

The Shape of a Total Theory's Base: Categorical Foreclosures and What They Force

Jeff Wozniak

Independent Researcher [ORCID: 0009-0002-3436-6863](#)

July 22, 2026

Abstract

A total theory quantifies over everything, including its own theorists, and a companion paper derives the domains any such theory must address ([Wozniak, 2026](#)). This paper asks the successor question: what kind of thing could address all of them? A theory discharges a domain by account when the phenomenon arises from its base's general primitives—with no primitive whose sole job is that phenomenon, even a declared one. Under this criterion, a base's fundamental ontological category can close the by-account route to a domain while leaving principled denial open, and three such foreclosures hold at graded strengths. Pure structure cannot self-anchor: a theorem in a stated setting, by Newman's and Putnam's arguments. A base of third-person facts, whether static or dynamical, forecloses interiority: strong, conditional on the explanatory-gap premise and the by-account criterion. An experience-first base forecloses the determinate world: defeasible, since experience already carries rich structure. Jointly with the coherence conditions, the foreclosures yield a target specification for any theory that takes the by-account route everywhere: its base carries both an intrinsic and an extrinsic aspect in its general primitives, with the extrinsic aspect borne by genuine relations rather than coordinated parallelism; its dynamics govern the theorist's own operation; its reference is fixed by a natural relation internal to the base; and a well-defined formal object stands beneath all of it, its intrinsic aspect's granularity left open as a symmetric residue between a per-unit and a cosmic bearer. The genuine-relations requirement rests on a naturalness premise about reference that a covariational reliabilist can decline, and the paper carries that conditionality. Two worked systems occupy the unforeclosed region, Whitehead's per-unit event ontology and Spinoza's cosmic substance, and each leaves the formal object unbuilt; a formalized both-poles ontology is the outstanding construction. The specification narrows the search space for total theories. It certifies no candidate, and names none.

Keywords: total theory; categorial ontology; explanatory gap; structural realism; neutral monism; process philosophy; philosophy of physics; transcendental argument

1 The question a target specification leaves open

A total theory quantifies over everything and places no explanandum outside its own scope, including the theorists who hold it. The companion net makes that demand precise and derives its consequences: a theory answers to coherence, that it hangs together as a system, and to completeness, that it addresses every domain its own scope entails; seating the theorist inside the described world forces most of those domains, and an independent-variation test sorts them into structural slots required of any total theory and world-contingent fillers required only of a theory of our world ([Wozniak, 2026](#)). The structural slots are eight: arena, modality, matter as a habitability-

constrained slot, dynamics, records and temporal asymmetry, definiteness, interiority, and agency. Silence on one abdicates totality itself.

The net is a target specification. It says what would count as a coherent, complete total account without asserting that anything has hit the mark, and that restraint keeps it compatible with monism, pluralism, and the possibility that reality is not neatly totalizable. Read against the current field, the net is diagnostic rather than decisive: the literature offers physics-first programs that illuminate matter and spacetime and go dark on the interior, mind-first programs that target the interior and say little about matter or the arrow, and no worked account that seats its theorist, speaks to the inside, anchors its content, and covers the span under one uniform rule. The empty combination is a well-defined position the net specifies and leaves open.

This paper asks the next question. The net certifies no survivor, but it does constrain the kind of thing a survivor would have to be, and that constraint can be extracted without naming any candidate. The extraction runs on the net’s own discharge taxonomy. Every structural slot forces a position, and a position is weaker than a substantive posit; the net discharges a slot in one of three ways. A theory may discharge a slot *by account*, placing the phenomenon in its ontology and deriving it from the base. It may discharge a slot *by specifying arising conditions*, giving the conditions under which the domain’s phenomena appear. Or it may discharge a slot *by principled denial or dissolution*, arguing that the domain’s apparent demand is ill-posed. Modality falls to a Humean denial of irreducible modality as cleanly as to a realist modal structure; interiority falls to an eliminative argument as cleanly as to an account of the inside. The three routes are equally legitimate at the net’s bar.

The first two routes form one family: both place the phenomenon in the world and derive or condition it, rather than argue it away. Call a base that takes this positive route on every structural slot a *by-account satisfier*—the sharpened criterion of the next section collapses the two positive routes into one standard, which is what licenses the single name. Denial is a real option the net honors, and a theory that denies its way through several slots is not thereby defective; the by-account satisfier is one kind of total theory among the kinds the net permits, singled out here because it is the demanding one, the account that owes a derivation everywhere it might instead have owed only an argument for silence. The question of this paper is what a by-account satisfier would have to look like. The answer divides into a negative half, which categories of base foreclose the by-account route for some slot, and a positive half, what features a base that forecloses none must carry. Both halves stay on the near side of Stroud’s gap: the claims are about what an *account* must be, never about what reality instantiates (Stroud, 1968).

2 Discharge by account, sharpened

The by-account route needs a sharper definition than the net supplies, and supplying one is the first contribution of this paper. The net is permissive about how a slot gets discharged. Its primitive-honesty condition admits any declared primitive, and its completeness condition excludes only accompaniment that is “defined nowhere, entailed by nothing in the base”—an *unspecified bridge* (Wozniak, 2026). A bridge or identity that is declared and specified escapes that exclusion as the net is written. So on the net’s own text a specified psychophysical identity, a fully declared bridging law, and a cleanly declared low-entropy boundary condition each count as legitimate discharges. Under that reading no category forecloses anything, because any slot can be closed by declaring a primitive tailored to it.

