 LF A_1 LF A_2 LF A_3 , with no final LF) = 2e0645f47d9241edc1e9e0e2a741bf3cb7de529bbf541b2688f7c1f0e0a8cf2e	
input_card_sha256	SHA-256 of canonical D.1: 588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3	
run_sha256	SHA-256 of the standalone D.2 protocol: d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a	
resolve_input_sha256	SHA-256 of the ordered Δ_{ex} in D.3: ebd446ea8cdd7d1af97c04587c50ee19cbcadfffaa830c14351e1425c7c1c246	
merged_input_sha256	SHA-256 of the full D.4 materialization: 0d3b44a50fc82654c7368a7a4bac95313171a1458a959c75b4714666f96a70cb	
resolve_run_sha256	SHA-256 of the D.5 protocol: 1946d837bf6d1ac1e900474aac47015a1142da5225bd678ca15cc28fc4a814f0	
Car_ex	W_0, A_1, A_2, A_3 ; exact UTF-8 strings, lengths, and hashes — §1 and Appendix B. A_4 lies outside the scope of the cycle.	
RecSrc_ex	Card(I_{ex}) is the canonical input card and is not part of Car_ex; its integrity is specified by the external input_card_sha256.	
λ, σ	UTF-8 bytes and Unicode code points; no normalization is performed; the half-open intervals are given below.	
$<$	order.items defines the domain; order.precedes specifies the full, transitively closed strict partial order. Incomparable records are permitted; the validator checks ID resolvability, irreflexivity, acyclicity, and $\text{Min}<$.	
Ω, Q_S, Q_F	Ω = the set comprising the exact carriers, Card(I_{ex}), records, the stipulation δ_b , and candidate vertices. Q_S enumerates every CELL among the $2^{ V_{\text{ATTR}} -1}$ nonempty subsets of V_{ATTR} . $Q_F=\{\beta, \pi\}$.	
Def_ex	For ATTR and SAME, the claim_id field normatively identifies the candidate vertex. $\text{Def}[\beta]=\text{ATTR}(\text{BIND}, \text{ожив}, \text{бчит})$, $\text{Def}[\pi]=\text{ATTR}(\text{PRED}, \text{SELFREAD}(\text{бчит}, \text{ожив}), \text{бчит})$; $\text{Def}[s_1 \dots s_5]$ specifies the five SAME claims. An ID/payload conflict yields UNVERIFIED.	
Ann_ex	sel_0 and read_0 are recorded in Card(I_{ex}), point to the exact target_scope ожив , and belong to $\text{Gate}(r_2)$; $q(a_1)=\beta$, $q(a_2)=\pi$, $q(a_3)=\beta$; u_2/u_3 are USE records without claim_id; $m_k/\hat{s}_k/s_k$ remain distinct.	
G_ex	Car, Rec(Ann), Stip, ReadClass, Span, and RecSrc, together with the results of Br; β and π are excluded prior to derivation. $\text{Rules}(P)=\text{policy.rules}$; carrier_reading_rules only validate the input.	
Br_ex	For each $k \in \{1, \dots, 5\}$: $r_{s,k}$ has $\text{Prem}=\{\delta_b, \hat{s}_k\}$ and $\text{Conc}=s_k$. These are the only bridges; no bridge has β or π as its conclusion.	

Input/run field	Recorded value
P_ex	r_2 : Prem_c={ β }, Conc= π , and Gate includes n_{sel_0}, n_{read_0} and the A_1/A_2 /SAME records; r_3 : Prem_c={ π }, Conc= β . r_3 is activated by its own ATTR/ATTR/USE binding; SELF-RETURN additionally requires the record order and a class whose readiness is established through δ_b +SAME. The sole normative rule registry for H is policy.rules.
run_ex, p	D.2: S_1 ={ β, π }, w_1 , $J^*=\{A_3\}$, PRESENT, β/π NOT-LICENSED. The hash-linked chain $E_0 \rightarrow E_1 \rightarrow E_2 \rightarrow E_3$ records the internally declared order, not an external calendar chronology. E_0 bears no "post-result" designation; only E_2 demonstrably bears that designation, via predecessor_run_sha256(D.2).
I_ex ⁺	D.3 adds the exact synthetic carrier g_0 ='synthetic-ground-seed: g_0 ', its full Unicode/UTF-8 span, the extended order, and $r_0:g_0 \rightarrow \beta$; the full materialization is linked by merged_input_sha256. This is a structural mutation of a synthetic input independent of the vertices of the internal cycle, not a test of $O \rightarrow C \rightarrow L \rightarrow \beta$ and not an external fact about the reader.

ID	Carrier	Unicode [s,e)	UTF-8 [s,e)	Exact Fragment
ожив	W_0	[16,25)	[30,48)	животного
b_1	A_1	[34,45)	[63,84)	читателя W_0
b_2	A_2	[0,11)	[0,21)	Читатель W_0
v_2	A_2	[46,50)	[84,92)	себя
b_3	A_3	[34,45)	[63,84)	читателя W_0
b_4	A_3	[58,69)	[106,127)	читатель W_0
v_3	A_3	[104,108)	[190,198)	себя

In A_3 , the scope of a_3 ends at Unicode [0,46) and UTF-8 [0,85), whereas the scope of u_3 begins at [47,109) and [86,199), respectively. The sole gap, $A_3[46,47)$, corresponding to UTF-8 [85,86), contains U+0020. It is intentionally included in neither scope(a_3) nor scope(u_3); this is permitted by the declared rule that scopes need not constitute a partition of the carrier.

Here *ожив* denotes the exact occurrence of the form «животного» ("of the animal"). The stipulation δ_b constructs the target class solely for control purposes; the disclosed bridges add the SAME candidates $s_1 \dots s_5$. G_{ex} contains the object carriers, resolved record nodes, δ_b , the classification vertex, span nodes, RecSrc, and the results of the bridges; β and π do not enter G_{ex} merely through the registration of annotations. Rules(P)=policy.rules, and r_2 and r_3 are active. Protocol E1 returns S_1 ={ β, π }; the later notation $S_{ex}:=S_1$ is only a textual name for the result and does not alter the input.

The subgraph induced by S_{ex} is strongly connected, $S_{ex} \cap G_{ex} = \emptyset$, and every rule whose conclusion lies in S_{ex} has an internal premise β or π . The activity of r_3 and the presence of SELF-RETURN are nevertheless distinct conditions. When r_3 satisfies WF and Gate, the edge $\pi \rightarrow \beta$ is created; that edge enters $W_K, P(S)$ only when there is an exact ATTR(PRED) $\rightarrow$ ATTR(BIND) $\rightarrow$ USE linkage, the required record order, and TARGET-ALIGNED. The last condition requires basis δ_b and all required_same_claims of class *бчит* to be in G_K . Accordingly, consistently removing the basis or a required SAME may leave the active edge intact while eliminating the qualified witness, CORE, and CELL. Equality of string labels substitutes for none of these conditions. In I_{ex} , w_1 is present, no proper subset of S_{ex} is a CORE, and the verdict PRESENT is not a reconstruction of anyone's reading of W_0 .

6. Recursive Evidential Closure

6.1. Definition

Let G be the set of admitted base vertices: Car(K), resolved record nodes Rec(Ann), Stip(K), ReadClass(K), Span(K), RecSrc(K), and the results of authorized noncyclic bridges. The procedural source Card(I) is included as an identified RecSrc, but its text does not become candidate content. G does not contain $q(a)$ merely because the annotation has

been recorded. The rules are finite and positive; negation is encoded as a separate vertex rather than as failure of derivation.

$$G_K = Cl_{BrK}(Car(K) \cup Rec(Ann) \cup Stip(K) \cup ReadClass(K) \cup Span(K) \cup RecSrc(K)); G := G_K$$

$$D_0 = G; \quad D_{n+1} = D_n \cup \{Conc(r) : r \in Rules_K(P), Prem_c(r) \subseteq D_n\}; \quad D^* = \bigcup_n D_n$$

Because V is finite, the sequence reaches a fixed point after at most $|V|$ strict extensions.

Let $V_ATTR = q(Ann_ATTR)$. For $S \subseteq V_ATTR$, $SC_D(S)$ means that S is nonempty and that, for every $x, y \in S$, there is a directed path $x \sim y$ lying entirely within the induced subgraph $D(K, P)[S]$; when $x = y$, a path of length zero is permitted. A singleton S therefore satisfies only the connectivity condition and cannot simultaneously meet the separate requirements $BIND(S)$ and $PRED(S)$. A set S is called a closed attributive set relative to $K(I)$ and P if it is strongly connected, contains at least one Bind vertex and one Pred vertex, is disjoint from G , and every active rule with a conclusion in S has at least one content premise within S .

$$CLOSED_K, P(S) \Leftrightarrow SC_D(S) \wedge BIND(S) \wedge PRED(S) \wedge S \cap G = \emptyset \wedge$$

$$\forall r \in Rules_K(P) [Conc(r) \in S \Rightarrow Prem_c(r) \cap S \neq \emptyset]$$

The final condition expresses the absence of independent initiation: every active putative ground for a vertex in S already depends on at least one vertex in S . Strong connectivity is tested within S ; a path through an external vertex does not count.

TECHNICAL INTERPRETATION

The question of the animal's internal state falls outside Ω . Relative to $K(I)$ and P , the procedure detects only a recorded core in which grounds return to their own premises.

6.2. Proposition: No Internal Initiation

Proposition. If $CLOSED_K, P(S)$, then $S \cap D^* = \emptyset$. Consequently, this holds for every CORE and every resulting CELL.

Proof. Suppose otherwise, and choose the least n such that D_n contains a vertex $v \in S$. Since $S \cap G = \emptyset$, $n > 0$. The vertex v was added by some active rule r , all of whose content premises belong to D_{n-1} . By the final conjunct of $CLOSED$, $Prem_c(r)$ contains some $u \in S$. Then $u \in D_{n-1}$, contradicting the minimality of n . Therefore, there is no first derived vertex of S . $\square$

The proposition neither proves the vertices in S false nor precludes their licensing in an extended $K(I)$. The structural control I_ex^+ in Appendix D adds the exact synthetic base carrier g_0 and the active rule $r_0: g_0 \rightarrow \beta$. The closure condition then fails, β enters D_1 , π enters D_2 , both vertices receive $LICENSED@K, P$, and the CORE for $\{\beta, \pi\}$ disappears. Because g_0 is not an ATTR candidate, $E_ATTR(r_0) = \emptyset$, and the explicitly empty edge_bindings remains a total function on an empty domain. r_0 is an intentional mutation of P^+ : licensing is produced by a disclosed rule, not by writing the label g_0 . "Structurally independent" here means only that g_0 does not depend on CELL vertices in the declared graph; it is neither an external empirical source nor a test of the chain $O \rightarrow C \rightarrow L \rightarrow \beta$.

The proof that no first internal vertex exists uses only $S \cap G = \emptyset$ and the internal-premise condition; it does not require strong connectivity, the presence of Bind/Pred, active self-return, or inclusion-minimality. The proposition itself is a specific finite fact about the least fixed point, not a new general theorem of logic.

6.3. Constructive Separation Witness

Constructive witness. For the exact I_ex , P_ex , and Δ_ex , two reproducible runs demonstrate the following: on I_ex , the procedure returns $Q_S = PRESENT$, $Cells(K_ex, P_ex) = \{S_ex\}$, $S_ex = \{\beta, \pi\}$, $\beta, \pi \notin D^*$, and $Q_F(\beta) = Q_F(\pi) = NOT-LICENSED@K, P$; after $I_ex^+ = Merge(I_ex, \Delta_ex)$, it returns $Q_S = ABSENT$, $\beta, \pi \in D^*$, and $Q_F(\beta) = Q_F(\pi) = LICENSED@K, P$.

Verification of the construction. In I_ex , $r_2: \{\beta\} \rightarrow \pi$ and $r_3: \{\pi\} \rightarrow \beta$ are active; both conclusions depend on an internal premise, and r_3 carries an active $PRED \rightarrow BIND$ self-return. Thus $\{\beta, \pi\}$ is the sole inclusion-minimal CORE, but by the proposition in §6.2 it is disjoint from D^* . The extension Δ_ex adds the synthetic carrier $g_0 \in G^+$ and the disclosed rule $r_0: \{g_0\} \rightarrow \beta$. It follows that $\beta \in D_1$ and $\pi \in D_2$; r_0 violates $CLOSED$ for $\{\beta, \pi\}$, so the CELL disappears. The exact inputs, the Merge operation, and both protocols are presented in D.1–D.5. The verification directly unfolds the definitions; its force lies in exactness, reproducibility, and the divergence of the three outputs, not in the complexity of the derivation. $\square$

CENTRAL DEMONSTRATION

The same pair β, π separates three outputs: structural self-return may be PRESENT without evidential licensing; a synthetic input structurally independent of the internal cycle eliminates the CELL and licenses both vertices; ρ separately preserves the order of ground introduction.

This is the central demonstration of separability, not an estimate of prevalence or a general theorem of logic. It does not depend on a claim that such a cycle was found in material not produced by the author: no such run was performed here. The synthetic character of the witness makes the intervention controlled but precludes treating it as an empirical frequency, an external source, or a description of anyone's experience.

6.4. Paired Completions

Let T_K be the set of formulas specified by $K(I)$, L_R its record signature, and h the exact string «внимание животного слиплось со звуком» (“the animal's attention fused with the sound”). Suppose M_{plus} and M_{minus} satisfy T_K and have identical L_R -reducts: h , the strings, bytes, hashes, spans, and the edges of $D(K,P)$ coincide between them. Introduce separately an external reading H_E of the form h . Let M_{plus} satisfy H_E and M_{minus} satisfy its negation. The same theory of the record is then compatible with both completions.

$$M_{plus}|L_R = M_{minus}|L_R, \quad T_K \not\models H_E, \quad T_K \not\models \neg H_E$$

This is a symmetric limit on the resolving power of $K(I)$. It does not say that what is named is absent, nor does it render the form h or its reading H_E meaningless. A separate pair of completions preserves the same order $A_i < W_j$ but differs in a causal edge; order alone therefore does not answer “why.”

$$A_i < W_j \not\Rightarrow \text{Cause}(A_i, W_j)$$

7. Levels of Return and the First Point

The metaphor «слиплось» (“fused”) becomes testable only after four distinct outputs have been separated. No transition between them is permitted without a bridge.

