If Teleportation Is Survival, What Separates Everettian Selves?

Personal Identity, Many Worlds, and the Need for Record-Continuity

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Abstract

This paper argues that the philosophical possibility of teleportation creates a neglected pressure point for personal identity in Everettian many-worlds theories. If teleportation can count as survival because it preserves the relevant informational structure of a subject — memories, dispositions, bodily organization, and psychological continuity — then local material continuity cannot be the fundamental criterion of personal identity. But in an Everettian setting, this anti-local implication generates a further problem: if a subject may survive informational reconstruction across *space*, why should branch-location alone determine which future continuation is "the same" subject across *branches*? The paper argues that the two challenges, though structurally distinct — one targeting locality, the other targeting uniqueness of continuation — converge on the same deficiency: neither bare material continuity nor bare informational duplication is sufficient for personal identity. What is needed is a criterion of *record-continuity*: the structured inheritance of memory, access relations, body-schema, environmental embedding, and world-context through which observer-worlds are individuated. This criterion is defined with sufficient precision to distinguish it from standard Parfitian psychological continuity and to handle cases of amnesia, false memory, and accidental duplication that prove difficult for rival accounts. The paper connects this proposal to a record-based ontology and to David Wallace's functionalist reading of Everettian observers, showing where the two accounts agree and where they diverge.

Keywords: teleportation; personal identity; Everett; many-worlds interpretation; Parfit; psychological continuity; record-continuity; observer individuation; philosophy of quantum mechanics; Wallace; record-based ontology

1. Introduction

A familiar philosophical intuition says that teleportation could be survival. If a person is scanned, destroyed, and reconstructed elsewhere with the same memories, dispositions, bodily organization, and functional structure, many philosophers are at least tempted to say that the resulting person is not merely a copy but a continuation. The intuition is controversial, but its force is clear: if what matters in survival is the preservation of the relevant informational and psychological structure, then local material continuity cannot be the ultimate criterion of personal identity.

This paper asks what happens when that intuition is placed inside an Everettian many-worlds framework.

In ordinary teleportation cases, the problem is framed spatially: a subject is here, then a structurally equivalent subject appears there. But Everettian quantum mechanics changes the geometry of the problem. Measurement-like interactions do not merely relocate a subject; they generate multiple future continuations of observer-like structures. These two challenges — spatial relocation without material continuity, and multiplication of continuations without collapse — are structurally distinct, and it is important to keep them apart. The teleportation case poses a challenge to the requirement of spatial locality; the Everettian branching case poses a challenge to the uniqueness of continuation. Yet both challenges expose the same underlying inadequacy in naïve locality-based criteria of personal identity, and both call for the same type of response.

The central question is therefore:

> *If teleportation can be survival because it preserves informational structure, what exactly separates Everettian selves?*

One answer is that each Everettian continuation belongs to a different branch. But this answer is incomplete. A branch-label can classify continuations only if the relevant branches have already been individuated. If identity is grounded in informational continuity rather than local material persistence, then merely saying "this continuation is in this branch" does not explain why branch-location has identity-making authority.

The paper proceeds as follows. Section 2 reconstructs the teleportation intuition and its anti-local implication. Section 3 shows how Everettian branching sharpens the problem, while explicitly noting the asymmetry between the spatial and the branching challenges. Section 4 develops the dilemma between locality and informational continuity. Section 5 argues that bare informational duplication is not sufficient, restructuring the objections to avoid circularity. Section 6 introduces record-continuity with a precise definition of the concept of record and identifies five structural components. Section 7 relates the proposal to Parfitian reductionism and introduces a test case to show where the two accounts diverge. Section 8 explains how the argument connects to Everettian observer individuation, with explicit engagement with Wallace's functionalist account. Section 9 addresses objections. Section 10 briefly identifies two extensions and open questions. Section 11 concludes.

2. Teleportation and the Anti-Locality of Survival

Teleportation thought experiments are useful because they separate personal identity from ordinary spatial continuity. In the simplest version, a person enters a machine; the machine records the complete relevant structure of the person; the original body is destroyed; an exactly corresponding body is reconstructed elsewhere. The resulting individual wakes up with the original person's memories, dispositions, projects, fears, skills, bodily habits, and sense of self.

