

Subject Co-Formation in Volunteer Relations: A Preliminary Generative Relational Metaphysics

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Abstract

This paper develops a preliminary Generative Relational Theory (GR) account of subject co-formation in volunteer and support relations. Earlier papers in the programme represent focal participants as history-bearing subject-spacetimes and provide model-relative rules for tracking them across relational change. Those constructions permit substantial reconfiguration while deliberately leaving open a harder metaphysical question: when does a change in role, expectation, reputation, capacity, value orientation, practical possibility, self-reconstruction, or boundary condition count as a transformation of the subject rather than merely a change in a relation incident on a continuing subject? The present paper makes that distinction its central object. Subject persistence is separated from constitutive equivalence, and subject co-formation is treated as a historically situated, relation-generated reorganization of retained subject structure under an explicitly declared diagnostic. Co-formation need not be symmetric, beneficial, consensual, simultaneous, or permanent. It can include learning, expanded agency, internalized role structure, dependency, narrowed practical horizons, transformed evaluative repertoires, altered self-reconstruction, resistance, reopening, and the mediation of subject change through third positions or publics. Ontological reality remains suspended. Positive claims concern relational reality, historically variable manifestation, and subject-relative epistemic reconstruction, which remain distinct throughout the analysis. The paper develops a typed framework for subject-constitutive dimensions, persistence and reidentification, relational provenance, practical-horizon change, value migration, capacity transformation, role-position reorganization, mediated recognition, asymmetric co-formation, path dependence, and later revision. The intended contribution is a model-relative criterion for discussing subject reconstitution without reducing persons to static attribute bundles, dissolving subject distinction into relation, or treating every relational effect as metaphysically constitutive.

Keywords: subject co-formation; Generative Relational Theory; relational metaphysics; subject persistence; volunteer relations

Discussion Note

This manuscript is Paper III of the GR volunteer/aid research programme. Papers I and II developed dyadic and triadic formal foundations for volunteer relations, including history-bearing subject representations, three-level reality, manifestation and epistemic reconstruction, action provenance, relational positions, recognition, publicness, standing, asymmetry, historical revision, and model-relative subject tracking. Those papers intentionally stopped short of specifying when relational reconfiguration amounts to a stronger transformation of the subject itself.

Paper III takes that deferred question as its principal research object. The working problem is not whether relations influence subjects in a generic sense. The stronger problem is how a formal-relational analysis can distinguish an incident change in a subject's surroundings from a subject-constitutive reorganization while preserving historical continuity, subject distinction, representational humility, and revisability. The paper therefore examines subject persistence, practical horizons, value orientation, generative capacities, self-reconstruction, boundary conditions, role-position histories, mediated recognition, and path-dependent reidentification.

The inquiry remains metaphysical in a deliberately limited sense. It investigates the conceptual conditions under which subject reconstitution can be represented within GR; it does not claim access to an ultimate ontology of persons. Ontological reality remains suspended. Relational reality and manifestation reality remain distinct, and subject-relative reconstructions remain epistemic objects rather than an additional reality level. Psychoanalytic, aesthetic, normative, political-economic, and large-scale historical interpretations are reserved for later papers except where a minimal interface is required to define the subject-formation problem.

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Notices

Status. This discussion paper is an early working manuscript in the wider GR volunteer-relations programme. At the present checkpoint, the manuscript contains the programme-level design and complete first drafts of Sections 1–25. The proposed distinctions among subject persistence, relational modification, local state variation, retained structural reconfiguration, constitutive transformation, and subject co-formation remain preliminary and are expected to be refined through whole-manuscript synchronization, notation audit, empirical stress testing, and later programme-level backward revision. Circulation at this stage does not constitute peer review, empirical validation, normative settlement, or a claim about ultimate subject ontology.

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Statement on the use of language models. The exploratory discussions and preparation of this paper involved OpenAI’s ChatGPT. ChatGPT supported exploratory dialogue, formal reconstruction, argumentative criticism, drafting in $\text{\LaTeX}$, and compilation and consistency checks. External scholarly references will be verified from online sources before insertion. The author selected the research questions, directed and approved the theoretical commitments and epistemic status of the claims, and bears sole responsibility for the manuscript, including its definitions, formal constructions, arguments, conclusions, and errors. Authorship credit remains with the human author.

1 Introduction

Volunteer and support relations can alter more than the distribution of resources, information, opportunities, or obligations between otherwise fixed participants. Repeated interaction can change what a subject notices, expects, values, can do, can refuse, can imagine as possible, can recognize in another, and can recognize in itself. A person who repeatedly supports others can acquire competencies, obligations, reputational positions, practical routines, evaluative distinctions, and self-understandings that were absent at the beginning of the relation. A person receiving support can acquire new capacities, become dependent on a particular route, resist a socially stabilized recipient position, internalize or reject an attributed vulnerability, revise expectations concerning others, or enter practical possibilities that were previously inaccessible. Third parties and publics can intensify these processes by translating conduct, certifying roles, circulating reputations, authorizing procedures, or stabilizing interpretations that later return to the focal participants as part of their relational environment. The metaphysical problem is therefore not exhausted by saying that subjects change over time. The stronger question concerns the conditions under which historically generated relational change warrants a claim about transformation of the subject itself.

The present paper develops a preliminary Generative Relational Theory (GR) account of that problem. Its role in the wider volunteer/aid research programme is to move from the formal tracking of history-bearing subjects to a more substantively committed account of subject reconstitution. Papers I and II were designed to make this step possible without deciding it in advance. Paper I represented A and B as history-bearing subject-spacetimes inside a coupled relational configuration, distinguished subject identity from supporter/supportee positions, and introduced an application-relative tracking relation that can preserve a focal subject label across substantial structural reconfiguration. Paper II extended this architecture to triadic relations, including third-position histories, recognition, reputation, mediation, distributed action provenance, role ecology, and historical revision. Those foundations can record that a tracked subject has changed. They intentionally do not yet establish which changes are merely incident on a subject and which are sufficiently constitutive to justify the stronger language of subject formation or reconstitution.

That distinction is the central analytical burden of Paper III. A change in role does not by itself establish a new subject configuration. A changed reputation may reorganize how others approach A without

yet reorganizing A's own practical possibilities or retained subject structure. A new skill can be acquired while most of the subject's practical horizon remains stable. Conversely, an apparently modest relational event can become historically constitutive when it changes which continuations are available, which values can be articulated, which dependencies structure later action, how the subject reconstructs its own history, or which criteria later permit the subject to be reidentified. The relevant distinction therefore cannot be reduced to the magnitude of an observable event. It concerns the organization, persistence, provenance, and later efficacy of change within a history-bearing subject model.

The paper uses *subject co-formation* for the stronger relational problem. The term does not presuppose that two subjects change equally, simultaneously, voluntarily, or beneficially. It also does not imply that subjects are dissolved into one relation or that every interaction generates a new subject. Co-formation names a class of historically situated processes in which a relation contributes to the reorganization of retained subject-constitutive structure, potentially for one participant, several participants, or a subject whose later configuration is mediated through third positions and wider relational fields. The prefix "co-" therefore refers to relational genesis rather than to symmetry. A support relation can co-form A more strongly than B, can expand one subject's practical horizon while narrowing another's, can generate capacities together with dependencies, and can remain subject-forming even when the participants evaluate the process differently.

This formulation requires a first distinction between *tracking* and *constitution*. Papers I–II already use historical tracking relations to state when a model continues to refer to an earlier and later configuration under the same focal subject label. Tracking permits persistence without structural stasis. That flexibility is necessary because a person can learn, age, acquire obligations, revise roles, change institutional positions, or reorganize relationships while remaining the subject whom the model tracks. Paper III adds a different question. Given that the model continues to track subject *i* across two stages, are the earlier and later retained subject configurations equivalent under the subject-constitutive diagnostic relevant to the research question? A negative answer to that question can indicate substantial reconfiguration without requiring the model to declare that the earlier and later participants are numerically different persons. Subject persistence and subject reconstitution can therefore coexist.

The separation between tracking and constitution also prevents a binary metaphysics in which the only alternatives are complete identity and complete replacement. Volunteer relations frequently generate intermediate historical structures. A subject can preserve embodied continuity, legal identity, memory, or institutional recognition while undergoing major reorganization in practical capacity, value orientation, role identification, or social boundary. Another subject can retain similar manifested behavior while the relational provenance and practical significance of that behavior change substantially. Paper III accordingly treats subject reconstitution as typed and diagnostic-relative. The relevant question is which retained dimensions have changed, through what relational history, at what analytical resolution, with what persistence, and with what consequences for later continuations.

A second distinction concerns relational modification and subject-constitutive change. A focal subject is situated in many relations, and changes in those relations need not become constitutive of the subject for the purpose of every analysis. If C publicly praises A, A's reputation record can change while the subject model otherwise remains stable. If B requests a different form of assistance, the A–B procedure can change without altering either participant's broader practical horizon. If a temporary role is assigned for one event, the role record can change without becoming part of the later identity conditions under which the subject is tracked. These cases remain significant relational modifications. The stronger co-formation claim requires an account of how a change becomes incorporated into retained subject structure or reorganizes the conditions governing later subject-level possibilities.

The phrase *subject-constitutive* therefore carries a local analytical meaning in this paper. It refers to retained structure that participates in the model's account of what the focal subject can do, sustain, recognize, value, refuse, become, or be reidentified as across the relevant historical interval. The exact dimensions are application dependent. Paper III will examine several recurrent families: representational boundary conditions; practical horizons and continuation possibilities; evaluative and normative repertoires; generative capacities; self-reconstruction and memory; role-position organization; dependencies

and relational obligations; and the conditions under which earlier history remains consequential for later action. The paper does not assume that this list exhausts subjecthood. It supplies a working family of diagnostics whose adequacy can be revised when a concrete inquiry requires another constitutive dimension.

A third distinction separates relational reality, manifestation reality, and epistemic reconstruction. Within the GR architecture, ultimate ontological reality remains suspended. Positive formal claims concern history-bearing relational configurations and their manifestations. A subject's transformation can therefore become relationally consequential without being fully manifest to either participant at the moment it occurs. A changed capacity may first appear through a later action; a reorganized dependency may become visible only when a previously available route fails; an internalized role may become manifest through recurring expectations rather than an explicit declaration. Conversely, a subject can describe itself as transformed without the adopted relational model treating every element of that self-description as a stable subject-level reconfiguration. First-person reconstruction is epistemically and ethically important, yet it remains distinguishable from the relational carrier that the model uses for the specific analytical purpose.

This three-level discipline also limits the metaphysical ambition of the paper. A formal criterion of subject reconstitution does not prove an ultimate ontology of the self. A successful history-bearing representation does not establish that persons literally are labelled complexes, state spaces, algebras, or dynamical systems. The paper uses such structures when they clarify continuity, provenance, partiality, and compositional change. They remain candidate representations. The metaphysical contribution is therefore conditional and structural: given the GR commitment to history-bearing relational subjects under ontological suspension, the paper asks what must be distinguished before a claim of co-formation becomes more than a metaphor for social influence.

A fourth distinction concerns causal or generative provenance. Subject change can occur during a volunteer relation without being generated by that relation. Illness, migration, employment, family change, institutional reform, education, or another relation can reorganize the focal subject over the same interval. The co-formation claim therefore requires more than temporal coincidence. Paper III will use the provenance machinery inherited from Papers I–II to ask whether the relevant reconfiguration is generated through, conditioned by, or historically dependent on the modeled relation. The required strength of this claim depends on the application. In some cases a documented sequence of interaction can support a strong generative interpretation. In others the relation should be treated as one contributing condition among several. The formalism should preserve that uncertainty rather than converting every correlated trajectory into a single-cause explanation.

This provenance requirement makes alternative histories analytically useful without turning the paper into a universal counterfactual theory of persons. If two admissible histories share substantial initial structure but differ in whether a repeated support practice, recognition route, or dependency relation occurs, later divergence in a subject-constitutive diagnostic can support a model-relative claim about relational contribution. Such comparison remains representation dependent and empirically demanding. It does not establish that a complete person would have been otherwise in every metaphysically possible world. Its purpose is narrower: to clarify which historical differences the adopted model treats as generatively relevant to the observed or reconstructed subject trajectory.

A fifth distinction concerns co-formation and teleology. Subject change generated in support relations need not move toward improvement, integration, autonomy, reciprocity, authenticity, or any other privileged endpoint. A relation can increase competence while narrowing alternatives. It can generate trust together with vulnerability, recognition together with role confinement, practical possibility together with obligation, or public standing together with surveillance. A helper position can become a durable source of meaning while making withdrawal difficult. A supportee position can provide access to needed resources while being socially reproduced as a limiting identity. Co-formation can also be resisted, partially internalized, strategically performed, later reopened, or deliberately undone. The metaphysical description therefore precedes normative evaluation. Later justice and ethics papers will ask which forms of subject formation are permissible, oppressive, emancipatory, paternalistic, dignify-

ing, exploitative, or otherwise normatively significant.

The absence of teleology does not make the account directionless. The paper studies structured change in practical horizons, capacities, evaluative repertoires, relational positions, self-reconstruction, and historical continuation. A practical horizon is especially important because it links subject formation to possibility rather than to a static inventory of traits. A relation can change which actions the subject can realistically undertake, which requests can be formulated, which refusals are sustainable, which interlocutors are accessible, which commitments can be maintained, or which future relations can be entered. The resulting change can be expansive, restrictive, mixed, reversible, or path dependent. Treating practical horizons as historically generated avoids equating increased options with increased agency while still making changes in feasible continuation formally visible.

Generative capacity supplies another important dimension. Papers I–II already allow capacities to be represented as historically accumulated and relation-sensitive rather than as fixed endowments. Paper III asks when the development, transfer, attenuation, or reorganization of such capacity becomes subject-constitutive. Volunteer support can teach a skill, create interpretive vocabulary, open an institutional route, normalize reliance on a mediator, or redistribute who can initiate and sustain future action. Capacity formation is therefore not limited to the receipt of resources. It includes the emergence of new relational competencies and the possible loss or displacement of earlier ones. The analysis will distinguish capacity from realized outcome, because a subject can acquire a new generative possibility without immediately exercising it.

Value migration creates a related problem. A judgment, distinction, or norm can first arise in interaction and later become part of one participant's individual evaluative repertoire. Conversely, a value initially carried by A can become stabilized in a shared relation, contested by B, translated by C, or later return to A in a modified public form. The language of migration is used cautiously. Values are not treated as discrete objects that move unchanged from one container to another. The analytical question concerns historical transformation in the relations through which a value is articulated, recognized, enacted, contested, and made available for later judgment. Paper III will therefore examine value-oriented subject change without assuming scalar commensurability or perfect transmission.

Role-position history provides another route through which relations can become constitutive. Papers I–II already distinguish focal subjects from the positions they occupy. Paper III preserves that distinction while asking how a position can become historically internalized, resisted, sedimented, or made costly to exit. Repeated public recognition of A as a helper can alter which requests reach A, which obligations A anticipates, how A reconstructs past action, and which future refusals appear available. Repeated categorization of B as a supportee can reorganize others' expectations and B's own available strategies without making the position identical to B. The relevant process is therefore neither simple role assignment nor a claim that social recognition completely determines the subject. It is the possible incorporation of role history into later subject-level conditions.

Triadic and wider relational mediation become important at this point. Paper III does not require a third position for every account of co-formation. A dyadic relation can reorganize both participants. Where C, an organization, an audience, or a public matters, however, Paper II supplies distinctions that should be preserved. A third position can translate B's manifestation to A, certify A's competence, circulate a reputational record, authorize a procedure, witness refusal, or stabilize a role attribution. The resulting subject change can therefore be mediated through relations that neither A nor B controls alone. Public recognition can contribute to A's later self-reconstruction without being reducible to A's private belief, while institutional recognition of B's standing can change B's practical horizon without determining B's identity. These mediated cases make co-formation a relation among histories rather than a direct transfer of attributes between two isolated selves.

Asymmetry is equally central. Co-formation can be mutual without being symmetric. A can substantially reorganize B's practical possibilities while B's influence on A operates mainly through value formation, recognition, or self-understanding. C can alter both subjects' reputational environments while being only weakly changed by the local relation. The magnitude, type, persistence, and reversibility of subject change can differ across participants. Paper III therefore treats asymmetry as typed rather than

scalar and asks how asymmetries of knowledge, resources, standing, dependence, temporal exposure, and revision capacity condition the pathways through which subject formation occurs. A later political-economy paper will ask when such asymmetries become power structures; the present paper needs only enough structure to avoid representing co-formation as balanced reciprocity by default.

The historical problem extends beyond one transition. A small change can become constitutive through repetition, feedback, institutional reinforcement, or interaction with earlier history. Another large event can remain transient. The paper therefore treats co-formation through trajectories rather than isolated before/after comparisons. Path dependence matters when the order of interactions changes the subject-level outcome, when early recognition stabilizes later role expectations, when a learned capacity opens paths that generate further capacities, or when dependency closes alternatives that would otherwise have remained available. Reopening also matters. A subject can later resist an internalized position, reconstruct an earlier relation differently, regain abandoned capacities, or enter new relations that alter the significance of the old one. Subject co-formation is consequently historical without being irreversible.

These commitments motivate a formal strategy that extends the earlier papers while avoiding unnecessary duplication. The history-bearing subject-spacetime and subject-tracking relations remain inherited carriers. The present paper will add a typed subject-constitutive diagnostic built from already available structures such as boundaries, continuation families, evaluative records, capacities, reconstructions, positions, and provenance histories. It will then distinguish continued tracking from constitutive equivalence and formulate co-formation as a relation between a coupled history and a tracked subject reconfiguration under a declared diagnostic. The criterion will remain partial and resolution dependent. An application can identify robust transformation along one dimension while leaving another dimension underdetermined. The formalism will therefore support statements such as “capacity co-formation is established under diagnostic χ while value-orientation change remains unresolved” rather than forcing one global verdict about whether the whole person has changed.

The resulting construction is intended to satisfy six research obligations. First, it must preserve the distinction between a focal subject and the relational positions attributed to that subject. Second, it must allow persistence through substantial change without making persistence itself proof of constitutive equivalence. Third, it must identify the relational provenance required for a co-formation claim. Fourth, it must represent asymmetric, mediated, resistant, and reversible formation rather than assuming mutual convergence. Fifth, it must preserve the three-level GR architecture and ontological suspension. Sixth, it must provide explicit backward-revision triggers for Papers I–II when the metaphysical analysis reveals that their existing subject-tracking rules are too coarse or too rigid.

These obligations yield several anticipated contributions. The paper will provide a vocabulary for separating relational modification, subject reconfiguration, and stronger subject co-formation; a model-relative criterion connecting persistence to constitutive non-equivalence; a typed analysis of changing boundaries, practical horizons, values, capacities, self-reconstruction, and role-position histories; an account of dyadic and third-position-mediated formation; a historical treatment of asymmetry, path dependence, resistance, and reopening; and a verification architecture distinguishing formal coherence, representational adequacy, empirical identification, normative evaluation, and ontological interpretation. Together these contributions aim to make subject formation formally discussable without reducing the subject to a point actor or turning every relational influence into a metaphysical conclusion.

The scope remains deliberately preliminary. Paper III does not provide a general psychology of volunteers, a psychoanalytic explanation of desire or lack, an aesthetic theory of fitting support, a normative theory of good subject formation, a political-economic theory of institutional power, or a complete historical theory of system formation. Those inquiries belong to later papers in the programme. The present manuscript also does not claim a universal criterion of personal identity. Identity criteria can depend on embodiment, memory, legal status, institutional recognition, causal continuity, relational obligations, or another application-specific structure. The paper’s task is narrower: once a model has declared how a subject is tracked, it asks how to represent and justify the stronger claim that relations have participated in reorganizing what that tracked subject can become or sustain.