Level	Criterion	Admissible Result
R_0 · Form Repetition	One exact form is localized in two regions.	A match at the declared level.
R_1 · Attribution Return	A later record explicitly uses an earlier ATTR through USE.	Record dependency.
R_2 · Self-Return	Active edge_bindings PRED → BIND, the record order, and a target class whose readiness is established through Stip+SAME.	Recursive self-attribution.
R_3 · Experiential/Causal Fusion	A separately serialized $q \in Q_F$ and a disclosed bridge to attention, experience, the body, or causality.	Status is computed only for $q \in Q_F$; no status is assigned to an unserialized external hypothesis.

The first point of self-return is defined not by the first occurrence of a word, but by the first record in which the result of attribution returns as a ground:

$$EB_0(P) = \{ \langle a_s, a_t, u, r \rangle : r \in \text{Rules}(P) \wedge \text{declared_binding } r \text{ resolves as } \text{ATTR}, \text{ATTR}, \text{USE} \}$$

$$\text{OrdRec}(P) = \{ \text{record}(a_s), \text{record}(a_t) : \langle a_s, a_t, u, r \rangle \in EB_0(P) \}$$

$$\text{CLASS-READY}_K(b) \Leftrightarrow \text{basis}(b) \in G_K \wedge \text{required_same_claims}(b) \subseteq G_K$$

$$\text{TARGET-ALIGNED}_K(a_i, a_j) \Leftrightarrow \exists b [\text{target}(a_i) = \text{target}(a_j) = b \wedge \text{CLASS-READY}_K(b)]$$

$$\text{ACTIVE-USE}_{K,P}(a_i, a_j) \Leftrightarrow \exists r \in \text{Rules}_K(P), u [\text{bind}_r(q(a_i), q(a_j)) = \langle a_i, a_j, u \rangle]$$

$$\text{SELF-RETURN}_{K,P}(a_i, a_j) \Leftrightarrow \text{ACTIVE-USE}_{K,P}(a_i, a_j) \wedge \text{record}(a_i) < \text{record}(a_j) \wedge$$

$$\text{subtype}(a_i) = \text{PRED} \wedge \text{subtype}(a_j) = \text{BIND} \wedge \text{TARGET-ALIGNED}_K(a_i, a_j)$$

$EB_0(P)$ is constructed before order, WF, and activity are checked, using every edge_bindings entry of every rule in P . Each reference must resolve to two ATTR annotations and one USE annotation; USE must name the exact target_claim and referenced_annotation, and all three record_node values must belong to the rule's Gate. Otherwise, the input is UNVERIFIED. order.items defines the domain, and order.precedes specifies the full, transitively closed strict partial order: it is finite, irreflexive, and acyclic, but need not be total; incomparability is permitted. Every record in

OrdRec(P) belongs to order.items. Only then are WF and Rules_K(P) computed. TARGET-ALIGNED requires basis and all required_same_claims to be in G_K.

$$\begin{aligned}
 W_{K,P}(S) &= \{ \langle a_s, a_t, u, r \rangle : q(a_s), q(a_t) \in S \wedge r \in \text{Rules}_K(P) \wedge \\
 &\quad \text{bind}_r(q(a_s), q(a_t)) = \langle a_s, a_t, u \rangle \wedge \text{SELF-RETURN}_{K,P}(a_s, a_t) \} \\
 \text{CORE}_{K,P}(S) &\Leftrightarrow \text{CLOSED}_{K,P}(S) \wedge W_{K,P}(S) \neq \emptyset \\
 \text{CELL}_{K,P}(S) &\Leftrightarrow \text{CORE}_{K,P}(S) \wedge \neg \exists T [T \subsetneq S \wedge \text{CORE}_{K,P}(T)] \\
 \text{Cells}(K,P) &= \{ S \subseteq V_{\text{ATTR}} : \text{CELL}_{K,P}(S) \}
 \end{aligned}$$

Minimality is understood under proper inclusion, not by cardinality, not by an individual witness, and not as a one-vertex-deletion test. Overlapping CELL instances are returned separately; identical vertex sets are deduplicated; a single witness may be listed for several CELL instances. A larger CORE that contains a smaller CORE is not returned, even if it contains an additional self-return.

The normative finite procedure examines all $2^{|V_{\text{ATTR}}|-1}$ nonempty sets $S \subseteq V_{\text{ATTR}}$ or applies the SCC decomposition defined in §5.1 with the same complete output, retains those satisfying CORE, and removes every CORE that has a proper CORE subset. SCC decomposition preserves completeness but does not establish polynomial complexity. This study proves neither a specific upper bound on the number of CELL instances nor a lower bound on output complexity. It claims completeness of a completed finite output, not polynomial efficiency.

$$\text{Cells}(K,P) \subseteq \text{Cores}(K,P) \wedge \forall R \in \text{Cores}(K,P) \exists S \in \text{Cells}(K,P) [S \subsetneq R]$$

Vertex identifiers are compared lexicographically by their exact sequences of Unicode scalar values, without normalization. A CELL key is the tuple of its identifiers sorted in this order; keys are compared lexicographically, with a shorter proper prefix preceding a longer one. Only after sorting are $S_1, S_2, \dots$ assigned. Witnesses are sorted by the tuple (source_annotation, target_annotation, use_annotation, rule) and assigned $w_1, w_2, \dots$.

Q_S enumerates all elements of $\text{Cells}(K,P)$ in this order. PRESENT means that the list is nonempty. A CELL entails that $W_{K,P}(S)$ is nonempty, and a finite strict partial order on records has a minimal element; therefore $\text{PRESENT} \Rightarrow J^* \neq \emptyset$. The converse does not hold: active self-return may persist after the addition of a synthetic, structurally independent input once closure has been broken, as in I_{ex}^+ .

PRESENT or ABSENT is returned only after exhaustive enumeration or an equivalent SCC decomposition has been completed. Exceeding a resource bound declared in advance is recorded as an incomplete run and is not replaced by either structural verdict. The comparison of independent implementations in §11 uses the same complete input and two completed runs; the study does not guarantee completion on an arbitrarily large V_{ATTR} within any fixed time or memory limit.

$$J^* = \text{Min} < \{ \text{record}(a_t) : \exists a_s \text{ SELF-RETURN}_{K,P}(a_s, a_t) \}$$

The operator $\text{Min} <$ returns every x in the set under consideration for which no $y < x$ exists. Of two comparable target records, only the earlier remains; if they are incomparable, both remain. A cycle in order.precedes, an unresolvable ID, or the omission of any OrdRec(P) record from order.items yields UNVERIFIED. j^* is present only when J^* is a singleton. J^* is computed from the global registry of qualified SELF-RETURN instances, not from string matches and not solely from witnesses of detected CELL instances; the array is sorted canonically.

8. Four Stress Tests of the Boundary

8.1. The String «звук» and an Acoustic Carrier

The supplied corpus contains no audio file; it contains a UTF-8 string with the occurrences «звук» (the instrumental form of “sound”) and «звук» (“sound”) in the article text. The procedure can therefore establish their positions, bytes, and declared lexical reading, but not an acoustic episode. The claim “the word replaced the sound” requires at least two carriers, a rule for matching them, and a criterion for what counts as replacement.

If audio is added, it need not belong to only one class. Under two declared classifications, a spoken form may be both a word token and an acoustic event. The method does not establish a metaphysical incompatibility between the classes; it prohibits treating an undisclosed classification as a property already contained in the carrier. The effects of written cues on ratings of the clarity of degraded speech (Sohoglu et al., 2014) show that one kind of material can influence reports about another, but not that the two are identical.

8.2. A Photograph, Instagram, and the “View from Outside”

For an image, at least the following must be distinguished: the file bytes; a selected region; the binding of that region to a target position; the string «на фотографии — я» (“that is me in the photograph”); the generalization «так я выгляжу со стороны» (“this is what I look like from the outside”); and the still stronger claim «так меня видят другие» (“this is how others see me”). Each successive link requires a separate rule. Identifying an image does not license a universal perspective attributed to unspecified others.

Personal photographs do in fact employ first- and third-person perspectives, and the purposes for which they are taken are associated with the choice between them (Niese et al., 2024). Visuotactile manipulations likewise alter measures of bodily self-attribution without linguistic manipulation (Lenggenhager et al., 2007). The strict claim therefore cannot be that “the view from outside arises exclusively in text.” The narrower, testable version asks where a particular record receives the binding «это я» (“this is me”), and where that local binding is extended into a general status (Shebetov, 2026b).

8.3. “Pain”: Symmetry Rather Than Substitution

CONTROL PAIR
собака испытывает боль (“the dog experiences pain”)
собака не испытывает боль (“the dog does not experience pain”)

Label	Exact UTF-8 carrier	Bytes; SHA-256
p+	собака испытывает боль	42; 87d8200b15890ba9773c6d077f52f0177e462e 5d4d8ae658c2363317d77b5a0a
p-	собака не испытывает боль	47; 72182163584d8d8245df03608bb874e9178411 10a055d91844196f00ef41323b

Under a separate contract I_pain, two carriers, their exact boundaries, and their hashes are accepted. If the order of ground introduction matters, it is represented by separate event provenance rather than by the label “after the result.” Ann_pain registers READ and explicitly serialized q-plus and q-minus in Def, Ω, and Q_F; Br_pain is empty. The labels PAIN, NOT-PAIN, and DOG remain elements of a candidate reading, not presented states.

Carrier verification licenses localization but does not introduce q+ or q- into D*: both receive NOT-LICENSED@K,P. Here H+ and H- are merely prose names for external clinical hypotheses and, because they are not serialized in Def, Ω, and Q_F, receive no machine status. BEYOND-RECORD is assigned only to an explicitly serialized q∈Q_F for which the validator has established the absence of the required relation or bridge in Ω.

PROCEDURE OUTPUT
In K_pain, carriers p+ and p- have been verified; q+,q- ∉ D*. Both candidate predications receive NOT-LICENSED@K,P—with no transition to the negation of either.

A new admissible resource may change the status of q+ or q-. The method does not compete with medical diagnosis or rule out nonverbal measures; it requires such measures to enter an extension of K_pain under a procedure of their own. The absence of a verbal report does not, by itself, license either the positive or the negative candidate predication.

8.4. “Animal” and Comparative Formulas

The strings «у собаки нет слов» (“the dog has no words”) and «человек — самое тупое животное» (“the human is the stupidest animal”) are not used as premises. The first requires an operational definition of “word” and must account for a result obtained with a single border collie: after hearing a novel label, the dog selected a novel object in exclusion trials (Kaminski et al., 2004); the second specifies no scale of comparison. Yet citing that study does not, by itself, present «слово собаки» (“a dog’s word”). In each case, the present method remains concerned with the order of records and transitions within K(I).

9. Decision Rule and Output

9.1. Primary Structural Verdict

Verdict	Condition
PRESENT	At least one inclusion-minimal CELL has been found within the complete declared scope.
ABSENT	The scope is complete, but no nonempty subset of V_ATTR satisfies CELL.
UNVERIFIED	The contract is incomplete, or the result cannot be independently reproduced.

PRESENT concerns the structure of the graph, not an experience of enclosure. ABSENT concerns the declared scope, not the world. UNVERIFIED is not passed off as a negative result.

9.2. Status of a Candidate Formula

Status	Meaning
UNVERIFIED	The licensing conditions are not met; no other statuses are computed.
BEYOND-RECORD	Only for an explicitly serialized $q \in Q_F$: the complete validator established that the required relation or bridge is absent from Ω .
LICENSED@K,P	Otherwise, if candidate q belongs to the grounded closure D^* under the disclosed rules.
NOT-LICENSED@K,P	Otherwise, the candidate is in the vocabulary and scope Ω but not in D^* ; its negation does not follow.

The statuses are applied in the order shown in the table. BEYOND-RECORD may be assigned only to an explicitly serialized $q \in Q_F$ when the complete validator establishes that the required relation or bridge is absent from Ω ; no status is assigned to the unserialized H_E , H_+ , or H_- . A status is computed for the controls q_+ , q_- and for β, π because they are included in Def , Ω , and Q_F . An incomplete contract always stops at UNVERIFIED.

9.3. Reproducible Procedure

1. Freeze the complete I and compute the carrier hashes.
2. Locate SEL regions at the declared levels without adding a reading.
3. Register READ, ATTR, SAME, and USE, together with Stip, Br, edge_bindings, and ρ .
4. Compute G_K ; check WF and Gate for each rule; obtain Rules_K(P).
5. Construct $H(K,P)$ and $D(K,P)$ without treating the order of registration as evidential dependency.
6. Enumerate all nonempty $S \subseteq V_ATTR$, or apply the SCC decomposition in §5.1; for each candidate, check CLOSED against the original H and D and check for a self-return witness, thereby obtaining the complete set of CORE instances. Issue the structural verdict only after the full search has been completed.
7. Remove every CORE that has a proper CORE subset; retain all overlapping minimal CELL sets, deduplicate identical sets, and assign IDs canonically.
8. Compute the grounded closure D^* , the global SELF-RETURN registry, and J^* , and report Q_S separately from the statuses of all $q \in Q_F$.
9. **Perform the limited F7' non-privileging check: the procedure's own report does not receive LICENSED without a separate complete I_self . The absence of I_self yields UNVERIFIED and does not count as a full self-applied F7+ run.**

10. Adversarial Cases

Case	Why Surface Matching Is Insufficient	Required Record
Quotation	The string «Животное слышит звук» ("the animal hears a sound") may occur within someone else's utterance.	Quotation scope applied before ATTR.
Negation	The same forms occur in «не слышит» ("does not hear").	Polarity and scope of negation.
Question	An interrogative occurrence is not an answer.	Type of speech or writing act.
Conditional	An antecedent does not itself present the condition as satisfied.	Scope of if/если and application rule.
Correction	The form may occur in a rejection of the selected classification.	Correction operator.
Automatic Generation	The full chain of strings can be reproduced without any registered experience.	A separate bridge to the candidate hypothesis.
Two Instances of «я»	Repeating the pronoun does not establish SAME.	Independent identifier or rule.
Translation	«звук» and sound are not the same exact form.	Scoped translation annotation.
Audio + Caption	A caption does not become a WAV interval; a WAV file does not generate the caption.	Cross-modal rule.
Photograph + Caption	The string «Это я» ("This is me") does not, merely by occurring, bind the file to a target position.	ATTR and binding verification.
Later Rule	A rule written after the result was not its preregistered ground.	Event provenance E2 with predecessor_run_sha256(D.2); without it, the declared order is not established.
Repetition without USE	Lexical repetition does not establish evidential dependency.	Explicit source for USE.

This set does not guarantee the method's correctness; it makes the conditions for failure visible. Automatic generation blocks the transition from structure to experience. PRESENT for S is refuted by a particular active rule r with $\text{Conc}(r) \in S$ and $\text{Prem}_c(r) \cap S = \emptyset$; the mere presence of an external premise in a mixed hyperedge is insufficient.