One possible answer to the survival question is no. The original person dies, and a copy appears elsewhere. This view treats local material continuity, or at least some continuous physical process, as necessary for survival. It has intuitive force, especially because duplication cases threaten identity: if two perfect continuations are created from a single

original, they cannot both be numerically identical to the original under classical one-one identity.

But another answer is also powerful. If the reconstructed individual has exactly the same psychological, bodily, and functional organization as the original, then rejecting survival appears to require assigning special metaphysical weight to the continuity of particular matter or location. Yet ordinary biological life already undermines that weight. The matter composing a body changes substantially over years. Memory, personality, and embodied continuity are maintained through ongoing processes of cellular replacement and neural reorganization. If those local processes can preserve survival, it is not obvious why a non-local reconstruction should fail merely because the continuity is spatially discontinuous.

The teleportation intuition therefore carries an anti-local implication:

> *If teleportation is survival, then local material continuity is not the fundamental criterion of personal identity.*

This does not mean that spatial location is irrelevant in every practical sense. Local continuity is normally the way that record-continuity is preserved: it stabilizes memory, bodily organization, social recognition, environmental embedding, and causal history. But the teleportation intuition says that local continuity is instrumentally important without being metaphysically fundamental. The relevant structure is informational and record-based. What matters is not that the same atoms travel continuously through space, but that the organized system capable of sustaining memory, agency, embodiment, and first-person continuity is preserved.

This already moves personal identity away from substance and toward structure. But once that move is made, a new problem appears. If survival depends on informational structure rather than local continuity, what prevents multiple structurally adequate continuations from being equally valid? This problem is familiar in duplication cases. Everettian many-worlds theory generalizes it — but in a distinctive way that requires careful handling.

3. Everettian Branching and the Multiplication of Continuations

In an Everettian framework, the universal quantum state evolves unitarily. There is no special physical collapse. Measurement-like interactions produce decohering structures that can be described as branches, each containing observer-like systems with definite records relative to that branch. The observer does not experience a superposition of outcomes; each post-measurement branch contains a record of one outcome, relative to the observer-like system within it.

This framework shifts pressure onto individuation. What exactly counts as a branch? What counts as an observer? And, for present purposes, what counts as the continuation of a subject?

The teleportation argument sharpens this pressure, but it is important to register first how the two cases differ. Teleportation and Everettian branching pose related but asymmetric challenges:

The teleportation challenge targets *spatial locality*. A single subject-stage at location L is reconstructed at L′. The question is whether spatial discontinuity undermines identity. There is one output.

The Everettian challenge targets *the uniqueness of continuation*. A single pre-measurement subject-stage generates multiple post-measurement continuations, each preserving the pre-measurement record-structure while diverging in outcome-record. The question is not about spatial gaps but about one-to-many identity.

These challenges are not identical. One could coherently hold that teleportation is not survival while accepting that Everettian branching creates genuine multiple continuations. What links them is that both cases resist any simple appeal to local material persistence as a criterion. The teleportation case shows that local continuity is not necessary for survival (if one accepts the intuition); the Everettian case shows that it is not sufficient to privilege one continuation over another on purely spatial-positional grounds.

If one rejects teleportation as survival, one can insist that personal identity requires a continuous local trajectory, and then treat Everettian continuations as descendants or counterparts rather than genuine survivors. But if teleportation is accepted as survival, this conservative move is blocked. One has already conceded that local continuity is not fundamental. The subject can survive reconstruction elsewhere if the relevant structure is preserved. But then it becomes unclear why Everettian branch-location should carry special identity-making authority.

The asymmetry must be acknowledged, but it does not dissolve the problem. Rather, it sharpens the demand for a criterion that can handle both: something that explains what makes a continuation count as a continuation of this subject, whether across a spatial gap or across a branching in the universal wavefunction. That criterion, I will argue, is record-continuity.

4. The Dilemma: Locality or Informational Continuity

The teleportation argument can be stated as a dilemma for theories of personal identity.