The manuscript proceeds by progressively separating these burdens. Section 2 will define the analyt-

ical scope of subject co-formation and distinguish relational modification, state-like change, structural reconfiguration, and constitutive transformation. Section 3 will reconstruct the inherited subject-tracking architecture from Papers I–II and identify the precise gap that Paper III must fill. Section 4 will apply the three-level reality framework to subject formation. Sections 5–8 will develop the subject-constitutive diagnostic, persistence and constitutive equivalence, relational provenance, and the co-formation criterion. The middle sections will examine boundary reorganization, practical horizons, value orientation, generative capacities, self-reconstruction, role-position reorganization, mediated recognition, and third-position histories. Later sections will analyze asymmetric co-formation, path dependence, resistance, reopening, and representation-level realization before finite diagnostic cases test the distinctions. The closing sections will develop the metaphysical interpretation, verification architecture, programme interfaces, and a foundational synthesis. The objective is to make the statement that volunteer relations “change who the participants are” precise enough to be evaluated, limited, revised, or rejected rather than accepted as an evocative but analytically indeterminate claim.

2 Analytical Scope of Subject Co-Formation

This section defines the analytical scope within which later claims of subject co-formation will be evaluated. Its role is to separate several kinds of change that ordinary descriptions of volunteering and support often compress into statements such as “the relation changed the person.” The objective is to distinguish relational modification, local state variation, retained subject-structural reconfiguration, subject-constitutive transformation, and relationally generated co-formation without arranging them as a single scale of increasing depth. The discussion is conceptual and diagnostic rather than causal or ontological. It identifies what each kind of claim is entitled to assert, what additional burden would be required for a stronger claim, and where underdetermination should remain visible. Formal criteria for persistence, constitutive equivalence, provenance, and co-formation are deferred to Sections 3–8 and will be built from the inherited GR carriers rather than presupposed here.

Table 1 summarizes the five principal claim-types. The categories are deliberately non-scalar. A single history can instantiate several of them simultaneously, and a change can be structurally extensive while remaining non-constitutive under one diagnostic, yet constitutive under another. The classification therefore concerns the *kind of analytical burden* carried by a claim rather than a ranking of how much a person has changed.

2.1 Relational Modification in Subject-Formation Analysis

Volunteer and support relations can change substantially while leaving open whether either participant has undergone a subject-level transformation. A request can be accepted, a role can be assigned, a procedure can become more formal, trust can increase, access can be opened, a third party can become involved, or public recognition can attach to the relation. Each development can be historically consequential. None requires the additional claim that the tracked subject has been reconstituted.

The analytical object at this level is the *relation involving the subject*. The subject remains a participant whose surrounding relational organization has changed. This distinction matters because several structures developed in Papers I–II are relational by construction: support procedures, authorization records, publicness, reputation, standing, brokerage, accountability, and coalition can all vary without settling what has happened to the constitutive organization of a participant. A volunteer who acquires a new formal role in an organization, for example, may occupy a different relational position while retaining substantially the same practical horizon, evaluative orientation, capacities, and self-reconstruction. Conversely, a seemingly minor relational event can later become constitutively significant if it participates in a longer process of learning, dependency, role internalization, or boundary reorganization. The relational modification therefore remains analytically important even when the stronger subject claim is withheld.

Table 1: Analytical claim-types distinguished in the study of subject co-formation.

Claim-type	Primary object of change	Claim licensed by adequate evidence	Additional burden for a stronger claim
Relational modification	A relation, procedure, expectation, position, or coupling involving the subject	The relational environment or organization involving the tracked subject changed	Show that retained subject-level structure changed rather than only the relation around the subject
Local state variation	A time-indexed condition, performance, manifestation, or presently available state of the subject	The subject occupied a different local state during the relevant interval	Show retention, structural consequence, or altered continuation beyond the local episode
Retained subject-structural reconfiguration	A retained subject-level capacity, boundary, practical horizon, evaluative organization, self-reconstruction, or comparable structure	One or more subject-level structures changed across the declared comparison horizon	Show that the changed structure belongs to the declared constitutive diagnostic and changes constitutive equivalence
Subject-constitutive transformation	A diagnostic-defined structure treated as constitutively relevant to the tracked subject	The tracked subject is no longer constitutively equivalent to its earlier configuration under the declared diagnostic	Establish relational provenance before describing the transformation as co-formation
Relationally generated co-formation	A subject-constitutive transformation with identifiable relational provenance	The relation materially participated in generating, conditioning, selecting, stabilizing, or reorganizing the constitutive transformation	Specify the provenance pathway, competing contributions, asymmetry, and residual uncertainty

Definition 2.1 (Relational modification). A *relational modification* is a historically indexed change in a relation, procedure, position, expectation, coupling, or other relational structure involving a tracked subject, where the analysis does not yet assert that a retained subject-level structure has changed.

The definition is intentionally permissive about magnitude. A relational modification can be minor or extensive. The category concerns the location of the warranted claim, not the size of the event. An institutional reassignment can reorganize many interactions and still remain, for the purposes of a particular diagnostic, a change in relational position. A single conversation can be locally small yet later prove constitutively important. Scale, duration, and constitutive status therefore require separate treatment.

This distinction also prevents a common shortcut in relational theory. If subjects are understood as historically relational beings, it can be tempting to infer that every alteration in their relations is automatically an alteration of who they are. Such an inference would make subject formation nearly vacuous because ordinary interaction would satisfy it by definition. GR can treat subjects as relationally constituted while preserving differences among relations that are incident on a subject, relations that reorganize subject-level structures, and relations that participate in constitutive transformation. The relational character of the subject motivates the inquiry; it does not predetermine the result of every local case.

2.2 Retention Burden for Local State Variation

A second family of changes concerns local states of the tracked subject. Volunteer and support relations can alter a participant's present emotion, attention, confidence, fatigue, resource availability, expressed preference, performed role, or immediate willingness to continue. These changes can be real and causally important while remaining state-like relative to the longer historical diagnostic selected by the study.

The term *state-like* is used here analytically rather than psychologically. It identifies a change represented as local to an interval, context, or presently realized configuration whose retention beyond that local setting has not yet been established. A state-like change can later become a component of structural reconfiguration. Repeated successful support work, for example, can initially alter a volunteer's local confidence; sustained learning and changed practical possibilities may later justify a stronger capacity claim. A recipient's temporary reliance on one helper can remain episode-specific, or repeated restriction of alternatives can develop into a retained dependency structure. The same descriptive content can therefore occupy different analytical statuses as evidence accumulates across time and contexts.

Definition 2.2 (Local state variation). A *local state variation* is a time-, context-, or episode-indexed change in a tracked subject for which retention in a declared subject-level structure has not yet been established.

The retention burden separates local variation from retained structural reconfiguration. Retention does not require permanence. A learned capacity can later decay; a self-reconstruction can later be rejected; an internalized role can later be reopened. The relevant question is whether the change persists or recurs sufficiently across the declared comparison horizon to enter the subject-level structure used by the analysis. What counts as sufficient retention depends on the diagnostic. A study of emergency response can reasonably use a short horizon; a study of occupational identity or long-term dependency will require a different one.

Manifestation change also belongs here only with care. A participant can begin speaking differently about volunteering, adopt a new public label, or perform a more confident role. These are observable changes in manifestation. They may provide evidence for a retained subject change, yet manifestation alone does not establish the relational structure that generated or sustains the change. Section 4 will return to this distinction under the three-level GR architecture. For present purposes, a transformed manifestation can support a state or structural claim only when the analysis specifies how the observed change bears on the subject-level object being inferred.

2.3 Retained Subject-Structural Reconfiguration

The third claim-type concerns retained changes to structures attributed to the tracked subject. Candidate structures in this paper include practical horizons, capacities, evaluative orientations, boundary organization, self-reconstruction, role-position organization, refusal and initiation possibilities, and historically sedimented patterns of recognition. The list remains provisional and non-exhaustive. Later sections will define a typed diagnostic family so that an application can declare which subject-level objects it retains and why.

Definition 2.3 (Retained subject-structural reconfiguration). A *retained subject-structural reconfiguration* is a change in one or more declared subject-level structures that remains analytically available across the comparison horizon selected by the model.

This category is stronger than local state variation because the changed object is retained as part of the subject representation. It is still weaker than subject-constitutive transformation. The distinction is necessary because a model can represent many stable attributes or capacities without treating each as constitutive for the research question at hand. A volunteer may learn a software tool, acquire an organizational credential, or develop a reliable procedure for scheduling visits. Each change can be retained and structurally consequential. A study of practical identity may nevertheless judge them peripheral unless they reorganize a declared constitutive dimension such as the subject's practical horizon, evaluative orientation, or self-reconstruction. Another application concerned with professional competence may treat the same learned capacity as constitutively relevant. The difference arises from the declared diagnostic rather than from a universal hierarchy of attributes.

Retained structural reconfiguration can also be heterogeneous in direction and type. Some changes expand feasible continuations; others narrow them. Some create new capacities while introducing dependency on an institution, tool, or relationship. Some stabilize a self-description while reducing the ability

to exit a role. Some increase public standing while making the subject more exposed to expectations that constrain later action. A single history can therefore contain expansion and restriction at once. The paper will resist representing subject formation through one scalar “degree of change” because a scalar would erase precisely these typed differences.

The category also accommodates partial and domain-specific findings. An empirical study might establish a durable expansion in a volunteer’s organizational capacity while finding little evidence of value-orientation change. Another study might find that a recipient’s self-reconstruction changed while practical alternatives remained stable. The appropriate conclusion is a typed statement about the structures for which reconfiguration has been supported. A global declaration that “the subject changed” would exceed the evidence.

2.4 Subject-Constitutive Transformation under a Declared Diagnostic

The fourth claim-type introduces the specifically metaphysical burden of Paper III. A subject-constitutive transformation is more than a retained structural change because the relevant structure belongs to a declared diagnostic of what counts, for the selected research purpose, as constitutively significant to the tracked subject. The term *constitutive* therefore does not denote an ultimate essence. It denotes a model-relative judgment that certain retained structures are sufficiently central to the subject’s modes of continuation, agency, self-relation, boundary maintenance, or reidentification that changes in them alter the constitutive equivalence under which earlier and later configurations are compared.

Definition 2.4 (Subject-constitutive transformation). A *subject-constitutive transformation* is a retained reconfiguration that changes the tracked subject’s constitutive status under an explicitly declared diagnostic while leaving open whether the same focal subject continues to be tracked.

Three qualifications are essential. First, constitutive significance is diagnostic-relative. Paper III will not attempt to enumerate a universal list of properties that define every subject in every domain. Embodiment, memory, legal identity, practical agency, narrative self-reconstruction, relational obligations, recognized standing, or another structure may become relevant under different applications. The diagnostic must therefore be justified locally.

Second, constitutive transformation does not imply numerical replacement. A person can remain the same tracked subject across major changes in capacity, values, commitments, practical horizons, or self-understanding. Later sections will distinguish the tracking relation from constitutive equivalence so that persistence through transformation can be represented directly. The paper thereby avoids an unnecessary choice between a static subject and a sequence of disconnected replacements.

Third, constitutive transformation does not itself establish relational provenance. A participant may undergo a major reconfiguration during a period of volunteering because of illness, family change, education, employment, political events, maturation, or another history only partly connected to the focal relation. The stronger term *co-formation* is reserved for cases in which the relation materially participates in generating or stabilizing the transformation.

The distinction between structural and constitutive change also protects against magnitude-based reasoning. A large change need not be constitutive if it falls outside the declared diagnostic, while a comparatively localized change can be constitutive when it alters a structurally central continuation condition. Losing access to one narrowly specified resource can, under some conditions, close an entire practical horizon. Learning one modest relational competence can open a new class of social participation. Constitutive status therefore depends on the organization of the subject model, not merely on the number of altered attributes.

2.5 Relational Provenance of Co-Formation Claims

The fifth claim-type adds a provenance burden. Paper III uses *co-formation* for subject-constitutive transformation whose history can be linked to the focal relation through an identifiable generative path-

way. Temporal sequence alone is insufficient. The fact that a subject changed after entering a volunteer relation does not establish that the relation generated the change.

Definition 2.5 (Relationally generated co-formation). A *relationally generated co-formation* is a subject-constitutive transformation for which the analysis identifies a materially relevant relational provenance linking the focal history to the transformation under the declared diagnostic.

The phrase *materially relevant* is chosen to permit plural and mixed provenance. Human histories rarely provide a single isolated cause. A volunteer relation can contribute to learning while an institution supplies resources, a public supplies recognition, a family supplies resistance, and pre-existing commitments shape uptake. The co-formation claim should therefore specify the role attributed to the focal relation. Relevant roles can include generating a new possibility, conditioning access, selecting among alternatives, stabilizing an emerging orientation, reinforcing a dependency, mediating recognition, or reorganizing how earlier experiences are reconstructed. Later formal sections will type these provenance relations more carefully.

Co-formation also need not be reciprocal. Suppose *A* supports *B* over an extended period. The relation may substantially reorganize *A*'s evaluative orientation and professional trajectory while producing only a short-lived state change in *B*. The history can still support a co-formation claim about *A* if the provenance burden is met. Conversely, *B* can undergo a subject-constitutive transformation while *A* remains comparatively stable. When both participants change, their transformations can differ in kind, magnitude, persistence, reversibility, and normative significance. The term therefore identifies formation through relation rather than balanced mutuality.

Third positions can also participate in provenance. Recognition by a community can stabilize a volunteer identity; an institution can authorize a role that changes the subject's practical horizon; a mediator can transform how a recipient reconstructs a conflict; a public record can make exit from a role more costly. Such cases require the triadic machinery of Paper II only when the third-position pathway performs explanatory work that cannot be omitted without changing the formation claim. Paper III will not convert every co-formation history into a triad by default.

2.6 Non-Scalar Architecture of Change Claims

The five claim-types should be read as analytical distinctions rather than stages on a universal ladder. Several reasons support this non-scalar architecture.

First, the categories concern different objects. Relational modification concerns a relation; local variation concerns a time- or context-indexed subject state; structural reconfiguration concerns retained subject-level organization; constitutive transformation concerns diagnostic significance; co-formation concerns provenance. A single scalar would combine object type, temporal retention, constitutive centrality, and causal history into one number without a principled common unit.

Second, the categories can coexist. A volunteer can experience local anxiety, gain a retained capacity, acquire a new public role, change a self-reconstruction, and enter a dependency relation within one historical episode. Some of these changes can be constitutive under a declared diagnostic while others remain peripheral. A useful analysis therefore records a profile of changes rather than forcing them into one total ordering.

Third, the categories can diverge across diagnostics. A public reputation change can be peripheral to one analysis of practical agency while central to another analysis of institutional identity. A learned capacity can be constitutive for a study of professional formation yet secondary for a study of moral orientation. Diagnostic dependence is not treated as arbitrariness: the model must state and justify why a particular structure is retained and why its change matters to the research question.

Fourth, the direction of change is multidimensional. Formation can enlarge one practical possibility while closing another, strengthen a capacity while increasing dependency, or stabilize one identity while weakening another. The paper will therefore use typed asymmetries and dimension-specific comparisons in later sections rather than a global "more formed" or "less formed" ordering.

Claim 2.6 (Non-scalar scope of co-formation analysis). Within the present framework, a defensible co-formation analysis requires separate judgments about the object of change, retention, constitutive relevance, and relational provenance. None of these judgments is reducible by definition to a single magnitude of subject change.

The claim is methodological rather than metaphysical. A particular empirical application may later justify a scalar index for a narrowly defined dimension, such as a validated competence measure or a bounded accessibility score. Such an index would remain a local measurement instrument. It would not become a universal measure of how much a subject has been formed.

2.7 Relational Individuality with Role-Position Differentiation

Subject co-formation also requires a distinction between the subject and the positions through which the subject participates in a relation. A participant can become recognized as a helper, beneficiary, coordinator, mediator, expert, witness, or dependent party. Role histories can become deeply sedimented and can participate in subject transformation. The role label itself remains analytically different from the tracked subject.

This distinction prevents two opposite errors. One error treats roles as superficial and therefore unable to participate in constitution. Repeated role performance, institutional recognition, expectation, dependency, and self-reconstruction can make a role historically constitutive. The other error equates the subject with the role as soon as the role becomes important. A volunteer can internalize a helper identity while retaining commitments, capacities, histories, and relations that exceed that position. A recipient can be publicly stabilized as a beneficiary while contesting that description and acting through other positions. The subject therefore remains distinguishable from any one relational role even when role organization enters the constitutive diagnostic.

Relational individuality in Paper III consequently combines distinction with relational formation. The framework does not model a subject as a self-contained point whose attributes happen to be modified by external edges. It also does not dissolve the subject into an undifferentiated network. The tracked subject is a historically distinguishable relational being whose organization can partly arise through relations while retaining enough continuity for claims about its changing history to be meaningful. Section 22 will return to the metaphysical interpretation of this position after the diagnostic and historical machinery has been developed.

2.8 Diagnostic Underdetermination across Verdicts, Horizons, Resolutions

The scope of Paper III requires explicit space for incomplete conclusions. A study can support one dimension of transformation while leaving another unresolved. It can identify retained structural change while lacking enough evidence to establish constitutive relevance. It can establish a constitutive transformation while remaining uncertain about relational provenance. It can reconstruct a plausible provenance history while empirical evidence leaves competing histories open. These are analytically meaningful intermediate results rather than failures to produce a binary verdict.

Comparison horizons are part of this uncertainty. A change can appear local over one interval and retained over another. A role can be internalized during an intensive volunteer period and later abandoned. A dependency can persist after the original support relation ends. A capacity can become latent and later reactivate. A self-reconstruction can remain stable publicly while being privately contested. The diagnostic must therefore state the temporal and relational horizon across which retention and constitutive comparison are assessed.

Resolution matters as well. At a coarse resolution, a subject can appear unchanged because the model retains only broad legal identity and resource access. At a finer resolution, the same history can reveal a changed practical horizon, evaluative organization, or refusal capacity. The stronger description is not automatically more true because it is more detailed. Each resolution selects a research object and carries corresponding evidential and interpretive burdens.

Remark 2.7 (Diagnostic-relative underdetermination). Paper III permits conclusions such as “retained capacity reconfiguration is supported, constitutive significance under diagnostic χ is plausible, and relational provenance remains underdetermined.” The framework does not require a global yes/no judgment about whether the whole subject has changed.

This partial-verdict discipline will become important when formal and empirical layers are connected. Formal coherence can establish what would follow from a specified diagnostic; it cannot determine by itself whether the empirical history satisfies that diagnostic. Manifestation records can support reconstruction; they do not provide direct access to the relational subject structure. Normative evaluation can judge a supported co-formation history as desirable, harmful, unjust, paternalistic, emancipatory, or mixed; such evaluation does not determine whether the metaphysical/formal co-formation criterion was satisfied.

2.9 Scope Boundaries for the Present Paper

The analytical distinctions above delimit what Paper III will and will not attempt to establish. The manuscript studies the formal-metaphysical conditions under which a tracked subject can be described as undergoing relation-generated constitutive reconfiguration. It does not offer a general theory of psychological development, personality, consciousness, moral character, or personal identity. Each of those domains can supply important diagnostics or evidence in a particular application, yet the present framework does not absorb them into one universal subject model.

The paper also leaves several stronger evaluations to later work. A relation-generated transformation can be ethically permissible or objectionable; it can involve justice or domination; it can be aesthetically fitting or humiliating; it can arise through care, desire, dependency, institutional power, or economic constraint. Paper III must preserve interfaces with these questions while resisting the temptation to answer them by definitional fiat. Subject formation is a descriptive and metaphysical object before it becomes a normative verdict.

Finally, the paper does not assume that a subject requires transformation in order for a volunteer relation to matter. Support can be valuable because it relieves an immediate burden, preserves an existing capability, protects a person’s present practical horizon, or enables an intended activity without reorganizing who the person is. Conversely, subject transformation can occur without being a goal of support and can sometimes constitute an unwanted side effect. A theory of volunteer relations therefore benefits from distinguishing assistance that preserves a subject’s existing organization from assistance that participates in reconfiguring it.