11. Falsifiers and Invariance

The apparatus is deemed to have failed its own test if any of the following is found:

- the same complete I , $K(I)$, and P yield different structural verdicts in independent implementations after two completed exhaustive runs;
- a run left incomplete because of a declared time or memory limit is reported as ABSENT or PRESENT;
- PRESENT is reported despite a missing mandatory edge or in the presence of an active r with $\text{Conc}(r) \in S$ and $\text{Prem}_c(r) \cap S = \emptyset$;
- a declared lossless representation transformation changes the result without changing span correspondence;
- line order is treated as USE, or repetition of a form as SAME;
- a single earliest point j^* is selected when J^* is not a singleton;
- for $\text{Conc}(r) \in S$, an active rule with $\text{Prem}_c(r) \cap G \neq \emptyset$ and $\text{Prem}_c(r) \cap S = \emptyset$ does not violate $\text{CLOSED}_{K,P}(S)$;
- a CORE is returned as a CELL despite having a proper CORE subset, or one of the overlapping minimal CELL sets is lost or merged with another;
- the procedure attributes experiential or causal R_3 solely from R_0 – R_2 ;
- the article's own conclusion is exempted from P ;
- a bridge has already been registered in $K_0(I)$ as a separate resource, but the procedure reports that it was introduced later.

Invariance is tested only for transformations declared in advance. For example, NFC/NFD may be treated as a single level only when the policy maps them explicitly and maps spans losslessly; neither audio transcription nor translation

qualifies as such a transformation. Permuting lines while preserving all dependencies should not change the presence of a cycle, but it may change J^* and the order marker.

12. The Boundary of Reading

The constructive separation established in §6.3 precedes its application to the source formula. Accordingly, the section that follows is not a premise of the proof and does not extend that proof into an account of internal states. It shows precisely where reading adds classification, binding, predication, and a rule to the presented carrier, and how reading may then return a later result as the ground for its own earlier transition.

12.1. The Form «звук» (“Sound”) and an Acoustic Episode

W_0 presents the sign sequence «звук», whereas the prose of the article contains the sequence «звук». Treating them as forms of the same Russian lexeme already requires an explicitly declared classification. Neither sequence is an audio file or a range of samples from one. The record itself therefore establishes none of the following: the presence of an acoustic episode, its absence, the transition «звук стал словом», or the reverse transition. Each of these relations requires a separate carrier, domain, and rule.

12.2. «Животное» (“Animal”), «боль» (“Pain”), and the Symmetric Stop

The form «животного» in W_0 does not present an animal. The absence of the form «боль» from the selected carrier does not license the candidate formula «боли нет»; the presence of the same form does not license the candidate formula «боль есть». Accordingly, the sentence «из отсутствия слова “боль” не следует отсутствие боли» is itself treated as a new record with its own negative candidate formula, not as a privileged exit beyond the record. In K_{pain} , both sides, p_+ and p_- , are localized in the same way, and both remain NOT-LICENSED@K,P until a separate admissible bridge is supplied.

12.3. «Вид со стороны» (“View from the Outside”) as a Perspective Attribution

The phrase «меня видят со стороны», the caption «это я», and an image are distinct carriers. Their co-occurrence neither presents a universal point of observation outside the body nor binds the image to a participant without ATTR. The converse claim—that a third-person perspective is always produced solely by language—also does not follow from the current $K(l)$. The study establishes a narrower point: the general status «мой вид со стороны» enters the record at a transition that can be located; it does not precede that transition as an already presented part of the string.

12.4. Explanation as a Subsequent Record

An explanation adds a new carrier about the preceding material. It may introduce a source, bridge, or rule, but its being written does not make it what it describes. If its result is then used to license the binding on which the explanation itself rests, a testable candidate CELL arises. The study thus does not declare every explanation false; it requires the location, source, and direction of each transition to be made explicit.

BOUNDARY OF READING

The boundary does not choose between «есть» (“there is”) and «нет» (“there is not”). It stops both strings at the same point: until a separate carrier and rule are supplied, neither gains an advantage merely from the way it sounds or is read.

12.5. Remaining Questions and Scope of the Contribution

The study does not answer the historical or neurocognitive question of why attention became associated with sound. Such an answer would require operational definitions, comparable conditions, measurement of attention, a temporal design, and causal identification. Nor does the study establish that photography is caused by a belief in a common external view; that reading causes overload, pain, or illness; that a dog has no words; that humans are the “stupidest” animals; or that the source intuition is false.

The mapping is reproducible within the open protocol, but it does not establish that no predecessor exists anywhere. Crossref/OpenAlex are not universal; 17/27 responses reached the limit of 100; the 15 base query strings are in English; indexing and ranking change over time. R1/R2 were model-assisted passes, not human assessments; κ does not detect shared systematic error or measure recall, and 130 is a procedural union, not a statistical bound. The base strict-review layer contains 71 abstract-based and 16 full-text pass records. Citation routing used 1 854 abstracts and 850 metadata records; strict review used 138 abstracts and 0 full texts, comprising 125 frozen citation abstracts and 13 publisher/repository supplements. The Russian-language layer is a crawler-visible supplement, not an exhaustive

database search. 123 OpenAlex IDs could not be resolved. The claim is therefore limited to the first integration identified in the mapped literature, while the full self-applied F7+ run remains UNVERIFIED.

13. Limited Self-Check

The title $W_self = \langle \text{Чтение как клетка} \rangle$ is a late string in this article and is not included in Car_ex : 32 bytes; SHA-256 41df810c887418c60f4800972fd362a55739e94920931148890f9ae72ef761fe. It therefore does not serve as the ground of the control cycle. A full extension I_self would have to register W_self , A_4 , the concluding sentence, their READ records, and a reporting bridge to protocol K_ex, P_ex separately.

A complete I_self is not constructed in this study. Accordingly, the title, A_4 , and concluding sentence do not receive LICENSED@ K_self, P_self : the result of the limited F7' non-privileging check is UNVERIFIED. This does not alter the computation of I_ex and is not a full self-applied F7+ run; it only prohibits automatic licensing of the procedure's own report.

The final string in the constructed corpus is A_4 : $\langle \text{Чтение } W_0 \text{ стало клеткой читателя } W_0 \rangle$. Its exact bytes and forms can be checked in A_4 . If it is used as an account of experience, it requires bridge R_3 ; if it is used as a technical report about CELL S_ex , a full I_self requires both an exact annotation of this string and a separate reporting bridge to protocol K_ex, P_ex . The string itself neither determines which mode applies nor supplies either bridge.

RESULT OF THE LIMITED SELF-CHECK

F7': UNVERIFIED. I_ex reproducibly yields PRESENT, but the procedure's own report does not receive LICENSED without a complete I_self . This is not a full self-applied F7+ run.

14. Conclusion

The constructive witness is presented first. On I_ex , the sole CELL $\{\beta, \pi\}$ is structurally PRESENT, but β and π lie outside D^* . The hashed Δ_ex adds g_0 and $r_0: g_0 \rightarrow \beta$; in I_ex^+ the CELL disappears, β and then π enter D^* and receive LICENSED@ K, P . Event provenance p links $E0-E3$ and the hashes of $D.1-D.5$ without certifying an external calendar chronology. The independent semantic recomputation returned PASS, as did all 25/25 negative mutation controls.

Only after this demonstration is the boundary of reading drawn. W_0 presents exact signs; READ, ATTR, SAME, USE, and causal bridges enter later and separately. By their mere occurrence, the forms $\langle \text{звук} \rangle$, $\langle \text{животное} \rangle$, $\langle \text{боль} \rangle$, and $\langle \text{вид со стороны} \rangle$ become neither what they name nor its absence. An explanation adds a record and may add a rule, but it does not thereby acquire the right to use its own reading as an unregistered ground for what it describes.

Across the completed layers of systematic mapping, no confirmed prior work was identified that combines F1–F6 and the bounded F7' non-privileging check within a single reproducible contract. The permissible status is therefore: the first integrated procedure of this exact type identified in the literature mapped through 27 August 2026, subject to the disclosed bounds of the evidential basis. Negative decisions in the citation layer are limited to abstracts, while the 14 eligible Russian-language records have the status not_confirmed. This is a finding from the search, not proof of historical priority or of novelty for any individual idea of cyclicity, external support, minimal core, provenance, exact annotation, or self-reference.

FINAL BOUNDARY

In the contract, $\langle \text{клетка} \rangle$ is a cycle in which what has been read becomes the ground of its own reading. This very sentence receives no exemption: without a complete I_self , its status is UNVERIFIED.

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Appendix A. Input Card and Protocol

For independent replication, the input and result are serialized separately. An empty required input field yields UNVERIFIED; the result is never included in the input-card hash.

Field	Content
base_capture	base_capture: exact concatenation W_0 LF A_1 LF A_2 LF A_3 ; the added g_0 is deliberately excluded.
Car	A complete list of the object-level carriers under study: ID, exact sequence, type, size, and SHA-256.
RecSrc	A separate list of procedural record sources. Card(I) is located here, not in Car; the external input_card_sha256 links the bytes but does not certify the origin of the article or package.
λ, σ	Representation levels, encodings, intervals, and segmentation rules. Scopes need not cover the carrier or form a partition; gaps and overlaps do not create edges.
$<$	$EB_0(P)$ defines $OrdRec(P)$. order.items contains its domain; order.precedes serializes the transitively closed strict partial order. Incomparability is permitted; a cycle, omitted ID, or invalid binding reference yields UNVERIFIED.
Ω, Q_S, Q_F	A finite domain, the exact structural question, and a finite list of candidate formulas.
Ann	SEL/READ/ATTR/SAME/USE with shared id, record_node, subtype, source, target, gate, content_premises, rule, record, scope, polarity, and p. claim_id is required for ATTR/SAME and only those subtypes; SEL/READ have target_scope; USE has target_claim/referenced_annotation.
Def	A canonical registry claim_id $\rightarrow$ typed payload for all content-bearing ATTR and SAME records. An ID/payload conflict yields UNVERIFIED.
Stip	All explicitly marked stipulations, their domain, and p.
Br	All authorized bridges and their input data.
P	policy.rules is the sole Rules(P) and the normative source of H; carrier_reading_rules are validation constraints. WF, Gate, D*, CLOSED, CORE, CELL, exhaustive search, statuses, and duplicate invariants.
p	Acyclic event provenance E0–E3 with unique IDs, resolvable predecessors, permitted transitions between event types, and matching hash references. E0 is the input with no predecessor; only E2 is declared post-result. The declared internal order is checked, not calendar time.
input_card_sha256	The external SHA-256 of the complete canonical card without an embedded self-digest and without the result; it checks byte identity but not origin.
run.input_card_sha256	The protocol reference to the exact input.
run.output	The Q_S verdict; the complete CELL list with witness_ids; a single global self_return_witnesses list; statuses for $q \in Q_F$; J^* in canonical Unicode order and j^* only when $ J^* =1$. The auditing cell_checks do not constitute a second registry.
run_sha256	SHA-256 of the canonical protocol excluding the hash field itself.
resolve_input_sha256	SHA-256 of the ordered machine instructions in D.3, applied to the exact D.1.
merged_input_sha256	SHA-256 of the complete canonical I_ex^+ after Merge, presented in full in D.4.
resolve_run.run_input_sha256	The sole D.5 reference to the actual input of the D.4 run; together with base_input_card_sha256 and resolve_input_sha256, it links the original D.1, the D.3 operation, and the materialized D.4 result without assigning two names to one digest.
resolve run	D.5 is a separate hashable structural-control protocol; it is not a check of $O \rightarrow C \rightarrow L \rightarrow \beta$.

The machine-readable annotation record conforms to contract.schema.json (Draft 2020-12). A Scope has exactly one mode; any violation of required fields, typed references, or Merge postconditions yields UNVERIFIED.

Appendix B. Exact Strings and Checksums

All strings below are encoded in UTF-8 with no trailing line feed. No normalization is performed before hashing. The letter «ё» does not occur in the corpus. A_1 – A_3 use paired Russian quotation marks U+00AB and U+00BB; in A_1 – A_4 the technical label contains U+2080. The complete SHA-256 digests apply only to the characters between cell boundaries.

Label	Bytes	SHA-256	Exact String
W_0	132	e7786f6641e6724690978d12268ddd f0123b00168fcd898d4af03a3ebba1 5cd	Почему внимание животного слиплось со звуком и теперь чтение его клетка
A_1	85	295c75c5179584ab89d4f6abb39790 176e0d12b0c6820425304467e0265 48d66	Форма «животного» в W_0 обозначает читателя W_0 .
A_2	93	e2d6f4ef41fe4ca75dfde481fba5a75a 895fdb53ac9ac93292bcfbf93d57013f	Читатель W_0 читает форму «животного» в W_0 как себя.
A_3	199	76cdacbd125a88d31ad850c24291e8 87da421124d9a19c27f0c60506c883 276d	Форма «животного» в W_0 обозначает читателя W_0 , потому что читатель W_0 читает форму «животного» в W_0 как себя.
A_4	66	f36b16c6be46379781b139ae93fcb0 db55dc5de68a8150db5d2d1f8f2bcd d814	Чтение W_0 стало клеткой читателя W_0 .

Check: recomputing SHA-256 must produce the same 64 hexadecimal characters. The control-run Capture W_0 LF A_1 LF A_2 LF A_3 with no final LF: 2e0645f47d9241edc1e9e0e2a741bf3cb7de529bbf541b2688f7c1f0e0a8cf2e. Any automatic substitution, addition of a period, non-breaking space, or line feed creates a different artifact and requires a new identifier rather than correction of the old hash.

Appendix C. Minimal Implementation Tests

The normative acceptance matrix appears below. `mutation_tests.py` executes 25 named negative controls; 25/25 were detected. Matrix C1–C30 is broader than the executable set and remains a normative specification of expected responses, not a claim that this is a complete conformance suite.