Option A: Locality is fundamental

If locality is fundamental to personal identity, then teleportation is not genuine survival. The original subject does not survive because the locally continuous physical process is interrupted. At best, teleportation creates a successor, copy, or psychological descendant.

This option preserves a clean distinction between ordinary survival and teleportation. It also provides a conservative constraint on Everettian branching: continuations may be physically related but not all equally survival-relevant, because the locally continuous branch constitutes the "real" continuation.

The cost is metaphysical. The view must explain why local continuity has fundamental identity-making power. If the same psychological and functional structure can be reconstructed elsewhere, what exactly is added by the uninterrupted local path? If the answer is "the same body" or "the same matter," the view must explain why bodily matter matters

more than structure, memory, agency, and functional organization — particularly given the ongoing material replacement of the living body.

Option B: Informational continuity is fundamental

If informational continuity is fundamental, then teleportation can be survival. The preservation of the relevant organization is what matters, not the continuous travel of matter through space.

This option fits the intuition that personal identity is not a primitive substance but a pattern of psychological, bodily, and functional continuity. It also fits a broadly physicalist picture in which minds are realized by structures rather than by immaterial souls.

The cost is multiplication. If one informationally adequate continuation is survival, why not two? If teleportation can preserve the subject across space, why cannot Everettian branching preserve multiple continuations across branches? Once local continuity is demoted, branch-location alone cannot do the work of identity.

Thus:

> *If locality is fundamental, teleportation is not survival. If informational continuity is fundamental, Everettian selves cannot be separated by locality or branch-position alone.*

The paper's proposal is that both options are incomplete. Locality is too strong; bare informational continuity is too weak. The missing criterion is record-continuity. Before introducing it, however, it is necessary to show in more precise terms why bare informational duplication fails.

5. Why Bare Informational Duplication Is Not Enough

One might think the solution is simply to identify personal continuation with informational duplication: wherever the relevant pattern is preserved, the subject survives. But this is too coarse.

Bare informational duplication faces two independent problems. A third consideration, which will emerge as the positive motivation for record-continuity, is kept distinct to avoid circularity.

5.1 The Overgeneration Problem

If any sufficiently similar informational structure counts as a continuation of a subject, then remote duplicates, accidental reconstructions, or configurations that happen to reproduce the same information — including Boltzmann-brain-like formations — would in principle qualify as continuations. This makes identity too cheap. Identity must be more selective than mere structural similarity.

5.2 The Embedding Problem

A subject is not merely a memory-file or abstract pattern. A subject is embodied, environmentally situated, socially embedded, and temporally organized. Two individuals could, in principle, have qualitatively identical internal information states while existing in radically different contexts — different bodies, different environments, different social relations. Pure informational duplication that ignores this contextual dimension fails to capture what we care about in survival. A continuation is not merely a pattern that resembles an earlier person from the inside; it is an organized system embedded in a world that is, in relevant respects, continuous with the world of the earlier person.

These two problems show that informational duplication is not sufficient for personal continuation. But they do not yet specify what is missing. The positive answer comes from attending to the structure of records.

6. Record-Continuity as a Criterion of Survival

6.1 What Is a Record?

Before defining record-continuity, it is necessary to define the concept of a record with enough precision to do philosophical work. A record, as used here, is:

> *A physically or informationally stabilized asymmetric dependency between two system-states, such that later states of the record-bearing system carry a reliable structural trace of earlier states, and such that this trace can constrain future access, interpretation, or action by the record-bearing system or by systems standing in the appropriate access relations to it.*

Several features of this definition deserve attention. First, a record is an asymmetric dependency: the trace points backward in time in the sense that the structure of the record reflects the structure of the earlier state, not vice versa. This is what distinguishes a record from a mere correlation. Second, a record must be stabilized — it must persist long enough and reliably enough to be accessible. A momentary fluctuation that happens to encode earlier information does not count. Third, a record must be accessible: it must be able to constrain future access or action. A stabilized trace that is permanently inaccessible to all systems does not function as a record in the relevant sense.

This definition distinguishes records from bare information. A neural trace that reliably encodes an earlier experience is a record. A superficially similar trace produced by random neural noise is not, even if it happens to resemble an earlier experience in its information content. What matters is the causal and structural history by which the trace came to encode what it encodes.

