

One Structure, Inside and Out: Experience as the Content Anchor of Structural Realism

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Abstract

Newman’s objection holds that a theory attributing only structure to the world says almost nothing, since any domain of sufficient cardinality can be arranged to instantiate any abstract structure ([Newman, 1928](#)). Structural realism has answered with Lewisian naturalness, causal reference-fixing, Ramseyan humility, and reformulations that mix non-structural vocabulary into the theory. Each answer fails at a different point: naturalness must posit its anchor, causal baptism supplies no content, humility renders the anchor unknowable, and the reformulations concede that something other than structure carries the content. The Russellian-monist answer—experience supplies what pure structure lacks—is differently placed. Its anchor is given rather than posited, which none of the standard dischargers can say; yet the answer has stayed schematic, because it names no structure. This paper makes the anchor specific. The space of orientations an embodied perspective acts within is $SO(3) \cong \mathbb{RP}^3$, and its fundamental group $\mathbb{Z}_2$ is the topology that spinorial matter registers, exhibited mechanically by the belt trick and as a phase reversal in neutron interferometry. One structure appears on the inside, as the orientation manifold experience navigates, and on the outside, as the double cover governing fermions. A neutral-monist identification stronger than Russell’s takes experiential structure and physical structure to be one structure. So identified, the shared manifold becomes a content anchor: it supplies domain content beyond cardinality and fixes reference ostensively, meeting both faces of the anchoring demand. It is advanced as an inference to the best explanation, argued by comparison with the standard dischargers, and the argument degrades gracefully: a reader who withholds the identification keeps a structural parity that stands on its own.

Keywords: structural realism; Newman objection; Russellian monism; neutral monism; projective geometry; spinors; phenomenology

1 Introduction

Newman’s objection is the oldest standing debt on structural realism’s books. Against Russell’s structuralism about the external world, [Newman \(1928\)](#) observed that a theory claiming only “the world has structure W ,” with W specified up to isomorphism, is satisfied by any collection of objects of the right cardinality; the theory’s content collapses to a claim about how many things there are. Russell conceded the point in correspondence, and the objection lay dormant until [Demopoulos and Friedman \(1985\)](#) revived it against the structuralist realism then re-emerging. It now confronts every version of the position ([Worrall, 1989](#); [Ladyman and Ross, 2007](#); [French, 2014](#)), and the ensuing literature is largely a catalog of proposed discharges ([Ainsworth, 2009](#); [Melia and Saatsi, 2006](#)). Something beyond pure structure must tie a structural theory to the world. The open question is what.

One answer comes from the Russellian-monist tradition: experience supplies what pure structure lacks. Physics describes the relational character of events and leaves their intrinsic character open; experience is the one place that intrinsic character is available; so experience anchors the structure physics describes (Russell, 1927; Alter and Nagasawa, 2015; Goff, 2017). This answer differs from every rival in one respect: its anchor needs no positing, because experience is already there before any theory is written. It has stayed schematic for an equally plain reason: the tradition never says which structure the anchor pins. The thinness is conceded from inside the position—the protophenomenal is “characterized schematically,” awaiting a fuller theory (Chalmers, 2015)—and pressed from outside it, as the complaint that a posit specified only negatively has no positive content (Kind, 2015). “Experience, whatever its character, supplies the intrinsic natures” pins nothing in particular, and an anchor described that thinly discharges the objection by promissory note.

This paper supplies the structure the Russellian answer left blank. The space of orientations an embodied perspective acts within is $SO(3) \cong \mathbb{RP}^3$, and its fundamental group $\mathbb{Z}_2$ is the topology that spinorial matter registers: a fermion’s wavefunction reverses sign under a 2π rotation and returns under 4π , a reversal exhibited in neutron interferometry (Rauch et al., 1975; Werner et al., 1975). The same manifold thus shows two faces—navigated from within as the space an embodied perspective turns through, registered from without in the sign of a fermion’s state. Call this pairing the exhibit: a named manifold, with a named invariant and a named experiment. A neutral-monist identification takes experiential structure and physical structure to be one structure, read from two directions, and under that identification the exhibit becomes the anchor the Russellian answer promised, tied to the world by occupancy instead of description.