The distinctions established in this section generate the inheritance burden for the formal sections that follow. Section 3 will reconstruct the subject-tracking architecture already available from Papers I–II and identify which parts can be reused without alteration. Sections 5–8 will then define the diagnostic, constitutive-equivalence, provenance, and co-formation machinery needed to turn the claim-types in Table 1 into evaluable formal statements. The central requirement remains constant: a claim that a relation changed the subject must say *what changed, at what level, across which horizon, under which diagnostic, and through which relational history*.

3 Inherited Subject-Tracking Architecture

This section reconstructs the subject-tracking architecture inherited from Papers I–II and identifies the precise burden that remains for the present paper. Its role is to establish which objects can already support longitudinal comparison before any claim of subject-constitutive transformation is introduced. The objective is to preserve the earlier distinctions among history-bearing subject carriers, tracking relations, relational positions, manifestation, subject-relative reconstruction, and triadic contextualization while separating those inherited resources from the stronger diagnostic of co-formation developed later in this paper. The discussion proceeds through the inherited subject carrier, historical tracking, role-position

structure, three-level subject profiles, triadic restriction and shared-subject comparison, and backward-revision conditions. The method is reconstructive rather than revisionary: the earlier formal objects are reused where they remain adequate, and new structure is introduced only where the co-formation problem creates an additional analytical burden.

The central distinction can be stated before the notation is reconstructed. A model may warrant continued tracking of focal subject i across two stages while also representing extensive changes in that subject’s capacities, practical horizon, value orientation, self-reconstruction, role organization, or relational boundary. Tracking therefore answers a reidentification question: whether the later configuration remains historically attributable to the focal subject under the declared identity criteria. It does not answer the constitutive question of whether the later subject remains equivalent to the earlier subject under a diagnostic of subject organization. The latter question is reserved for Sections 5–8.

Table 2 summarizes the inherited objects used in this section and the additional burden carried by Paper III.

Table 2: Inherited subject-tracking objects and the additional burden of Paper III.

Inherited object	Role in Papers I–II	What the object can establish	Additional Paper III burden
$\mathcal{K}_{i,t}^\kappa$	History-bearing subject-spacetime representative	Retained subject-level history, interfaces, and admissible continuations at a declared resolution	Identify which retained structures are relevant to a constitutive diagnostic
$\tau_{t' \leftarrow t}^i$	Historical tracking relation	Application-relative continuity, descent, or reidentification of represented subject material	Separate tracking continuity from constitutive equivalence and subject reconstitution
ϱ_t^κ	Subject-to-position relation	Historically situated role occupation without identifying role with subject	Determine when role history becomes constitutively significant for a tracked subject
$M_{i,t}$ and $\widehat{\text{Subj}}_{i,t}^j$	Manifestation and subject-relative reconstruction	Accessible presentation and epistemic reconstruction of the tracked subject	Prevent manifestation or observer agreement from substituting for relational subject change
$\mathfrak{S}_{ABC,t}^\kappa$	Coupled triadic subject carrier	Contextualized subject tracking with configuration-level interaction support	Import triadic structure only when a third-position pathway materially contributes to formation
$\chi_{i,t}^{ij,ik,\kappa}$	Shared-subject comparison across pairwise restrictions	Historical correspondence of one focal subject across different contextual shadows	Distinguish contextual variation from evidence of constitutive change

3.1 History-Bearing Subject Representatives

Paper I introduced focal subjects as history-bearing relational configurations rather than point actors or static attribute bundles. Paper III retains that commitment. At historical stage t and representational resolution κ , a focal subject i is represented by the labelled complex stated in Equation 1.

$$\mathcal{K}_{i,t}^\kappa = (V_{i,t}^\kappa, E_{i,t}^\kappa, F_{i,t}^\kappa, \partial_{i,t}^\kappa, \lambda_{i,t}^\kappa). \quad (1)$$

Equation 1 is a representational carrier. Vertices, edges, faces, boundary data, and labels receive application-specific interpretations, and the carrier does not establish that a subject possesses one privileged cellular decomposition. The analytical requirement is more modest: the retained structure must be rich enough to represent the historical relations, capacities, interfaces, constraints, and continuation possibilities relevant to the local research question.

This history-bearing construction is essential for subject co-formation because many candidate constitutive changes are path dependent. A capacity can be acquired through repeated practice; a refusal possibility can disappear through accumulated dependency; a role can become sedimented through recurrent recognition; a self-reconstruction can stabilize through repeated public confirmation; and a practical horizon can expand because earlier interactions opened durable routes. A current attribute list can summarize some of these effects, yet the summary cannot replace the historical carrier when the path of generation matters to the constitutive claim.

Paper III does not assume that every cell or label inside $\mathcal{K}_{i,t}^\kappa$ belongs to the constitutive structure of the subject. The subject carrier is deliberately more inclusive than the later constitutive diagnostic. Section 5 will select typed subject-level structures from the inherited carrier and state why an application treats them as constitutively relevant. This ordering prevents constitutive importance from being built into the representation by labeling every retained feature as part of who the subject is.

3.2 Historical Tracking and Reidentification

Longitudinal comparison requires a rule for retaining the focal subject label across historical change. The baseline tracking relation inherited from Paper I is stated in Equation 2.

$$\tau_{t' \leftarrow t}^i \subseteq \mathcal{K}_{i,t}^\kappa \times \mathcal{K}_{i,t'}^\kappa, \quad t \preceq t'. \quad (2)$$

Membership $(x, x') \in \tau_{t' \leftarrow t}^i$ records that the application treats later represented material x' as historically continuous with, descended from, or otherwise trackable from earlier material x for the purpose of identifying focal subject i . A relation is retained rather than a total function because represented histories can split, merge, disappear, or acquire components for which no one-to-one continuation is available.

Definition 3.1 (Tracking continuity). For a declared comparison horizon $t \preceq t'$, *tracking continuity* of focal subject i is warranted when the application supplies a relation of the form in Equation 2 that satisfies the identity or reidentification criteria declared for the local analysis. Such criteria may rely on causal continuity, memory, embodied continuity, institutional recognition, documentary linkage, control continuity, relational obligations, or another application-appropriate basis.

Definition 3.1 deliberately stops short of a constitutive verdict. It licenses statements such as “the later configuration is tracked as A” or “this later organizational configuration is treated as a successor of the earlier organization under the declared rule.” It does not license the statement that A is constitutively unchanged. A volunteer can remain trackable through a major shift in practical identity; a support recipient can remain the same legally and biographically identified person while acquiring new capacities and a different practical horizon; an organization can preserve institutional continuity while its mission, membership structure, and decision procedures are substantially reorganized.

Tracking continuity is therefore an admission condition for a within-subject comparison. It determines whether the analysis has a warranted historical bridge between the configurations being compared. The later constitutive diagnostic asks a different question about the structures carried across that bridge. Conflating the two would make subject transformation impossible whenever tracking succeeds, or make reidentification impossible whenever transformation is extensive. Paper III preserves both possibilities.

The same point applies to tracking failure. Failure to warrant $\tau_{t' \leftarrow t}^i$ can arise because the relevant evidence is missing, because a represented entity splits into successors, because several histories merge, or because the adopted identity criterion treats the transformation as discontinuous. Such a failure is not by itself proof that a new metaphysical subject has appeared. It states that the present model lacks a warranted tracking relation under its declared criteria. Section 6 will examine splitting, merging, succession, and other boundary cases in greater detail.

3.3 Role Positions and Tracked Subjects

Papers I–II distinguish subject identity from relational position. That distinction is indispensable for Paper III because role histories can contribute to subject formation without exhausting the subject. Let $\mathcal{P}_t^\kappa$ be the family of relational positions retained at stage t . The inherited role assignment is the relation in Equation 3.

$$\varrho_t^\kappa \subseteq \mathcal{I}_t \times \mathcal{P}_t^\kappa, \quad (3)$$

where $\mathcal{I}_t$ is the set of focal subject labels admitted by the local model at stage t . Equation 3 permits one subject to occupy several positions and permits a position to be jointly instantiated when the substantive model warrants that representation.

The relation preserves an important analytical separation. A can be tracked as the same focal subject while moving from supporter to co-participant, reviewer, organizer, recipient, or another position. Conversely, the label “volunteer” can persist institutionally while the subject occupying it changes. Role continuity therefore does not establish subject continuity, and subject continuity does not require role continuity.

Paper III adds a further question. Repeated role occupation can become constitutively significant when the role is internalized, when exit becomes costly, when the role reorganizes practical possibilities, when public recognition stabilizes a self-reconstruction, or when role-dependent expectations alter what the subject can reasonably initiate or refuse. These possibilities motivate Section 14. At the present stage, however, Equation 3 remains a relational-position record rather than a subject-constitution predicate.

3.4 Three-Level Subject Profiles

The three-level reality architecture constrains what a subject-formation claim may infer from observations or reconstructions. Paper III inherits the subject profile in Equation 4 as a compact statement of this separation.

$$\Lambda_t(\text{Subj}_i) = \left(\mathcal{O}_{\text{Subj}_i}^?, \mathcal{K}_{i,t}^\kappa, M_{i,t}, \mu_t^{\text{Subj}_i}, \{\widehat{\text{Subj}}_{i,t}^j\}_{j \in \mathcal{I}_t} \right). \quad (4)$$

In Equation 4, $\mathcal{O}_{\text{Subj}_i}^?$ marks suspended ultimate ontology, $\mathcal{K}_{i,t}^\kappa$ is the relational subject representation, $M_{i,t}$ is the retained manifestation family, $\mu_t^{\text{Subj}_i}$ records the admitted manifestation relation or map, and $\widehat{\text{Subj}}_{i,t}^j$ is subject j ’s reconstruction of focal subject i . The index set $\mathcal{I}_t$ permits dyadic or higher-arity contexts without requiring a third subject when the research object remains dyadic.

The profile blocks three shortcuts that would otherwise weaken a theory of co-formation. First, a changed manifestation does not by itself establish a changed relational subject. A new title, public performance, narrative, style of speech, or institutional presentation can be evidence of subject change while remaining compatible with several relational explanations. Second, a subject’s self-reconstruction can change without exhausting the relational change attributed to the subject. First-person reconstruction has distinctive epistemic importance, yet the formalism does not identify the whole relational subject with one self-description. Third, convergence among several observers does not transform their common reconstruction into ultimate ontological access. Agreement can stabilize a relationally efficacious public description while the ontology of subjectivity remains suspended.

These distinctions are especially important for later analysis of self-reconstruction and recognition. A subject can reject a public role that others continue to attribute; a public reputation can reshape opportunities even when the focal subject disputes it; a support recipient can narrate increased autonomy while institutional records show increasing route dependency; and a volunteer can describe continuity while close historical analysis identifies a transformed evaluative repertoire. Paper III will therefore permit disagreement among manifestation, self-reconstruction, public reconstruction, and the relational diagnostic rather than forcing them into one state variable.

3.5 Triadic Context and Shared-Subject Comparison

Paper II adds third-position structure without requiring Paper III to make every formation process triadic. When mediation, witnessing, public recognition, review, translation, authorization, brokerage, or another third-position pathway materially contributes to subject formation, the relevant subjects are represented inside a coupled triadic carrier. The inherited carrier record is stated in Equation 5.

$$\mathfrak{S}_{ABC,t}^{\kappa} := \left(\mathcal{K}_{ABC,t}^{\kappa}, \{ \iota_i^{\kappa} \}_{i \in \{A,B,C\}}, \mathcal{J}_{ABC,t}^{\kappa} \right), \quad (5)$$

where $\mathcal{K}_{ABC,t}^{\kappa}$ is the coupled history-bearing carrier, ι_i^{κ} embeds the retained subject-spacetime of focal subject i , and $\mathcal{J}_{ABC,t}^{\kappa}$ is a declared configuration-level interaction-support region. Equation 5 records a possible triadic context; it does not establish that the relevant subject change is irreducibly triadic or that the third position is constitutively important.

One focal subject can appear differently across pairwise restrictions of the same triadic history. Paper II therefore uses a shared-subject comparison relation. For focal subject i appearing in pairwise contexts ij and ik , the inherited relation is restated in Equation 6.

$$\chi_{i,t}^{ij,ik,\kappa} \subseteq \mathcal{K}_{i|ij,t}^{\kappa} \times \mathcal{K}_{i|ik,t}^{\kappa}. \quad (6)$$

Equation 6 permits contextual representations to differ while remaining historically attributable to one focal subject. A can manifest differently to B and C, occupy different local roles, expose different histories, or be represented at different contextual resolutions. Such variation is not itself evidence that A has been reconstituted. The co-formation analysis must determine whether the differences are contextual shadows of one tracked configuration, evidence of a retained subject-level reorganization, or signs that the current tracking architecture is too coarse.

This restraint also governs third-position inheritance. Paper III introduces C only when the formation history depends materially on a third-position pathway. A translator can alter A's practical horizon by making previously inaccessible cooperation possible; a reviewer can stabilize a public role; an institution can confer standing that changes later continuations; a witness can make a previously private event publicly consequential. In these cases, the third position can belong to the provenance of subject change. Where the formation process is adequately represented by A–B coupling, triadic machinery adds no analytical value and should remain unused.

3.6 Tracking Continuity and Constitutive Comparison

The inherited architecture can now be positioned relative to the new burden of Paper III. Tracking continuity, role assignment, manifestation, reconstruction, and triadic contextualization provide the historical and representational conditions under which a constitutive comparison can be attempted. None supplies the constitutive criterion itself.

The distinction is easiest to state through four analytically separate questions. First, *reidentification*: is there a warranted historical relation allowing the later configuration to be compared as a continuation or successor of focal subject i ? Second, *structural change*: which retained subject-level structures differ across the declared comparison horizon? Third, *constitutive relevance*: which of those structures belong to the diagnostic under which the analysis asks whether the subject has been reconstituted? Fourth, *provenance*: did the focal volunteer/support relation materially participate in generating, selecting, stabilizing, or reorganizing the constitutively relevant change?

These questions can receive different answers in the same history. Tracking can succeed while constitutive equivalence later fails. Tracking can succeed while no retained subject-level change is established. A retained structural change can be constitutively irrelevant under one diagnostic. A constitutive transformation can be established while its relational provenance remains underdetermined. Section 2 introduced these distinct claim-types conceptually; Sections 5–8 will provide the typed machinery required to evaluate them formally.

The separation also prevents a hidden circularity. If the model defined “the same subject” as one whose constitutive organization had not changed, then subject-constitutive transformation of a continuing person would be excluded by definition. If, conversely, every constitutive change forced a new subject label, the theory could describe replacement but not formation. Paper III therefore uses tracking criteria to establish the historical comparison target and reserves constitutive equivalence for a distinct diagnostic layer.

3.7 Backward-Revision Triggers for the Foundational Papers

Paper III inherits Papers I–II provisionally rather than treating their subject-tracking rules as final. A constitutive analysis can reveal that an earlier carrier, tracking relation, role record, manifestation record, or contextual boundary omits distinctions required to evaluate subject formation. Such cases should trigger an explicit backward revision rather than be repaired by silently changing the meaning of inherited symbols.

Research Obligation 3.2 (Backward revision from subject-formation analysis). Paper III should identify a backward-revision trigger whenever a co-formation claim materially depends on a distinction that the inherited Papers I–II architecture cannot represent without changing the type, domain, resolution, or interpretation of an inherited object. The revision should state which earlier object is insufficient, which additional distinction is required, and whether the extension preserves, weakens, or replaces the earlier construction.

Obligation 3.2 governs the use of these backward-revision triggers throughout Paper III. Several trigger classes are already foreseeable. A tracking relation can be too coarse to distinguish persistence from successorship after splitting or merging. A subject boundary can omit a durable external scaffold whose loss would alter the subject’s practical capacities. A role record can represent current position while omitting sedimentation, exit cost, or internalization. A manifestation record can omit the audience or medium through which a public reconstruction becomes constitutively consequential. A dyadic boundary can omit a third-position pathway that generated the retained change. A fixed resolution can hide the difference between a local state variation and a durable reorganization. Each case calls for a typed extension of the inherited architecture rather than an informal exception.

Backward revision does not imply that the foundational papers failed. Papers I–II were intentionally designed as preliminary formal foundations with explicit revision interfaces. Paper III supplies a stronger substantive diagnostic, and stronger diagnostics can expose previously unnecessary distinctions. The research programme remains cumulative when such distinctions are added transparently and the dependency path is recorded.

The inherited architecture is therefore sufficient for the next stage of analysis but not yet sufficient for a co-formation verdict. It provides history-bearing subjects, application-relative tracking, role-position records, three-level subject profiles, contextual triadic carriers, and shared-subject comparison. Section 4 will place subject formation explicitly inside the three-level reality architecture. Section 5 will then define the diagnostic family that selects constitutively relevant subject structures, allowing Section 6 to distinguish tracking continuity from constitutive equivalence without converting either concept into a claim about ultimate personal ontology.

4 Three-Level Reality of Subject Formation

This section places subject formation inside the three-level reality architecture inherited from Papers I–II. Its role is to specify what kind of claim Paper III makes when it describes a subject as transformed, reconstituted, or co-formed. The objective is to preserve ontological suspension while giving positive analytical content to relational subject change, manifestation trajectories, and subject-relative reconstruction. The discussion proceeds through ontological restraint, relational subject formation, manifestation and cross-level non-synchrony, self- and other-reconstruction, manifestation feedback, and evidential

Table 3: Three-level burdens for the analysis of subject formation.

Analytical level	Paper III object	Positive analytical burden	Inference limit
Ontological reality	Ultimate status of subjectivity, personal essence, consciousness, or identity	Remains explicitly suspended unless an independent argument warrants a stronger claim	Relational persistence or transformation does not establish ultimate personal ontology
Relational reality	History-bearing subject organization and its efficacious relations	Track retained changes in capacities, practical horizons, values, roles, boundaries, self-relations, and continuation possibilities	A relational change becomes constitutive only under a declared diagnostic
Manifestation reality	Context-dependent presentation of the subject and subject change	Track speech, action, role performance, documents, bodily expression, public classification, interfaces, and other manifestations	Manifestational change can occur without durable relational reorganization and can lag behind it
Epistemic reconstruction	Subject-relative models of the focal subject, including self-reconstruction	Track how the focal subject and other subjects interpret, narrate, classify, and revise the subject's history	Reconstruction is not a fourth reality level and does not become relational truth by agreement alone
Cross-level feedback	Historically consequential circulation among manifestation, reconstruction, and later relation	Identify pathways through which presentation or recognition contributes to later subject organization	Feedback is partial and many-to-many; it does not establish a deterministic causal ladder among levels

patterns across levels. The method is reconstructive and diagnostic. No constitutive criterion is introduced here; Section 5 will specify which relational structures a declared diagnostic treats as constitutively relevant.

The central discipline is that a subject-formation claim can be warranted at relational reality without establishing a change in ultimate personal ontology. Likewise, a changed manifestation or changed reconstruction can contribute evidence or causal provenance without becoming interchangeable with relational subject change. The three-level architecture therefore supplies both a positive object of analysis and a limit on what the analysis may infer.

Table 3 summarizes the role of each analytical level in Paper III.

4.1 Ontological Suspension and the Positive Object of Formation

Paper III uses the term *subject formation* in a deliberately restricted sense. The paper does not claim access to an ultimate substrate that determines whether a person, organization, artificial agent, or other possible subject remains metaphysically identical through change. The ontological status marker $O_{\text{Subj}_i}^?$ in Equation 4 remains suspended throughout the present analysis. A successful co-formation diagnosis therefore concerns the organization of a history-bearing relational subject under an explicitly declared model and diagnostic, not an uncovered metaphysical essence.

Ontological suspension does not make the subject analytically empty. A tracked subject can be relationally identifiable, historically persistent, causally efficacious, capable of acting and being acted upon, and generatively consequential for later possibilities. These features can support strong claims about relational reality even when the ultimate ontology of subjectivity remains open. The present paper treats subject formation as a change in such historically retained organization when the change satisfies the later constitutive diagnostic and when the relevant relational provenance can be established.

This formulation permits two forms of restraint at once. First, extensive relational reorganization can be discussed without claiming that an ultimate self has been replaced. Second, ontological uncertainty cannot be used to erase relationally consequential transformation. A support recipient who acquires durable capacities, loses meaningful exit possibilities, internalizes a publicly stabilized role, or develops a new practical horizon can undergo a relationally important transformation even when the metaphysics of personal identity remains unsettled.