A sharper criterion is needed, and it is worth stating in one line before it is defended:

A slot is discharged *by account* when the phenomenon arises from the base’s *gen-*

eral primitives plus its dynamics, with no primitive whose sole job is to produce that phenomenon—even a declared one.

This criterion is a strengthening of the net, and the paper owns it as one rather than reading it off the net’s text. The net’s completeness condition penalizes a posit “accompanied” by a phenomenon it does not earn, defined nowhere and entailed by nothing in the base. The criterion above extends that penalty from the undefined case to the defined-but-tailored case. An opaque declared identity between a physical state and a phenomenal one earns nothing the base did not already contain; it is stipulation with a name, and the honest diagnosis of its failure is derivational opacity rather than absence of definition. Extending the net’s unearned-stipulation intent to cover it is defensible, and it is a sharpening, not a theorem. The distinction the criterion draws is between a primitive introduced to close one slot the general base could not reach and the general base itself.

The criterion does not bar a legitimate general base, and the argument for that matters because the arena slot must be dischargeable for the whole enterprise to make sense. A theory discharges the arena slot by declaring what kind of thing its base is, and a declared base looks, on a careless reading, like a primitive the criterion would forbid. It is not. The base is the general furniture from which everything else is derived; its job is to ground every slot, not to close any single one. A phenomenon-specific primitive is one introduced to reach a particular slot the general base could not reach on its own—a bridge added only for interiority, a boundary condition added only for the arrow. The base is the opposite of that: maximally general, indifferent to which slot is in view, prior to all of them. Declaring the general base therefore discharges the arena slot and violates nothing, because base-declaring is not slot-tailoring. A base that happens to carry an intrinsic aspect across all its units discharges interiority from a general primitive for the same reason: the intrinsic pole is base-wide, so its job is not the interiority slot alone.

A declared boundary condition is the harder case, and it shows the criterion stopping short of the general primitives it exists to protect. The net files an arrow mechanism—a Past-Hypothesis low-entropy boundary condition—as a legitimate world-contingent filler of the records-and-asymmetry slot, and treats such a condition as a matter of coherence rather than a completeness failure (Wozniak, 2026; Albert, 2000). On its face the condition looks slot-tailored, since fixing it makes the arrow come out one way. What places it on the general side is the kind of work it does: it sets the value of a variable the base’s dynamics already range over, constraining an independently motivated dynamics rather than adding a domain of facts the base did not otherwise contain. The dynamics carry thermodynamics whatever initial macrostate obtains; the boundary condition selects among the values they already admit, and the arrow is one downstream consequence of that selection. A supplement of this kind sits on the general-primitive side of the criterion, like the base itself. The criterion bars only the ad-hoc variant: a condition inserted by hand purely to fix the arrow, where a different admissible condition would reverse it. A cleanly declared low-entropy boundary condition therefore discharges the arrow slot by an account the net already accepts, and the criterion leaves that discharge in place. Whether every arrow-fixing condition classifies as general is not settled; the honest reading counts the thermodynamic one as general and the hand-inserted one as tailored. The case is the sharpest test of whether the criterion over-reaches, and on the reading taken here it does not.

Everything downstream is conditional on this criterion, and the conditionality leads rather than trails. Against an opponent who holds that a specified-but-opaque discharge is a genuine account—that a declared psychophysical identity, a declared bridge, or a declared arrow-tailored boundary condition discharges its slot—every foreclosure in Section 3 and every design constraint in Section 4 that leans on the criterion drops from its stated strength to defeasible. The criterion is the single most load-bearing move in the paper, and it is the joint a reader should attack first. The results

below are stated at the strength the criterion earns them, with that dependency marked at each step.

3 Where a category forecloses the by-account route

A base’s fundamental category can foreclose the by-account route for at least one structural slot. The claim is a narrowing, not a silencing: where the route is foreclosed, denial or a category exit remains, so the theory must discharge the slot some other way or become a theory of a different kind. “Category K cannot discharge slot S ” is false for every K and S , because denial is almost always available; the defensible claim is that K ’s identity conditions close the by-account route for S , leaving the other routes open. The strengths run from a theorem in a stated setting down to a defeasible tendency, and each is labeled at the strength it earns and no higher.

Pure structure cannot self-anchor. A base of pure structure—relations up to isomorphism, with no privileged natural relations and no intrinsically natured relata—cannot fix its own content, and the core of the result is a theorem. Newman’s theorem states that for any domain of the required cardinality and any purely structural specification W , a system of relations instantiating W exists (Newman, 1928). So “reality has structure W ,” with W specified purely structurally, is satisfied by any set of the right size, and the theory’s content collapses to a claim about how many things there are. The term-level analogue is Putnam’s permutation argument: a predicate fixed only by structural role has a permutable extension with every theorem’s truth-value preserved, so nothing in the theory fixes what the predicate picks out (Putnam, 1980, 1981). For a base whose predicates are defined by structural role, the permutation bites by construction. The one premise is that content is exhausted by structural content, which is exactly what pure structuralism asserts and what ontic structural realists deny when they treat relations as concrete natured primitives that anchor reference (Lewis, 1983, 1984; Ladyman, 1998; Worrall, 1989). The foreclosure targets pure structure, and working structural realism has mostly already exited it by adding natural relations; the exit is a category change, and it is legitimate here because a theorem forces it. This is the strongest of the foreclosures: a formal core that is a theorem, a single stated premise, and a theorem-forced exit.