The identification is a posit, and the paper argues for it as an inference to the best explanation, by comparison with the alternatives. Section 2 states the anchoring problem and what a discharge requires. Section 3 surveys the responses on offer—Lewisian naturalness, causal reference-fixing, Ramseyan humility, reformulations that deny the demand, and the schematic Russellian anchor—and locates each one’s cost. Section 4 presents the shared structure. Section 5 states the identification, shows how it meets both faces of the anchoring demand, answers the two objections most likely to be pressed against it, and prices the identification against its deflationary rival. Section 6 bounds the claim. Section 7 notes the geometric completion that a realistic reading invites.

2 The Anchoring Problem

The problem has two faces, and a discharge must meet both.

The first face is Newman’s. Specify a structure W purely formally—a set of relations given up to isomorphism—and assert that the world instantiates it. Any domain of the right cardinality can be arranged to do so; the assertion carries no information about the world beyond a count (Newman, 1928; Demopoulos and Friedman, 1985). A structural theory therefore needs its structure tied to reality by something more than cardinality.

The second face raises the same triviality from structure to terms. If the reference of a theory’s central predicates—“physical,” “actual”—is fixed only by the theory’s own descriptive content, then those predicates can be permuted onto deviant extensions with every theorem’s truth-value preserved, and the theory cannot state its flagship distinctions determinately (Putnam, 1980, 1981). The two faces are one demand met at two levels—call it content anchoring: structure must carry more than cardinality, and reference must be fixed by more than descriptive fit. A theory can fail the demand in either way, and a discharge must close both.

The two faces do not exhaust the demand. Whatever anchors the structure must also end the question rather than relocate it. An anchor that is itself specified only theoretically—one more

piece of description—reopens the problem one level down: what anchors the anchor? A discharge is regress-terminating when the anchoring relation holds in the world and not merely in the theory’s text.

3 The Candidates

The literature’s responses divide by where they put the anchor, and one family denies that an anchor is needed.

Lewisian naturalness. The best-developed answer privileges an elite minority of properties and relations—the joint-carving, perfectly natural ones—as the intended interpretation’s anchors (Lewis, 1983). Natural relations give the structure more than cardinality, and reference magnetism pins the central predicates, which is exactly the double duty Lewis assigned the view against Putnam’s paradox (Lewis, 1984). The cost sits at the anchor’s credentials. Naturalness on Lewis’s view is worldly and mind-independent; our access to which relations are natural runs through our best systematization, from inside the description. The realist must therefore posit the elite, and the posit is held in place by the very theory that needs anchoring, so termination is bought on credit: the question returns one level down, at whether the anchors are themselves anchored (Schwarz, 2014; Button, 2013). The discharge is real, and it runs on a regress.

Causal reference-fixing. A baptism ties a term to its referent through a worldly relation (Kripke, 1980), so the anchor is not a piece of posited text. The relation fixes which things the terms pick out and supplies nothing about what the world is like; the structural claim stays formal, and the Newman face stands untouched. Reference without content discharges half the condition.

Ramseyan humility. Lewis’s late position concedes the Russellian diagnosis in full: the Ramsey sentence of a final theory has multiple possible realizers, the realizers are intrinsic properties beyond the theory’s descriptive reach, and we can never know which properties occupy the roles (Lewis, 2009). Lewis offered this as an epistemic thesis; reconstructed here as an anchoring position, it amounts to realism about intrinsic natures joined to a permanent blackout on their identity. The anchor exists, the roles are fully described, and the occupants do no work that distinguishes one structural hypothesis from another.