The distinction also protects later normative analysis. A relationally constitutive transformation can be beneficial, harmful, mixed, imposed, resisted, welcomed, or normatively ambiguous. Ontological suspension and normative neutrality are different disciplines: the former limits claims about what a subject ultimately is, whereas the latter prevents a metaphysical diagnosis of formation from being treated as a moral verdict.

4.2 Relational Reality of Subject Formation

The principal positive object of Paper III is the relational trajectory of the tracked subject. Section 3 introduced the stage-indexed subject profile $\Lambda_t(\text{Subj}_i)$. For a historical interval I equipped with the ordering used by the local analysis, the corresponding three-level subject history is recorded in Equation 7.

$$\Lambda_{i,I}^\kappa := (\Lambda_t(\text{Subj}_i))_{t \in I}. \quad (7)$$

Equation 7 is an indexed analytical history rather than a vector-valued trajectory. Its components can belong to different mathematical types, and Paper III assumes no global metric by which the distance between two subject profiles could be computed. The record keeps the relational carrier, manifestations, manifestation relation, and subject-relative reconstructions historically aligned while preserving their distinct analytical status.

Relational subject formation is therefore analyzed through changes inside the relational component of Equation 7, together with the tracking relation required to compare stages. Candidate changes include reorganization of capabilities, accessible action routes, dependence structure, practical horizons, evaluative repertoires, role sedimentation, self-relations, durable external scaffolds, and interfaces through which the subject can participate in later relations. Section 5 will specify a diagnostic family that selects which structures matter for a particular constitutive question. Until that selection occurs, change in $\mathcal{K}_{i,t}^\kappa$ remains evidence of relational reorganization rather than a completed subject-constitution verdict.

Relational reality also includes structures that extend beyond an intuitively bounded interior of the subject. A reliable communication interface, institutional standing, a durable support scaffold, or a socially maintained recognition relation can become sufficiently persistent and generatively efficacious that removing it changes what the subject can practically initiate, sustain, refuse, or become. Paper III therefore leaves the boundary of constitutively relevant subject organization open to later diagnostic argument. This does not dissolve the subject into its entire environment. It requires the analysis to justify which external relations are treated as constitutively relevant and why.

The historical orientation is essential. A present configuration can be identical in a coarse snapshot while differing in the path through which it arose. Dependence produced through repeated delegated decision-making can differ from an observationally similar arrangement chosen after independent capacity expansion. A publicly recognized role can have different constitutive significance when it is newly assigned, long internalized, strategically performed, or actively contested. Relational formation consequently concerns both retained organization and the history through which that organization became available.

4.3 Manifestation Trajectories and Cross-Level Non-Synchrony

Manifestation reality concerns the context-dependent forms through which a tracked subject and its changes become presented, expressed, observable, recorded, symbolized, or institutionally legible. For subject i , the family $M_{i,t}$ in Equation 4 can include speech, action, gesture, bodily expression, silence,

documents, role titles, interface behavior, public records, institutional classifications, or other application-relevant manifestations. The manifestation relation $\mu_t^{\text{Subj}_i}$ records the admitted correspondence between retained relational subject structure and these manifestations.

The correspondence can be partial and many-to-many. One relational reorganization can appear through several manifestations, and similar manifestations can remain compatible with different relational configurations. A volunteer who begins speaking with the vocabulary of an institution may have internalized a role, may be strategically accommodating institutional expectations, or may simply have learned a local register. A support recipient who publicly performs confidence may have acquired new capacities, may be masking dependence, or may be responding to an audience expectation. Manifestation is therefore indispensable evidence while remaining analytically non-identical with the relational subject.

Subject formation is also frequently cross-level asynchronous. Relational change can precede visible manifestation. A person may acquire a durable capacity before adopting a new self-description or public role. Manifestation can precede relational stabilization. A newly assigned title or experimental practice can be visible before it reorganizes the subject's practical horizon. Public reconstruction can change before self-reconstruction, or self-reconstruction can change before relevant institutions alter their classifications. The framework therefore does not require the components of $\Lambda_{i,I}^\kappa$ to change at the same stage or at the same rate.

Cross-level non-synchrony is analytically useful because it prevents premature verdicts. A sudden manifestation shift can be classified initially as a presentation change while later evidence determines whether it became relationally retained. Conversely, a stable manifestation can conceal substantial relational transformation. A support recipient can continue using the same institutional label while acquiring autonomy that makes the earlier role description increasingly misleading. A volunteer can preserve a familiar public identity while their evaluative repertoire and practical commitments change substantially. The lack of visible novelty therefore does not establish constitutive continuity.

The temporal relation between relational change and manifestation can itself become part of the formation history. Delay, concealment, strategic presentation, institutional inertia, and audience-specific expression can all affect when a relational transformation becomes visible and how later actors respond to it. Later empirical work should therefore record not only whether a manifestation occurred, but also its audience, medium, timing, persistence, and relation to other manifestations when those properties matter to the formation claim.

4.4 Self-Reconstruction and Other-Subject Reconstruction

The subject-relative reconstructions $\widehat{\text{Subj}}_{i,t}^j$ in Equation 4 record how subject j reconstructs focal subject i from accessible manifestations, prior relations, interpretive practices, institutional categories, and other retained evidence. The index $j = i$ is permitted and marks a self-reconstruction. The same notation can therefore represent the focal subject's historically situated account of itself and the reconstructions produced by other subjects without identifying either with the whole relational subject.

For a fixed reconstructing subject j and historical interval I , the reconstruction history is stated in Equation 8.

$$\widehat{\mathbf{s}}_{i|j,I} := (\widehat{\text{Subj}}_{i,t}^j)_{t \in I}. \quad (8)$$

Equation 8 records changes in a subject-relative reconstruction without presuming that the reconstruction space carries a metric or that successive reconstructions can be totally ordered by accuracy. A later specialization may introduce such structures when an empirical design warrants them. At the present level, the history makes disagreement, lag, revision, and convergence representable.

Self-reconstruction has a distinctive role in a theory of subject formation. A subject's narrative about what it can do, what it values, which commitments it recognizes, how it interprets its past, and which futures it regards as available can itself become causally and generatively efficacious. A person who comes to regard volunteering as integral to their practical identity may make different commitments,

accept different costs, or reinterpret earlier events through that identity. A recipient who comes to understand support as evidence of incapacity may narrow future action even when the supporting relation initially expanded material opportunity. These possibilities give self-reconstruction potential constitutive significance without making self-description infallible.

Other-subject reconstruction can likewise become consequential. Public recognition, institutional assessment, reputational classification, and role attribution can alter access, expectation, standing, trust, and available continuation paths. Agreement among several observers can stabilize a description that later shapes the focal subject's environment and self-reconstruction. Yet convergence does not provide direct access to ultimate subject ontology, and a socially stabilized description can remain inaccurate, dominating, or resisted. Paper III therefore treats reconstruction both as evidence and, in some histories, as a possible part of the causal provenance of later relational change.

The framework also permits durable disagreement. The focal subject can report increased autonomy while an institution records increased dependence; supporters can interpret persistence as commitment while the focal subject experiences constraint; a public can assign a stable helper identity that the person actively rejects. Such disagreement is not a defect that the model must eliminate before analysis begins. It can be part of the formation process itself and can become an object of later sections on recognition, role internalization, asymmetry, resistance, and reopening.

4.5 Manifestation Feedback in Subject Formation

Manifestations and reconstructions can participate in later relational organization. A public title can change deference; a repeated narrative can stabilize a practical identity; an institutional classification can open or close action routes; a visible refusal can alter later expectations; and repeated recognition of one subject as a helper or dependent recipient can change the continuation space available to that subject. Paper III therefore inherits the manifestation-feedback idea from Paper I and specializes it to subject formation.

For historical stages $t \preceq t'$, define the subject-formation manifestation-feedback relation in Equation 9.

$$\beta_{i,t' \leftarrow t}^\kappa \subseteq M_{i,t} \times \mathcal{K}_{i,t'}^\kappa. \quad (9)$$

Membership $(m, x') \in \beta_{i,t' \leftarrow t}^\kappa$ records that manifestation m is retained by the model as part of the causal or generative provenance of later represented subject structure x' . Equation 9 is relation-valued because one manifestation can contribute to several later structures, several manifestations can jointly participate in one later reorganization, and many manifestations can leave no durable trace. The relation also remains weaker than a constitutive verdict: Section 5 must still determine whether the later structure is relevant to the diagnostic of subject constitution.

The feedback relation should be interpreted with particular care in volunteer and support relations. Repeated gratitude can stabilize a helper role; repeated requests can normalize dependence; public praise can make continued volunteering costly to refuse; a formal recognition can enlarge later opportunities; a documented diagnosis can reshape institutional treatment; and an interface that repeatedly channels one subject into a recipient position can narrow the subject's available modes of participation. In each example, the manifestation participates in later relational organization through a historically specified pathway. The formalism does not treat the manifestation itself as the complete cause of the later subject configuration.

Third positions can mediate the feedback represented by Equation 9. A reviewer, audience, institution, translator, platform, or public can circulate, amplify, reinterpret, or stabilize a manifestation before it becomes consequential for the focal subject. Where such mediation materially affects the formation history, Paper III can import the triadic carrier from Equation 5. The dyadic case remains sufficient when no third-position pathway carries explanatory burden.

Manifestation feedback also clarifies why the three-level architecture should not be written as a fixed causal chain from ontology to relation to manifestation. Paper III models historically contingent relations

Table 4: Cross-level evidence patterns and the formation claims they can support.

Observed pattern	Primary interpretation	Permitted inference at this stage
Manifestation changes while retained relational structure remains stable	Presentation, experimentation, strategic performance, or classification change	A manifestation-level change is established; subject-constitutive transformation remains open
Relational structure changes while familiar manifestations persist	Latent, concealed, slowly manifested, or institutionally unrecognized reorganization	A relational change can be investigated despite manifestational continuity; constitutive relevance remains diagnostic-dependent
Self-reconstruction changes without independent relational support	Revised self-interpretation, aspiration, narrative, or classification	Self-reconstruction has changed; broader relational subject transformation requires additional support
Public reconstruction converges while the focal subject contests it	Social stabilization of an attributed identity or role	The public description can be relationally efficacious without becoming an uncontested account of the focal subject
Manifestation or public reconstruction contributes to later relational structure	Feedback, recognition, sedimentation, institutionalization, or path-dependent role formation	A candidate provenance pathway is established when the relevant historical linkage is supported
Relational, manifestation, and reconstruction trajectories converge over time	Multi-source stabilization of a subject change	Evidential support for retained transformation is strengthened; neither ultimate ontology nor constitutive significance follows without the relevant independent argument

between relational subject structure and manifestation, including feedback into later relational organization. Ultimate ontology remains outside this modeled loop. The positive formal claim is therefore a typed historical coupling within relational and manifestation analysis, not a derivation of social reality from an asserted ontological substrate.

4.6 Cross-Level Evidence Patterns for Formation Claims

The preceding distinctions allow Paper III to state more precisely what different empirical or interpretive patterns can support. Table 4 records recurrent combinations that later sections can use as diagnostic warnings. The patterns are illustrative rather than exhaustive, and none substitutes for the constitutive criterion introduced in Section 5.

The table makes visible a general principle of the present paper: stronger cross-level convergence can strengthen evidence for a relational transformation without collapsing the levels into one another. Conversely, disagreement among levels can be analytically informative rather than merely noisy. A lagging self-reconstruction can indicate unresolved formation; a stable public role can preserve path dependence after the focal subject attempts to exit; a changed manifestation can reveal experimentation whose later retention remains uncertain; and conflicting reconstructions can reveal power over who is authorized to define the subject publicly.

This architecture also prevents an evidential asymmetry that would privilege external observation automatically over first-person reconstruction or the reverse. Self-reports, behavior, public records, institutional classifications, relational histories, and third-party reconstructions can each carry different evidential weight depending on the research question. Methodological pluralism requires the analysis to state why a source is probative for a particular subject-level structure and to retain relevant disagreement when the evidence does not warrant reconciliation.

The three-level reality architecture now supplies the epistemic and ontological discipline required for a formal account of subject co-formation. Paper III can describe historically retained subject reorga-

nization at relational reality, trace how that reorganization manifests, represent how the focal subject and others reconstruct it, and record feedback through which manifestations or reconstructions contribute to later subject organization. None of these operations requires a claim about ultimate personal ontology. Section 5 will add the missing diagnostic layer by defining a family of subject-constitution diagnostics that selects which relational structures are relevant to a particular claim of constitutive transformation.

5 Subject-Constitutive Diagnostic Structure

The preceding sections established a history-bearing subject carrier, a tracking relation that licenses longitudinal comparison, and a three-level architecture separating relational subject structure from manifestation and subject-relative reconstruction. Those constructions identify where a subject-formation claim can be represented, but they do not determine which retained structures count as constitutively relevant for a particular inquiry. The role of the present section is to supply that missing analytical layer. Its objective is to define a typed, application-relative diagnostic family that selects constitutively relevant subject structures without presupposing an exhaustive theory of subjecthood. The discussion proceeds through the local diagnostic domain, admissibility conditions, partial diagnostic profiles, non-scalar comparison records, cross-level evidential discipline, and recurrent diagnostic families used later in the paper. The method is formal and diagnostic rather than ontologically exhaustive: a diagnostic states what the current inquiry treats as constitutively relevant and why, while ultimate subject ontology remains suspended.

The section uses the term *diagnostic* in a deliberately restricted sense. A diagnostic is neither a psychological test nor a numerical score of personal identity. It is a declared analytical procedure for extracting a typed subject-level structure from the retained relational carrier and specifying when two such extracted structures count as equivalent for the current question. This usage permits different inquiries to retain different constitutive dimensions while preserving a common discipline of typing, comparison, evidence, and revision.

5.1 Local Diagnostic Domain

Section 3.1 represents focal subject i at stage t by the history-bearing carrier $\mathcal{K}_{i,t}^\kappa$. For a declared historical interval I and analytical resolution κ , collect the stage-indexed carriers used by the local inquiry into the comparison domain stated in Equation 10.

$$\mathbf{K}_{i,I}^\kappa := \{ \mathcal{K}_{i,t}^\kappa \mid t \in I \}. \quad (10)$$

Equation 10 is a local comparison domain rather than a universal class of possible subjects. Longitudinal comparison between two members remains licensed only when the relevant tracking relation $\tau_{t' \leftarrow t}^i$ from Equation 2 is warranted under the declared reidentification criteria. The diagnostic layer therefore presupposes a tracked comparison target; it does not repair an unresolved identity or successorship problem by itself.

Let δ denote the declared analytical purpose of the constitutive inquiry. Examples include whether a support relation altered the focal subject's practical horizon, whether repeated volunteering reorganized a retained evaluative repertoire, or whether a publicly stabilized recipient role became consequential for later refusal capacity. For that purpose, let Q_δ be a finite index set of diagnostic dimensions retained by the inquiry. For each $q \in Q_\delta$, let $\mathcal{Z}_q$ be the typed codomain appropriate to that dimension, let d_q be a partial extraction map from the local carrier domain, and let $\approx_q$ be the declared equivalence on $\mathcal{Z}_q$. The subject-constitutive diagnostic family is defined in Equation 11.

$$\mathfrak{D}_{i,I}^{\kappa,\delta} := \left(Q_\delta, \{ (\mathcal{Z}_q, d_q, \approx_q) \}_{q \in Q_\delta} \right), \quad d_q : \mathbf{K}_{i,I}^\kappa \rightharpoonup \mathcal{Z}_q. \quad (11)$$

The partiality in Equation 11 is substantive. A diagnostic dimension can be unavailable at one stage because the retained representation lacks the required structure, because evidence is insufficient to warrant the relevant reconstruction, or because the dimension is inapplicable under the current model. The

framework therefore permits an undefined diagnostic value rather than forcing an artificial completion. The codomains $\mathcal{Z}_q$ can also differ by dimension. A practical-horizon diagnostic can be set- or relation-valued, a role-organization diagnostic can be graph- or relation-valued, a value-repertoire diagnostic can be structured by partial orders or typed commitments, and a boundary diagnostic can be represented through admissible interfaces. Nothing in Equation 11 requires a common scalar codomain.

The index δ matters because constitutive relevance is question-relative. A legal-identity inquiry, a study of volunteer-role internalization, and an analysis of generative-capacity transformation can legitimately retain different dimensions even when they concern the same tracked subject history. Diagnostic relativity does not mean that any chosen criterion is equally adequate. The choice must satisfy explicit admissibility conditions and remain open to criticism, evidence, and revision.

5.2 Admissibility of a Subject-Constitutive Diagnostic

A diagnostic family can support later constitutive claims only when its construction is sufficiently transparent to distinguish analytical choice from evidential result. Definition 5.1 states the minimum requirements used in this paper.

Definition 5.1 (Admissible subject-constitutive diagnostic). A family $\mathfrak{D}_{i,I}^{\kappa,\delta}$ is admissible for the present analysis when the inquiry declares:

1. the focal subject, historical interval, analytical resolution, and tracking criteria that determine the comparison target;
2. the analytical role of every retained dimension $q \in Q_\delta$ and the reason that the dimension is potentially constitutively relevant to purpose δ ;
3. the type of each codomain $\mathcal{Z}_q$, the definedness conditions of d_q , and the meaning of the component equivalence $\approx_q$;
4. the evidential route by which values of d_q are warranted from the retained relational record, together with relevant uncertainty or disagreement;
5. any dependence of the diagnostic on manifestation, self-reconstruction, public reconstruction, institutional classification, or third-position mediation, without identifying those records automatically with relational subject structure;
6. the scope within which the family is claimed to be adequate, including known omitted dimensions and conditions that would require diagnostic revision.

Definition 5.1 prevents the diagnostic family from becoming a hidden theory of essence. A study cannot declare a subject transformed merely because a convenient observable variable changed. The retained dimension must have a stated subject-level role, and the analysis must explain how the represented change bears on what the focal subject can do, sustain, recognize, value, refuse, become, or be reidentified as within the local research question.

The admissibility conditions also separate *diagnostic design* from *diagnostic outcome*. Selecting practical horizon as a constitutively relevant dimension does not establish that the practical horizon changed. Selecting role organization does not establish role internalization. Selecting self-reconstruction does not establish that a self-description became relationally efficacious. The diagnostic family states what evidence would matter to the inquiry; the historical record supplies, fails to supply, or underdetermines the corresponding result.

No normative judgment is built into Definition 5.1. A diagnostic can register that a support relation expanded a practical horizon, narrowed a refusal route, stabilized a dependency, altered a value repertoire, or reorganized a public role without deciding whether the change was good, legitimate, consensual, unjust, or desirable. Those evaluations belong to later normative papers in the programme or to explicitly declared normative diagnostics that would require their own justification.

5.3 Partial Diagnostic Profiles

Because different diagnostic components can be warranted at different stages, Paper III represents the stage-level result as a partial profile rather than a complete vector. For focal subject i at stage t , the diagnostic profile induced by Equation 11 is stated in Equation 12.

$$\text{Prof}_{i,t}^{\kappa,\delta} := \{ (q, d_q(\mathcal{K}_{i,t}^\kappa)) \mid q \in Q_\delta, \mathcal{K}_{i,t}^\kappa \in \text{dom}(d_q) \}. \quad (12)$$

Equation 12 preserves three distinctions that would be obscured by a completed attribute vector. First, omission of a component can record underdetermination rather than absence of the relevant subject feature. Second, distinct components can use different data types and equivalence relations. Third, the profile remains an analytical projection of the history-bearing carrier rather than a replacement for the subject carrier itself.

The profile is therefore intentionally thinner than $\mathcal{K}_{i,t}^\kappa$ and more selective than the three-level profile $\Lambda_t(\text{Subj}_i)$ in Equation 4. The subject carrier retains structures that may prove irrelevant to purpose δ . The three-level profile also retains manifestation and reconstruction records that can provide evidence or participate in later feedback. Equation 12 extracts only the dimensions that the current constitutive inquiry has justified as analytically relevant.