It also explains why records are not merely internal. Environmental traces — a note written in a diary, a scar on the body, a shared recollection confirmed by a friend, a document archived in an institution — are records in the same sense. They are stabilized asymmetric dependencies that can constrain future access and action. Personal identity is carried partly by these external records, not only by internal neural states.

6.2 The Definition of Record-Continuity

With this in hand, record-continuity can be defined as follows:

> *A future subject-stage S2 is a continuation of an earlier subject-stage S1 to the extent that S2 inherits, preserves, and updates the structured records that make S1 accessible as its own past within a coherent world-context.*

This definition has five structural components.

6.3 Memory

Memory is central but not sufficient. A subject must inherit internal records that present earlier experiences as its own past. But as Section 6.6 below illustrates, memory alone can be false, externally implanted, contextless, or causally disconnected from the events it purports to represent. It must be supported by the broader record structure.

6.4 Body-Schema

Personal continuity is embodied. A subject normally inherits bodily organization, sensorimotor expectations, affective dispositions, skills, and a body-schema. Teleportation that preserves memory while radically disrupting embodied organization would preserve less of the subject than one that preserves the full embodied structure. The body is itself a record-bearing system: its posture, dispositions, wounds, and capacities carry stabilized traces of a history.

6.5 Access Relations

A subject is defined partly by what it can access: memories, perceptions, tools, social relations, environmental affordances. Continuity requires the preservation of enough access relations to make the future stage a coherent continuation rather than a disconnected duplicate. This is why a perfect informational copy placed in a radically impoverished environment — with no access to the records that constituted the original subject's world — would be a poor continuation, even if the internal information content were identical.

6.6 Environmental Embedding

A subject does not exist in isolation. Its records are distributed across an environment: rooms, documents, devices, other people, institutions, scars, traces, and causal consequences. A continuation inherits a world, not merely a brain-state. Environmental embedding is not merely instrumental; it is partly constitutive of the record-bearing system that the subject is.

6.7 Update Structure

Continuity is not static preservation. A subject continues by updating records: integrating new experiences into the existing record structure, adjusting the body-schema in response to new situations, maintaining coherent access to an evolving environment. A future stage must not only contain the past; it must be capable of incorporating new records into the same ongoing structure. A system that merely stores old records without the capacity to update them is not a continuation but an archive.

6.8 Record-Continuity and Branching

These components jointly explain why survival is neither all-or-nothing in the simplistic sense nor arbitrary. It depends on the degree of preservation of a structured record-bearing system.

In branching cases — whether from teleportation-duplication or Everettian measurement — both post-branch stages inherit the same prior records up to the point of divergence. After divergence, they begin to accumulate distinct update-records and become increasingly distinct continuations. There is no need to force one continuation to be the unique "real" subject, nor is there a need to say that identity has vanished completely. What persists is a branching record-relation: a partial overlapping of record-histories that diminishes as the branches accumulate distinct records.

7. Relation to Parfit and the Case of False Memory

Derek Parfit famously argued that personal identity may not be what matters. What matters is psychological continuity and connectedness, with the right kinds of causal relations. Teleportation and duplication cases play a central role in weakening the intuition that identity must be a further fact beyond these relations.

The present argument is broadly sympathetic to that reductionist pressure. It accepts that strict numerical identity may be the wrong tool for thinking about survival across complex transformations, and that duplication cases reveal the fragility of one-one identity.

However, record-continuity is not merely a naturalistic restatement of Parfitian psychological continuity. The two views diverge in verdicts on cases that Parfit's account handles poorly.

7.1 The Test Case: Authentic vs. Implanted Memory

Consider two subjects, A and B, who are phenomenologically and functionally indistinguishable at time t2. Both believe they spent their childhood in Florence; both have vivid, internally coherent memories of specific streets, smells, and events; both have the same emotional responses and bodily associations connected to those memories.

The difference: A's memories are veridical. They were formed through genuine childhood experiences in Florence, transmitted through the normal biological processes of memory consolidation, and are corroborated by photographs, by the testimony of family members, and by the physical environment of the city. B's memories were implanted at t1 by an external process that produced phenomenologically identical states without any causal connection to actual experiences in Florence.