Denying the demand. A further family rejects the formulation rather than supplying an anchor. If the theory’s vocabulary is not exhausted by pure structure—if observational or otherwise interpreted terms mix into the Ramsey sentence—the triviality theorem no longer applies, and ontic structural realists decline the syntactic setting in which the objection is posed (Ainsworth, 2009; Ladyman and Ross, 2007). The escape is real and carries its own price: the theory’s content is then anchored by its non-structural vocabulary, so structuralism holds everywhere except where the theory touches the world. The demand survives as the question of what anchors that vocabulary, and the answer must come from one of the other candidates.

The Russellian anchor. Russellian monism relocates the anchor to the one place intrinsic character is available without inference: experience. Percepts, Russell held, are the part of the physical world we know otherwise than abstractly (Russell, 1927); the contemporary literature develops the thought as a metaphysics of consciousness (Alter and Nagasawa, 2015; Goff, 2017). On the requirements of Section 2 the position scores in a pattern inverse to its rivals. The anchor needs no positing, because it is already present, so the regress terminates: experience is not held in place by a further piece of theory. The position has lacked specificity. As standardly stated it quantifies over unknown natures much as humility does, with the epistemic sign flipped, and it names no structure that the anchor fixes. An anchor that pins nothing in particular leaves the discharge schematic.

The comparison sets this paper’s task. Naturalness supplies content and posits its anchor; baptism grips the world and fixes no content; humility concedes the anchor and blacks it out; the mixed-vocabulary escape hands the anchoring work to terms whose own credentials then need stating; the Russellian anchor is worldly and given and has stayed unspecific. A discharge that kept the Russellian anchor’s givenness while supplying the specificity it lacks would meet both faces without inheriting any of those costs. The next section supplies the specific structure; the section after it states the identification that puts the structure to work.

4 The Shared Structure

4.1 The Perspectival Datum

Experiential structure is available from the inside, and one feature of it is a clean datum. Every direction in experience radiates from a single origin, and that origin cannot appear as an object within the field it organizes: the viewpoint is structurally present in every ray and experientially absent from all of them. Mach’s self-portrait of the view from one eye records the same fact from the other side—the field is all there, bounded by brow and nose, and the seeing eye itself appears nowhere in it (Mach, 1886). The datum delivers perspectival organization: experience has the structure of a center of projection. It also certifies two credentials the argument will draw on—experiential structure is determinate, and it is first-personally accessible—and both are presupposed when Section 5 makes experience one term of an identity.

4.2 The Projective Model of Experienced Space

The Projective Consciousness Model carries that organization into quantitative form. The PCM models the field of consciousness as a three-dimensional projective space whose transformation group is $\text{PGL}(4, \mathbb{R})$, the group of perspective changes an agent applies to its point of view (Rudrauf et al., 2017; Williford et al., 2018). The model has one published psychophysical application: free-energy-calibrated placement of the projective frame predicts the nonlinear dependence of the Moon’s apparent size on its elevation, fitted against measurements in virtual reality and outperforming a linear model, with the same geometric input covering the Ames-room illusion (Rudrauf et al., 2020). The support is initial rather than settled—the fit awaits independent replication, and the model’s development has remained largely with its originating group—and the projective character of experienced space enters this paper at exactly that strength: a modeling claim about the format of experienced space, with initial psychophysical support. The three-dimensional real projective space the PCM assigns that format is $\mathbb{RP}^3$. A recent formal development within the same modeling program argues that any state sufficient for coherent first-person spatial awareness must have $\mathbb{RP}^3$ format, from postulates about central projection and viewpoint control (Rudrauf and Pansu, 2025). That route runs through perspective geometry rather than the rotation group; coming from the model’s own authors, it extends the program’s case for the format and does not independently confirm it.

4.3 Orientation Space and Its Topology

Embodied experience includes acting in orientations. Turning the head, turning an object in the hand, and bringing a reach around a body sweep experience through the configurations of a frame, and the manifold of those configurations is the rotation group $\text{SO}(3)$. As a manifold, $\text{SO}(3) \cong \mathbb{RP}^3$.

the orientation space an embodied perspective acts within is real projective 3-space, as a matter of elementary geometry.