Partiality also supports disciplined disagreement. An institution can warrant one value for a dependency component while the focal subject contests that interpretation. Available evidence can support a change in practical horizon while leaving value migration unresolved. A public role can be clearly stabilized while its incorporation into self-reconstruction remains uncertain. The framework permits these mixed profiles without reducing them prematurely to one global verdict.

5.4 Typed Comparison without a Formation Scalar

The diagnostic family allows the paper to record which dimensions differ across two tracked stages without introducing a scalar degree of subject formation. Let $t \preceq t'$ and suppose $\tau_{t' \leftarrow t}^i$ warrants comparison of the focal subject across the two stages. The changed-dimension set is defined in Equation 13.

$$\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} := \left\{ q \in Q_\delta \mid \begin{array}{l} \mathcal{K}_{i,t}^\kappa, \mathcal{K}_{i,t'}^\kappa \in \text{dom}(d_q), \\ d_q(\mathcal{K}_{i,t}^\kappa) \not\approx_q d_q(\mathcal{K}_{i,t'}^\kappa) \end{array} \right\}. \quad (13)$$

The unresolved-dimension set is defined separately in Equation 14.

$$\text{Und}_{i,t' \leftarrow t}^{\kappa,\delta} := \{ q \in Q_\delta \mid \mathcal{K}_{i,t}^\kappa \notin \text{dom}(d_q) \vee \mathcal{K}_{i,t'}^\kappa \notin \text{dom}(d_q) \}. \quad (14)$$

Equations 13 and 14 preserve a typed record of comparison outcomes. A dimension outside both sets is diagnostically stable under its declared equivalence. A dimension in $\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$ changed in the sense retained by the inquiry. A dimension in $\text{Und}_{i,t' \leftarrow t}^{\kappa,\delta}$ lacks a warranted comparison. These outcomes do not yet define whole-subject constitutive equivalence; Section 6 will specify how a declared constitutive comparison uses the component-level records.

The set-valued construction is preferable to an invented score such as “73% formed” or a universal distance between earlier and later subjects. Different diagnostic dimensions can be incomparable in type, significance, reversibility, persistence, and evidential quality. A changed refusal route and a reorganized value repertoire need not admit a common unit. Quantitative specializations remain possible when a concrete application supplies justified metrics, weights, and aggregation rules, but the general metaphysical framework does not presuppose them.

The same discipline applies to cardinality. The size of $\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$ is not automatically a measure of transformation. One diagnostic family can contain several fine-grained capacity dimensions while another retains one coarse boundary dimension. A single changed dimension can also carry greater constitutive significance under a declared criterion than several peripheral changes. The present paper therefore treats the identity of changed dimensions and the structure of their historical relations as analytically primary.

5.5 Relational Anchoring and Cross-Level Evidence

A subject-constitutive diagnostic in Paper III targets relational subject structure. Manifestations and reconstructions can provide evidence for that structure and can participate in its later formation, but they do not automatically become constitutive findings. This constraint follows directly from the three-level architecture of Section 4.

For example, a public description of A as a “dedicated volunteer” can be highly visible while the diagnostic of A’s practical horizon remains stable. A self-description of increased autonomy can be important evidence while institutional route dependence remains unresolved. Conversely, a capacity reorganization can be retained in $\mathcal{K}_{i,t}^\kappa$ before it becomes visible in $M_{i,t}$ or articulated in $\widehat{\text{Subj}}_{i,t}^i$. The diagnostic map d_q should therefore be read as operating on the represented relational carrier. Manifestation and reconstruction records help warrant, contest, or explain the carrier-level interpretation; they do not bypass it.

The manifestation-feedback relation $\beta_{i,t' \leftarrow t}^\kappa$ from Equation 9 supplies the important exception in a typed form. A manifestation or reconstruction can become part of the provenance of later relational subject structure when the historical model warrants such feedback. In that case, the later constitutive diagnostic can legitimately register the resulting relational reorganization. The constitutive object is the later retained structure and its history of formation, not the mere existence of an earlier manifestation.

This relational anchoring also disciplines first-person authority. A focal subject’s reconstruction can have distinctive evidential and ethical importance, especially for values, commitments, memory, refusal, and self-understanding. The framework does not treat first-person reports as automatically infallible descriptions of every relational dependency or public structure, and it does not permit external records automatically to override first-person reconstruction. A diagnostic must state why each evidence source is probative for the dimension being assessed. Where disagreement remains material, the disagreement should remain visible in the evidential record and can itself become part of later analysis.

5.6 Recurrent Diagnostic Families in Paper III

Paper III develops several recurrent diagnostic families in later sections. Table 5 previews their analytical targets and the cautions that constrain their use. The table is a research architecture rather than an exhaustive inventory of subjecthood. A concrete study can omit a listed family, refine one into several typed components, or introduce another dimension when the research question warrants it.

Table 5 shows why the diagnostic architecture is intentionally plural. Subject formation can concern what a subject can practically initiate, what it has learned to recognize as valuable, which dependencies condition its action, how it reconstructs itself, which roles have sedimented, which publics stabilize or contest its standing, and which historical pathways remain causally active. These structures can interact without becoming interchangeable. Later sections therefore analyze their couplings while retaining their types.

The table also prevents later substantive sections from silently redefining the paper’s object. Section 10 can develop practical-horizon machinery without implying that practical horizon exhausts subjecthood. Section 12 can study generative capacities without turning capacity into a complete theory of personal constitution. Section 15 can analyze recognition-mediated formation without treating public recognition as sufficient for subject formation. Each later diagnostic remains a specialization of the general architecture stated in Equation 11.

5.7 Diagnostic Revision and Scope Discipline

Diagnostic relativity creates a revision obligation. If later analysis reveals that a retained family omits a structure necessary to explain the focal subject’s historical reorganization, the appropriate response is to revise Q_δ , the relevant codomain, the extraction map, or the equivalence criterion and then reassess the comparison. The framework should not preserve a convenient diagnostic by declaring unrepresented evidence irrelevant after the fact.

Table 5: Recurrent subject-constitutive diagnostic families used in Paper III.

Diagnostic family	Relational target	Later treatment	Primary caution
Boundary and interface organization	Which relations, supports, institutions, and interfaces enter the retained organization through which the subject acts or is acted upon	Section 9	Boundary change does not by itself establish numerical subject replacement
Practical horizon	Available, maintainable, and refutable continuation possibilities under the retained relational conditions	Section 10	More available options do not automatically imply greater effective agency or normative improvement
Evaluative and normative repertoire	Retained distinctions, commitments, priorities, and evaluative structures that organize later choice and interpretation	Section 11	Expressed endorsement alone need not establish durable value migration
Generative capacity	Capacities to initiate, sustain, revise, learn, coordinate, or generate later relational possibilities	Section 12	Exercised performance and latent capacity should remain distinguishable
Self-reconstruction efficacy	Historically retained self-interpretations insofar as they reorganize later action, commitment, memory, or practical possibility	Section 13	Self-description is evidentially important without being automatically identical to the relational subject
Role-position organization	Sedimentation, internalization, resistance, exit cost, and practical consequences of repeatedly occupied relational positions	Section 14	Role occupation alone does not establish role constitution
Recognition-mediated organization	Standing, reputation, audience effects, public recognition, and institutionally stabilized descriptions that alter later possibilities	Section 15	Public stabilization can remain inaccurate, dominating, or contested
Third-position formation pathway	Translation, review, authorization, brokerage, institutional, or public pathways that materially contribute to later subject organization	Section 16	A third position can be causally relevant without making the formation irreducibly triadic
Historical retention and path dependence	Persistence, delayed effects, feedback, branching, reopening, and dependence on the ordered formation history	Sections 18–19	Present-state similarity can coexist with different formation histories and different future continuations

Revision can occur at several levels. A new subject dimension can be added; a coarse diagnostic can be refined; the analytical resolution κ can change; an equivalence $\approx_q$ can be replaced when it erases a distinction that later proves consequential; or the tracking domain itself can require reconsideration. These revisions change the analytical question. Results obtained under an earlier diagnostic should therefore remain indexed to that diagnostic rather than being silently carried into the revised model as though nothing had changed.

Cross-resolution stability is accordingly an evidential advantage rather than a universal requirement. A constitutive finding that survives several reasonable diagnostics and resolutions can be more robust

than one that appears only under a highly specific coding. Yet some legitimate questions are intrinsically fine-grained. Diagnostic sensitivity should be reported and interpreted, not automatically treated as failure.

The present section supplies the selection architecture needed for the paper's stronger metaphysical claims. A tracked subject history can now be examined through a declared, typed, partially defined, evidentially accountable family of constitutive diagnostics. The resulting comparison records identify stable, changed, and unresolved dimensions without converting them into a universal formation score. Section 6 will use this architecture to define constitutive equivalence across tracked stages and to distinguish reconfiguration of one continuing subject from cases in which tracking, successorship, splitting, or merging requires a different analysis.

6 Persistence under Constitutive Reconfiguration

Section 5 supplied a typed diagnostic family for identifying stable, changed, and unresolved subject-level dimensions across a tracked history. The present section gives those component-level records a whole-comparison interpretation. Its role is to distinguish constitutive stability, constitutive reconfiguration, and unresolved constitutive status while preserving historical tracking as a separate analytical burden. The section then extends the comparison architecture to reidentification, successorship, splitting, and merging, where a single continuing focal label is insufficient. The method remains model-relative and diagnostic. The resulting verdicts concern represented relational subject organization under declared tracking and diagnostic rules; they do not settle ultimate numerical identity.

6.1 Resolved and Unresolved Constitutive Comparison

The diagnostic family $\mathcal{D}_{i,I}^{\kappa,\delta}$ from Equation 11 yields the changed-dimension set $\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$ and unresolved-dimension set $\text{Und}_{i,t' \leftarrow t}^{\kappa,\delta}$. The complementary set of dimensions on which a comparison is actually available is defined in Equation 15.

$$\text{Cmp}_{i,t' \leftarrow t}^{\kappa,\delta} := Q_\delta \setminus \text{Und}_{i,t' \leftarrow t}^{\kappa,\delta}. \quad (15)$$

Equation 15 records analytical coverage rather than evidential strength. A dimension can belong to $\text{Cmp}_{i,t' \leftarrow t}^{\kappa,\delta}$ because both stage values are sufficiently warranted for comparison even when the underlying evidence remains contestable or probabilistic. The evidential status of the extracted values therefore remains part of the diagnostic record specified by Definition 5.1.

Whole-profile comparison should preserve the asymmetry between evidence of change and absence of evidence of change. A single warranted change on a dimension included in the diagnostic is sufficient to establish diagnostic nonequivalence for the current purpose. By contrast, an absence of detected change supports constitutive equivalence only when every retained dimension has a warranted comparison. Paper III therefore uses the three-valued verdict in Equation 16.

$$\text{CVerd}_{i,t' \leftarrow t}^{\kappa,\delta} := \begin{cases} \text{reconfigured,} & \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} \neq \emptyset, \\ \text{equivalent,} & \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} = \emptyset \wedge \text{Und}_{i,t' \leftarrow t}^{\kappa,\delta} = \emptyset, \\ \text{underdetermined,} & \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} = \emptyset \wedge \text{Und}_{i,t' \leftarrow t}^{\kappa,\delta} \neq \emptyset. \end{cases} \quad (16)$$

Equation 16 supplies the paper's operational meaning of constitutive equivalence. Its equivalent verdict applies when the earlier and later tracked configurations are equivalent on every constitutive dimension retained by the declared diagnostic. Its reconfigured verdict applies when at least one retained constitutive dimension has a warranted nonequivalent value. Its underdetermined verdict preserves cases in which no changed dimension has been established while at least one required comparison remains unavailable.

The first line of Equation 16 remains valid when other dimensions are unresolved. A warranted nonequivalence on one constitutive dimension already defeats whole-profile equivalence under the conjunctive diagnostic used here. The unresolved dimensions continue to matter for interpretation because they can affect the kind, extent, provenance, reversibility, or later normative evaluation of the transformation. The verdict therefore establishes the presence of constitutive reconfiguration without claiming that its complete structure has been recovered.

The conjunctive form is a deliberate baseline rather than a universal metaphysical law. A later application can justify a different decision rule, for example where several dimensions jointly constitute a higher-order pattern or where a domain-specific diagnostic treats some dimensions as alternatives. Such a specialization must be declared as part of δ and cannot be imported silently into the general framework.

6.2 Tracking Continuity and Constitutive Continuity

Tracking continuity and constitutive continuity answer different questions. Definition 3.1 asks whether the historical record licenses comparison of later represented material as a continuation, descent, or reidentification of focal subject i under the declared tracking criterion. Equation 16 asks whether the retained constitutive organization is equivalent across that warranted comparison. The two results can therefore vary independently.

Definition 6.1 (Tracked constitutive reconfiguration). Let $t \preceq t'$ and suppose the declared tracking criterion warrants continuity of focal subject i across the relevant represented material through $\tau_{t' \leftarrow t}^i$. The history exhibits *tracked constitutive reconfiguration* under $\mathfrak{D}_{i,I}^{\kappa,\delta}$ when $\text{CVerd}_{i,t' \leftarrow t}^{\kappa,\delta} = \text{reconfigured}$.

Definition 6.1 gives the paper a direct representation of persistence through transformation. A volunteer can remain the historically tracked person while acquiring a different practical horizon, evaluative repertoire, or durable role organization. A recipient can remain the tracked person while a support relation expands capacities, narrows refusal routes, or reorganizes dependence. An organization can preserve legal and documentary continuity while its mission, decision procedures, and relational boundaries become constitutively different under the selected diagnostic.

Tracked constitutive reconfiguration therefore carries two model-relative claims at once: the comparison target remains historically linked under the declared tracking rule, and the later subject organization is diagnostically nonequivalent to the earlier organization. Neither claim establishes an ultimate fact about numerical personal identity. Ontological suspension remains in force, and the tracking rule itself remains revisable when later evidence exposes an omitted continuity or discontinuity condition.

Table 6 summarizes the principal combinations used by the paper.

Table 6 also prevents a common inferential shortcut. Similar diagnostic profiles do not establish tracking continuity, because two distinct subjects can be highly similar. Conversely, strong diagnostic nonequivalence does not defeat tracking continuity by itself, because the framework is designed precisely to represent a continuing subject that changes substantially.

6.3 Reidentification and Successorship

The inherited relation $\tau_{t' \leftarrow t}^i$ is well suited to comparison within a declared focal subject history. Boundary cases require an additional representation because the later model can contain a different subject label, several candidate continuations, or a configuration assembled from several earlier histories. Paper III therefore introduces a local successorship relation on subject labels. Let $\mathcal{I}_t$ and $\mathcal{I}_{t'}$ denote the subject-label sets admitted by the local model at the two stages. The relation is defined in Equation 17.

$$\sigma_{t' \leftarrow t}^{\kappa} \subseteq \mathcal{I}_t \times \mathcal{I}_{t'}. \quad (17)$$

Membership $(i, j) \in \sigma_{t' \leftarrow t}^{\kappa}$ means that the retained historical evidence warrants treating later subject label j as a *successor candidate* of earlier subject label i at resolution κ . The relation can be supported

Table 6: Tracking and constitutive-comparison statuses

Tracking status	Constitutive verdict	Licensed interpretation	Remaining burden
Warranted	Equivalent	Tracked constitutive stability under the declared diagnostic	Robustness to alternative diagnostics, resolutions, and later evidence
Warranted	Reconfigured	Persistence through constitutive reconfiguration under the declared tracking rule	Kind, provenance, retention, reversibility, and later normative assessment
Warranted	Underdetermined	Historical continuation with unresolved constitutive status	Resolve the missing diagnostic dimensions or narrow the claim
Unresolved	Any apparent profile relation	No within-subject constitutive verdict is licensed	Repair tracking or move to a successorship/reidentification analysis
Discontinuous under the declared rule	Any apparent profile relation	The present model does not treat the stages as one tracked comparison target	Examine replacement, succession, branching, merging, or revision of the tracking criterion

by bodily or infrastructural continuity, memory or state continuity, documentary linkage, control continuity, inherited obligations, causal descent, institutional recognition, or another criterion appropriate to the application. Successor candidacy is intentionally weaker than numerical identity and weaker than constitutive equivalence.

Equation 17 is an extension required by the boundary cases of Paper III; it does not silently replace the inherited within-subject relation $\tau_{t' \leftarrow t}^i$. Where the same focal label remains adequate and tracking is warranted, $\tau_{t' \leftarrow t}^i$ remains the primary comparison bridge. The label-level successorship relation becomes relevant when that representation is too coarse for branching, merging, relabelling, or institutional succession.

For a candidate predecessor i and later candidate j , define the local successor and predecessor sets in Equation 18.

$$\begin{aligned} \text{Succ}_{t' \leftarrow t}^\kappa(i) &:= \{j \in \mathcal{I}_{t'} \mid (i, j) \in \sigma_{t' \leftarrow t}^\kappa\}, \\ \text{Pred}_{t' \leftarrow t}^\kappa(j) &:= \{i \in \mathcal{I}_t \mid (i, j) \in \sigma_{t' \leftarrow t}^\kappa\}. \end{aligned} \quad (18)$$

Equation 18 records the topology of historical candidacy without deciding which candidate, if any, preserves personal or institutional identity. A one-to-one edge can represent relabelling, reidentification, legal continuation, or mere successorship. Additional criteria are required to distinguish those interpretations. A one-to-many structure exposes a splitting boundary; a many-to-one structure exposes a merging boundary; and a many-to-many structure indicates a more complex reorganization of subject histories.

6.4 Splitting and Merging Boundaries

Splitting and merging reveal why tracking continuity cannot be reduced to similarity of constitutive profiles. Suppose an earlier configuration i has two later successor candidates j_1 and j_2 . Both can inherit substantial memory, capacities, obligations, or relational ties. Their later profiles can each remain close to the earlier profile while diverging from one another. A theory that forces one later candidate to be the unique continuation solely because it is marginally more similar would import an identity metric that the general GR framework has not justified.

The same caution applies to merging. If a later configuration j has predecessor candidates i_1 and i_2 , the later subject may inherit structures from both histories. Constitutive similarity to either predecessor

Table 7: Local successorship patterns and their analytical interpretation

Successorship pattern	Local signature	Permitted interpretation	Additional burden
Unique candidate	One successor and one predecessor in the local relation	One-to-one historical successorship or reidentification candidate	Determine whether the applicable criterion warrants continued identity, succession, or replacement
Splitting boundary	One earlier label with several later successor candidates	Branching historical descent	Determine whether one, several, or none of the branches count as continuing subjects under the application
Merging boundary	Several earlier labels with one later successor candidate	Convergent historical descent	Determine how inherited structures and obligations are combined and whether identity claims remain meaningful
Many-to-many reorganization	Several predecessor and successor candidates	Networked historical reorganization	Supply a finer tracking model, temporal decomposition, or institution-specific continuation rule
No successor candidate	Empty successor set under the declared evidence rule	Discontinuity or unresolved disappearance in the present model	Distinguish genuine discontinuity from missing evidence, boundary error, or inadequate resolution

can be high without licensing the claim that j is numerically identical to both. The successorship relation therefore records the historical structure first; stronger identity claims require application-specific reidentification criteria and, where relevant, legal, institutional, biological, technical, or first-person considerations.

Table 7 summarizes the principal local boundary patterns.

The cardinalities in Table 7 describe local relation structure only. They are not a measure of identity strength. A split into two successors does not make each successor “half” a subject, and a merge of three predecessors does not generate a threefold identity. Quantitative inheritance models can be introduced in specialized applications where divisible resources, probabilities, control shares, or legal liabilities are genuinely at issue, but those quantities do not automatically answer the metaphysical question of subject persistence.

These boundary patterns can also occur without dramatic visible change. A software-based subject can fork into near-identical successors. An organization can divide while each branch preserves the predecessor’s public name or practices. Two institutions can merge while the new organization initially presents itself as continuous with one predecessor. The three-level discipline of Section 4 therefore remains necessary: manifestation similarity, public recognition, and self-description can inform reidentification without exhausting the relational history.