On a pure Parfitian account — where what matters is psychological continuity and connectedness with the right causal relations — the relevant causal relations are those between memory-states and earlier psychological states. But Parfit's account does not clearly specify how far the causal requirement extends: it standardly requires that memories be causally connected to earlier psychological states of the subject, but it does not systematically require that those states themselves be connected to the external world in the structured way that records require. If the implanted memory is causally produced by the implanting

mechanism, and the implanting mechanism was caused to produce it in the way it did by some information about Florence, there is a causal chain linking B's present memory to something external.

On the record-continuity account, the verdict is sharper. A's memory satisfies the conditions for record-continuity: it is a stabilized asymmetric dependency on earlier states of the same record-bearing system, corroborated by external records, and integrated into a world-context that is continuous with the world in which those earlier states occurred. B's memory does not satisfy these conditions: it lacks the stabilized causal history from the subject's own earlier states, it is not corroborated by the external record-structure, and it is disconnected from the world-context it purports to represent.

The practical difference: record-continuity implies that A has a stronger form of personal continuity with the child who lived in Florence than B does, even if their present psychological states are identical. This is not merely a claim about the causal origin of memories, but about the structured integration of those memories into a coherent record-bearing system. The record-continuity account thus licenses the intuition, which Parfit's account struggles to capture clearly, that the causal history of memory matters in a richer sense than simple psychological connectedness.

7.2 What Matters Revisited

The record-continuity view does not, however, restore a metaphysical ego. It accepts Parfit's deflationary conclusion that there is no further fact about identity beyond the relevant relations. What it adds is a specification of what those relations must be made of: inherited records, access relations, embodied organization, and world-context. The question is not only:

> *Is identity what matters?*

but also:

> *What individuates the continuations that matter?*

Record-continuity specifies the structure of that individuation without appealing to a substantial self. This matters especially in Everettian settings, where any sufficiently permissive criterion of continuation would make the individuation problem unmanageable.

8. Everettian Selves, Observer-World Individuation, and Wallace's Functionalism

Everettian quantum mechanics removes collapse but does not automatically solve the problem of observer individuation. If all outcomes occur in the universal state, then the experienced definiteness of an outcome must be explained by the structure of records available to an observer-like system within a particular branch.

8.1 Wallace's Functionalist Account

David Wallace's influential treatment of Everettian observers in The Emergent Multiverse develops a broadly functionalist account. On Wallace's view, observers and their continuations are individuated by functional organization: what makes a post-measurement system an observer is that it realizes the relevant functional roles — perception, memory, agency — relative to a decohered branch. Branches themselves are not fundamental ontological structures but emergent patterns in the universal wavefunction, individuated by the functional organization of the physical systems they contain.

The record-continuity account is sympathetic to this emergentist and functionalist orientation. It agrees that observers are not primitive substances and that branches are not pre-given containers. However, it departs from pure functionalism in one significant respect: functional organization is not, by itself, sufficient for observer-world individuation.

Two systems could realize the same functional organization — the same computational and causal role structure — while differing in their record-histories. A newly instantiated system that happens to realize the functional organization of an experienced observer does not thereby inherit the record-continuity of that observer, even if its functional profile is identical. What is missing is the stabilized causal history: the asymmetric dependencies on earlier states of the same system, the corroboration by external records, and the integration into a world-context that is genuinely continuous with earlier stages.

In short: functional organization individuates the type of observer; record-continuity individuates the token — this continuation, rather than merely a continuation of this type.

8.2 Record-Structure and Branch Individuation

This has implications for how branches are individuated in an Everettian framework. On the record-continuity view, branches matter because they contain stable, non-interfering record-structures, not because branch-labels are primitive identity-makers. A branch is individuated — from the first-person perspective of an observer within it — by the structured set of records that make one outcome accessible as actual and all other outcomes inaccessible as actual within that observer's world-context.

Decohering branches are not mere coordinate systems in the universal state. They are physical structures that support the inheritance and update of records. The reason post-measurement observer-stages in different branches do not share an identity is not that they bear different branch-labels, but that they have accumulated incompatible record-structures: each inherits a definite outcome-record that the other does not.