A third-person base forecloses interiority by account. A base composed entirely of third-person facts—facts statable without reference to any subject’s point of view, extrinsic and relational and quantitative—can discharge the interiority slot by denial or by a category exit, and not by account. The operative property is the absence of intrinsic phenomenal character; the extrinsic, relational, and quantitative marks are sufficient signs of it rather than its definition. A base of intrinsic-but-character-free quiddities is third-person in this operative sense, and Section 4 recovers the same foreclosure for it through the forward gap. The property is separate from the pure structure of the preceding foreclosure, which fails at anchoring, and from the extrinsic pole a world-side base carries. The argument is a transfer of the explanatory gap. Suppose the base discharges interiority by account, so the phenomenal facts arise from its general primitives plus dynamics with no interiority-tailored posit. The gap literature holds that no such derivation is available: a physical description conjoined with the denial of the phenomenal facts is coherently conceivable (Chalmers, 1996), a standing explanatory gap separates the two (Levine, 1983), and third-person facts leave a phenomenal fact knowably open (Nagel, 1974; Jackson, 1982). The general third-person base underdetermines the phenomenal facts, so the supposition fails, and the by-account route closes. Denial stays open and clean, which is why the result narrows the discharge routes

without forcing silence: an eliminativist about the interior discharges the slot at the net’s bar, and owes the eliminative argument rather than a derivation.

The standing objection is a-posteriori physicalism, which holds that the physical base entails the phenomenal facts through a specified psychophysical identity with no transparent derivation. That identity is specified, so it escapes the net’s exclusion of undefined accompaniment; the sharpened criterion excludes it. A specified-but-opaque identity is a primitive whose sole job is to close the interiority slot, phenomenon-specific by construction, and so not by account under the criterion of Section 2. The boundary-condition case does not rescue it by parity. A declared boundary condition sets the value of a variable the base’s dynamics already range over; it supplements a dynamics that already carries its edifice. A psychophysical identity introduces a domain of facts—the phenomenal—that a third-person base does not otherwise contain, so it constitutes its phenomenon’s presence in the theory rather than constraining a dynamics already present. That the identity grounds a wide mental domain does not move it to the general side, because that whole domain enters the theory through the identity itself. The exclusion is therefore the paper’s sharpening at work, not a report of the net, and against an opponent who rejects the sharpening the identity discharges interiority and this foreclosure lapses. Under the gap premise and the criterion together the claim is close to analytic and scoped to what the by-account route requires, not a refutation of the physicalist who discharges interiority by identity or by denial: a base defined as free of the intrinsic cannot generally derive the intrinsic once opaque slot-tailored identities are barred, and the conceivability citations are corroborative colour on the gap premise rather than the load-bearing machinery. Those discharges are real, and they are priced by the criterion rather than defeated by the argument. A worked, non-opaque derivation of phenomenal structure from third-person structure would lift the foreclosure.

A tempting rescue fails, and marking why keeps the result clean. The net’s reflexive-closure condition requires the theorist to be seated inside the world as a physical subsystem, and one might think a base that seats the theorist has thereby placed its interior. It has not. Placing the theorist as an object—the “you are here” locus that refers to a location partly by occupying it (Ismael, 2007)—is orthogonal to placing it as a subject with an inside, because self-locating facts are themselves third-person representable. Seating the theorist and accounting for the interior come apart, so a base can do the first cleanly and still foreclose the by-account route to the second.

A third-person process inherits the same foreclosure. A base of third-person states plus transition rules forecloses interiority by account exactly as a static third-person base does. A transition rule maps third-person states to third-person states, and specifying it needs only third-person vocabulary, so a dynamical third-person base adds temporal ordering and not an intrinsic aspect. The premises of the previous foreclosure hold, and a process without an inside is conceivable as a subject without an inside is. The new resource—temporal ordering—is orthogonal to the intrinsic-versus-extrinsic distinction, so it cannot bridge that gap. Process buys the world-side slots that motion and settling require, and it buys nothing for the interior. One system in the current literature, integrated information theory, appears to discharge interiority from a base built from cause-effect structure; it identifies experience with a maximally irreducible cause-effect structure (Tononi, 2004; Koch et al., 2016). The identity fixes which cause-effect structure is identical to which experience and leaves open why that structure is experienced at all, so the explanatory gap reopens inside it, which is what makes it opaque in the criterion’s sense. The discharge rests on this identity, the same specified-but-opaque move, so it stands or falls with the sharpened criterion rather than defeating it independently.