6.5 Successorship, Replacement, and Ontological Restraint

Paper III uses *persistence*, *reconfiguration*, *successorship*, and *replacement* as model-relative analytical terms. Persistence refers to a warranted historical tracking bridge within the selected comparison target. Reconfiguration refers to diagnostic nonequivalence under Equation 16. Successorship refers to the candidate relation in Equation 17. Replacement is reserved for applications whose declared reidentification

rule treats the later configuration as a different subject rather than as a continuation of the earlier one.

These terms should therefore remain indexed to their criteria. A legal system can treat an incorporated entity as continuously identical across ownership change while a sociological diagnostic registers deep constitutive reorganization. A technical system can treat a forked computational process as a new identifier while a responsibility analysis preserves a successorship relation to the pre-fork history. A participant can experience a discontinuity in self-understanding while institutional records preserve uninterrupted identity. The framework permits these descriptions to coexist because they answer different questions.

The same restraint applies to the language of numerical personal identity. The formalism can establish that a tracked subject remained comparable across a history and underwent constitutive reconfiguration. It can establish that a later entity is a candidate successor of one or several predecessors. It can show that a declared tracking criterion fails or that several criteria disagree. These results do not by themselves prove whether an ultimate metaphysical individual survived, ceased, divided, or fused. Such stronger claims would require an ontology that the present GR programme intentionally suspends.

This restraint has a practical payoff for the later co-formation analysis. Relationally generated subject change need not be redescribed as replacement whenever it becomes deep. The model can preserve a continuing comparison target while recognizing substantial reconstitution. Conversely, historical descent need not be forced into same-subject language when the evidence supports only successorship. Section 7 can therefore ask a cleaner causal-historical question: given a warranted persistence or successorship structure and a diagnosed constitutive change, what role did the focal volunteer or support relation play in generating, selecting, stabilizing, or reorganizing that change?

7 Relational Provenance of Subject Change

Sections 5–6 make it possible to identify a tracked subject and to diagnose a constitutively relevant reconfiguration under a declared diagnostic. A co-formation claim carries an additional historical burden. The fact that a constitutive change occurred during a volunteer or support relation does not establish that the relation generated the change. The role of the present section is to specify this provenance burden. Its objective is to distinguish temporal association from evidence-supported generative contribution, to represent mixed and distributed provenance, to identify the contribution of the focal support relation without assigning it exclusive causal authorship, and to preserve underdetermination when several historical reconstructions remain compatible with the retained evidence. The discussion proceeds through provenance bearers, typed contribution modes, relation-specific provenance, mediated and distributed pathways, evidence-relative underdetermination, and history dependence. The method is historical and model-relative. The formalism records warranted generative participation inside a declared history; it does not supply a general theory of social causation or replace empirical causal identification.

The section uses *provenance* more narrowly than ordinary causal language. A provenance record answers which retained subjects, relations, procedures, manifestations, institutions, events, or historical conditions materially participated in generating, enabling, constraining, selecting, stabilizing, reorganizing, or mediating a diagnosed constitutive change. It does not require one privileged cause. It also does not imply moral responsibility, legal liability, intentional authorship, or normative credit. These interpretations require additional theories developed elsewhere in the research programme.

7.1 Constitutive Change as the Provenance Target

Relational provenance is evaluated only after a target change has been specified. Let focal subject i be admitted for longitudinal comparison over $t \preceq t'$, and let $\mathcal{D}_{i,[t,t']}^{\kappa,\delta}$ be the diagnostic family defined in Section 5. The changed constitutive dimensions are already recorded by $\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$. Section 6 then supplies the whole-comparison verdict. Provenance analysis therefore begins with a target such as a changed practical horizon, altered generative capacity, reorganized role structure, transformed evaluative

repertoire, or another retained diagnostic dimension. It does not begin from the generic assertion that “the person changed.”

This ordering prevents two common forms of overreach. First, a history may contain many consequences of a support relation while only some are constitutively relevant under the selected diagnostic. Second, a subject may be constitutively reconfigured for reasons that are largely independent of the focal support relation. Paper III therefore separates the existence of a target transformation from its relational provenance.

The temporal interval used for provenance need not coincide exactly with the interval used to observe the final diagnostic difference. A relation at stage t_0 can contribute to a structure that stabilizes only at t_2 , with intermediate stages of practice, public recognition, institutional response, or self-reconstruction. Conversely, a relation can occur throughout an interval without contributing materially to the target transformation. Temporal overlap is therefore an admissibility condition for some provenance claims, not a sufficient criterion.

7.2 Provenance Bearers and Contribution Types

Let $\mathfrak{B}_{i,[t,t']}^\kappa$ denote the declared class of admissible provenance bearers for focal subject i over the relevant history. Depending on the application, the class can contain subject-spacetimes, the focal volunteer/support relation, other relations, procedure elements, role positions, manifestations, public records, institutions, material resources, infrastructures, third-position pathways, or exogenous events retained by the model. A bearer is admitted because the application has a principled way to track its participation in the history, not merely because it is available as descriptive context.

Paper III uses a small typed vocabulary for the mode of contribution. The family is stated in Equation 19.

$$\mathcal{T}_{\text{prov}}^{\text{form}} := \{\text{generate, enable, constrain, select, stabilize, reorganize, mediate}\}. \quad (19)$$

Equation 19 is a diagnostic vocabulary rather than a universal causal taxonomy. *Generate* records participation in the production of a previously unavailable retained structure. *Enable* records the opening of a pathway through which another process can produce the change. *Constrain* records a narrowing or conditioning of later possibilities. *Select* records participation in the realization or retention of one admissible continuation among several. *Stabilize* records participation in persistence, repetition, or sedimentation of a structure that could otherwise remain transient. *Reorganize* records participation in changing the relations among already available structures. *Mediate* records a pathway in which the contribution acts through another bearer, position, public, institution, manifestation, or procedure.

These types can overlap. Repeated public recognition can stabilize a helper role and simultaneously constrain refusal. A translator can enable a new practical route and mediate the relation through which that route becomes usable. A funding institution can select one continuation while reorganizing dependence on alternative resources. Multiple types should therefore be retained when the evidence supports them rather than forced into one mutually exclusive classification.

The subject-change provenance relation is defined in Equation 20.

$$\Pi_{i,t' \leftarrow t}^{\kappa,\delta} \subseteq \mathfrak{B}_{i,[t,t']}^\kappa \times \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} \times \mathcal{T}_{\text{prov}}^{\text{form}}. \quad (20)$$

Membership $(b, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa,\delta}$ means that the retained evidence warrants representing provenance bearer b as participating through contribution type ρ in the diagnosed change of constitutive dimension q . Equation 20 is relation-valued because one bearer can contribute to several changed dimensions, several bearers can contribute to one dimension, and one bearer can participate through several contribution types.

The relation is intentionally weaker than a complete causal model. It does not assign causal magnitudes, probabilities, structural coefficients, necessary-cause status, sufficient-cause status, or responsibility shares. A later empirical specialization can introduce those structures when the evidence and research design justify them. At the present level, provenance records a warranted place in the generative history.

7.3 Distributed and Mixed Provenance

For a changed constitutive dimension $q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}$, the corresponding provenance fiber is defined in Equation 21.

$$\text{ProvFib}_{i,t' \leftarrow t}^{\kappa, \delta}(q) := \left\{ (b, \rho) \in \mathfrak{B}_{i,[t,t']}^{\kappa} \times \mathcal{T}_{\text{prov}}^{\text{form}} \mid (b, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa, \delta} \right\}. \quad (21)$$

Equation 21 makes mixed provenance explicit. A practical-horizon expansion can depend jointly on the support relation, an institutional authorization, a translator, a newly accessible resource, and the focal subject's own prior capacities. A dependency can emerge through repeated assistance together with scarce alternatives and public role stabilization. A value-orientation change can involve dialogue, self-reflection, peer recognition, institutional training, and later retrospective reconstruction. The presence of several provenance bearers is therefore expected rather than exceptional.

Distributed provenance prevents a focal support relation from absorbing the history around it. Suppose A's intervention gives B access to training, an institution supplies the credential, B repeatedly practices the acquired skill, and a later employer supplies an opportunity to exercise it. A later increase in B's generative capacity can have a multi-bearer provenance fiber. Describing the change as produced entirely by A would erase the institution, B's own activity, and later opportunity structure. Describing it as unrelated to A could erase the access pathway that made the sequence possible. Equation 21 permits both errors to be avoided.

The same point applies to changes often described negatively. A narrowed practical horizon can reflect a support relation that repeatedly substitutes for the subject's own action, an institutional rule that channels requests through one intermediary, a resource scarcity that makes alternatives unavailable, and a public reputation that raises the cost of refusal. The model does not require a single bearer to be the complete source of the narrowing.

The size of a provenance fiber is not a measure of causal importance. Ten weakly documented contributors do not automatically outweigh one well-supported structural dependency. Likewise, a single retained bearer does not prove causal sufficiency. Quantitative weighting belongs to a later specialization and should be introduced only when a defensible empirical scale exists.

7.4 Relation-Specific Provenance

The focal volunteer/support relation must be represented distinctly inside the provenance class if Paper III is to distinguish co-formation from unrelated subject change. Let $\mathbf{r}_{AB,[t,t']}^{\star, \kappa} \in \mathfrak{B}_{i,[t,t']}^{\kappa}$ denote the retained history of the focal support relation involving A and B over the declared interval, at the resolution required by the analysis. The bearer can include the relevant interaction history, procedures, recurring interfaces, and relation-specific records already available from Papers I–II. It is a provenance bearer assembled from inherited relational material, not a new claim that a social relation exists as an ontologically independent substance.

The constitutive dimensions for which the focal relation has retained provenance are defined in Equation 22.

$$\text{FocProv}_{i,t' \leftarrow t}^{\kappa, \delta} := \left\{ q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta} \mid \exists \rho \in \mathcal{T}_{\text{prov}}^{\text{form}} \text{ such that } (\mathbf{r}_{AB,[t,t']}^{\star, \kappa}, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa, \delta} \right\}. \quad (22)$$

Equation 22 records relation-specific provenance without claiming exclusivity. A nonempty set means that at least one diagnosed constitutive change has an evidence-supported contribution from the focal support relation under the declared provenance model. It does not mean that the support relation caused every changed dimension, that the relation was the earliest generator, or that the same relation would generate the same transformation in another subject or historical environment.

The content of the focal bearer must remain resolution-sensitive. At a coarse resolution, a recurring relation may be represented as one support history. A finer analysis can distinguish request, training, delegation, refusal, public recognition, resource transfer, mediation, and later exit attempts. If the coarser

representation hides the pathway on which the provenance claim depends, the analysis should refine the bearer rather than attach a stronger causal meaning to the coarse label “support relation.”

Relation-specific provenance can also be asymmetric. The same A–B history can materially contribute to B’s practical-horizon change while contributing little to A’s constitutive organization, or it can reconfigure A’s evaluative repertoire while B experiences only a transient state change. Paper III therefore indexes provenance to the focal subject. Co-formation of A and co-formation of B are separate claims even when both arise in one coupled history.

7.5 Mediated Provenance and Third Positions

A focal support relation can contribute to subject change through an intermediate pathway rather than by a direct relation-to-structure transition. Section 4 already introduced manifestation feedback through $\beta_{i,t'}^k \leftarrow t$. A volunteer action can become publicly recognized; public recognition can stabilize a role; the stabilized role can alter later expectations and refusal costs; those altered continuations can then become constitutively relevant to the subject’s practical horizon. In such a history, the public record is not merely evidence about the original relation. It becomes one of the provenance bearers through which the relation acquires later subject-formative efficacy.

Third-position pathways require the same discipline. A translator can make a support relation intelligible, an institution can authorize access, a reviewer can stabilize standing, a platform can amplify a manifestation, or a mediator can condition which continuations remain available. When such a bearer is material to the target change, the triadic architecture inherited in Section 3 should be used. The focal A–B relation can still belong to the provenance of the change, but the provenance fiber should retain C or the relevant public/institutional position rather than treating the mediated effect as dyadic by default.

Mediated provenance also guards against a common attribution error. If A performs a visible support action but C’s translation, institutional authorization, or public recognition is required for the later constitutive effect, execution by A does not make A the sole generator of subject change. Conversely, the presence of C does not erase the contribution of the focal A–B relation when that relation remains part of the historical pathway. The distributed provenance logic developed for actions in Paper II is therefore extended here to the provenance of subject-level transformations.

The classification *mediate* in Equation 19 should be used only when the intermediate bearer and the relevant historical linkage are actually retained. Calling an unexplained delay or unknown mechanism “mediation” would conceal underdetermination rather than represent it.

7.6 Temporal Association and Generative Contribution

Temporal association is the weakest common evidence for relational provenance. A support relation must usually occur before or during the historical sequence that produces the retained change, but precedence alone cannot establish contribution. A volunteer episode can coincide with maturation, illness, policy change, labor-market movement, family transformation, education, technical change, or another relation that better explains the target reconfiguration.

The evidential burden increases when a provenance claim becomes stronger. Table 8 summarizes recurrent evidential patterns and the claim each pattern can support within the present framework.

Table 8 is methodological rather than evidentially exhaustive. Different empirical domains can require ethnographic process tracing, longitudinal records, experiments, quasi-experiments, archival reconstruction, network analysis, interviews, technical logs, or another method. Paper III does not rank these methods globally. The appropriate evidential design depends on the provenance claim being evaluated and on what aspects of the history can be observed responsibly.

The distinction between process evidence and causal exclusivity is especially important for volunteer relations. A participant can accurately report that a relation transformed their self-understanding while the broader constitutive change also depends on resources, institutions, prior dispositions, or later opportunities. First-person testimony can therefore be highly important without being treated as a complete causal decomposition. The same applies to third-party records and quantitative contrasts.

Table 8: Evidential patterns for relational provenance and their inference limits

Retained evidence pattern	Permitted provenance use	Principal limitation
Temporal overlap or precedence	Admit the focal relation as a candidate provenance bearer	Does not distinguish contribution from coincidence or common background conditions
Sequenced process record	Support an ordered pathway linking relation-specific events to later structural change	Ordering alone does not identify necessity, sufficiency, or exclusivity
Mechanism-relevant intermediate record	Support a typed contribution such as enabling, constraining, stabilizing, or mediation	The intermediate mechanism can itself have additional or competing generators
Repeated relation-specific pattern	Strengthen a stabilization or recurrent-conditioning interpretation	Repetition can track an unobserved common condition and does not create a universal law
Branch or comparative contrast	Strengthen a selection or pathway-sensitive provenance claim when alternative histories are genuinely comparable	Comparability assumptions and omitted differences remain additional burdens
Participant reconstruction or testimony	Supply evidence about perceived influence, self-reconstruction, intention, or experienced transformation	Reconstruction remains perspective-relative and can lag, revise, or conflict with relational records
Institutional, material, or public trace	Support a pathway through access, standing, resource, rule, audience, or reputation change	The trace establishes relational consequence only under a justified linkage to the target diagnostic
Convergent heterogeneous evidence	Strengthen a model-relative provenance claim when distinct evidence routes support the same pathway	Convergence does not establish ultimate ontology, normative value, or unique causation

7.7 Evidence-Relative Provenance Underdetermination

A constitutive change can be well established while its provenance remains unresolved. To represent that situation, let $E_{i,[t,t']}^\kappa$ denote the retained evidence available for the provenance inquiry. For changed dimension q , let $\text{AdmProv}_{i,q}^{\kappa,\delta}(F; E)$ be the declared predicate stating that provenance fiber F is compatible with that evidence, diagnostic, representation, and the local provenance rules. The family of evidence-compatible provenance fibers is then defined in Equation 23.

$$\mathfrak{F}_{i,q}^{\kappa,\delta}(E) := \left\{ F \subseteq \mathfrak{B}_{i,[t,t']}^\kappa \times \mathcal{T}_{\text{prov}}^{\text{form}} \mid \text{AdmProv}_{i,q}^{\kappa,\delta}(F; E) \right\}. \quad (23)$$

Equation 23 is an epistemic object. It records alternative provenance assignments that remain compatible with what the inquiry currently knows. It does not imply that several incompatible causal histories are simultaneously real. The family can shrink when additional records, observations, or comparisons become available.

Relation-specific provenance is underdetermined for dimension q whenever the evidence-compatible family contains at least two admissible fibers that disagree about whether the focal support relation participates. The criterion is stated in Equation 24.

$$\begin{aligned} \exists F_1, F_2 \in \mathfrak{F}_{i,q}^{\kappa,\delta}(E) \text{ such that} \\ \mathfrak{t}_{AB,[t,t']}^{*,\kappa} \in \text{pr}_{\mathfrak{B}}(F_1), \quad \mathfrak{t}_{AB,[t,t']}^{*,\kappa} \notin \text{pr}_{\mathfrak{B}}(F_2). \end{aligned} \quad (24)$$

Here $\text{pr}_{\mathfrak{B}}$ projects a provenance fiber onto its bearer coordinate. Equation 24 prevents a co-formation claim when the evidence cannot distinguish a history in which the focal relation materially contributes

from an admissible history in which the target change is generated without that contribution. The correct verdict at this stage is not “no relational provenance”; it is relation-specific provenance underdetermination.

The converse requires similar care. If every currently admissible fiber contains the focal relation, the evidence supports a robust relation-specific contribution within the declared representation. This still does not establish necessity across all metaphysically possible histories. The robustness claim is indexed to the evidence, diagnostic, temporal boundary, and provenance rules used in the study.

Underdetermination can also be localized. Provenance for B’s practical-horizon change may be well supported while provenance for B’s value-orientation change remains unresolved. A later co-formation verdict should therefore preserve dimension-specific provenance rather than collapse all subject change into one all-or-nothing causal judgment.

7.8 History Dependence of Provenance

Constitutive endpoints do not determine their own provenance. Two histories can reach diagnostically equivalent later configurations through different generative pathways. Let γ_1 and γ_2 be two admissible histories for focal subject i over comparable stage and resolution boundaries. For a retained diagnostic dimension q , endpoint equivalence can coexist with provenance nonequivalence as stated in Equation 25.

$$d_q(\mathcal{K}_{i,t'}^{\kappa,\gamma_1}) \approx_q d_q(\mathcal{K}_{i,t'}^{\kappa,\gamma_2}) \quad \text{while} \quad \text{ProvFib}_{i,\gamma_1}^{\kappa,\delta}(q) \neq \text{ProvFib}_{i,\gamma_2}^{\kappa,\delta}(q). \quad (25)$$

Equation 25 records a central historical point. The same apparent capacity, role, practical horizon, or value orientation can be generated through different relations and can therefore carry different dependencies, revision possibilities, meanings, or later vulnerabilities. A skill learned through supported autonomous practice can be endpoint-equivalent under one capacity diagnostic to a skill made available through a permanently dependent interface, while the two histories differ sharply in provenance and later continuation structure.

The reverse pattern is also possible. Similar provenance structures can yield different constitutive outcomes because the focal subjects enter the relation with different histories, resources, vulnerabilities, interpretations, or alternative continuations. Paper III therefore does not treat provenance as a deterministic function from relation type to subject transformation. The generative significance of a support relation is historically situated.

This history dependence also explains why later sections must keep provenance visible when they analyze practical horizons, values, capacity, roles, recognition, and path dependence. A present subject profile can conceal whether a structure was imposed, learned, negotiated, resisted, publicly stabilized, institutionally scaffolded, or repeatedly selected through lack of alternatives. Constitutive diagnostics identify retained organization; provenance explains how that organization came to occupy its historical position in the subject’s trajectory.

7.9 Provenance Discipline for Co-Formation Claims

The provenance architecture established in this section supports several constraints on later co-formation claims. A relational provenance claim should identify the constitutive dimension whose change is being explained, the provenance bearer or bearers retained by the model, the contribution types assigned to them, the evidence supporting the historical linkage, and the competing or unresolved provenance assignments that materially affect the conclusion. A focal support relation should not receive a co-formation role merely because it is salient in the narrative or temporally close to the transformation.