Test	Expected Result
C1 · W_0 only	Only serialized forms are localized; no machine status is assigned to the unserialized H_E .
C2a · A_1 – A_3 without a complete card	UNVERIFIED; $Cells(K,P)$ is not computed.
C2b · USE, bindings, and Gate/ Ω references removed consistently	ABSENT: the corresponding ATTR edges are absent; inconsistent removal yields UNVERIFIED.
C2c/M08 · edge_bindings missing	UNVERIFIED; a required field is not replaced by an empty function.
C3 · base I_{ex}	PRESENT; the sole $S_1=\{\beta,\pi\}$, $witness_ids=[w_1]$, $J^*=\{A_3\}$; $\beta,\pi \notin D^*$.
C4 · I_{ex}^+ : g_0 and $r_0:g_0 \rightarrow \beta$	ABSENT; $\beta \in D_1$, $\pi \in D_2$, both LICENSED@K,P; w_1 and $J^*=\{A_3\}$ are preserved.
C5a · required SAME removed inconsistently	UNVERIFIED.
C5b/M05–M06 · basis/SAME not ready	r_3 may remain active, but TARGET-ALIGNED is false; SELF-RETURN, CORE, and CELL are absent.
C6/M07 · corrupted USE	The ATTR $\rightarrow$ ATTR $\rightarrow$ USE binding does not satisfy WF; the qualified edge and witness are absent.
C7/M11–M12 · two target records	Comparable records yield only the earlier $Min <$ element; incomparable records all enter J^* , with no j^* .
C8 · pain control pair	q_+ and q_- are NOT-LICENSED; the unserialized H_+ and H_- receive no status.
C9 · A_4 as the final line	The bytes and form are verifiable; without a complete I_{self} , the candidate content has status UNVERIFIED.
C10/M13 · CLOSED without PRED $\rightarrow$ BIND	CORE/CELL are absent. $J^*=\emptyset$ only if there is no SELF-RETURN anywhere in the input.
C11a · one claim_id, different payloads	UNVERIFIED because Def is inconsistent.
C11b · complete mutation $a_3.claim_id=\beta_3$	After $Def/\Omega/r_3/u_3$ are updated consistently, β and β_3 are not merged; $Q_S=ABSENT$.
C12 · unresolvable RecSrc/JSON Pointer	UNVERIFIED.
C13 · result injected into the input	Schema failure; UNVERIFIED.
C14 · D.1 changed, D.2 reference stale	Rejected because input_card_sha256 does not match.
C15 · D.5 fails to bind D.1/D.3/D.4	Rejected if any reference fails to match.
C16/M14 · two CELL sets	Both are returned, including overlapping ones, with deterministic IDs.
C17/M15 · external SCC with a mixed hyperedge	The external premise g in $\{g,\beta\} \rightarrow \pi$ does not break the cycle in S as long as $Prem_c \cap S \neq \emptyset$; CELL $\{\beta,\pi\}$ is preserved.
C18/M15b · two overlapping CELL sets	S_x and S_y are both returned; a shared witness may refer to both.
C19/M16 · one-vertex-deletion trap	Minimality is checked against every strict CORE subset; only the smaller CELL is returned.
C20/M17 · minimal cores of different cardinalities	Both are returned; cardinality minimization is prohibited.
C21/M18 · ID-namespace collision	UNVERIFIED.
C22/M19 · gap/overlap scope	They are permitted; a mismatch, mixed mode, or invalid pointer yields UNVERIFIED.
C23 · Merge diverges	An invalid path/type/ID/merged hash yields UNVERIFIED; cross-reference validation runs after the complete operation list.
C24/M20 · traversal order permuted	The semantic output is canonical; permuting a serialized array changes the input SHA and requires a new card.
C25/M09–M10b/M21 · corrupted order	A cycle, an omitted OrdRec endpoint, an unknown ID, or an unresolvable binding reference yields UNVERIFIED.

Test	Expected Result
C26/M22 · duplicate vertex set	One CELL is returned with the complete sorted witness_ids.
C27/M01–M02 · SEL/READ removed or corrupted	UNVERIFIED under required_carrier_chain; the negative controls PASS.
C28/M04 · incorrect base_run_sha256 in D.3	UNVERIFIED; the hash reference to E1 does not resolve; the control reports PASS.
C29/M23 · cyclic/unresolvable event provenance	UNVERIFIED before the semantic run.
C30/M03 · stale Card(I_ex) after Merge	UNVERIFIED due to a scope error; the control reports PASS.

Final self-application check: the sentence $W_report = \text{«настоящая процедура обнаруживает цикл»}$ [‘the present procedure detects a cycle’] is not included in Car_ex . It could receive $LICENSED@K_self, P_self$ only after registration of the exact carrier, the K_ex, P_ex protocol, the $D(K_ex, P_ex)$ projection, the detected CELL, and a separate reporting bridge. A complete I_self is not constructed here; the actual self-check result is UNVERIFIED.

Appendix D. Canonical Input and Protocol

Five distinct UTF-8 serializations follow: I_{ex} , its protocol, Δ_{ex} , the materialized I_{ex}^+ , and its protocol. D.3+D.1 deterministically produce D.4; D.5 binds every input link. JSON uses `ensure_ascii=false`, `sort_keys=true`, `indent=2`, LF, and no terminal LF. The manifest checks the hashes and Merge; `verify_contract.py` independently recomputes $Rules_K(P)$, D^* , CELL, and J^* , and returns PASS.

D.1. Input I_{ex}

INPUT_CARD_SHA256

588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3

```
{
  "annotations": [
    {
      "candidate_display": "ATTR(BIND,ожив,бчит)",
      "claim_id": "β",
      "content_premises": [],
      "gate": [],
      "id": "a₁",
      "polarity": "positive",
      "record": "A₁",
      "record_node": "â₁",
      "rho": "E0_input_registration",
      "rule": null,
      "scope": {
        "carrier": "A₁",
        "unicode_half_open": [
          0,
          46
        ],
        "utf8_half_open": [
          0,
          85
        ]
      },
      "source": "ожив",
      "subtype": "BIND",
      "target": "бчит",
      "type": "ATTR"
    },
    {
      "candidate_display": "ATTR(PRED,SELFREAD(бчит,ожив),бчит)",
      "claim_id": "π",
      "content_premises": [
        "β"
      ],
      "gate": [
        "â₁",
        "â₂",
        "û₂",
        "ŝ₁",
        "ŝ₂",
        "ŝ₃",
        "ŝ₄",
        "ŝ₅",
        "s₁",
        "s₂",
        "s₃",
        "s₄",
        "s₅",
        "n_sel₀",
        "n_read₀"
      ],
      "id": "a₂",
      "polarity": "positive",
      "record": "A₂",
      "record_node": "â₂",
      "rho": "E0_input_registration",
      "rule": "r₂",
      "scope": {
        "carrier": "A₂",
        "unicode_half_open": [
          0,
          51
        ],
        "utf8_half_open": [
          0,
          93
        ]
      }
    }
  ]
}
```

```

    ]
  },
  "source": "SELFREAD(бчит,ожив)",
  "subtype": "PRED",
  "target": "бчит",
  "type": "ATTR"
},
{
  "candidate_display": "USE(a2,a1)",
  "content_premises": [],
  "gate": [],
  "id": "u2",
  "polarity": "positive",
  "record": "A2",
  "record_node": "û2",
  "referenced_annotation": "a1",
  "rho": "E0_input_registration",
  "rule": "r2",
  "scope": {
    "carrier": "A2",
    "unicode_half_open": [
      0,
      51
    ],
    "utf8_half_open": [
      0,
      93
    ]
  },
  "source": "a1",
  "subtype": null,
  "target": "a2",
  "target_claim": "π",
  "type": "USE"
},
{
  "candidate_display": "ATTR(BIND,ожив,бчит)",
  "claim_id": "β",
  "content_premises": [
    "π"
  ],
  "gate": [
    "â2",
    "â3",
    "û3"
  ],
  "id": "a3",
  "polarity": "positive",
  "record": "A3",
  "record_node": "â3",
  "rho": "E0_input_registration",
  "rule": "r3",
  "scope": {
    "carrier": "A3",
    "unicode_half_open": [
      0,
      46
    ],
    "utf8_half_open": [
      0,
      85
    ]
  },
  "source": "ожив",
  "subtype": "BIND",
  "target": "бчит",
  "type": "ATTR"
},
{
  "candidate_display": "USE(a3,a2)",
  "content_premises": [],
  "gate": [],
  "id": "u3",
  "polarity": "positive",
  "record": "A3",
  "record_node": "û3",
  "referenced_annotation": "a2",
  "rho": "E0_input_registration",
  "rule": "r3",
  "scope": {
    "carrier": "A3",
    "unicode_half_open": [
      47,
      109
    ]
  }
}

```

```

],
"utf8_half_open": [
  86,
  199
]
},
"source": "a2",
"subtype": null,
"target": "a3",
"target_claim": "ß",
"type": "USE"
},
{
  "basis": "δ_b",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b2)",
  "claim_id": "s1",
  "content_premises": [],
  "gate": [
    "δ_b",
    "s1"
  ],
  "id": "m1",
  "polarity": "positive",
  "record": "Card(I_ex)",
  "record_node": "s1",
  "rho": "E0_input_registration",
  "rule": "r_s1",
  "scope": {
    "json_pointer": "/annotations/5",
    "record_source": "Card(I_ex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "b2",
  "type": "SAME"
},
{
  "basis": "δ_b",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b3)",
  "claim_id": "s2",
  "content_premises": [],
  "gate": [
    "δ_b",
    "s2"
  ],
  "id": "m2",
  "polarity": "positive",
  "record": "Card(I_ex)",
  "record_node": "s2",
  "rho": "E0_input_registration",
  "rule": "r_s2",
  "scope": {
    "json_pointer": "/annotations/6",
    "record_source": "Card(I_ex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "b3",
  "type": "SAME"
},
{
  "basis": "δ_b",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b4)",
  "claim_id": "s3",
  "content_premises": [],
  "gate": [
    "δ_b",
    "s3"
  ],
  "id": "m3",
  "polarity": "positive",
  "record": "Card(I_ex)",
  "record_node": "s3",
  "rho": "E0_input_registration",
  "rule": "r_s3",
  "scope": {
    "json_pointer": "/annotations/7",
    "record_source": "Card(I_ex)"
  },
  "source": "b1",
  "subtype": null,

```

```

    "target": "b4",
    "type": "SAME"
  },
  {
    "basis": "δb",
    "basis_kind": "stipulation",
    "candidate_display": "SAME(b1,v2)",
    "claim_id": "s4",
    "content_premises": [],
    "gate": [
      "δb",
      "s4"
    ],
    "id": "m4",
    "polarity": "positive",
    "record": "Card(Iex)",
    "record_node": "s4",
    "rho": "E0_input_registration",
    "rule": "rs4",
    "scope": {
      "json_pointer": "/annotations/8",
      "record_source": "Card(Iex)"
    },
    "source": "b1",
    "subtype": null,
    "target": "v2",
    "type": "SAME"
  },
  {
    "basis": "δb",
    "basis_kind": "stipulation",
    "candidate_display": "SAME(b1,v3)",
    "claim_id": "s5",
    "content_premises": [],
    "gate": [
      "δb",
      "s5"
    ],
    "id": "m5",
    "polarity": "positive",
    "record": "Card(Iex)",
    "record_node": "s5",
    "rho": "E0_input_registration",
    "rule": "rs5",
    "scope": {
      "json_pointer": "/annotations/9",
      "record_source": "Card(Iex)"
    },
    "source": "b1",
    "subtype": null,
    "target": "v3",
    "type": "SAME"
  },
  {
    "content_premises": [],
    "gate": [],
    "id": "sel0",
    "polarity": "positive",
    "record": "Card(Iex)",
    "record_node": "n_sel0",
    "rho": "E0_input_registration",
    "rule": null,
    "scope": {
      "json_pointer": "/annotations/10",
      "record_source": "Card(Iex)"
    },
    "selection_level": "Unicode code points and UTF-8 bytes",
    "source": "W0",
    "subtype": null,
    "target": "ожив",
    "target_scope": {
      "carrier": "W0",
      "unicode_half_open": [
        16,
        25
      ],
      "utf8_half_open": [
        30,
        48
      ]
    },
    "type": "SEL"
  },
  {

```

```

"candidate_display": "READ(ожив,животного)",
"content_premises": [],
"gate": [
  "n_sel0"
],
"id": "read0",
"polarity": "positive",
"record": "Card(I_ex)",
"record_node": "n_read0",
"rho": "E0_input_registration",
"rule": "r_read_животного",
"scope": {
  "json_pointer": "/annotations/11",
  "record_source": "Card(I_ex)"
},
"source": "ожив",
"subtype": "LEXICAL",
"target": "lex:животного",
"target_scope": {
  "carrier": "W0",
  "unicode_half_open": [
    16,
    25
  ],
  "utf8_half_open": [
    30,
    48
  ]
},
"type": "READ"
}
],
"base": {
  "candidates_excluded_from_final_G": [
    "β",
    "π"
  ],
  "carrier_vertices": [
    "W0",
    "A1",
    "A2",
    "A3"
  ],
  "classification_vertices": [
    "lex:животного"
  ],
  "record_vertices": [
    "â1",
    "â2",
    "â3",
    "û2",
    "û3",
    "š1",
    "š2",
    "š3",
    "š4",
    "š5",
    "n_sel0",
    "n_read0"
  ],
  "stipulation_vertices": [
    "δb"
  ]
},
"base_capture": {
  "date": "2026-08-26",
  "join": "W0 LF A1 LF A2 LF A3",
  "sha256": "2e0645f47d9241edc1e9e0e2a741bf3cb7de529bbf541b2688f7c1f0e0a8cf2e",
  "terminal_if": false
},
"bridges": [
  {
    "conclusion": "s1",
    "id": "r_s1",
    "premises": [
      "δb",
      "š1"
    ]
  },
  "rho": "E0_input_registration"
],
{
  "conclusion": "s2",
  "id": "r_s2",
  "premises": [

```

```

    "δ_b",
    "s₂"
  ],
  "rho": "E0_input_registration"
},
{
  "conclusion": "s₃",
  "id": "r_s₃",
  "premises": [
    "δ_b",
    "s₃"
  ],
  "rho": "E0_input_registration"
},
{
  "conclusion": "s₄",
  "id": "r_s₄",
  "premises": [
    "δ_b",
    "s₄"
  ],
  "rho": "E0_input_registration"
},
{
  "conclusion": "s₅",
  "id": "r_s₅",
  "premises": [
    "δ_b",
    "s₅"
  ],
  "rho": "E0_input_registration"
}
],
"candidate_definitions": {
  "s₁": {
    "polarity": "positive",
    "source": "b₁",
    "subtype": null,
    "target": "b₂",
    "type": "SAME"
  },
  "s₂": {
    "polarity": "positive",
    "source": "b₁",
    "subtype": null,
    "target": "b₃",
    "type": "SAME"
  },
  "s₃": {
    "polarity": "positive",
    "source": "b₁",
    "subtype": null,
    "target": "b₄",
    "type": "SAME"
  },
  "s₄": {
    "polarity": "positive",
    "source": "b₁",
    "subtype": null,
    "target": "v₂",
    "type": "SAME"
  },
  "s₅": {
    "polarity": "positive",
    "source": "b₁",
    "subtype": null,
    "target": "v₃",
    "type": "SAME"
  },
  "β": {
    "polarity": "positive",
    "source": "ожив",
    "subtype": "BIND",
    "target": "бчит",
    "type": "ATTR"
  },
  "π": {
    "polarity": "positive",
    "source": "SELFREAD(бчит,ожив)",
    "subtype": "PRED",
    "target": "бчит",
    "type": "ATTR"
  }
}
},