An experience-first base forecloses the determinate world, more weakly. A base of purely intrinsic or phenomenal facts forecloses the by-account route for the world-side slots, most cleanly definiteness, and the result is the mirror of the third-person case at a lower strength. The argument runs the conceivability transfer in reverse: suppose a phenomenal base discharges definiteness by account, so the determinate structured world of alternatives arises from phenomenal primitives; a base with the same phenomenal character but no determinate public world of alternatives is offered as conceivable, prising the intrinsic and the structural apart in the reverse direction. The premise is contested, and more heavily than its mirror. Experience already instantiates rich structure—phenomenal similarity spaces, temporal succession, the specious present—so the reverse conceivability is far less secure than the forward one, and an idealist can offer the determinate public world as a constitution from intersubjective phenomenal regularities, which is an account and not a denial (Kant, 1998). The foreclosure therefore holds only as a defeasible tendency, with definiteness the least-weak sub-case. The measurement problem generalized past quantum mechanics is the sharp form of the slot at issue (Maudlin, 1995; Bell, 1990), and the standing escape is an experience-first base that reads enough structure off experiential form to discharge it. This weaker strength propagates: any downstream requirement that leans on the world-side foreclosure inherits its defeasibility, and the paper carries that through below.

An agent-first base tends toward a thin world. A base of information states, credences, or tasks tends to leave the world thin, and the tendency is the weakest result here—closer to a genre habit than a categorial necessity, and reported as such. Restrict to the monistic version, on which agent states are the sole base. Such states are individuated functionally, by inferential and decision role, and functional individuation does not fix physical realization: a credence does not entail what its bearer is made of, so a sole-agent base cannot derive its own material constitution and the habitability constraint the matter slot imposes. The world-side then stays functionally thin or turns overtly anti-realist. The residue is narrow because the restriction is a choice. “Agent states are fundamental” does not forbid declaring rich world-furniture as co-primitive, and a two-base agent-plus-world ontology escapes the thinness at the cost of no longer being agent-first. Some agent-first programs are better read as a principled denial of observer-independent furniture, a clean dissolution rather than a foreclosure at all. The result is honestly weak, and it is graded as a tendency.

Table 1 collects the five results at their strengths. The gradient across them is not sociological, and it is not a matter of theories breaking down as they approach the theorist. Third-person bases foreclose the interior by account; a purely phenomenal base forecloses the determinate world by account, more weakly; pure structure cannot self-anchor; and the strengths track how much of the argument is a theorem, how much a contested premise, and how much a genre habit.

4 The shape of a satisfier

The foreclosures constrain a base that discharges every slot by account. The register is fixed and held throughout this section: each claim is a conditional necessity about what an *account* must be, of the form *if a base discharges every structural slot by account and passes the coherence and anchoring conditions, then it has feature F*. None of it claims that reality instantiates *F*. A second discipline governs which conditional necessities get promoted: the promotion must be forced by the net, not shaped toward a preferred answer. Features the net does not force are held to Section 5.

Base category	Route foreclosed	Form of the argument	Strength
Pure structure	self-anchoring (content)	Newman/Putnam theorem in a stated setting	theorem-in-setting (strongest)
Third-person substance/field	interiority by account	conceivability/gap transfer + the criterion	strong, conditional on the gap premise and the criterion
Third-person process	interiority by account	the above + dynamics-preserves-third-person	strong, inherits the row above
Experience-first	determinate world by account	inverse conceivability (contested)	defeasible; definiteness least-weak
Agent-first	rich world-content	functional underdetermination, sole-base restriction	defeasible tendency (weakest)

Table 1: Categorical foreclosures at their validated strengths. Each entry is a claim about a discharge *route*, not about undischargeability: where the by-account route is foreclosed, denial or a category exit remains. Every row below the first is conditional on the by-account criterion of Section 2; against an opponent who admits specified-but-opaque discharge, the conditional rows drop to defeasible.

Both poles in the general primitives. A by-account satisfier’s general base carries both an intrinsic and an extrinsic aspect, and the derivation runs through the foreclosures jointly with the net’s honesty, self-inclusion, and anchoring conditions. The interiority slot forces the intrinsic aspect: discharging interiority by account requires the base to contain or generally derive intrinsic facts, and a purely third-person base forecloses that route, so the base carries an intrinsic aspect. The world-side slots force the extrinsic aspect along two paths of unequal strength. The reverse gap makes the rich world-side structure a tendency: because the experience-first foreclosure is only defeasible, an experience-first base that reads structure off experiential form is the standing escape, and this path yields no necessity. The anchoring condition forces the existence of at least one genuine extrinsic relation outright: the reference requirement derived below fixes the theory’s terms by a natural relation internal to the base, that relation reaches from the theorist’s side to the world’s side, so at least one extrinsic relation is present without waiting on the reverse gap. The extrinsic aspect is present on either path, its rich structure a defeasible tendency and its minimal presence a consequence of anchoring. Granting both aspects present, the honesty condition bears on how they are carried. A base with two correlated but separate populations, intrinsic items and extrinsic items, owes the correlation between them, and a correlation carried by a primitive whose sole job is the correlation is not by account under the criterion, so a fully derived correlation requires a common base beneath both. The base therefore carries both poles in its general primitives. This requirement is the complement of the two strong foreclosures: a third-person base was foreclosed for lack of an intrinsic pole, a purely phenomenal base for lack of an extrinsic one, and a base that forecloses neither is one that carries what each of them lacks.