The manifold’s global topology is its fundamental group, $\pi_1(\text{SO}(3)) = \mathbb{Z}_2$: the loop of one full turn cannot be contracted, and the loop of two full turns can. The belt trick exhibits the invariant mechanically (Misner et al., 1973). A tethered frame turned through 2π holds a twist that no motion of the tether removes while the frame’s orientation is held fixed; after a second full turn, the doubled twist can be undone by exactly such a motion. The same invariant is registered microphysically. Matter is spinorial: a fermion’s wavefunction reverses sign under a 2π rotation and returns under 4π , exhibited as a phase reversal in neutron interferometry (Rauch et al., 1975; Werner et al., 1975). Spinor behavior and belt behavior are one topological fact—spinor states transform under the double cover $\text{SU}(2) \rightarrow \text{SO}(3)$, and the sign rule is $\pi_1 = \mathbb{Z}_2$ registered in matter.

Two features of this $\mathbb{Z}_2$ fix its evidential status. It is background-independent: $\pi_1(\text{SO}(3)) = \mathbb{Z}_2$ is a fact about rotation, the same for an agent in any ambient space, and the belt trick works the same in any room. And it is invisible to introspection: an object turned through 2π looks exactly as it did, and the non-triviality of that loop shows itself only through the frame’s connection to its surround—the tether, or the fermion. The invariant is a structural fact about the orientation manifold experience acts within, established from outside the visual field.

The exhibit can now be stated, with its conjuncts sorted by status. Two are theorems: the orientation manifold an embodied perspective navigates is $\text{SO}(3) \cong \mathbb{RP}^3$, and its $\mathbb{Z}_2$ fundamental group is the double cover that spinorial matter registers. One is a model fit with initial psychophysical support: the manifold the PCM assigns to experienced space is the same $\mathbb{RP}^3$. A deflationary reading of the two theorems should be conceded at once. Orientation space is $\text{SO}(3)$ for any rigid body, and spinors transform under its double cover, so the parity between the turned head and the fermion is two appearances of one mathematical fact about rotation; no coincidence awaits explanation. The concession costs the argument nothing, because the exhibit does referential work rather than evidential work. Where the Russellian literature offers “intrinsic natures” at large, there is now a definite manifold with a definite invariant, present in the structure experience acts in and registered by a definite experiment on matter; Section 5 spends that specificity and asks nothing of coincidence.

5 The Identification

5.1 One Structure, Read from Two Directions

Neutral monism holds that one underlying reality grounds the mental and the physical, with “mental” and “physical” as two readings of it rather than two kinds of stuff; the lineage runs through Mach and James to Russell (Russell, 1921). Russell’s later structuralism gave the position its modern form: physics describes the relational character of events and leaves their intrinsic character open, and the Russellian monists fill the opening with the experiential (Russell, 1927; Alter and Nagasawa, 2015; Goff, 2017).

The identification this paper adopts departs from that form in two ways, and both departures matter. First, Russell kept percept-space and physics-space apart; the identification merges them. Second, the standard Russellian move casts experience as the intrinsic nature *of* an independently described physical structure, one item filling another; the identification here is flatter. Experiential structure and physical structure are one structure, read from inside and from outside, and the orientation manifold of Section 4 is its first named instance: the $\mathbb{RP}^3$ an embodied perspective acts within and the $\mathbb{RP}^3$ whose double cover matter registers are the same manifold; the perspective navigates it, and the matter registers its topology. The PCM stops short of this step—it holds the

projective structure to be a real property of consciousness while keeping percept-space distinct from the ambient physical world—so the identification is this paper’s claim.

5.2 How the Anchor Discharges

Under the identification, the anchoring condition of Section 2 is met on both faces.