This is where the record-continuity criterion does work that branch-labels alone cannot do. It explains not just that the continuations are distinct, but why: they have diverged in the record-structures that constitute their respective world-contexts.

The account can be summarized in the following schema:

> *If teleportation is survival, personal identity cannot be fundamentally local. If Everett is true, personal identity cannot be single-threaded. If records individuate experience, continuity must be record-based. Observer-worlds are constituted by stable record-structures, and personal continuation is the inheritance and update of those structures across time.*

9. Objections and Replies

Objection 1: Teleportation is not survival

One may reject the first premise. If teleportation is merely death plus copying, then the anti-local implication disappears, and the Everettian problem can be handled conservatively.

Reply: The paper does not require universal agreement that teleportation is survival. Its claim is conditional: if one accepts teleportation as survival, or even treats it as philosophically non-trivial, one incurs pressure in Everettian settings. The argument is diagnostic — it shows what commitments are in tension — rather than dogmatic.

Objection 2: Everettian branching is not like teleportation

Teleportation involves reconstruction at another spatial location; Everettian branching involves decoherence within a universal wavefunction. The physical processes differ fundamentally, and so does the structure of the challenge.

Reply: Agreed — and Section 3 explicitly distinguishes the two challenges. Teleportation targets spatial locality; Everett targets uniqueness of continuation. The argument does not claim the cases are physically identical. It claims that both challenges expose the same inadequacy in naïve locality-based criteria, and that both are answered by record-continuity: in the teleportation case, by showing that record-inheritance can cross a spatial gap; in the Everettian case, by showing that distinct record-structures individuate distinct observer-worlds.

Objection 3: Branches already distinguish the selves

The selves are distinguished simply by being in different branches. No further criterion is needed.

Reply: This reply is available only if branch individuation is itself presupposed rather than explained. The question the paper is addressing is precisely what makes branches, observers, and outcomes distinct in the relevant sense. A record-based answer provides that explanation: branches matter because they contain stable, non-interfering record-structures. Appealing to branch-labels as primitive identity-makers pushes the problem back a step without resolving it.

Objection 4: Record-continuity is vague and admits no precise threshold

How many records must be preserved? Which records are relevant? Is there a sharp threshold between survival and non-survival? Without answers to these questions, the criterion is too indeterminate to do philosophical work.

Reply: This is the most serious objection and deserves a careful response. Three points can be made.

First, vagueness is not unique to record-continuity. Psychological continuity, bodily continuity, memory, and ordinary personal identity are all graded and threshold-sensitive in practice. Any theory that makes survival turn on degrees of continuity will face analogous questions. The advantage of record-continuity is not that it eliminates vagueness but that it makes the relevant dimensions explicit: memory, embodiment, access, environmental embedding, and update capacity. A rival theory that avoids these questions does so by ignoring the phenomena, not by solving them.

Second, the criterion is not without structure. It identifies five components, each of which can be assessed independently. A case where all five are fully preserved is unambiguously a case of strong continuation. A case where all five are wholly absent is unambiguously not. The difficult cases are intermediate, but intermediate cases are genuinely difficult cases for personal identity — not artefacts of a defective criterion.

Third, and most importantly: the graded character of record-continuity is not a theoretical defect but a theoretical virtue. It correctly captures the structure of survival-relevant relations. In gradual-replacement cases, in cases of severe amnesia, in cases of prolonged coma, and in cases of psychological transformation over time, our intuitions about survival are themselves graded and uncertain. A criterion that issues a sharp verdict in every case is not more accurate; it is less sensitive to the actual structure of the phenomenon.

Objection 5: This abandons numerical identity

If multiple continuations can inherit the same prior subject-stage, strict numerical identity seems lost. Personal identity collapses into a vague relation of degrees.

Reply: That may be the correct result in branching or duplication cases. In such cases, classical one-one identity may be the wrong relation to apply. What matters is not preserving an indivisible ego but understanding the structure of continuation. Record-continuity provides such a structure without requiring a primitive self-substance. The loss of strict numerical identity in edge cases is not a defect of the theory but a reflection of the genuine philosophical situation revealed by those cases.