The extrinsic pole is carried by genuine relations. The anchoring condition constrains the form of the extrinsic pole and not only its presence: the pole must be carried by genuine, relatum-connecting relations, and coordinated parallelism does not qualify. A base whose extrinsic structure is bare parallelism—independently unfolding series with matching contents and no relation running between them—supplies nothing for reference or representation to consist in. Reference-fixing connects a term on the theorist’s side to a referent on the world’s side, and a matching of two independent series is a fact about the pair of series and not a relation from either to the other. On the structural-content reading the point is a theorem in the stated setting: a coordination specified

purely as a structural pattern is Newman-permutable, so it fixes no determinate referent (Newman, 1928; Putnam, 1980). On the intrinsic-content reading, where aboutness is carried by a brute quale, the exclusion rests instead on the anchoring condition’s demand for a relation and holds at strong-conditional strength rather than as a theorem. A windowless per-unit base falls on either reading: Leibniz’s monadology coordinates windowless monads by a pre-established harmony that runs no relation between them, so it carries no relatum-connecting relation for reference to be (Leibniz, 1714). A base whose extrinsic pole is carried by real relations survives—Whitehead’s prehension, in which a new event takes up prior events into its own constitution, and Spinoza’s causal nexus of finite modes within an attribute (Whitehead, 1978; Spinoza, 1677).

This exclusion rests on the naturalness premise the anchoring condition already carries, that reference is fixed by a natural, joint-carving relation rather than by bare covariation. An opponent who takes reference to be pure covariation—a reliabilist about reference (Dretske, 1981; Millikan, 1984)—declines that premise, and for the parallelist the exclusion then inverts. Pre-established harmony delivers perfect, exceptionless covariation between a monad’s states and the world, so on a covariational standard the windowless monad is an exemplary reference-fixer rather than a failed one. The genuine-relations requirement is therefore conditional: it holds on the naturalness premise and reverses under covariational reliabilism, and the paper carries that conditionality to every result that leans on it.

An individuation debt at some granularity. The base carries both poles, and the net further demands that it derive its own theorists. Reflexive closure seats the theorists who hold a total theory inside the world it describes, and it seats them as plural, bounded, error-capable loci of representation, many systems that each represent part of the world and can be right or wrong about it (Wozniak, 2026). Whether each locus has an interior of its own is the question at issue here and is left open; the loci are individuated as representers, and a representer that is bounded is one that can misrepresent. A by-account satisfier derives these plural bounded loci from its general primitives, with no primitive whose sole job is to hand the account its theorists. This individuation obligation holds at strong strength on the by-account criterion, and drops to defeasible against an opponent who admits a declared individuation primitive.

The obligation falls due differently at different granularities, and this eliminates the debt-free option. A base of a single neutral kind, neither mental nor physical, from which both poles are derived, is the candidate that carries both poles without being a base of units each bearing two poles (James, 1904; Russell, 1927). If its neutral elements have no intrinsic character, deriving the phenomenal from them faces the forward gap again and the base inherits the interiority foreclosure, so a genuinely character-free neutral base is excluded on the by-account criterion and the gap premise together. If the neutral elements already carry proto-phenomenal character, the base carries an intrinsic pole with genuine character and is a both-poles base at some granularity (Goff, 2017). No third granularity is debt-free. Every surviving both-poles base carries genuine intrinsic character at a granularity, and each granularity owes a direction-fixed individuation debt: a per-unit base of many bounded interiors owes the macro-unity of each theorist-locus, the combination debt, and a cosmic base of one unbounded interior owes the plurality and boundedness of the loci, the decombination debt. The forced result is both poles in the general primitives; the granularity at which the intrinsic pole is carried, and the individuation debt it incurs, are left open, the cleanest cases being per-unit and cosmic.

Self-applicable dynamics. A by-account satisfier’s dynamics govern the theorist’s own operation, and the derivation is near-definitional given two net conditions. Reflexive closure seats the

theorist as a process in the world, and rule uniformity forbids exempting any case within a rule’s scope. The theorist’s own operation—representing, measuring, forming records—therefore falls under the same generative dynamics as everything else, with no exempt mental dynamics (Wozniak, 2026). The net’s fixed-point amendment sharpens this: coherent self-inclusion requires the self-representing operation to close on a fixed point under the dynamics, which presupposes that the dynamics apply to it, and where the fixed point is absent the self-reference falls to a liar-like construction that either contradicts or fails to denote. The core requirement—no exempt mental dynamics—follows from the two conditions directly. The fixed-point reinforcement carries only the strength the net assigns it. In formal settings where the self-representing operation is exhibited as an explicit mathematical construction, the closure claim is a theorem; for a theory that has not supplied such a construction, it is a structural analogy, and it remains one until the construction is supplied.

Reference fixed by an internal natural relation. A by-account satisfier fixes its reference by a natural relation internal to its base, and the derivation runs from anchoring and self-inclusion together. A total theory has no outside from which to hand its terms their reference, because the namer is seated inside; external baptism is unavailable. The anchoring condition’s escape from the Newman and Putnam collapses is a natural, joint-carving relation that resists permutation (Lewis, 1983, 1984; Quine, 1960). So the reference-fixing relation must live in the base and must close without vicious circularity, and the account of how the theory represents and the account of what its terms refer to must ground each other in one such relation rather than each presupposing the other. The two conditions force exactly this much: a non-external, internal, natural, non-circular reference-fixing relation. They do not force that the relation be an asymmetry, and the reasons for holding that stronger claim back are given in Section 5.