```

```

"carriers": [
{
  "bytes": 132,
  "encoding": "UTF-8",
  "id": "W0",
  "normalization": "none",
  "sha256": "e7786f6641e6724690978d12268dddf0123b00168fcde898d4af03a3ebba15cd",
  "terminal_lf": false,
  "text": "Почему внимание животного слиплось со звуком и теперь чтение его клетка"
},
{
  "bytes": 85,
  "encoding": "UTF-8",
  "id": "A1",
  "normalization": "none",
  "sha256": "295c75c5179584ab89d4f6abb39790176e0d12b0c6820425304467e026548d66",
  "terminal_lf": false,
  "text": "Форма «животного» в W0 обозначает читателя W0."
},
{
  "bytes": 93,
  "encoding": "UTF-8",
  "id": "A2",
  "normalization": "none",
  "sha256": "e2d6f4ef41fe4ca75dfde481fba5a75a895fdb53ac9ac93292bcfbf93d57013f",
  "terminal_lf": false,
  "text": "Читатель W0 читает форму «животного» в W0 как себя."
},
{
  "bytes": 199,
  "encoding": "UTF-8",
  "id": "A3",
  "normalization": "none",
  "sha256": "76cdacbd125a88d31ad850c24291e887da421124d9a19c27f0c60506c883276d",
  "terminal_lf": false,
  "text": "Форма «животного» в W0 обозначает читателя W0, потому что читатель W0 читает форму «животного» в W0 как себя."
}
],
"omega": {
  "candidate_nodes": [
    "β",
    "π",
    "s1",
    "s2",
    "s3",
    "s4",
    "s5"
  ],
  "carriers": [
    "W0",
    "A1",
    "A2",
    "A3"
  ],
  "classification_nodes": [
    "lex:животного"
  ],
  "record_nodes": [
    "â1",
    "â2",
    "â3",
    "û2",
    "û3",
    "ŝ1",
    "ŝ2",
    "ŝ3",
    "ŝ4",
    "ŝ5",
    "n_sel0",
    "n_read0"
  ],
  "record_sources": [
    "Card(l_ex)"
  ],
  "span_nodes": [
    "ожив",
    "b1",
    "b2",
    "v2",
    "b3",
    "b4",
    "v3"
  ],
  "stipulation_nodes": [

```

```

    "δ_b"
  ]
},
"order": {
  "extra_object_items_allowed": true,
  "items": [
    "W0",
    "A1",
    "A2",
    "A3"
  ],
  "kind": "strict_partial_order",
  "precedes": [
    [
      "W0",
      "A1"
    ],
    [
      "W0",
      "A2"
    ],
    [
      "W0",
      "A3"
    ],
    [
      "A1",
      "A2"
    ],
    [
      "A1",
      "A3"
    ],
    [
      "A2",
      "A3"
    ]
  ],
  "relation_semantics": "precedes is the complete transitively closed strict partial relation",
  "same_record_sources_auto_included": false,
  "validated_domain": "OrdRec(P)"
},
"policy": {
  "active_rule_filter": "WF(r) and Gate(r) subset_of G",
  "active_self_return": "an active ATTR(PRED)->ATTR(BIND) edge is SELF-RETURN only when its declared ATTR->ATTR->USE binding is WF, source_record precedes target_record, both typed definitions target the same declared class b, and CLASS-READY(b)",
  "annotation_claim_id_rule": "claim_id is required exactly for ATTR and SAME and forbidden for SEL, READ, and USE",
  "annotation_record_node_bijection": "omega.record_nodes equals exactly the set of Ann.record_node values, and every record node resolves to one annotation",
  "candidate_identity": {
    "conflict_status": "UNVERIFIED",
    "normative_key": "claim_id",
    "same_id_requires_same_typed_payload": true,
    "same_payload_different_id_merges": false
  },
  "candidate_status_order": [
    "UNVERIFIED",
    "BEYOND-RECORD",
    "LICENSED@K,P",
    "NOT-LICENSED@K,P"
  ],
  "carrier_reading_rules": [
    {
      "conclusion": "lex:животного",
      "id": "r_read_животного",
      "kind": "declared_input_classification",
      "premises": [
        "sel0",
        "ожив"
      ],
      "status_if_missing_or_mismatched": "UNVERIFIED"
    }
  ],
  "cell": "core(S) and no strict subset T of S satisfies core(T); minimality is by inclusion, not cardinality and not one-vertex deletion",
  "cell_completeness": "Cells is a subset of Cores and every Core R has a returned Cell S that is a subset of R",
  "cell_enumeration": "return every inclusion-minimal cell, including overlapping cells; deduplicate identical vertex sets; a sound search partition may enumerate separately within V_ATTR intersections of SCCs of D, while CLOSED and CORE remain evaluated against the original H and D; order and IDs follow schema.cell_key, schema.cell_order, and schema.cell_id_rule",
  "class_ready": "CLASS-READY(b) iff target_classes[b].basis is in G and every target_classes[b].required_same_claim is in G",
  "closed_set": "S is a nonempty subset of q(Ann_ATTR); D(K,P)[S] is strongly connected, with a zero-length path allowed when x=y; Bind and Pred are present; S is disjoint from G; every active rule whose conclusion is in S has an S content premise",
  "closure": "D0=G; Dn+1=Dn union {Conc(r): r active and Prem_c(r) subset_of Dn}",
  "content_annotation_types": [
    "ATTR",
    "SAME"
  ]
}

```

```

],
"core": "closed_set(S) and at least one active_self_return whose endpoint contents are in S",
"ground_base": "G0 includes base.carrier_vertices, base.record_vertices, base.stipulation_vertices, base.classification_vertices, omega.span_nodes, and
omega.record_sources; bridge closure may add SAME claims; beta and pi remain excluded unless derived by an active policy.rules rule",
"id_namespace_requirement": "Ann.id, record_node, and claim_id are pairwise disjoint; every Ann_q item maps to exactly one record_node and one claim_id",
"inference_rule_registry": "Rules(P) is exactly policy.rules; carrier_reading_rules are input-validation constraints and never generate content hyperedges in H",
"merge_validation": "operation-local preconditions are checked sequentially; all namespace, scope, and cross-reference invariants are checked after the complete ordered
operation list; no semantic output is emitted from an intermediate state",
"normative_duplicate_invariant": "policy.rules and bridges are normative; duplicated annotation gate/rule/content_premises fields must equal their normative rule or
bridge projections, otherwise status is UNVERIFIED",
"order_domain": "build OrdRec(P) from every declared edge binding before WF or activation; every endpoint record must occur in order.items; order.precedes restricted to
OrdRec(P) is a finite strict partial order; extra object records may be incomparable and SAME record_sources are not included automatically",
"required_carrier_chain": {
  "classification": "lex:животного",
  "missing_or_mismatched_status": "UNVERIFIED",
  "reading_annotation": "read0",
  "selection_annotation": "sel0",
  "span": "ожив"
},
"rule_domain": "complete over declared omega",
"rules": [
  {
    "conclusion": "π",
    "content_premises": [
      "β"
    ],
    "edge_bindings": [
      {
        "source_annotation": "a1",
        "target_annotation": "a2",
        "use_annotation": "u2"
      }
    ],
    "gate": [
      "â1",
      "â2",
      "û2",
      "š1",
      "š2",
      "š3",
      "š4",
      "š5",
      "s1",
      "s2",
      "s3",
      "s4",
      "s5",
      "n_sel0",
      "n_read0"
    ],
    "id": "r2"
  },
  {
    "conclusion": "β",
    "content_premises": [
      "π"
    ],
    "edge_bindings": [
      {
        "source_annotation": "a2",
        "target_annotation": "a3",
        "use_annotation": "u3"
      }
    ],
    "gate": [
      "â2",
      "â3",
      "û3"
    ],
    "id": "r3"
  },
  {
    "use_identity": "USE is identified by Ann.id and names target_claim plus referenced_annotation; USE has no claim_id",
    "wf_requirement": "edge_bindings is a total function with exactly one binding for every ATTR-to-ATTR content edge; each binding resolves ATTR source, ATTR target, and
USE records, matches the rule premise/conclusion, USE target_claim and referenced_annotation, includes all three record nodes in Gate, and respects order.precedes",
    "witness_registry": "one canonical registry of every active TARGET-ALIGNED SELF-RETURN; CELLS cite witness IDs and J_star applies Min_prec"
  }
],
"queries": {
  "Q_F": [
    "β",
    "π"
  ],
  "Q_S": {
    "candidate_sets": "all 2n | V_ATTR | -1 nonempty subsets of V_ATTR",

```

```

    "completeness_invariant": "every CORE R contains at least one returned CELL S",
    "completion_scope": "emit PRESENT or ABSENT only after exhaustive completion; resource exhaustion is reported as an incomplete run and is not coerced to ABSENT or PRESENT",
    "core_predicate": "CORE(K,P,S)",
    "minimality": "strict-subset inclusion among all CORE sets, not cardinality and not one-vertex deletion",
    "operation": "enumerate_all_inclusion_minimal_cells",
    "scc_partition": "compute SCCs of D; enumerate only nonempty subsets of V_ATTR intersect each SCC containing at least one BIND and one PRED; evaluate CLOSED and CORE against the original H and D"
  }
},
"record_sources": [
  {
    "encoding": "UTF-8",
    "id": "Card(I_ex)",
    "integrity": {
      "algorithm": "SHA-256",
      "binding": "external envelope field input_card_sha256"
    },
    "kind": "canonical_input_card"
  }
],
"representation": {
  "levels": [
    "UTF-8 bytes",
    "Unicode code points"
  ],
  "normalization": "none",
  "scope_family": "independently addressed intervals, not a partition; gaps and overlaps allowed; neither creates identity or an edge",
  "scope_well_formedness": "exactly one mode: carrier plus matching Unicode/UTF-8 intervals, or record_source plus one resolvable JSON Pointer; empty, out-of-range, mixed-mode, or byte/code-point-mismatched scopes are UNVERIFIED",
  "segmentation": "half-open intervals"
},
"rho": {
  "event_id": "E0_input_registration",
  "kind": "input_registration",
  "predecessors": []
},
"schema": {
  "j_star_array_order": "exact record IDs sorted lexicographically by Unicode scalar-value sequences; normalization none; a proper prefix precedes its extension",
  "j_star_minimality": "J_star is every Min_prec target_record in the canonical SELF-RETURN registry; comparable later targets are omitted",
  "cell_id_rule": "after cell_order, assign S1, S2, ... in one-based order",
  "cell_key": "tuple of member vertex IDs sorted by vertex_order",
  "cell_order": "lexicographic order of cell_key tuples; a proper-prefix tuple precedes its extension",
  "id_namespaces": {
    "annotation_id": "Ann.id",
    "claim_id": "Ann.q.claim_id, where Ann_q is exactly ATTR or SAME; resolved through Def",
    "conflict_status": "UNVERIFIED",
    "pairwise_disjoint": true,
    "record_node": "Ann.record_node"
  },
  "j_star_rule": "the j_star field is present if and only if J_star has exactly one member, and then equals that member",
  "kind": "evidential_input",
  "machine_schema": "contract.schema.json (JSON Schema Draft 2020-12) plus verify_contract.py cross-reference invariants",
  "machine_schema_id": "tag:beforeword.xyz,2026-08-27:reading-as-enclosure/contract.schema.json",
  "order_relation": "order.items is a finite domain; order.precedes is an irreflexive, asymmetric, transitively closed relation",
  "result_fields_forbidden": true,
  "semantic_iteration_order": "array order does not define graph traversal or output order; JSON Pointer scopes and ordered patch operations address the canonical serialized arrays and are therefore integrity-significant",
  "unknown_required_field_status": "UNVERIFIED",
  "vertex_order": "lexicographic order of exact Unicode scalar-value sequences of vertex IDs; normalization none; a proper prefix precedes its extension",
  "witness_order": "deduplicate exact (source_annotation,target_annotation,use_annotation,rule) tuples; sort them lexicographically under vertex_order; then assign w1,w2,..."
},
"serialization": {
  "ensure_ascii": false,
  "format": "JSON",
  "indent": 2,
  "integrity_envelope": {
    "algorithm": "SHA-256",
    "covered_bytes": "the full canonical JSON serialization of this object",
    "embedded_digest": false
  },
  "line_ending": "LF",
  "sort_keys": true,
  "terminal_if": false
},
"spans": [
  {
    "carrier": "W0",
    "id": "ожив",
    "text": "животного",
    "unicode_half_open": [
      16,
      25
    ]
  }
],

```

```

"utf8_half_open": [
  30,
  48
]
},
{
  "carrier": "A1",
  "id": "b1",
  "text": "читателя W0",
  "unicode_half_open": [
    34,
    45
  ],
  "utf8_half_open": [
    63,
    84
  ]
},
{
  "carrier": "A2",
  "id": "b2",
  "text": "Читатель W0",
  "unicode_half_open": [
    0,
    11
  ],
  "utf8_half_open": [
    0,
    21
  ]
},
{
  "carrier": "A2",
  "id": "v2",
  "text": "себя",
  "unicode_half_open": [
    46,
    50
  ],
  "utf8_half_open": [
    84,
    92
  ]
},
{
  "carrier": "A3",
  "id": "b3",
  "text": "читателя W0",
  "unicode_half_open": [
    34,
    45
  ],
  "utf8_half_open": [
    63,
    84
  ]
},
{
  "carrier": "A3",
  "id": "b4",
  "text": "читатель W0",
  "unicode_half_open": [
    58,
    69
  ],
  "utf8_half_open": [
    106,
    127
  ]
},
{
  "carrier": "A3",
  "id": "v3",
  "text": "себя",
  "unicode_half_open": [
    104,
    108
  ],
  "utf8_half_open": [
    190,
    198
  ]
}
},

```

```

"stipulations": [
  {
    "id": "δ_b",
    "members": [
      "b1",
      "b2",
      "b3",
      "b4",
      "v2",
      "v3"
    ],
    "rho": "E0_input_registration",
    "target_class": "бчит",
    "type": "STIPULATE_TARGET_CLASS"
  }
],
"target_classes": {
  "бчит": {
    "basis": "δ_b",
    "members": [
      "b1",
      "b2",
      "b3",
      "b4",
      "v2",
      "v3"
    ],
    "required_same_claims": [
      "s1",
      "s2",
      "s3",
      "s4",
      "s5"
    ]
  }
}
}