10. Two Extensions and Open Questions

The record-continuity account opens onto several further questions that cannot be fully addressed here, but which indicate the productive scope of the proposal.

10.1 Severe Amnesia and Degraded Continuity

A subject with severe anterograde amnesia — for example, someone with a condition analogous to the celebrated case of H.M. — has a dramatically impaired update structure. New experiences are not integrated into the ongoing record-bearing system; the capacity to form new accessible records is lost. The record-continuity account implies that this constitutes a genuine degradation of personal continuity over time, not merely a practical disability. Each day, the subject continues in the dimensions of embodiment, environmental embedding, and retained prior memory, but the update structure that would normally extend those records forward is severed.

This is both a test and a resource for the account. It is a test because the implication may seem counterintuitive to those who hold that personal identity is all-or-nothing; but the intuition of gradual dissolution is in fact widely shared in clinical and philosophical reflection on severe amnesia. It is a resource because it shows that record-continuity can be deployed to distinguish different types and degrees of identity-relevant impairment, which no simple psychological-continuity criterion can do without additional machinery.

10.2 Social Records and Intersubjective Embedding

The environmental embedding component of record-continuity gestures toward a dimension that deserves more systematic treatment: the social constitution of personal records. A subject's identity is partly carried by records held by others — by the testimony of friends and family, by institutional archives, by the shared memory of communities. This is not merely a practical point about what helps us remember who we are. It is a structural point about the record-bearing system: the system is partly distributed across social and institutional structures.

This opens a connection to work in social epistemology and testimony (Burge, Lackey) on the intersubjective conditions of knowledge and self-knowledge, and to debates in philosophy of mind about extended cognition. A fully developed account of record-continuity would need to specify how social and institutional records contribute to the individuation of observer-worlds, and how disruption of those social records — through ostracism, displacement, or institutional erasure — affects personal continuity. These questions remain open.

11. Conclusion

Teleportation and many-worlds theory appear at first to belong to different philosophical domains. Teleportation is a thought experiment about personal identity; Everettian branching is an interpretation of quantum mechanics. But they converge on the same pressure point: the inadequacy of naïve locality as a criterion of personal continuation.

The paper has argued for three main conclusions. First, the teleportation intuition carries an anti-local implication: if survival is possible across spatial discontinuity, then local material continuity is not the fundamental criterion of identity. Second, this anti-local implication cannot be straightforwardly extended to Everettian branching without acknowledging the asymmetry between the two cases: teleportation challenges spatial locality, while Everett challenges uniqueness of continuation. Both challenges, however, expose the same underlying deficiency in locality-based criteria. Third, the appropriate response to both challenges is record-continuity, a criterion that is stronger than bare informational duplication and more precisely defined than standard Parfitian psychological continuity.

The record-continuity criterion defines survival in terms of the structured inheritance of stabilized asymmetric dependencies — records — that make earlier subject-stages accessible as one's own past within a coherent world-context. It identifies five components (memory, body-schema, access relations, environmental embedding, update structure) and shows how they jointly individuate observer-worlds. It diverges from Parfitian psychological continuity in cases of implanted memory and other cases where the causal-historical structure of record-

bearing matters beyond mere phenomenological or functional equivalence. It engages with Wallace's functionalist account of Everettian observers by adding a token-individuation criterion — record-history — to the type-individuation criterion that functionalism provides.

The deeper lesson is that personal identity is not fundamentally a matter of where a subject is located in space or in the branching structure of the universal wavefunction. It is a matter of what records are inherited, how they remain accessible, and which world-context they continue to generate. A subject is not a substance carried through time; it is a record-mediated continuity among stages. In ordinary life, this continuity appears stable and local because records are inherited along a stable biological and environmental path. In teleportation, the same continuity is displaced across space. In Everett, it is displaced — and multiplied — across branches.

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Note on AI Assistance

This draft was developed through extensive interaction with AI systems used for organization, criticism, formulation, and editorial refinement. The central philosophical framing, argumentative direction, and final responsibility remain the author's.