A well-defined formal object beneath it. A by-account satisfier rests on a well-defined formal object, and this requirement is inherited from the net rather than freshly derived. The net’s well-definedness condition is necessary for any coherent total theory: a state space, a dynamical law, a measure, or a limit invoked in a derivation must exist as a well-defined object and not merely be describable in non-contradictory sentences (Wozniak, 2026). A by-account satisfier passes that condition by assumption, so it has a well-defined formal object. The requirement earns its place here because it is exactly the bill the both-poles occupants have historically left unpaid, and Section 6 takes that up. A both-poles base together with a well-defined formal object is the difference between the satisfier-shaped category and the systems that have so far occupied it.

Table 2 collects the four requirements with the net conditions that force each. The list is shorter and thinner than a bare count suggests. One requirement is inherited from the coherence conditions rather than derived from the account structure, one requirement’s world-side leg is split, forced in the existence of an extrinsic relation and defeasible in its rich structure, and one requirement stops short of the sharper feature a reader might expect. At full strength the satisfier carries both poles in its general primitives, applies its dynamics to the theorist’s own theorizing, fixes reference from inside by a natural relation, and rests on a well-defined formal object underneath.

5 The conjecture tier

The net leaves several features underdetermined, and it underdetermines them in two different ways. The granularity at which the intrinsic pole is carried is a genuine open residue, one the net does not lean on either way. A directional reference relation and a derived rather than posited arrow are

Requirement on the account	Forced by (net conditions)	Strength
Both poles; extrinsic pole carried by genuine relations	interiority-by-account + world-side-by-account + honesty + self-inclusion + anchoring	strong for both-poles; genuine-relations form magnetism-conditional; granularity open, per-unit vs. cosmic a symmetric residue
Self-applicable dynamics	self-inclusion + rule uniformity	strong core; fixed-point gloss capped at analogy
Reference by an internal natural relation	anchoring + self-inclusion	strong on the naturalness premise; asymmetry not part of it
Well-defined formal object	well-definedness	inherited from the coherence conditions

Table 2: The requirements a by-account satisfier must meet, each traced to the net conditions that jointly force it. Register: these are conditional necessities on an *account*, not claims about reality. The both-poles requirement’s world-side leg has two supports: the defeasible experience-first tendency for the rich structure, and the anchoring condition, which forces the existence of at least one genuine extrinsic relation. The extrinsic pole is carried by genuine relations, conditional on the naturalness premise about reference; per-unit versus cosmic granularity is left open as a symmetric residue.

parsimony conjectures: a satisfier could realize either more economically than the net requires, and promoting them past what the net forces would import shaping the net does not license. Separating the residue from the conjectures is why all three are held out of the requirement tier.

Per-unit versus cosmic granularity. A base of units each bearing both poles and a base of one cosmic individual bearing both poles both satisfy the both-poles requirement, and the net discriminates between them nowhere. The choice is a symmetric residue. Each granularity owes its direction-fixed individuation debt, combination for the per-unit base and decombination for the cosmic one, and both debts are payable in place with the base’s general resources, both stand historically unpaid, and neither is a proven category exit—the combination debt faces the subject-summing objection and the decombination debt faces the boundary problem, each a hard and contested obstacle short of an impossibility result (Goff, 2017). The net forces neither granularity, and that is the firm result; it rebuts any reading of the argument as forcing per-unit dipolarity. The severity-match between the two debts is a further judgment rather than a result: it rests on reading the subject-summing and boundary problems as balanced, and it leans on the cosmic granularity retaining a worked genuine-relational occupant, so it would tilt toward per-unit if that occupant fell. Per-unit dipolarity is one horn of this residue, and it is left open as such.

Reference as an asymmetry. The internal natural relation that fixes reference might be a directional asymmetry, a settled-against-open polarity, rather than a symmetric relation. The anchoring condition does not force this. Lewisian naturalness is not inherently asymmetric: a symmetric natural relation, a natural metric or a “same charge as” relation, can resist permutation and break the Putnam collapse just as well (Lewis, 1983, 1984). The leap from natural to asymmetric is exactly where a directional architecture would enter a headline requirement if it were not held back, so it is held back. The asymmetry is a conjecture about the reference relation, and it belongs here.

The reference asymmetry and the derived arrow share a shape. Each refines a requirement the net forces only in a weaker form, and each would sharpen the satisfier’s profile toward a single

realization if it held. They sit here rather than in Section 4 because only net-forced features enter the requirement tier. A declared low-entropy boundary condition discharges the arrow slot by an account the net accepts, as Section 2 shows, so deriving the arrow from uniform dynamics is a preference and not a requirement. A satisfier could carry a symmetric natural relation and several distinct asymmetries, could be per-unit or cosmic in its granularity, and could declare a general boundary condition for the arrow, and it would still be a by-account satisfier.