A provenance record should also preserve the agency of the focal subject. If B learns, interprets, resists, practices, revises, or appropriates structures made available through A’s support, those activities can themselves appear as provenance bearers when the diagnostic requires them. Describing A as a contributor to B’s co-formation need not imply that A formed B unilaterally. The framework is specifically

designed to represent histories in which subject activity and relational scaffolding jointly generate later organization.

The same discipline applies to harmful or restrictive transformations. If a support relation narrows B's practical horizon by increasing dependence, the analysis should retain the institutional scarcity, public expectations, role repetition, and B's available alternatives where those structures materially contribute. The term *co-formation* does not convert distributed historical production into benevolent mutual development.

Section 7 therefore supplies the historical bridge between constitutive diagnosis and co-formation. Sections 5–6 determine whether a tracked subject is constitutively reconfigured under a declared diagnostic. The present section determines whether, and through which retained pathways, the focal volunteer/support relation participates in that transformation. Section 8 can now combine these burdens into a model-relative co-formation criterion while preserving explicit cases of provenance underdetermination, mixed provenance, asymmetric contribution, and mediated formation.

8 Model-Relative Criterion for Subject Co-Formation

Sections 5–7 established three analytical burdens that a subject co-formation claim must keep distinct: a warranted longitudinal comparison target, a constitutive reconfiguration under a declared diagnostic, and an evidence-supported historical contribution from the focal volunteer/support relation. The role of the present section is to combine those burdens into a model-relative sufficient criterion. Its objective is deliberately narrower than a complete metaphysics of personal formation. The criterion identifies when the present framework licenses the claim that a tracked subject has been co-formed through a focal relation, while preserving cases in which constitutive status, continuity, or relational provenance remains unresolved. The discussion proceeds through evidence-relative provenance status, the sufficient criterion, underdetermination, asymmetric coupled histories, successorship boundaries, and the epistemic and normative scope of the resulting verdict. The method is formal and diagnostic: sufficiency is indexed to the declared representation, diagnostic, evidence base, temporal interval, and tracking rule.

8.1 Evidence-Relative Provenance Status of Changed Dimensions

A co-formation claim requires more than the existence of a changed constitutive dimension. The focal relation must also have a warranted historical contribution to at least one such change. Section 7.7 represented the evidence-compatible provenance family $\mathfrak{F}_{i,q}^{\kappa,\delta}(E)$ for each changed dimension q . The present section converts that family into a local status that records whether the focal support relation is robustly included, robustly excluded, or unresolved across the currently admissible provenance assignments.

Let $\mathfrak{r}_{AB,[t,t']}^{\star,\kappa}$ be the focal relation history defined in Section 7.4, and let $E = E_{i,[t,t']}^{\kappa}$ abbreviate the retained evidence. For $q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$ with a nonempty evidence-compatible provenance family, define the relation-specific provenance status by Equation 26.

$$\text{PStat}_{i,q}^{AB;\kappa,\delta}(E) := \begin{cases} \text{included,} & \forall F \in \mathfrak{F}_{i,q}^{\kappa,\delta}(E), \mathfrak{r}_{AB,[t,t']}^{\star,\kappa} \in \text{pr}_{\mathfrak{B}}(F), \\ \text{excluded,} & \forall F \in \mathfrak{F}_{i,q}^{\kappa,\delta}(E), \mathfrak{r}_{AB,[t,t']}^{\star,\kappa} \notin \text{pr}_{\mathfrak{B}}(F), \\ \text{underdetermined,} & \text{otherwise.} \end{cases} \quad (26)$$

Equation 26 is defined only when $\mathfrak{F}_{i,q}^{\kappa,\delta}(E) \neq \emptyset$. An empty compatible family indicates failure of the current provenance specification rather than robust exclusion of the focal relation. The analysis should then revise the evidence coding, provenance rules, temporal boundary, or representation before issuing a co-formation verdict for that dimension.

The status included is evidence-relative. It means that every provenance assignment still admitted by the current inquiry retains the focal relation as a contributor to the diagnosed change. It does not mean that the relation is a metaphysically necessary cause, that no additional contributors exist, or that the

same relation would generate the same transformation in another history. The status excluded likewise means that the current admissible assignments do not require the focal relation as a contributor to that dimension. It is not a universal claim about every finer or alternative representation.

The set of changed dimensions that can serve as current co-formation witnesses is defined in Equation 27.

$$\text{CFWit}_{i|AB,t' \leftarrow t}^{\kappa,\delta}(E) := \left\{ q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} \mid \text{PStat}_{i,q}^{AB;\kappa,\delta}(E) = \text{included} \right\}. \quad (27)$$

Equation 27 preserves the dimension-specific structure of the argument. A practical-horizon change can provide a warranted co-formation witness while value-orientation provenance remains unresolved. Conversely, a visible change in role performance does not contribute to the witness set unless the role dimension is constitutively retained by the diagnostic and the focal relation has robust provenance for that changed dimension under the current evidence.

8.2 Sufficient Criterion for Tracked Subject Co-Formation

Paper III uses a sufficient criterion because the present formalism is intended to license carefully scoped claims rather than exhaust every possible form of subject formation. Let $\text{WTrack}_{i,t' \leftarrow t}^{\kappa}$ denote the proposition that the declared tracking rule warrants comparison of the later represented material as a continuation of focal subject i over $[t, t']$. This proposition abbreviates the tracking burden developed in Sections 3 and 6; it does not add a new criterion of personal identity.

Definition 8.1 (Warranted tracked subject co-formation). For an admissible subject-constitutive diagnostic $\mathfrak{D}_{i,I}^{\kappa,\delta}$, retained evidence E , and focal relation history $\mathfrak{r}_{AB,[t,t']}^{\star,\kappa}$, the present framework warrants a claim of *tracked subject co-formation of i through the A–B relation* when Equation 28 holds.

$$\text{WCF}_{i|AB,t' \leftarrow t}^{\kappa,\delta}(E) \iff \text{WTrack}_{i,t' \leftarrow t}^{\kappa} \wedge \text{CFWit}_{i|AB,t' \leftarrow t}^{\kappa,\delta}(E) \neq \emptyset. \quad (28)$$

Equation 28 combines continuity, constitutive change, and relation-specific provenance without adding an independent scalar threshold. Because every member of $\text{CFWit}_{i|AB,t' \leftarrow t}^{\kappa,\delta}(E)$ already belongs to $\text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}$, a nonempty witness set entails $\text{CVerd}_{i,t' \leftarrow t}^{\kappa,\delta} = \text{reconfigured}$ under the baseline diagnostic rule of Section 6.1. The criterion therefore licenses the claim that a historically tracked subject has undergone at least one diagnostically constitutive reconfiguration for which the focal relation is a robust contributor under the current evidence-compatible provenance family.

Proposition 8.2 (Local sufficiency of a co-formation witness). *Under an admissible diagnostic, warranted tracking, and a nonempty evidence-compatible provenance family for the relevant changed dimension, one member of $\text{CFWit}_{i|AB,t' \leftarrow t}^{\kappa,\delta}(E)$ is sufficient for the model-relative co-formation claim in Definition 8.1. Additional changed dimensions can enrich the description of the transformation but are not required by the baseline criterion.*

Proposition 8.2 should not be read as a claim that one minor observation can establish broad personal transformation. Membership in the witness set already presupposes that the corresponding dimension was justified as constitutively relevant by Definition 5.1, that its earlier and later values support a warranted nonequivalence, and that the focal relation is robustly included in the admissible provenance assignments. The burden lies in constructing and defending that diagnostic chain, not in accumulating a large count of changed attributes.

The criterion is intentionally compatible with mixed provenance. If B's later capacity depends jointly on B's practice, A's training, institutional access, material infrastructure, and a third party's authorization, the focal relation can remain a robust contributor without being the sole generator. Likewise, the relation can co-form one constitutive dimension while other dimensions change for unrelated reasons. Paper III therefore treats co-formation as a claim about historically generated subject organization, not as total authorship of the later subject.

8.3 Underdetermination and Current Failure to Establish Co-Formation

A careful criterion requires distinct outcomes for insufficient information and for a record that currently fails to support relation-generated constitutive change. Table 9 states the principal configurations used in later sections. The table is a decision discipline for the present model rather than an exhaustive meta-physical taxonomy.

Table 9: Principal verdict configurations for tracked subject co-formation

Tracking / constitutive status	Relation-specific provenance	Current verdict	Interpretation
Warranted tracking; reconfigured	At least one changed dimension is included	Co-formation warranted	Definition 8.1 is satisfied for the declared diagnostic and evidence
Warranted tracking; reconfigured	No included witness; at least one changed dimension is underdetermined	Co-formation underdetermined	Constitutive change is established, but the focal relation's contribution remains unresolved
Warranted tracking; underdetermined constitutive verdict	Any currently observed relation pathway	Constitutive basis unresolved	The record does not yet establish a subject-constitutive change on the declared diagnostic
Warranted tracking; equivalent	Any relation history	Co-formation not established	The current diagnostic supports constitutive stability over the comparison interval
Warranted tracking; reconfigured	Every changed dimension is robustly excluded	Co-formation not established	Subject reconfiguration is supported, but the focal relation is not a retained contributor under the current provenance model
Tracking unresolved	Any apparent change or provenance	Within-subject co-formation underdetermined	The comparison target itself remains unresolved
Tracking discontinuous under the declared rule	Any apparent change	Move to successorship analysis	A within-subject co-formation verdict is outside the admitted comparison domain

Table 9 gives “not established” an epistemic meaning. It does not assert that co-formation was absent in every admissible ontology or at every possible resolution. A later diagnostic can reveal a previously omitted constitutive dimension, new evidence can alter the provenance family, and a revised tracking rule can change the comparison domain. The verdict should therefore retain the diagnostic, interval, resolution, and evidence indices whenever those choices materially affect the conclusion.

Constitutive and provenance underdetermination can coexist. For example, a support history can be well documented while the later practical horizon is poorly observed; alternatively, a practical-horizon change can be well established while the evidence cannot distinguish the focal relation from an institutional policy change as the relevant generator. The first case lacks a secure constitutive target. The second has a secure target but unresolved relation-specific provenance. They require different research responses and should not be collapsed into a generic label of uncertainty.

The framework also permits partial conclusions. If B has two changed constitutive dimensions, q_1 and q_2 , and q_1 supplies a robust co-formation witness while provenance for q_2 remains underdetermined, the overall baseline criterion is satisfied through q_1 . The manuscript should nevertheless report the unresolved status of q_2 . A warranted local witness therefore supports a scoped co-formation claim without authorizing the stronger statement that the focal relation explains B's complete constitutive transformation.

8.4 Asymmetric and Bilateral Co-Formation Profiles

Co-formation describes relational genesis and does not require symmetric mutual transformation. The A–B history can satisfy Definition 8.1 for A, for B, for both subjects, or for neither subject under the current diagnostic family. The coupled verdict profile is recorded in Equation 29.

$$\text{CFProf}_{AB,t' \leftarrow t}^{\kappa} := \left(\text{Verd}_{A|AB,t' \leftarrow t}^{\kappa}, \text{Verd}_{B|AB,t' \leftarrow t}^{\kappa} \right), \quad (29)$$

where each component records the appropriately indexed local verdict described in Table 9. Equation 29 is a profile rather than an ordered magnitude. A pair with warranted co-formation for both A and B can still exhibit different changed dimensions, contribution pathways, temporal lags, reversibility, persistence, or evidential strength. Bilateral co-formation therefore does not imply symmetry.

A one-sided profile is equally meaningful. A long-term volunteer relation can reorganize B’s practical horizon while A’s retained constitutive diagnostic remains equivalent; another history can transform A’s evaluative repertoire while B experiences only local state variation. The term “co-formation” remains appropriate in the present framework because it identifies the relational provenance of formation, not an equality constraint on the subjects’ outcomes.

The same logic prevents an inference from asymmetric effect to unilateral authorship. If A’s conduct contributes to B’s change, B’s interpretation, resistance, learning, refusal, practice, or appropriation can remain indispensable provenance bearers. Later sections on practical horizons, values, capacities, roles, and recognition will make these within-subject pathways explicit.

8.5 Successorship Boundary of the Criterion

Definition 8.1 concerns a warranted within-subject comparison. Section 6.3 introduced the successorship relation $\sigma_{t' \leftarrow t}^{\kappa}$ for histories in which the later model contains a different subject label, several candidate continuations, or a configuration assembled from several earlier histories. Those cases require a different claim form.

If $(i, j) \in \sigma_{t' \leftarrow t}^{\kappa}$ is warranted while ordinary tracking continuity for i is not, the analysis can ask whether the focal relation contributed to the constitution of successor candidate j . Such a claim may use analogous diagnostic and provenance machinery, but it should be described as *successor formation* or *relation-mediated reidentification* unless an additional argument warrants numerical continuity. Paper III does not infer “the same subject was co-formed” solely from successorship.

Splitting and merging make this restraint especially important. If one earlier subject has several later successor candidates, relation-generated changes can be distributed differently across those successors. If several earlier subjects contribute to one later candidate, the later constitution can inherit heterogeneous histories. Treating either pattern as ordinary within-subject co-formation would erase the identity problem that the successorship relation was introduced to preserve.

This boundary also matters for artificial or institutional subjects that can copy, fork, merge, delegate state, or undergo legal re-registration. The present criterion remains applicable only after the relevant continuity or successorship relation has been justified at the resolution used by the study. The formalism does not decide those identity questions in advance.

8.6 Epistemic, Normative, and Ontological Scope

A warranted co-formation verdict is a model-relative statement about relational subject organization and its historical provenance. It does not determine whether the transformation was beneficial, harmful, just, exploitative, consensual, paternalistic, emancipatory, aesthetically fitting, or legally permissible. Those evaluations require additional normative premises and are assigned to later papers in the programme. Paper III therefore permits a coercive dependency, a durable loss of refusal capacity, an expanded competence, and a transformed value repertoire to satisfy the same structural co-formation criterion when their respective diagnostics and provenance burdens are met.

The criterion also does not establish a complete metaphysics of persons. Ontological reality remains suspended. The positive claim concerns a history-bearing relational subject carrier whose retained organization is diagnostically reconfigured and whose transformation has an evidence-supported generative pathway through the focal relation. Manifestation and subject-relative reconstruction can supply evidence and can become later provenance bearers, but neither is silently identified with ultimate subject reality.

Co-formation is therefore compatible with revisability. A later history can reopen, reverse, reinterpret, de-internalize, or dissolve a previously retained structure. The present criterion states that a constitutively relevant reconfiguration was warranted over the declared interval; it does not imply irreversibility. Section 19 will analyze reopening directly, while Section 18 will treat path dependence and recursive historical stabilization.

Representation robustness remains a further burden. A co-formation verdict that depends on one fragile resolution, one contested diagnostic dimension, or one narrowly chosen provenance coding should be reported with that sensitivity visible. Section 23 will provide the verification architecture for comparing such verdicts across admissible representations and empirical reconstructions.

8.7 Interface with Dimensional Analyses

The criterion established in this section is intentionally generic with respect to the content of constitutive change. Sections 9–16 examine recurrent dimensions and pathways that can populate an admissible diagnostic: boundary organization, practical horizons, value orientation, generative capacity, self-reconstruction, role-position organization, recognition, and third-position mediation. Those sections do not add independent requirements that every co-formation case must satisfy. They specify richer local structures through which a diagnostic can justify constitutive relevance and through which provenance can be traced.

This ordering prevents the later dimensional analyses from becoming a universal checklist. A case of co-formation can be warranted through a constitutively relevant practical-horizon reorganization even when no value migration is established. Another case can involve value and role reorganization without a measurable capacity change. A third can remain underdetermined because the relevant boundary or self-reconstruction structure is inaccessible. The diagnostic family determines which dimensions matter for the inquiry, while Definition 8.1 supplies the common burden for using those dimensions to support a co-formation claim.

The criterion also preserves the historical programme logic. Section 8 does not close the metaphysics of subject formation. It creates a disciplined interface between the general framework and the more specific mechanisms developed next. Section 9 therefore begins with boundary reorganization, one recurrent way in which a support relation can alter the represented organization of a subject without automatically implying numerical replacement.

9 Boundary and Interface Reorganization

Subject co-formation can involve changes in the relational boundary through which a tracked subject acts, receives support, delegates functions, maintains dependencies, refuses access, or sustains separation from other subjects and institutions. The role of this section is to develop boundary reorganization as one recurrent subject-constitutive diagnostic without treating every new relationship as a change in subjecthood. The analysis proceeds in four steps. It first specializes the diagnostic architecture of Section 5 to typed boundary and interface structures. It then distinguishes ordinary contact, temporary scaffolding, retained integration, delegation, dependency, and exclusion. It next states a model-relative boundary-reorganization criterion and relates that criterion to tracking continuity, successorship, and provenance. The section closes by separating boundary organization from practical horizon, public manifestation, and normative evaluation.

The present use of “boundary” is relational rather than geometric or biological. A subject boundary identifies which interfaces and interface-types are retained by the declared representation as relevant to the organization through which the focal subject can act or be acted upon. Depending on the application, the relevant interface can involve another subject, an institution, a technological system, a recurring support arrangement, a legal status, a public channel, or another historically persistent bearer. The diagnostic therefore concerns the represented organization of relational access, mediation, dependence, delegation, and exclusion. It does not assert an ultimate metaphysical membrane around persons.

9.1 Boundary Profiles as Typed Diagnostic Views

Let $q_{\text{bnd}} \in Q_\delta$ denote a boundary-and-interface dimension admitted by the diagnostic family $\mathfrak{D}_{i,I}^{\kappa,\delta}$ from Equation 11. The corresponding diagnostic map is written as $d_{\text{bnd}} := d_{q_{\text{bnd}}}$. Whenever this map is defined at stage t , the boundary profile of the tracked subject is given by Equation 30.

$$\mathcal{B}_{i,t}^{\kappa,\delta} := d_{\text{bnd}}(\mathcal{K}_{i,t}^\kappa) \in \mathcal{Z}_{\text{bnd}}. \quad (30)$$

Equation 30 introduces no universal boundary ontology. The codomain $\mathcal{Z}_{\text{bnd}}$ is application-specific and must preserve the types needed by the inquiry. A useful local realization represents a boundary profile as a typed interface structure. Let $\mathcal{J}_{i,t}^\kappa$ denote the set of candidate interface bearers retained by the local model, and let $\mathcal{T}_{\text{bnd}}$ denote a finite family of interface modes justified by the application. The local interface record can then be represented by the partial relation in Equation 31.

$$\text{Intf}_{i,t}^{\kappa,\delta} \subseteq \mathcal{J}_{i,t}^\kappa \times \mathcal{T}_{\text{bnd}}. \quad (31)$$

Typical modes include temporary support, retained access, delegation, dependency, gate-conditioned access, refusal, exclusion, and other interface types justified by the study. These labels should not be treated as mutually exclusive unless the application establishes exclusivity. The same institutional interface can, for example, provide retained access while also functioning as a dependency-bearing route. Equation 31 is therefore relation-valued rather than a single-valued classification map.

The candidate-interface set also requires discipline. Mere causal contact with the subject is insufficient for inclusion. A passing encounter, a one-time observation, or an irrelevant environmental feature can affect a local state without belonging to the boundary diagnostic. Admission to $\mathcal{J}_{i,t}^\kappa$ requires an application-specific reason to treat the bearer as potentially relevant to the subject’s retained interface organization. This admission decision is itself revisable when later evidence shows that a supposedly peripheral interface was historically consequential.

Remark 9.1 (Boundary profiles are diagnostic views). The profile $\mathcal{B}_{i,t}^{\kappa,\delta}$ is a typed view extracted from the represented relational subject carrier. It is not a complete decomposition of the subject into “inside” and “outside.” Different diagnostics can retain different interfaces at different resolutions, and an interface omitted by one study can become central in another study with a different research object.