The first face is content. Newman’s triviality afflicts structure held by description: any equinumerous domain can be arranged to satisfy “a compact 3-manifold with fundamental group $\mathbb{Z}_2$,” and the theory cannot tell the deviant models from the intended one. The identification changes what the theory contains. Its structural claim now includes an indexical element—the manifold acted in when a head turns, this one—so the claim is no longer held by description alone, and the deviant models no longer satisfy it, since none of them is the manifold occupied. Occupancy is precisely what a specification up to isomorphism lacks. The anchored structure, moreover, has determinate content that physics answers to independently: the $\mathbb{Z}_2$ shows up in the interferometer.

The second face is reference. Permutation arguments trade on reference being fixed wholly by descriptive fit, which any deviant interpretation can match (Putnam, 1980). The identification fixes the extension of “actual” and “physical” ostensibly—this structure, the one had—and ostension from inside the world is a grip that no permutation of descriptive content loosens. Lewis met Putnam’s paradox by letting the world’s own joints constrain interpretation (Lewis, 1984); the identification makes the same move with an anchor that requires no posited elite, because the constraining item is given.

5.3 Two Objections

The first objection presses from structural-realist ground: if what experience contributes is structure, Newman bites again—the proposed anchor is one more instance of the thing that needed anchoring. The objection would be decisive against a descriptive version of the proposal. Had the paper offered “there exists a manifold with such-and-such invariants, and it is experiential,” that offering would be a formal specification like any other, trivially instantiable, anchoring nothing. The anchor is offered in a different mode. Newman’s argument consumes structure presented up to isomorphism; it has no purchase on a structure picked out by acquaintance, because acquaintance is a relation to the instance itself rather than to its isomorphism class. Russell’s own term marks the distinction (Russell, 1911): knowledge by acquaintance is knowledge of the item, where knowledge by description reaches only whatever satisfies the description.

The objection has a sharper form, and the paper’s own Section 4.3 supplies it. What experience presents is local and egocentric; the discriminating content—the global $\mathbb{Z}_2$ —arrives by demonstration and description, since introspection cannot see it. Does the anchoring then revert to description exactly where the anchor becomes specific? It does not, and the reason is the shape of *de re* discovery. Ostension secures the referent; investigation then discovers what the secured item is like. The belt trick is such an investigation, and it is performed within the ostended manifold itself: the turned arm’s configurations are points of the very space in question. The discovery that the ostended orientation manifold has $\pi_1 = \mathbb{Z}_2$ stands to the ostension as the discovery that the ostended stuff in rivers is H_2O stands to “water”: description reports what the anchored item is, and the anchoring never passes to the description. Newman’s triviality consumes theories whose entire grip on the world is descriptive. Here the grip is occupancy, and the description rides on it.

The division of labor should be stated in full. The invariant the investigation discovers is a necessary truth: $\pi_1(\text{SO}(3)) = \mathbb{Z}_2$ holds of rotation in every world, so the discovered property itself carries no contingent information about this one. The contingent content lies elsewhere, in the

fact that this world’s matter is spinorial—that fermions register the double cover—and that fact arrives by physics, as description. The anchor’s contribution is accordingly referential throughout: acquaintance secures which structure the theory’s claim is about, the necessary invariant gives the secured structure its definite identity, and physics supplies the contingent fact that matter answers to it. Content and reference divide this way by design, and the discharge claims no more: the anchor does not manufacture contingent content, it fixes the subject matter the contingent physics is about.

The second objection is Putnam’s own reply to constraint-based answers: any stated constraint is just more theory. “Reference is fixed ostensively” is one more sentence, and a deviant interpretation can reinterpret it along with everything else (Putnam, 1981). Lewis’s diagnosis answers the general form: a constraint that holds in the world constrains interpretation whether or not the theory says so, and only constraints that exist as further text fall to the regress (Lewis, 1984). The experiential anchor holds in the world in the strongest sense available: it is occupied. A version of the worry survives for the paper as a public document, since a text can only describe the acquaintance relation it invokes. The same fact that answers the first objection answers this one from the reader’s side. Every embodied reader holds a token of the anchor; the paper transmits no anchoring relation and instead points each reader at their own instance, which is what an ostensive discharge should be expected to do. The pointing is token by token while the theory’s claim is type-level; the position takes each occupied token to witness the type’s instantiation, and that step is part of the identification’s stated price.