6 The historical occupant and its unpaid bill

The region that forecloses no slot by account is occupied at both granularities, and its more fully developed occupant is worth examining because its strengths and its debt together locate the open problem. Whitehead's event ontology takes the base to be fundamental events, each bearing an intrinsic pole, a for-itself aspect, and an extrinsic pole, an objective aspect available to later events, formed by a directional process in which a new event takes up the settled past into a determinate outcome (Whitehead, 1978).¹ The base carries both poles per unit, so it forecloses neither the interior nor the determinate world by account, and it is the paradigm of the both-poles category rather than a general two-aspect base or a neutral monism (Rescher, 1996). Read against the requirements of Section 4, the system supplies the intrinsic aspect the third-person bases lack and the extrinsic aspect the experience-first bases hold only weakly, and it makes the dynamics self-applicable by treating the theorist's own experience as one more event among events.

The system leaves the last requirement unpaid. Prehension, concrescence, and satisfaction are not given as well-defined mathematical objects: there is no state space, no dynamical law, and no measure under which the process is a construction rather than a description (Whitehead, 1978). The account routes the category makes available are therefore unbuilt, and the debt is the net's well-definedness condition, left standing. The debt differs in kind from the wounds of the foreclosed categories. Those wounds are entailed, fixable only by a category exit, because a third-person base cannot generally derive the intrinsic and pure structure cannot anchor itself whatever else is added. This debt is contingent and fixable in place: nothing in the both-poles category forbids formalization, and the missing object is missing rather than impossible.

The cosmic granularity has its own worked occupant, and it carries the same unpaid bill. Spinoza's one substance under the attributes of thought and extension is a both-poles base at cosmic scale: thought is a genuine attribute, so the intrinsic pole has genuine character, and the finite modes within extension stand in a real causal nexus, so the extrinsic pole is carried by genuine relations rather than by coordinated parallelism (Spinoza, 1677). Spinoza's doctrine of thought and extension matches the order of ideas to the order of things, the same cross-domain coordination Leibniz posits between monads, so the survival does not turn on avoiding parallelism. It turns on where the genuine relations sit. Spinoza's causal nexus runs between finite modes within an attribute, carrying the extrinsic pole with real relations; Leibniz's windowless monads stand in no such relation at all, intra- or inter-monadic, and coordinate only by a harmony external to every monad. The intra-attribute nexus is the genuine-relations carrier, and its absence is what excludes the windowless base. Spinoza's individuation debt runs opposite to Whitehead's, as the derivation of the plural finite modes from the one infinite substance, the decombination direction. Its formal-object bill is unpaid in the same way: the substance, the attributes, and the modal derivation are not given as a state space, a law, and a measure under which the modes are a construction rather

¹The intrinsic/extrinsic gloss compresses Whitehead's own mental-pole/physical-pole distinction, on which the mental pole is conceptual prehension of eternal objects rather than experience simpliciter. The reading here is schematic and carries only the two-aspect structure the argument uses.

than a description. The combination problem of a per-unit base is the mirror debt, an unbuilt derivation of macro-unity from micro-natures rather than an entailed foreclosure (Goff, 2017).

The open problem this poses is a construction, and stating it as a target is the honest form. A base that carries both poles in its general primitives, applies its dynamics to its own theorizing, fixes its reference by an internal natural relation, and—the outstanding piece—rests on a well-defined formal object would occupy the region the foreclosures leave open with the bill paid. The historical occupants show the region is occupiable and show which bill comes due. A formalized both-poles ontology is the construction the region is waiting on, and whether any such construction exists is not a question this paper settles.

7 What the specification does and does not claim

The result is a target specification, in the same register as the net it builds on. It narrows the kind of base a by-account satisfier could have: a base carrying both an intrinsic and an extrinsic aspect in its general primitives, with the extrinsic aspect borne by genuine relations rather than coordinated parallelism, dynamics that govern the theorist’s own operation, reference fixed by an internal natural relation, and a well-defined formal object beneath it. The intrinsic pole is carried at a granularity, and that granularity owes a direction-fixed individuation debt whichever it is; whether the base is per-unit or cosmic is left open as a symmetric residue, the combination and decombination debts matched in severity and neither forced. A directional reference relation and a derived arrow remain the economical way to sharpen that shape rather than further necessities. The narrowing is conditional three times over. It is conditional on the by-account criterion of Section 2, a strengthening of the net that an opponent may decline; on the antecedent that a base take the by-account route on every slot rather than deny its way through some of them; and, for the genuine-relations requirement, on the naturalness premise about reference that a covariational reliabilist can decline, under which the exclusion of windowless parallelism inverts. All three conditions are stated rather than hidden, and the results are held at the strength the conditions earn. Table 3 sets the whole derivation out as a ledger, stage by stage: what each stage demands, where the demand comes from, what it excludes, and the standing each result has earned.

The specification does not certify a satisfier or name one. It shows that the categories occupying most of the current field foreclose some slot by account, that the region foreclosing none is real and has been occupied, and that its worked occupants leave a well-defined formal object as an unpaid bill. It does not show that a base meeting every requirement exists, is unique, or has been found, and a base could meet all of them and still be false or defective in a way not catalogued here. The specification draws a smaller target than the net drew, and a target is not a hit. It reports which kinds of base cannot reach the target by account and what a base that reached it would have to carry, and it leaves the question of whether anything reaches it exactly where a target specification must leave it, open.