```

D.2. Protocol run_ex

RUN_SHA256
d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a

```

{
  "active_rules": [
    "r2",
    "r3"
  ],
  "binary_edges_in_found_cells": {
    "S1": [
      [
        "β",
        "π"
      ],
      [
        "π",
        "β"
      ]
    ]
  },
  "cell_checks": {
    "S1": {
      "contains_BIND_and_PRED": true,
      "contains_active_self_return": true,
      "disjoint_from_G_ex": true,
      "every_active_incoming_rule_has_internal_content_premise": true,
      "inclusion_minimal_among_cores": true,
      "strict_core_subsets": [],
      "strongly_connected": true,
      "target_class_ready": true
    }
  },
  "closure_log": {
    "D0": "G_ex",
    "beta_in_fixed_point": false,
    "bridge_closure_added": [
      "s1",
      "s2",
      "s3",
      "s4",
      "s5"
    ]
  },
}

```

```

    "fixed_point": "G_ex",
    "pi_in_fixed_point": false,
    "strict_expansions": 0
  },
  "implementation": "finite_inclusion_minimal_cell_procedure_sections_5_to_9",
  "input_card_sha256": "588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3",
  "output": {
    "j_star": [
      "A3"
    ],
    "Q_F": {
      "β": "NOT-LICENSED@K,P",
      "π": "NOT-LICENSED@K,P"
    },
    "Q_S": {
      "cells": [
        {
          "id": "S",
          "vertices": [
            "β",
            "π"
          ],
          "witness_ids": [
            "w1"
          ]
        }
      ],
      "verdict": "PRESENT"
    },
    "j_star": "A3",
    "self_return_witnesses": [
      {
        "id": "w1",
        "rule": "r3",
        "source_annotation": "a2",
        "source_record": "A2",
        "target_annotation": "a3",
        "target_record": "A3",
        "use_annotation": "u3"
      }
    ]
  },
  "rho": {
    "event_id": "E1_base_run",
    "input_card_sha256": "588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3",
    "kind": "completed_base_run",
    "predecessors": [
      "E0_input_registration"
    ]
  },
  "run_date": "2026-08-26",
  "serialization": {
    "ensure_ascii": false,
    "format": "JSON",
    "indent": 2,
    "integrity_envelope": {
      "algorithm": "SHA-256",
      "covered_bytes": "the full canonical JSON serialization of this object",
      "embedded_digest": false
    },
    "line_ending": "LF",
    "sort_keys": true,
    "terminal_lf": false
  }
}

```

D.3. Extension Instructions I_ex⁺

RESOLVE_INPUT_SHA256
ebd446ea8cdd7d1af97c04587c50ee19cbcadfffaa830c14351e1425c7c1c246

```

{
  "base_input_card_sha256": "588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3",
  "base_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a",
  "expected_merged_input_sha256": "0d3b44a50fc82654c7368a7a4bac95313171a1458a959c75b4714666f96a70cb",
  "operation": "apply_ordered_json_operations",
  "operation_semantics": {
    "add": "parent exists and final object key does not exist; add value",
    "append": "path resolves to an existing array; append value as its final element",
    "failure_status": "UNVERIFIED for an unresolved path, wrong target type, duplicate add key, or ID/type conflict",
    "order": "operations are applied in array order",
    "path": "RFC 6901 JSON Pointer without URI encoding",

```

```

"replace": "path resolves to an existing value; replace it"
},
"operations": [
  {
    "op": "replace",
    "path": "/record_sources/0/id",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/record_sources/0/kind",
    "value": "canonical_merged_input_card"
  },
  {
    "op": "replace",
    "path": "/record_sources/0/integrity/binding",
    "value": "external envelope field merged_input_sha256"
  },
  {
    "op": "replace",
    "path": "/omega/record_sources/0",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/5/record",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/5/scope/record_source",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/6/record",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/6/scope/record_source",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/7/record",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/7/scope/record_source",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/8/record",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/8/scope/record_source",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/9/record",
    "value": "Card(I_ex)"
  },
  {
    "op": "replace",
    "path": "/annotations/9/scope/record_source",
    "value": "Card(I_ex)"
  },
  {
    "op": "append",
    "path": "/carriers",
    "value": {
      "bytes": 26,
      "encoding": "UTF-8",
      "id": "go",
      "normalization": "none",
      "rho": "E2_resolution_declaration",
      "role": "synthetic_structural_seed",
      "sha256": "f99e48bac4e366c196ca966be14851d104d2eaae34d6e787b0f9edb31adb0f55",

```

```

    "terminal_if": false,
    "text": "synthetic-ground-seed:go"
  }
},
{
  "op": "append",
  "path": "/spans",
  "value": {
    "carrier": "go",
    "id": "o_go",
    "text": "synthetic-ground-seed:go",
    "unicode_half_open": [
      0,
      24
    ],
    "utf8_half_open": [
      0,
      26
    ]
  }
},
{
  "op": "replace",
  "path": "/order/items",
  "value": [
    "W0",
    "A1",
    "A2",
    "A3",
    "g0"
  ]
},
{
  "op": "append",
  "path": "/omega/carriers",
  "value": "g0"
},
{
  "op": "append",
  "path": "/omega/span_nodes",
  "value": "o_go"
},
{
  "op": "append",
  "path": "/base/carrier_vertices",
  "value": "g0"
},
{
  "op": "append",
  "path": "/policy/rules",
  "value": {
    "conclusion": "β",
    "content_premises": [
      "g0"
    ],
    "edge_bindings": [],
    "gate": [
      "g0"
    ],
    "id": "r0",
    "purpose": "synthetic independent-input mutation; not an O-to-C-to-L-to-beta resolver",
    "rho": "E2_resolution_declaration"
  }
},
{
  "op": "replace",
  "path": "/annotations/10/record",
  "value": "Card(I_ex)"
},
{
  "op": "replace",
  "path": "/annotations/10/scope/record_source",
  "value": "Card(I_ex)"
},
{
  "op": "replace",
  "path": "/annotations/11/record",
  "value": "Card(I_ex)"
},
{
  "op": "replace",
  "path": "/annotations/11/scope/record_source",
  "value": "Card(I_ex)"
},

```

```

{
  "op": "replace",
  "path": "/rho",
  "value": {
    "introduced_by_event": "E2_resolution_declaration",
    "predecessor_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a"
  }
},
"rho": {
  "event_id": "E2_resolution_declaration",
  "kind": "post_result_intervention_declaration",
  "predecessor_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a",
  "predecessors": [
    "E1_base_run"
  ]
},
"schema": {
  "kind": "evidential_input_extension",
  "result_fields_forbidden": true,
  "unknown_required_field_status": "UNVERIFIED"
},
"serialization": {
  "ensure_ascii": false,
  "format": "JSON",
  "indent": 2,
  "integrity_envelope": {
    "algorithm": "SHA-256",
    "covered_bytes": "the full canonical JSON serialization of this object",
    "embedded_digest": false
  },
  "line_ending": "LF",
  "sort_keys": true,
  "terminal_lf": false
}
}

```

D.4. Materialized Input I_ex⁺

MERGED_INPUT_SHA256
0d3b44a50fc82654c7368a7a4bac95313171a1458a959c75b4714666f96a70cb

```

{
  "annotations": [
    {
      "candidate_display": "ATTR(BIND,ожив,бчит)",
      "claim_id": "β",
      "content_premises": [],
      "gate": [],
      "id": "a1",
      "polarity": "positive",
      "record": "A1",
      "record_node": "â1",
      "rho": "E0_input_registration",
      "rule": null,
      "scope": {
        "carrier": "A1",
        "unicode_half_open": [
          0,
          46
        ],
        "utf8_half_open": [
          0,
          85
        ]
      },
      "source": "ожив",
      "subtype": "BIND",
      "target": "бчит",
      "type": "ATTR"
    },
    {
      "candidate_display": "ATTR(PRED,SELFREAD(бчит,ожив),бчит)",
      "claim_id": "π",
      "content_premises": [
        "β"
      ],
      "gate": [
        "â1",
        "â2",
        "û2",
        "§1"
      ],

```

```

    "s2",
    "s3",
    "s4",
    "s5",
    "s1",
    "s2",
    "s3",
    "s4",
    "s5",
    "n_sel0",
    "n_read0"
  ],
  "id": "a2",
  "polarity": "positive",
  "record": "A2",
  "record_node": "â2",
  "rho": "E0_input_registration",
  "rule": "r2",
  "scope": {
    "carrier": "A2",
    "unicode_half_open": [
      0,
      51
    ],
    "utf8_half_open": [
      0,
      93
    ]
  },
  "source": "SELFREAD(бчит,ожив)",
  "subtype": "PRED",
  "target": "бчит",
  "type": "ATTR"
},
{
  "candidate_display": "USE(a2,a1)",
  "content_premises": [],
  "gate": [],
  "id": "u2",
  "polarity": "positive",
  "record": "A2",
  "record_node": "û2",
  "referenced_annotation": "a1",
  "rho": "E0_input_registration",
  "rule": "r2",
  "scope": {
    "carrier": "A2",
    "unicode_half_open": [
      0,
      51
    ],
    "utf8_half_open": [
      0,
      93
    ]
  },
  "source": "a1",
  "subtype": null,
  "target": "a2",
  "target_claim": "π",
  "type": "USE"
},
{
  "candidate_display": "ATTR(BIND,ожив,бчит)",
  "claim_id": "β",
  "content_premises": [
    "π"
  ],
  "gate": [
    "â2",
    "â3",
    "û3"
  ],
  "id": "a3",
  "polarity": "positive",
  "record": "A3",
  "record_node": "â3",
  "rho": "E0_input_registration",
  "rule": "r3",
  "scope": {
    "carrier": "A3",
    "unicode_half_open": [
      0,
      46
    ]
  }
}

```

```

    ],
    "utf8_half_open": [
      0,
      85
    ]
  },
  "source": "ожив",
  "subtype": "BIND",
  "target": "бчит",
  "type": "ATTR"
},
{
  "candidate_display": "USE(a3,a2)",
  "content_premises": [],
  "gate": [],
  "id": "u3",
  "polarity": "positive",
  "record": "A3",
  "record_node": "û3",
  "referenced_annotation": "a2",
  "rho": "E0_input_registration",
  "rule": "r3",
  "scope": {
    "carrier": "A3",
    "unicode_half_open": [
      47,
      109
    ]
  },
  "utf8_half_open": [
    86,
    199
  ]
},
{
  "source": "a2",
  "subtype": null,
  "target": "a3",
  "target_claim": "ß",
  "type": "USE"
},
{
  "basis": "δb",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b2)",
  "claim_id": "s1",
  "content_premises": [],
  "gate": [
    "δb",
    "s1"
  ],
  "id": "m1",
  "polarity": "positive",
  "record": "Card(Iex)",
  "record_node": "s1",
  "rho": "E0_input_registration",
  "rule": "rs1",
  "scope": {
    "json_pointer": "/annotations/5",
    "record_source": "Card(Iex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "b2",
  "type": "SAME"
},
{
  "basis": "δb",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b3)",
  "claim_id": "s2",
  "content_premises": [],
  "gate": [
    "δb",
    "s2"
  ],
  "id": "m2",
  "polarity": "positive",
  "record": "Card(Iex)",
  "record_node": "s2",
  "rho": "E0_input_registration",
  "rule": "rs2",
  "scope": {
    "json_pointer": "/annotations/6",
    "record_source": "Card(Iex)"
  },
}

```

```

"source": "b1",
"subtype": null,
"target": "b3",
"type": "SAME"
},
{
  "basis": "δb",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,b4)",
  "claim_id": "s3",
  "content_premises": [],
  "gate": [
    "δb",
    "s3"
  ],
  "id": "m3",
  "polarity": "positive",
  "record": "Card(l_ex)",
  "record_node": "s3",
  "rho": "E0_input_registration",
  "rule": "r_s3",
  "scope": {
    "json_pointer": "/annotations/7",
    "record_source": "Card(l_ex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "b4",
  "type": "SAME"
},
{
  "basis": "δb",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,v2)",
  "claim_id": "s4",
  "content_premises": [],
  "gate": [
    "δb",
    "s4"
  ],
  "id": "m4",
  "polarity": "positive",
  "record": "Card(l_ex)",
  "record_node": "s4",
  "rho": "E0_input_registration",
  "rule": "r_s4",
  "scope": {
    "json_pointer": "/annotations/8",
    "record_source": "Card(l_ex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "v2",
  "type": "SAME"
},
{
  "basis": "δb",
  "basis_kind": "stipulation",
  "candidate_display": "SAME(b1,v3)",
  "claim_id": "s5",
  "content_premises": [],
  "gate": [
    "δb",
    "s5"
  ],
  "id": "m5",
  "polarity": "positive",
  "record": "Card(l_ex)",
  "record_node": "s5",
  "rho": "E0_input_registration",
  "rule": "r_s5",
  "scope": {
    "json_pointer": "/annotations/9",
    "record_source": "Card(l_ex)"
  },
  "source": "b1",
  "subtype": null,
  "target": "v3",
  "type": "SAME"
},
{
  "content_premises": [],
  "gate": [],
  "id": "sel0",

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```

    "polarity": "positive",
    "record": "Card(I_ex)",
    "record_node": "n_sel0",
    "rho": "E0_input_registration",
    "rule": null,
    "scope": {
      "json_pointer": "/annotations/10",
      "record_source": "Card(I_ex)"
    },
    "selection_level": "Unicode code points and UTF-8 bytes",
    "source": "W0",
    "subtype": null,
    "target": "ожив",
    "target_scope": {
      "carrier": "W0",
      "unicode_half_open": [
        16,
        25
      ],
      "utf8_half_open": [
        30,
        48
      ]
    },
    "type": "SEL"
  },
  {
    "candidate_display": "READ(ожив,животного)",
    "content_premises": [],
    "gate": {
      "n_sel0"
    },
    "id": "read0",
    "polarity": "positive",
    "record": "Card(I_ex)",
    "record_node": "n_read0",
    "rho": "E0_input_registration",
    "rule": "r_read_животного",
    "scope": {
      "json_pointer": "/annotations/11",
      "record_source": "Card(I_ex)"
    },
    "source": "ожив",
    "subtype": "LEXICAL",
    "target": "lex:животного",
    "target_scope": {
      "carrier": "W0",
      "unicode_half_open": [
        16,
        25
      ],
      "utf8_half_open": [
        30,
        48
      ]
    },
    "type": "READ"
  }
],
"base": {
  "candidates_excluded_from_final_G": [
    "β",
    "π"
  ],
  "carrier_vertices": [
    "W0",
    "A1",
    "A2",
    "A3",
    "g0"
  ],
  "classification_vertices": [
    "lex:животного"
  ],
  "record_vertices": [
    "â1",
    "â2",
    "â3",
    "û2",
    "û3",
    "š1",
    "š2",
    "š3",
    "š4",

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    "s5",
    "n_sel6",
    "n_read6"
  ],
  "stipulation_vertices": [
    "δb"
  ]
},
"base_capture": {
  "date": "2026-08-26",
  "join": "W0 LF A1 LF A2 LF A3",
  "sha256": "2e0645f47d9241edc1e9e0e2a741bf3cb7de529bbf541b2688f7c1f0e0a8cf2e",
  "terminal_lf": false
},
"bridges": [
  {
    "conclusion": "s1",
    "id": "r_s1",
    "premises": [
      "δb",
      "s1"
    ],
    "rho": "E0_input_registration"
  },
  {
    "conclusion": "s2",
    "id": "r_s2",
    "premises": [
      "δb",
      "s2"
    ],
    "rho": "E0_input_registration"
  },
  {
    "conclusion": "s3",
    "id": "r_s3",
    "premises": [
      "δb",
      "s3"
    ],
    "rho": "E0_input_registration"
  },
  {
    "conclusion": "s4",
    "id": "r_s4",
    "premises": [
      "δb",
      "s4"
    ],
    "rho": "E0_input_registration"
  },
  {
    "conclusion": "s5",
    "id": "r_s5",
    "premises": [
      "δb",
      "s5"
    ],
    "rho": "E0_input_registration"
  }
],
"candidate_definitions": {
  "s1": {
    "polarity": "positive",
    "source": "b1",
    "subtype": null,
    "target": "b2",
    "type": "SAME"
  },
  "s2": {
    "polarity": "positive",
    "source": "b1",
    "subtype": null,
    "target": "b3",
    "type": "SAME"
  },
  "s3": {
    "polarity": "positive",
    "source": "b1",
    "subtype": null,
    "target": "b4",
    "type": "SAME"
  },
  "s4": {