One more ingredient completes the position. Ostension without specificity pins no manifold; “this, whatever it is” is the promissory note the schematic Russellian answer has been living on. The exhibit of Section 4 gives the ostended anchor definite geometric content, and with it the anchor is occupied, specific, and physically registered at once—a combination no candidate in Section 3 matches.

5.4 The Deflationary Rival and the Abductive Ledger

The identification’s cheapest rival grants everything in Section 4 and withholds the identity. On this two-level view, experienced space is a representation; the geometry of a representation need not be the geometry of what it represents; so the orientation manifold’s structure is a fact about the format of one biological model, and the world’s structure remains whatever physics describes. The view is coherent, and it is the default. The psychophysics cannot decide the question, because the same measurements fit both readings. The illusions in the record cut no deeper: the Moon and Ames effects are, on the PCM’s own account, frame-placement effects within the projective format—variation in where the perspective sits in one geometry rather than a divergence between two geometries—so they tell against the identification only on a reading the model itself does not use.

The two positions separate over what the givenness of experienced structure can reach. Under the two-level view, that givenness anchors at most the representation: the one structure we occupy is interior to a model, the world’s structure stays held by description alone, and the Newman problem stands exactly where Newman left it. The identification spends the same givenness on the world. That is the inference this paper draws, and its form is explicitly abductive. The experiential anchor is the only candidate that is given rather than posited; the identification is the single posit under which that anchor reaches the world’s structure; and the position it yields discharges both faces of the anchoring condition at a price its rivals do not better. The rivals’ costs are the ones already tallied in Section 3; the two-level view adds one more, leaving the Newman debt exactly where it stood.

The argument is built as a ladder, and each rung bears weight on its own. A reader who withholds the identification keeps the exhibit: the manifold one published model assigns to experienced space, the manifold of embodied orientation, and the manifold whose double cover spinorial matter registers are one $\mathbb{RP}^3$ —a structural parity across the inside/outside divide that neither the PCM literature nor the Russellian literature states, and one that stands without any metaphysics attached. A reader who grants the identification as an inference to the best explanation gets the discharge: a specific, given, regress-terminating answer to Newman. A reader who takes the identification realistically gets a further consequence, developed in the final two sections: actuality itself has a natural geometric candidate.

6 Bounds of the Claim

The $\mathbb{Z}_2$ is an invariant of orientation space, and the claim must be sized to that fact. Experienced space in the place sense—the manifold of locations the perspectival field is organized around—is a distinct object, and the argument fixes its topology only through a further identification of place-space with orientation-space. That identification is a posit; this paper states it and does not pretend to prove it, and two gaps in it are marked rather than papered over. Diffeomorphism does not identify interpreted spaces: the orientation manifold and the place manifold carry the same abstract geometry, and sameness of abstract geometry is where the posit begins rather than where it ends. And the full configuration space of an embodied agent is the space of rigid motions, $\mathbb{R}^3 \times \mathbb{RP}^3$; the posit selects the rotational factor as the space experience navigates as orientation, and that selection is part of what is posited. The PCM’s practice of representing places and perspectives within one three-dimensional projective space (Rudrauf et al., 2017) makes the posit natural without making it true. On the posit, the geometry of actuality is $\mathbb{RP}^3$; the paper offers $\mathbb{RP}^3$ as the natural realization, never as a deduction. Read at cosmological scale the claim meets an observational literature: matched-circle searches in the microwave background bound the size of any $S^3/\mathbb{Z}_2$ fundamental domain without excluding the topology (Cornish et al., 2004), so the realistic reading is constrained rather than free.