TOTAL <i>stipulated target</i>	Quantify over everything; seat the theorists who hold the theory. <i>removes:</i> merely local theories, which exempt their own theorist.
ADMISSIBLE <i>necessary conditions</i> (<i>the net</i> , Wozniak, 2026)	Coherent, anchored, and positioned on all eight structural slots. <i>removes:</i> incoherent, unanchored, or slot-silent candidates.
BY ACCOUNT <i>declared sharpening,</i> <i>declinable (§2)</i>	Every slot discharged from the base’s general primitives—no primitive whose sole job is the slot it closes. <i>removes:</i> nothing; it scopes the question. Denial and declared slot-specific posits remain legitimate discharges outside this paper’s target.
UNFORECLOSED <i>graded per cut (§3)</i>	A fundamental category that closes no by-account route. <i>removes:</i> pure structure (<i>theorem in a stated setting</i>) · third-person and character-free neutral bases (<i>strong, on the gap premise</i>) · experience-first bases, weakly (<i>de-feasible</i>) · windowless parallelism (<i>on the naturalness premise</i>).
THE SHAPE <i>conditional necessities</i> (§4)	Both poles in the general primitives, the extrinsic pole carried by genuine relations; self-applicable dynamics; reference by an internal natural relation; a well-defined formal object. <i>removes:</i> nothing further—the surviving description, each feature traced to the net conditions that force it.
THE RESIDUE <i>open (§§5–6)</i>	The granularity of the intrinsic pole, and the formal object itself. <i>remains:</i> symmetric individuation debts, combination versus decombination · the outstanding construction, its bill unpaid by both worked occupants.

Table 3: The derivation as a ledger, stage by stage. Left, each stage and the standing its result has earned; right, the demand and what it removes from the search space. The strengths are those argued in the sections cited, and nothing here exceeds them; throughout, the claims are conditional necessities on an *account*, never claims about what reality instantiates.

References

- Albert, D. Z. (2000). *Time and Chance*. Harvard University Press, Cambridge, MA.
- Bell, J. S. (1990). Against ‘measurement’. *Physics World*, 3(8):33–40.
- Chalmers, D. J. (1996). *The Conscious Mind: In Search of a Fundamental Theory*. Oxford University Press.
- Dretske, F. I. (1981). *Knowledge and the Flow of Information*. MIT Press, Cambridge, MA.
- Goff, P. (2017). *Consciousness and Fundamental Reality*. Oxford University Press, New York.
- Ismael, J. T. (2007). *The Situated Self*. Oxford University Press.
- Jackson, F. (1982). Epiphenomenal qualia. *The Philosophical Quarterly*, 32(127):127–136.
- James, W. (1904). Does ‘consciousness’ exist? *Journal of Philosophy, Psychology and Scientific Methods*, 1(18):477–491.
- Kant, I. (1998). *Critique of Pure Reason*. Cambridge University Press, Cambridge. Translated and edited by Paul Guyer and Allen W. Wood; originally published 1781/1787.
- Koch, C., Massimini, M., Boly, M., and Tononi, G. (2016). Neural correlates of consciousness: progress and problems. *Nature Reviews Neuroscience*, 17(5):307–321.
- Ladyman, J. (1998). What is structural realism? *Studies in History and Philosophy of Science Part A*, 29(3):409–424.
- Leibniz, G. W. (1714). *Monadology*. Various (originally circulated in manuscript). Translated by G. R. Montgomery.
- Levine, J. (1983). Materialism and qualia: The explanatory gap. *Pacific Philosophical Quarterly*, 64:354–361.
- Lewis, D. (1983). New work for a theory of universals. *Australasian Journal of Philosophy*, 61(4):343–377.
- Lewis, D. (1984). Putnam’s paradox. *Australasian Journal of Philosophy*, 62(3):221–236.
- Maudlin, T. (1995). Three measurement problems. *Topoi*, 14(1):7–15.
- Millikan, R. G. (1984). *Language, Thought, and Other Biological Categories*. MIT Press, Cambridge, MA.
- Nagel, T. (1974). What is it like to be a bat? *The Philosophical Review*, 83(4):435–450.
- Newman, M. H. A. (1928). Mr. Russell’s “causal theory of perception”. *Mind*, 37(146):137–148.
- Putnam, H. (1980). Models and reality. *The Journal of Symbolic Logic*, 45(3):464–482.
- Putnam, H. (1981). *Reason, Truth and History*. Cambridge University Press.
- Quine, W. V. O. (1960). *Word and Object*. MIT Press, Cambridge, MA.

- Rescher, N. (1996). *Process Metaphysics: An Introduction to Process Philosophy*. State University of New York Press, Albany.
- Russell, B. (1927). *The Analysis of Matter*. Kegan Paul, Trench, Trubner & Co., London.
- Spinoza, B. (1677). *Ethica: Ordine Geometrico Demonstrata*. Beneventum, The Hague.
- Stroud, B. (1968). Transcendental arguments. *The Journal of Philosophy*, 65(9):241–256.
- Tononi, G. (2004). An information integration theory of consciousness. *BMC Neuroscience*, 5:42.
- Whitehead, A. N. (1978). *Process and Reality: An Essay in Cosmology*. The Free Press, New York, corrected edition. Originally published 1929.
- Worrall, J. (1989). Structural realism: The best of both worlds? *Dialectica*, 43(1–2):99–124.
- Wozniak, J. (2026). The shape of a total theory: A necessary-conditions net. Zenodo, doi:10.5281/zenodo.21498463.