```

```

    "polarity": "positive",
    "source": "b1",
    "subtype": null,
    "target": "v2",
    "type": "SAME"
  },
  "s6": {
    "polarity": "positive",
    "source": "b1",
    "subtype": null,
    "target": "v3",
    "type": "SAME"
  },
  "β": {
    "polarity": "positive",
    "source": "ожив",
    "subtype": "BIND",
    "target": "бчит",
    "type": "ATTR"
  },
  "π": {
    "polarity": "positive",
    "source": "SELFREAD(бчит,ожив)",
    "subtype": "PRED",
    "target": "бчит",
    "type": "ATTR"
  }
},
"carriers": [
  {
    "bytes": 132,
    "encoding": "UTF-8",
    "id": "W0",
    "normalization": "none",
    "sha256": "e7786f6641e6724690978d12268dddf0123b00168fcde898d4af03a3ebba15cd",
    "terminal_lf": false,
    "text": "Почему внимание животного слиплось со звуком и теперь чтение его клетка"
  },
  {
    "bytes": 85,
    "encoding": "UTF-8",
    "id": "A1",
    "normalization": "none",
    "sha256": "295c75c5179584ab89d4f6abb39790176e0d12b0c6820425304467e026548d66",
    "terminal_lf": false,
    "text": "Форма «животного» в W0 обозначает читателя W0."
  },
  {
    "bytes": 93,
    "encoding": "UTF-8",
    "id": "A2",
    "normalization": "none",
    "sha256": "e2d6f4ef41fe4ca75dfde481fba5a75a895fdb53ac9ac93292bcfbf93d57013f",
    "terminal_lf": false,
    "text": "Читатель W0 читает форму «животного» в W0 как себя."
  },
  {
    "bytes": 199,
    "encoding": "UTF-8",
    "id": "A3",
    "normalization": "none",
    "sha256": "76cdacbd125a88d31ad850c24291e887da421124d9a19c27f0c60506c883276d",
    "terminal_lf": false,
    "text": "Форма «животного» в W0 обозначает читателя W0, потому что читатель W0 читает форму «животного» в W0 как себя."
  },
  {
    "bytes": 26,
    "encoding": "UTF-8",
    "id": "g0",
    "normalization": "none",
    "rho": "E2_resolution_declaration",
    "role": "synthetic_structural_seed",
    "sha256": "f99e48bac4e366c196ca966be14851d104d2eaae34d6e787b0f9edb31adb0f55",
    "terminal_lf": false,
    "text": "synthetic-ground-seed:g0"
  }
],
"omega": {
  "candidate_nodes": [
    "β",
    "π",
    "s1",
    "s2",
    "s3",

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    "s4",
    "s5"
  ],
  "carriers": [
    "W0",
    "A1",
    "A2",
    "A3",
    "g0"
  ],
  "classification_nodes": [
    "lex:животного"
  ],
  "record_nodes": [
    "â1",
    "â2",
    "â3",
    "û2",
    "û3",
    "š1",
    "š2",
    "š3",
    "š4",
    "š5",
    "n_sel0",
    "n_read0"
  ],
  "record_sources": [
    "Card(l_ex)"
  ],
  "span_nodes": [
    "ожив",
    "b1",
    "b2",
    "v2",
    "b3",
    "b4",
    "v3",
    "o_g0"
  ],
  "stipulation_nodes": [
    "δ_b"
  ]
},
"order": {
  "extra_object_items_allowed": true,
  "items": [
    "W0",
    "A1",
    "A2",
    "A3",
    "g0"
  ],
  "kind": "strict_partial_order",
  "precedes": [
    [
      "W0",
      "A1"
    ],
    [
      "W0",
      "A2"
    ],
    [
      "W0",
      "A3"
    ],
    [
      "A1",
      "A2"
    ],
    [
      "A1",
      "A3"
    ],
    [
      "A2",
      "A3"
    ]
  ],
  "relation_semantics": "precedes is the complete transitively closed strict partial relation",
  "same_record_sources_auto_included": false,
  "validated_domain": "OrdRec(P)"
},

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"policy": {
  "active_rule_filter": "WF(r) and Gate(r) subset_of G",
  "active_self_return": "an active ATTR(PRED)->ATTR(BIND) edge is SELF-RETURN only when its declared ATTR->ATTR->USE binding is WF, source_record precedes
target_record, both typed definitions target the same declared class b, and CLASS-READY(b)",
  "annotation_claim_id_rule": "claim_id is required exactly for ATTR and SAME and forbidden for SEL, READ, and USE",
  "annotation_record_node_bijection": "omega.record_nodes equals exactly the set of Ann.record_node values, and every record node resolves to one annotation",
  "candidate_identity": {
    "conflict_status": "UNVERIFIED",
    "normative_key": "claim_id",
    "same_id_requires_same_typed_payload": true,
    "same_payload_different_id_merges": false
  },
  "candidate_status_order": [
    "UNVERIFIED",
    "BEYOND-RECORD",
    "LICENSED@K,P",
    "NOT-LICENSED@K,P"
  ],
  "carrier_reading_rules": [
    {
      "conclusion": "lex:животного",
      "id": "r_read_животного",
      "kind": "declared_input_classification",
      "premises": [
        "sel0",
        "ожив"
      ],
      "status_if_missing_or_mismatched": "UNVERIFIED"
    }
  ],
  "cell": "core(S) and no strict subset T of S satisfies core(T); minimality is by inclusion, not cardinality and not one-vertex deletion",
  "cell_completeness": "Cells is a subset of Cores and every Core R has a returned Cell S that is a subset of R",
  "cell_enumeration": "return every inclusion-minimal cell, including overlapping cells; deduplicate identical vertex sets; a sound search partition may enumerate separately
within V_ATTR intersections of SCCs of D, while CLOSED and CORE remain evaluated against the original H and D; order and IDs follow schema.cell_key, schema.cell_order,
and schema.cell_id_rule",
  "class_ready": "CLASS-READY(b) iff target_classes[b].basis is in G and every target_classes[b].required_same_claim is in G",
  "closed_set": "S is a nonempty subset of q(Ann_ATTR); D(K,P){S} is strongly connected, with a zero-length path allowed when x=y; Bind and Pred are present; S is disjoint
from G; every active rule whose conclusion is in S has an S content premise",
  "closure": "D0=G; Dn+1=Dn union {Conc(r): r active and Prem_c(r) subset_of Dn}",
  "content_annotation_types": [
    "ATTR",
    "SAME"
  ],
  "core": "closed_set(S) and at least one active_self_return whose endpoint contents are in S",
  "ground_base": "G0 includes base.carrier_vertices, base.record_vertices, base.stipulation_vertices, base.classification_vertices, omega.span_nodes, and
omega.record_sources; bridge closure may add SAME claims; beta and pi remain excluded unless derived by an active policy.rules rule",
  "id_namespace_requirement": "Ann.id, record_node, and claim_id are pairwise disjoint; every Ann_q item maps to exactly one record_node and one claim_id",
  "inference_rule_registry": "Rules(P) is exactly policy.rules; carrier_reading_rules are input-validation constraints and never generate content hyperedges in H",
  "merge_validation": "operation-local preconditions are checked sequentially; all namespace, scope, and cross-reference invariants are checked after the complete ordered
operation list; no semantic output is emitted from an intermediate state",
  "normative_duplicate_invariant": "policy.rules and bridges are normative; duplicated annotation gate/rule/content_premises fields must equal their normative rule or
bridge projections, otherwise status is UNVERIFIED",
  "order_domain": "build OrdRec(P) from every declared edge binding before WF or activation; every endpoint record must occur in order.items; order.precedes restricted to
OrdRec(P) is a finite strict partial order; extra object records may be incomparable and SAME record_sources are not included automatically",
  "required_carrier_chain": {
    "classification": "lex:животного",
    "missing_or_mismatched_status": "UNVERIFIED",
    "reading_annotation": "read0",
    "selection_annotation": "sel0",
    "span": "ожив"
  },
  "rule_domain": "complete over declared omega",
  "rules": [
    {
      "conclusion": "π",
      "content_premises": [
        "β"
      ],
      "edge_bindings": [
        {
          "source_annotation": "a1",
          "target_annotation": "a2",
          "use_annotation": "u2"
        }
      ],
      "gate": [
        "â1",
        "â2",
        "û2",
        "š1",
        "š2",
        "š3",
        "š4",
        "š5"
      ]
    }
  ]
}

```

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    "s1",
    "s2",
    "s3",
    "s4",
    "s5",
    "n_sel0",
    "n_read0"
  ],
  "id": "r2"
},
{
  "conclusion": "β",
  "content_premises": [
    "π"
  ],
  "edge_bindings": [
    {
      "source_annotation": "a2",
      "target_annotation": "a3",
      "use_annotation": "u3"
    }
  ],
  "gate": [
    "â2",
    "â3",
    "û3"
  ],
  "id": "r3"
},
{
  "conclusion": "β",
  "content_premises": [
    "g0"
  ],
  "edge_bindings": [],
  "gate": [
    "g0"
  ],
  "id": "r0",
  "purpose": "synthetic independent-input mutation; not an O-to-C-to-L-to-beta resolver",
  "rho": "E2_resolution_declaration"
}
],
"use_identity": "USE is identified by Ann.id and names target_claim plus referenced_annotation; USE has no claim_id",
"wf_requirement": "edge_bindings is a total function with exactly one binding for every ATTR-to-ATTR content edge; each binding resolves ATTR source, ATTR target, and USE records, matches the rule premise/conclusion, USE target_claim and referenced_annotation, includes all three record nodes in Gate, and respects order.precedes",
"witness_registry": "one canonical registry of every active TARGET-ALIGNED SELF-RETURN; CELLS cite witness IDs and J_star applies Min_prec"
},
"queries": {
  "Q_F": [
    "β",
    "π"
  ],
  "Q_S": {
    "candidate_sets": "all 2^|V_ATTR|-1 nonempty subsets of V_ATTR",
    "completeness_invariant": "every CORE R contains at least one returned CELL S",
    "completion_scope": "emit PRESENT or ABSENT only after exhaustive completion; resource exhaustion is reported as an incomplete run and is not coerced to ABSENT or PRESENT",
    "core_predicate": "CORE(K,P,S)",
    "minimality": "strict-subset inclusion among all CORE sets, not cardinality and not one-vertex deletion",
    "operation": "enumerate_all_inclusion_minimal_cells",
    "scc_partition": "compute SCCs of D; enumerate only nonempty subsets of V_ATTR intersect each SCC containing at least one BIND and one PRED; evaluate CLOSED and CORE against the original H and D"
  }
},
"record_sources": [
  {
    "encoding": "UTF-8",
    "id": "Card(I_ex)",
    "integrity": {
      "algorithm": "SHA-256",
      "binding": "external envelope field merged_input_sha256"
    },
    "kind": "canonical_merged_input_card"
  }
],
"representation": {
  "levels": [
    "UTF-8 bytes",
    "Unicode code points"
  ],
  "normalization": "none",
  "scope_family": "independently addressed intervals, not a partition; gaps and overlaps allowed; neither creates identity or an edge",

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```

"scope_well_formedness": "exactly one mode: carrier plus matching Unicode/UTF-8 intervals, or record_source plus one resolvable JSON Pointer; empty, out-of-range, mixed-
mode, or byte/code-point-mismatched scopes are UNVERIFIED",
"segmentation": "half-open intervals"
},
"rho": {
  "introduced_by_event": "E2_resolution_declaration",
  "predecessor_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a"
},
"schema": {
  "j_star_array_order": "exact record IDs sorted lexicographically by Unicode scalar-value sequences; normalization none; a proper prefix precedes its extension",
  "j_star_minimality": "J_star is every Min_prec target_record in the canonical SELF-RETURN registry; comparable later targets are omitted",
  "cell_id_rule": "after cell_order, assign S1, S2, ... in one-based order",
  "cell_key": "tuple of member vertex IDs sorted by vertex_order",
  "cell_order": "lexicographic order of cell_key tuples; a proper-prefix tuple precedes its extension",
  "id_namespaces": {
    "annotation_id": "Ann.id",
    "claim_id": "Ann_q.claim_id, where Ann_q is exactly ATTR or SAME; resolved through Def",
    "conflict_status": "UNVERIFIED",
    "pairwise_disjoint": true,
    "record_node": "Ann.record_node"
  },
  "j_star_rule": "the j_star field is present if and only if J_star has exactly one member, and then equals that member",
  "kind": "evidential_input",
  "machine_schema": "contract.schema.json (JSON Schema Draft 2020-12) plus verify_contract.py cross-reference invariants",
  "machine_schema_id": "tag:beforeword.xyz,2026-08-27:reading-as-enclosure/contract.schema.json",
  "order_relation": "order.items is a finite domain; order.precedes is an irreflexive, asymmetric, transitively closed relation",
  "result_fields_forbidden": true,
  "semantic_iteration_order": "array order does not define graph traversal or output order; JSON Pointer scopes and ordered patch operations address the canonical serialized
arrays and are therefore integrity-significant",
  "unknown_required_field_status": "UNVERIFIED",
  "vertex_order": "lexicographic order of exact Unicode scalar-value sequences of vertex IDs; normalization none; a proper prefix precedes its extension",
  "witness_order": "deduplicate exact (source_annotation,target_annotation,use_annotation,rule) tuples; sort them lexicographically under vertex_order; then assign w1,w2,..."
},
"serialization": {
  "ensure_ascii": false,
  "format": "JSON",
  "indent": 2,
  "integrity_envelope": {
    "algorithm": "SHA-256",
    "covered_bytes": "the full canonical JSON serialization of this object",
    "embedded_digest": false
  },
  "line_ending": "LF",
  "sort_keys": true,
  "terminal_lf": false
},
"spans": [
  {
    "carrier": "W0",
    "id": "ожив",
    "text": "животного",
    "unicode_half_open": [
      16,
      25
    ],
    "utf8_half_open": [
      30,
      48
    ]
  },
  {
    "carrier": "A1",
    "id": "b1",
    "text": "читателя W0",
    "unicode_half_open": [
      34,
      45
    ],
    "utf8_half_open": [
      63,
      84
    ]
  },
  {
    "carrier": "A2",
    "id": "b2",
    "text": "Читатель W0",
    "unicode_half_open": [
      0,
      11
    ],
    "utf8_half_open": [
      0,
      21
    ]
  }
]