The identification also generalizes from a single region. Experience is one bounded region of actuality, and the conclusion concerns actuality as such. The structures in play are topological, so the region’s scale and content do not enter, but the generalization is a second posit, to be weighed together with the first. The reach of the discharge scales the same way: the anchor fixes actuality’s structure where the anchor sits, and it constrains the rest through whatever determinate relations the rest bears to the anchored region. The formal literature says precisely how far that reaches. A fully Ramseyfied theory is true just when it is empirically adequate and the domain has the right cardinality (Ketland, 2004), and keeping one relation interpreted blocks that collapse only where the theory’s remaining vocabulary is definable from the anchored relation and the observational base. A global discharge therefore demands a theory whose ideology is generated from its anchor; this paper supplies the anchor and states the demand, and meeting it is the completion program’s burden, taken up in the companion work of Section 7.

The identification remains answerable to structure, and the nearest candidate breaker is the paper’s own cleanest datum. Experience has a distinguished origin; $\mathbb{RP}^3$ is homogeneous and has none. The asymmetry dissolves once the origin is located correctly. An experiential episode is the manifold together with an instantiated perspective—in projective terms, a frame—and the marked point belongs to the frame rather than to the space it is a frame on. The identity is claimed for the space; the frame is the occupancy, a worldly instantiation rather than a structural feature of the manifold or a further piece of text. Homogeneous manifolds are exactly the ones in which any point

can carry a frame without the geometry registering the choice, so the datum and the homogeneity fit together instead of colliding. A structural feature of experience that resisted this treatment—determinate, global, and lacking a physical counterpart where the identity requires one—would break the identification.

7 The Geometric Completion

Taken realistically, the identification leaves a determinate follow-on question: what space embeds an $\mathbb{RP}^3$ actuality so that unrealized possibility has geometric content? Geometry has a standard device for enlarging a real space so that it holds more than what is realized: complexification. The imaginary directions at each actual point are the possible-but-unrealized ones, and the involution that negates them marks actuality off. Two classical facts then make the completion unique within the projective family; the restriction to complex projective spaces is itself a choice, of the minimal compact homogeneous setting, and is marked as one. A totally real $\mathbb{RP}^3$ requires complex dimension at least three, and $\mathbb{CP}^3$ alone among complex projective spaces carries $\mathbb{RP}^3$ as the full fixed locus of a real structure; the higher $\mathbb{CP}^n$ contain it only as a lower-dimensional totally real piece. And the involution comes with the space rather than being imposed on it: anti-holomorphic involutions of $\mathbb{CP}^3$ fall into two conjugacy classes, corresponding to the real and quaternionic structures on $\mathbb{C}^4$; one class is fixed-point free—the structure twistor theory puts to work over S^4 (Atiyah et al., 1978)—and complex conjugation τ is up to coordinates the only involution with fixed points, with $\text{Fix}(\tau) = \mathbb{RP}^3$ exactly. Put plainly: once actuality is $\mathbb{RP}^3$ and possibility is asked to surround it, the smallest complex projective space that holds it as its real points is $\mathbb{CP}^3$, and $\mathbb{CP}^3$ supplies exactly one way of marking those real points off.

The fixed locus $\mathbb{RP}^3 \subset \mathbb{CP}^3$ is, in another literature, real twistor space (Penrose and Rindler, 1986); the adjacency is noted as an open connection and nothing here leans on it. A quantitative program that develops the configuration— $\mathbb{CP}^3$ as possibility, $\mathbb{RP}^3 = \text{Fix}(\tau)$ as actuality, and τ -projection as actualization—exists in companion work.¹ Within this paper the completion stands as the direction the identification points once taken realistically; the argument of Sections 2–5 rests on the identification alone.

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¹The Ontology Reference (doi:10.5281/zenodo.20498762) develops the reading conceptually; the Technical Reference (doi:10.5281/zenodo.20497875) carries the quantitative development, reproducible from the open-source framework code (ppm-framework v1.2.0, doi:10.5281/zenodo.20497332).

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