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    ]
  },
  {
    "carrier": "A2",
    "id": "v2",
    "text": "себя",
    "unicode_half_open": [
      46,
      50
    ],
    "utf8_half_open": [
      84,
      92
    ]
  },
  {
    "carrier": "A3",
    "id": "b3",
    "text": "читателя W0",
    "unicode_half_open": [
      34,
      45
    ],
    "utf8_half_open": [
      63,
      84
    ]
  },
  {
    "carrier": "A3",
    "id": "b4",
    "text": "читатель W0",
    "unicode_half_open": [
      58,
      69
    ],
    "utf8_half_open": [
      106,
      127
    ]
  },
  {
    "carrier": "A3",
    "id": "v3",
    "text": "себя",
    "unicode_half_open": [
      104,
      108
    ],
    "utf8_half_open": [
      190,
      198
    ]
  },
  {
    "carrier": "g0",
    "id": "o_g0",
    "text": "synthetic-ground-seed:g0",
    "unicode_half_open": [
      0,
      24
    ],
    "utf8_half_open": [
      0,
      26
    ]
  }
],
"stipulations": [
  {
    "id": "δ_b",
    "members": [
      "b1",
      "b2",
      "b3",
      "b4",
      "v2",
      "v3"
    ],
    "rho": "E0_input_registration",
    "target_class": "бчит",
    "type": "STIPULATE_TARGET_CLASS"
  }
],

```

```

"target_classes": {
  "бчн": {
    "basis": "δ_b",
    "members": [
      "b₁",
      "b₂",
      "b₃",
      "b₄",
      "v₂",
      "v₃"
    ],
    "required_same_claims": [
      "s₁",
      "s₂",
      "s₃",
      "s₄",
      "s₅"
    ]
  }
}
}

```

D.5. Structural Control Protocol

RESOLVE_RUN_SHA256
1946d837bf6d1ac1e900474aac47015a1142da5225bd678ca15cc28fc4a814f0

```

{
  "active_rules": [
    "r₀",
    "r₂",
    "r₃"
  ],
  "base_input_card_sha256": "588e123bea3cfc62cabcb7d13d038b9b07d984cb988a242043d43423c4ffef3",
  "base_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a",
  "cell_checks": {
    "candidate_set_beta_pi": {
      "cell": false,
      "closed_set": false,
      "contains_active_self_return": true,
      "core": false,
      "external_content_premise": "g₀",
      "failing_incoming_rule": "r₀",
      "vertices": [
        "β",
        "π"
      ]
    }
  },
  "closure_log": {
    "D0": "G_plus",
    "D1_added": [
      "β"
    ],
    "D2_added": [
      "π"
    ],
    "fixed_point": "G_plus union {β,π}"
  },
  "implementation": "finite_inclusion_minimal_cell_procedure_sections_5_to_9",
  "output": {
    "j_star": [
      "A₃"
    ],
    "Q_F": {
      "β": "LICENSED@K,P",
      "π": "LICENSED@K,P"
    },
    "Q_S": {
      "cells": [],
      "verdict": "ABSENT"
    },
    "j_star": "A₃",
    "self_return_witnesses": [
      {
        "id": "w₁",
        "rule": "r₃",
        "source_annotation": "a₂",
        "source_record": "A₂",
        "target_annotation": "a₃",
        "target_record": "A₃",
        "use_annotation": "u₃"
      }
    ]
  }
}

```

```
  }
}
},
"resolve_input_sha256": "ebd446ea8cdd7d1af97c04587c50ee19cbcadfffaa830c14351e1425c7c1c246",
"rho": {
  "event_id": "E3_resolution_run",
  "kind": "completed_resolution_run",
  "predecessor_run_sha256": "d77e8d47da4a86de308808521df0854294a6ba915be96ab6fd9cdcc0a465be5a",
  "predecessors": [
    "E2_resolution_declaration"
  ],
  "resolve_input_sha256": "ebd446ea8cdd7d1af97c04587c50ee19cbcadfffaa830c14351e1425c7c1c246"
},
"run_date": "2026-08-26",
"run_input_sha256": "0d3b44a50fc82654c7368a7a4bac95313171a1458a959c75b4714666f96a70cb",
"serialization": {
  "ensure_ascii": false,
  "format": "JSON",
  "indent": 2,
  "integrity_envelope": {
    "algorithm": "SHA-256",
    "covered_bytes": "the full canonical JSON serialization of this object",
    "embedded_digest": false
  },
  "line_ending": "LF",
  "sort_keys": true,
  "terminal_lf": false
}
}
```

Appendix E. Priority Mapping

The search target is neither an individual term nor any work concerning cycles. The target configuration is: (F1) an exact content-addressed written carrier and spans; (F2) READ/ATTR/SAME/USE; (F3) an inclusion-minimal CELL; (F4) separate evidential licensing; (F5) internally checkable event provenance p; (F6) a hashed before/after intervention; and (F7') a bounded non-privileging check on the procedure's own report. A complete self-run F7+ is not claimed.

E.1. Sources, Date, and Retrieval

Field	Recorded Value
Search and Cutoff Date	27 August 2026
Component Versions	retrieval 1.0; screening 1.1; formal_rebuild 1.2; package release 1.2.3
Indexes	Crossref; OpenAlex
Thematic Queries	Q01–Q12 in both indexes
Exact Conjunctive Queries	Q13–Q15 in OpenAlex only
Language of Base Query Strings	15/15 in English; a separate Russian-language supplement is described below
Limit	Top 100 ranked records per index-query pair
Saturation	17/27 responses produced 100 records; reported_total > returned in 16/27
Zero-Result Responses	OpenAlex Q07 and Q13–Q15; not used as evidence of absence
Crossref reported_total	452 442–7 906 907 for Q01–Q12; bibliographic partial-match totals
Retrieved	1 890: Crossref 1 200; OpenAlex 690
Deduplication	1 565 by DOI; otherwise by enhanced normalized title
Screening	249 records; two independent, blinded, model-assisted passes
Citation routing pool	2 751 in union; 42 overlapping source records; 2 704 work units processed by both rules; 2 237 DOI records

Field	Recorded Value
Citation stage chain	citation_screen_summary.json: pending routing snapshot → citation_strict_summary.json: complete, final decision source
Citation strict review	138 abstract / 0 full text; origin 125 frozen + 13 supplemented; 0 yes / 138 no / 0 unclear; 123 ID unresolved
Russian-Language Supplement	12 discovery queries; 32 observations; 16 unique; 14 eligible; 0 confirmed / 14 not_confirmed
Evidential Basis for Base Strict Review	71 abstract / 16 full-text pass-records
Evidential Basis for Citation Routing	1 854 abstracts / 850 metadata records; this is the evidential basis for routing, not for a strict verdict
Manuscript Bindings	Two one-way SHA-256 package → DOCX bindings (RU source; EN translation) are recorded in the external manifest; neither DOCX contains a self-hash
Retrieval manifest	SHA-256 83da8bba52943ae87393f9dbe0a5223e0e921a0f12616e 9fcb3ba484b1760f61

E.2. Search Strings

ID	Exact String	OpenAlex / Crossref: Returned
Q01	"cyclic support" "external support"	2 / 100
Q02	"recursive support" argumentation evidence	31 / 100
Q03	"self-supporting" cycle grounded evidence	100 / 100
Q04	"unfounded set" external support strongly connected	40 / 100
Q05	"provenance graph" recursive derivation cycle	100 / 100
Q06	"exact text" span annotation provenance	64 / 100
Q07	"text position selector" annotation graph provenance	0 / 100
Q08	"content addressed" annotation provenance	100 / 100
Q09	"self-reference" annotation provenance graph	100 / 100
Q10	"source order" evidential support graph	43 / 100
Q11	"controlled intervention" support cycle graph	100 / 100
Q12	"recursive attacks" "evidence-based support"	10 / 100
Q13	"exact text" span "recursive support" "external support" self-reference	0 / —
Q14	"text position selector" "cyclic support" provenance	0 / —

ID	Exact String	OpenAlex / Crossref: Returned
Q15	"content addressed" typed annotation "recursive support"	0 / —

For Q03, Q05, Q08, Q11, and other strings, a value of 100 indicates that the specified cap was reached, not that the index was exhausted. Crossref totals reported for query.bibliographic were not treated as counts of exact matches because the ranking permits partial matches.

E.3. Screening and Reasons for Exclusion

Stage	n	Rule
Records After Deduplication	1 565	DOI; otherwise, enhanced normalized title
Deterministically Excluded	1 316	Recall-oriented routing; not a novelty decision
Two Independent Screening Passes	249	R1: 56 yes / 48 unclear / 145 no; R2: 72 / 43 / 134
Conservative Union	130	UNCLEAR advances; binary agreement 0.835; $\kappa=0.666$
Base strict pass-records / unique	87 / 52	71 abstract / 16 full text; partial does not count as yes
Citation-only routing work units	2 704	R1/R2 no/no 2 566; yes/no 123; no/yes 11; yes/yes 4; raw agreement 0.9504438; $\kappa=0.0468805$; fixed rules with different triggers, not reviewers
Citation union advanced	138	R2-only: 11 (7.97% union); evidence origin: 125 frozen abstracts + 13 publisher/repository abstract supplements
Citation strict review completed	138	Final source: citation_strict_summary.json; 0 yes / 138 no / 0 unclear; abstract scope = 138; full text = 0
Russian-Language Supplement	16 / 14	unique / eligible; 0 confirmed / 14 not_confirmed
Curated predecessor matrix	23	Closest Normative and Infrastructure Lines of Work
Citation chasing	2 751	Forward/backward search from 21 seeds; 123 IDs unresolved
Confirmed Full Coverage of F1–F6+F7'	0	Does not turn abstract scope or not_confirmed into a strong negative finding

E.4. Matrix of Closest Lines of Work

Line of Work	Existing Contribution	Decisive Missing Component
Lin & Zhao, 2004; Lee, 2005	Loop formulas, circular/external support	F1–F3 as a textual ATTR contract; F5–F7'
Anger et al., 2006; Gebser et al., 2011	Inclusion-minimal unfounded cores; active elementary loops	Exact carrier, READ/ATTR/SAME/USE, ρ , and hashed cycle-breaking
Oren & Norman, 2008	Evidence-based acceptance	Content-addressed text, CELL, event provenance, paired run

Line of Work	Existing Contribution	Decisive Missing Component
Cayrol et al., 2010	Status change after an argument is added	F1, separate licensing/p, and frozen artifacts
Cohen et al., 2015; Cayrol et al., 2018	Recursive attacks/supports and prima-facie evidence	Exact textual chain, minimal CELL, paired hashes
Lagasquie-Schiex, 2023; Alfano et al., 2024	Support cycles and founded/recursive semantics	F1, F5, F6, F7'
Baumann & Ulbricht, 2021	Cycles, attackers/supporters, and dynamic change in argumentation graphs	Content-addressed carrier, F5, and F7'; abstract-scope gap
RFC 5147; NIF; W3C Web Annotation	Exact ranges, URI/selector, annotation graph	External-support semantics, CELL, and separate evidential licensing
Named Graphs; W3C PROV	Typed provenance, order, bundles, provenance-of-provenance	Inclusion-minimal ATTR-CELL on exact text and a paired semantic run
Trusty URIs; CWLProv	Content hashes, self-reference, reproducible workflow artifacts	Separate CELL, licensing, and p outputs for written self-return
Wang et al., 2020; Dietrich et al., 2022; Bourgaux et al., 2022	Cycles in recursive provenance	READ/ATTR semantics, F5–F7'
Menotti et al., 2025	Source lineage, trust, and supporting/conflicting assertions	Inclusion-minimal self-return CELL and hashed cycle-breaking
Dedecker et al., 2026	Typed nested context associations	Separate grounded licensing and a paired before/after run
Russian-Language Supplement, 14 Eligible Works	Argumentation annotation, support/attack, and formal self-reference exist separately	Neither F5 nor F6 was confirmed in any work; 14 not_confirmed decisions

E.5. Conclusion and Search Residue

No confirmed work combining F1–F6+F7' was identified in the completed mapping layers. This supports the bounded formulation “the first integrated procedure of this exact type identified in the literature mapped through 27 August 2026, subject to the disclosed bounds of the evidential basis.” The claim does not extend to the individual ideas of cycles, external support, minimal cores, provenance, exact addressing, graph dynamics, or self-reference.

Search residue: Crossref/OpenAlex do not exhaust the literature; 17/27 responses reached the limit of 100; indexing and ranking change; the two base screening passes were model-assisted; κ does not measure recall; 71/87 base strict-review pass records rely on abstracts. The citation strict review used 138 abstracts and 0 full texts; 123 IDs remained unresolved. The Russian-language supplement is not an exhaustive database search. An earlier work satisfying F1–F6+F7' would defeat the priority claim without altering the formal apparatus.

PRIORITY CONCLUSION

No confirmed work combining F1–F6+F7' within a single reproducible contract was identified in the completed mapping layers. An admissible description is: the first integration of this exact type identified in the literature mapped through 27 August 2026, subject to the disclosed bounds of the evidential basis—not an unconditional historical “first.”