9.2 Contact, Scaffolding, Integration, and Dependency

Boundary analysis requires a distinction between relational contact and retained reorganization. A subject can receive help, information, material resources, translation, or temporary access without reorganizing the boundary structure represented by d_{bnd} . Conversely, a relatively unobtrusive interface can become constitutively important if later activity is recurrently organized through it. The diagnostic burden therefore concerns historical retention and functional organization rather than the salience of a single episode.

Table 10 summarizes recurrent local patterns. The categories are analytical patterns rather than exhaustive kinds of subject boundary.

Table 10 shows why “internalization” should be used cautiously. A subject can recurrently rely on another bearer while continuing to experience that bearer as external, optional, imposed, or contested. A

Table 10: Recurrent boundary and interface patterns in subject co-formation analysis.

Pattern	Relational structure	Possible constitutive relevance	Primary caution
Ordinary contact	Episodic interaction without retained interface organization	Usually none under a boundary diagnostic unless later retention is shown	Salience or intensity of an episode does not establish boundary reorganization
Temporary scaffolding	A support interface is used for a bounded task or interval and later ceases without retained dependence	Can contribute to another diagnostic, such as capacity formation, while the boundary returns to an equivalent organization	Temporary reliance should not be redescribed automatically as incorporation
Retained integration	An interface remains part of the recurrent organization through which later action or access is sustained	Can support a constitutive boundary-change finding when the retained structure matters under q_{bnd}	Continued use can still be optional and reversible
Delegated function	A recurrent function is exercised through another subject, institution, or technical bearer	Can reorganize the locus through which the focal subject acts or maintains continuity	Delegation does not by itself eliminate agency or transfer identity
Dependency-bearing interface	Continuation of a retained activity depends materially on an interface or route	Can alter the subject's relational boundary and later revision possibilities	Dependence can be enabling, constraining, mixed, or temporary
Gate-conditioned interface	Access to a relevant domain is persistently conditioned by a bearer with route-control capacity	Can make external conditions part of the retained practical organization	Route dependence should be distinguished from strong gatekeeping criteria
Refusal or exclusion boundary	The subject maintains, acquires, loses, or reorganizes a practically effective capacity to block an interface	Can be constitutively relevant to separation, privacy, autonomy, or protection	Closure is not automatically beneficial, and openness is not automatically emancipatory
Contested boundary	First-person, institutional, public, or relational records disagree about whether an interface belongs to the retained organization	The disagreement itself can become historically consequential	Public classification cannot settle the relational boundary by declaration alone

role, norm, technology, or support channel can also become incorporated into later organization without erasing the distinguishability of the other subject or institution through which it originated. Paper III therefore uses retained integration, delegation, dependency, and similar typed descriptions where they are more precise than a generic claim that something has become “part of the self.”

Temporary scaffolding is particularly important in volunteer and support relations. Suppose B uses an interface supplied through the A–B relation to access a domain, learn a practice, or complete a task. If the interface disappears and B's later boundary organization is diagnostically equivalent to the earlier profile, the episode can still have contributed to capacity or practical-horizon change without constituting a retained boundary reorganization. Boundary diagnostics should therefore remain distinct from the capacity and horizon diagnostics developed in Sections 10 and 12.

The converse pattern also occurs. A support interface can initially appear temporary but become the stable route through which later action is organized. If a recurrent authorization, technological platform, translation channel, financial route, or interpersonal mediation becomes necessary for maintaining an activity, the relevant relational boundary can change even when the subject’s public description, explicit self-narrative, or observable role remains similar. The three-level discipline of Section 4 therefore remains essential.

9.3 Boundary Equivalence and Reorganization

The boundary diagnostic inherits its equivalence rule $\approx_{\text{bnd}}$ from the declared diagnostic family. Two boundary profiles can differ in low-level records while remaining equivalent for the research question, or can appear superficially similar while differing in a retained dependency or refusal structure that the diagnostic treats as constitutively relevant. Boundary reorganization over a tracked interval is stated in Equation 32.

$$\text{BReorg}_{i,t' \leftarrow t}^{\kappa,\delta} \iff q_{\text{bnd}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}. \quad (32)$$

Equation 32 deliberately reuses the changed-dimension set defined in Section 5. It does not create an independent shortcut around the admissibility, definedness, and evidential burdens established there. A boundary reorganization claim therefore requires that d_{bnd} be defined at the relevant stages and that the two profiles fail the declared boundary equivalence under a warranted representation.

A more detailed report should identify the altered interface modes rather than merely record a Boolean result. Let Δ_{bnd} denote an application-specific comparison operator on boundary profiles whose output is a typed change record. Its use is stated in Equation 33.

$$\Delta \mathcal{B}_{i,t' \leftarrow t}^{\kappa,\delta} := \Delta_{\text{bnd}}(\mathcal{B}_{i,t}^{\kappa,\delta}, \mathcal{B}_{i,t'}^{\kappa,\delta}), \quad (33)$$

where Δ_{bnd} is defined only for the boundary representation used by the study. It can record, for example, the appearance of a retained interface, the loss of an effective refusal boundary, the delegation of a recurrent function, or the dissolution of a former dependency. Equation 33 is not a subtraction operator and does not impose a common metric on heterogeneous boundary changes.

Definition 9.2 (Tracked boundary reorganization). For a subject i with warranted within-subject tracking over $[t, t']$, a *tracked boundary reorganization* is established under (κ, δ) when Equation 32 holds and the changed boundary dimension is supported by an admissible boundary diagnostic. The definition establishes a subject-constitutive boundary change under the declared model. It does not establish numerical replacement, relation-specific provenance, or normative improvement.

Definition 9.2 places boundary reorganization inside the framework already developed in Sections 5–8. If the boundary dimension is constitutively changed while ordinary tracking remains warranted, the case is a reconfiguration of the tracked subject under the present diagnostic. If tracking is discontinuous, the analysis moves to the successorship architecture of Section 6.3. A dramatic boundary change therefore does not by itself convert a within-subject case into a splitting, merging, or replacement case.

9.4 Relational Provenance of Boundary Change

Boundary change becomes a co-formation witness only when the provenance burden of Section 7 is also satisfied. The relevant dimension-level provenance status is the existing relation-specific status for q_{bnd} . Accordingly, a boundary-based co-formation witness exists when q_{bnd} belongs to the robust witness set defined in Equation 27. The section therefore does not introduce a separate causal calculus for boundaries.

This inheritance matters because boundary reorganization is especially vulnerable to simplistic authorship claims. A volunteer can introduce B to an institution, but B’s own repeated use, refusal, adaptation, or reinterpretation can determine whether the interface becomes retained. An institution can make

a support route available, while legal rules, material infrastructures, public recognition, or third-position mediation stabilize that route. A dependency can emerge through the interaction of several bearers even when no participant intended to produce it. The provenance record should retain those contributors rather than attributing the full reorganization to whichever actor is most visible.

Boundary provenance can also be delayed. An interface introduced at an early stage can matter only after later institutional recognition, resource allocation, technical adoption, or role stabilization. Such delayed contribution requires the intermediate history to be represented. Section 7 already requires evidential support for mediated pathways; the boundary case supplies a recurrent application of that requirement.

Asymmetry is expected. A recurring support relation can become constitutively important to B's boundary organization while remaining peripheral to A's. The reverse can also occur: repeated support activity can reorganize A's boundary toward an institution, volunteer role, or public constituency while B's boundary profile remains stable. The coupled co-formation profile of Equation 29 therefore remains more informative than any assumption of reciprocal incorporation.

9.5 Boundary Opening, Closure, and Revision Capacity

Boundary reorganization should not be interpreted through a monotonic vocabulary of openness and closure. Increased permeability can enlarge access to relations and resources while also increasing exposure, dependence, surveillance, or susceptibility to external control. Stronger closure can protect privacy, refusal, or practical independence while also restricting learning, assistance, or participation. The metaphysical diagnosis identifies the retained interface organization; normative assessment requires additional premises.

For the present paper, an especially important feature is *revision capacity*: whether a boundary arrangement can later be altered, exited, refused, renegotiated, or replaced. Revision capacity is not reducible to the number of interfaces. A subject can have many available channels while being unable to discontinue the one on which a central activity depends. Another subject can rely on a narrow set of interfaces yet possess strong practical control over their activation and termination. These differences will matter to later analyses of practical horizon, differential co-formation, and subject reopening.

The boundary diagnostic can therefore retain interface-specific revision records when the research question requires them. Such records should remain typed rather than aggregated into a generic autonomy score. A case can combine expanded access, increased dependence, stronger refusal capacity in one domain, and weaker exit capacity in another. Mixed boundary reorganization is analytically ordinary rather than anomalous.

This point is especially important for support relations whose stated aim is independence. An intervention can increase B's practical capacities while simultaneously making the exercise of those capacities dependent on a particular person, institution, platform, authorization route, or public classification. Conversely, temporary reliance can enable the later removal of a dependency-bearing interface. The framework should therefore preserve both the enabling and constraining relations through which the boundary evolves.

9.6 Cross-Level Evidence and Boundary Contestation

Boundary organization belongs to relational reality in the present framework. Manifestations can reveal, conceal, or distort that organization, and subject-relative reconstructions can support or contest its interpretation. A public label such as "independent," "dependent," "member," "client," "beneficiary," "volunteer," or "outsider" can become causally consequential without being a direct readout of the relational boundary. Institutional classification can similarly create access or exclusion while remaining contested by the focal subject.

Boundary evidence can therefore be distributed across several records. Repeated interaction traces can indicate recurrent integration. Contracts or permissions can record formal access, while withdrawal

episodes can reveal hidden dependence. First-person reports can describe perceived optionality or intrusion; institutional records can document delegation or exclusion; later behavior can show whether an interface remained practically active. Cross-level convergence can strengthen the relational interpretation, while disagreement can identify a contested boundary that warrants separate historical analysis.

The manifestation-feedback relation from Equation 9 is particularly relevant when public or institutional classification alters later access. If an external description changes who may contact the subject, which institutions respond, what resources become available, or which interfaces are blocked, the manifestation can enter the provenance of a later boundary reorganization. The later constitutive object remains the retained relational boundary profile rather than the earlier label itself.

Boundary contestation also protects the distinction between self-reconstruction and external reconstruction. A subject can reject an institutional account of dependency while still being materially dependent on the institution under the declared diagnostic. Conversely, an institution can describe the subject as dependent while the practical interface has become optional or obsolete. The framework does not settle such disagreements by privileging one source categorically. It asks which evidence is probative for the typed boundary structure being modeled and leaves unresolved disagreements visible when the evidence does not support a determinate reconstruction.

9.7 Interface with Practical Horizons and Later Dimensional Analyses

Boundary organization is closely coupled to practical horizon but is not identical to it. A boundary profile records the typed interface structure through which the subject is organized; a practical-horizon diagnostic concerns the continuations that are available, maintainable, initiable, or refusible under the retained conditions. One boundary reorganization can therefore leave the relevant continuation family unchanged, while another can substantially expand or narrow it. Conversely, a practical horizon can change through learning, resource change, legal change, or environmental transformation even when the retained boundary profile remains equivalent.

The distinction matters for later sections. Section 10 will analyze practical-horizon reorganization directly. Section 12 will distinguish generative capacity from the interface through which capacity is exercised. Section 14 will analyze role-position sedimentation without identifying role occupation with boundary integration. Section 15 will consider public recognition and standing as possible boundary-shaping pathways while retaining their manifestation and institutional dimensions. Section 16 will treat third-position mediation when boundary change depends materially on translation, review, authorization, brokerage, or public routing.

Boundary reorganization therefore supplies one recurrent route through which subject co-formation can occur without becoming a universal account of subject constitution. Under the criterion of Section 8, a warranted boundary change can support a scoped co-formation claim when the focal relation is robustly included in the provenance of that changed constitutive dimension. Other cases can involve significant boundary change with non-focal provenance, unresolved provenance, or no warranted within-subject tracking. Preserving those distinctions allows the later analysis to examine practical possibility, value, capacity, self-reconstruction, roles, and recognition without treating every relational dependency or interface shift as the same kind of subject transformation.

10 Practical-Horizon Reorganization

Practical-horizon analysis asks how the historically retained conditions of a subject reorganize the continuations that the subject can meaningfully enter, initiate, sustain, or refuse. The role of this section is to develop that diagnostic without equating agency with the number of nominal options and without treating practical possibility as an individual property detached from relations, institutions, resources, or technical infrastructures. The discussion proceeds from a typed subject-relative continuation carrier to four distinct practical modes: availability, initiation, maintenance, and refusal. It then develops cross-stage comparison, distinguishes expansion, narrowing, substitution, and mixed reorganization, and connects

horizon change to dependence, provenance, manifestation, and the co-formation criterion of Section 8. The method remains model-relative: a practical horizon contains only the continuation types retained by the declared inquiry and does not purport to enumerate every future physically possible for the subject.

10.1 Subject-Relative Continuation Carrier

Papers I–II already represent changing continuation families for procedures and relational histories. Paper III requires a subject-relative specialization because a continuation can remain available to the coupled relation while being inaccessible to one focal subject, or can be practically available to the subject through a route that the coarser relation-level record does not distinguish. Let $\mathfrak{N}_{i,t}^{\kappa,\delta}$ denote the finite or otherwise explicitly delimited class of typed continuation descriptors retained for subject i at stage t under resolution κ and diagnostic purpose δ . Its elements can represent actions, procedure entries, institutional routes, role transitions, resource-dependent projects, exits, refusals, or other future-directed descriptors justified by the application.

The subject-relative carrier is not the set of all metaphysically possible futures. Membership in $\mathfrak{N}_{i,t}^{\kappa,\delta}$ means only that the continuation is represented as relevant to the local practical-horizon inquiry. The carrier can therefore change when the application changes scale, temporal horizon, institutional scope, or descriptive vocabulary. Such representational change must remain distinguishable from a substantive change in the subject’s practical horizon.

To connect the carrier to the subject-constitutive diagnostic architecture of Section 5, let $q_{\text{hor}} \in Q_\delta$ denote the practical-horizon dimension when that dimension is retained by the declared diagnostic. Its extraction map d_{hor} remains partial and relationally anchored. The constructions below specify one admissible internal structure for the codomain $\mathcal{Z}_{\text{hor}}$; they do not make practical horizon mandatory in every analysis of subject co-formation.

10.2 Four Practical Modes

A single binary distinction between possible and impossible continuations conceals several practically important differences. A continuation can be available in the sense that a route exists while remaining non-initiable by the focal subject. It can be initiated but difficult to maintain. It can remain available while becoming effectively impossible to refuse once activated. Conversely, a subject can gain an effective refusal route even when the set of positively available projects remains unchanged. Paper III therefore uses four mode-specific subfamilies of the local continuation carrier.

Let $\mathcal{T}_{\text{hor}} := \{\text{avail}, \text{init}, \text{maint}, \text{ref}\}$ denote the retained practical modes. The mode assignment is defined in Equation 34.

$$\text{HorMode}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{N}_{i,t}^{\kappa,\delta} \times \mathcal{T}_{\text{hor}}. \quad (34)$$

For $m \in \mathcal{T}_{\text{hor}}$, the corresponding mode-specific family is derived in Equation 35.

$$\mathcal{H}_{i,t}^{\kappa,\delta;m} := \left\{ n \in \mathfrak{N}_{i,t}^{\kappa,\delta} \mid (n, m) \in \text{HorMode}_{i,t}^{\kappa,\delta} \right\}. \quad (35)$$

The four modes require application-specific operational criteria. *Availability* concerns whether the retained relational conditions admit a practically relevant route to the continuation. *Initiation* concerns whether the subject has an effective route for beginning or activating it. *Maintenance* concerns whether the continuation can be sustained across the declared horizon under the retained conditions. *Refusal* concerns whether the subject has an effective route for declining, terminating, or preventing the relevant continuation when refusal is meaningful for that continuation type.

These mode families are typed records rather than ordered levels. Paper III does not impose general inclusions such as $\mathcal{H}_{i,t}^{\text{init}} \subseteq \mathcal{H}_{i,t}^{\text{avail}}$ because the underlying descriptors can represent different temporal positions. A continuation already underway can be maintainable even though its initial entry route is no longer available; a proposed intervention can be refusible without being a project the focal subject would initiate; and an institutional route can be available through an entitlement even though no unaided

Table 11: Practical-horizon modes and recurrent evidential questions. The modes are analytically distinct and need not form a general hierarchy.

Mode	Local question	Illustrative evidence or relational condition
Availability	Is a practically relevant route represented as open to the subject?	Access records, eligibility, resource routes, permissions, reachable procedures, institutional interfaces
Initiation	Can the subject effectively activate or begin the continuation?	Request rights, executable skills, retained authorization, non-discretionary activation routes, usable interfaces
Maintenance	Can the subject sustain the continuation across the declared horizon?	Recurrent resources, learned competence, stable access, ongoing authorization, manageable dependency, environmental support
Refusal	Can the subject effectively decline, terminate, or prevent the continuation where refusal is meaningful?	Exit routes, withdrawal records, revocation capacity, refusal uptake, alternatives after refusal, absence of disabling retaliation or gatekeeping under the declared criterion

initiation is possible. A concrete application can impose additional containment rules when its descriptor semantics warrant them.

The practical-horizon profile collects the four typed mode families without aggregating them. Equation 36 defines the profile.

$$\mathcal{H}_{i,t}^{\kappa,\delta} := \left(\mathcal{H}_{i,t}^{\kappa,\delta;\text{avail}}, \mathcal{H}_{i,t}^{\kappa,\delta;\text{init}}, \mathcal{H}_{i,t}^{\kappa,\delta;\text{maint}}, \mathcal{H}_{i,t}^{\kappa,\delta;\text{ref}} \right). \quad (36)$$

Equation 36 is a structured diagnostic object rather than a utility set or autonomy score. A horizon with more represented continuations can still contain weaker refusal routes, greater exposure to discretionary gatekeeping, or fragile maintenance conditions. A smaller horizon can contain stronger initiation rights or more secure exit. The profile therefore preserves mode and type before any application-specific evaluation is introduced.

Table 11 illustrates why practical possibility is relationally scaffolded without being equivalent to dependence. A subject can genuinely initiate a continuation through an institution, tool, or other person when the subject possesses a retained route for activating that support. Agency in the present framework does not require autarky. Conversely, a route can be formally available while remaining practically non-initiable when another actor retains discretionary control over activation and the subject lacks an effective alternative.

10.3 Cross-Stage Comparability

Practical-horizon comparison requires a rule for relating continuation descriptors across stages. Literal label identity is often inadequate because the continuation vocabulary can be refined, merged, split, or retyped as the history develops. Let $\mu_{i,t' \leftarrow t}^{\kappa,\delta}$ be the declared cross-stage continuation-comparison relation. It is defined in Equation 37.

$$\mu_{i,t' \leftarrow t}^{\kappa,\delta} \subseteq \mathfrak{N}_{i,t}^{\kappa,\delta} \times \mathfrak{N}_{i,t'}^{\kappa,\delta}. \quad (37)$$

Membership $(n, n') \in \mu_{i,t' \leftarrow t}^{\kappa,\delta}$ means that the declared inquiry treats n and n' as comparable continuation descriptors for the purpose of practical-horizon analysis. The relation can be many-to-many. A broad earlier descriptor can split into several later routes, and several earlier routes can be represented later through one institutionally unified continuation. The relation does not assert that the continuations are historically identical or normatively equivalent.

For each mode m , Equation 38 defines the later unmatched family and the earlier unmatched family relative to the comparison relation.

$$\begin{aligned} \text{Gain}_{i,t' \leftarrow t}^{\kappa,\delta;m} &:= \left\{ n' \in \mathcal{H}_{i,t'}^{\kappa,\delta;m} \mid \nexists n \in \mathcal{H}_{i,t}^{\kappa,\delta;m} : (n, n') \in \mu_{i,t' \leftarrow t}^{\kappa,\delta} \right\}, \\ \text{Loss}_{i,t' \leftarrow t}^{\kappa,\delta;m} &:= \left\{ n \in \mathcal{H}_{i,t}^{\kappa,\delta;m} \mid \nexists n' \in \mathcal{H}_{i,t'}^{\kappa,\delta;m} : (n, n') \in \mu_{i,t' \leftarrow t}^{\kappa,\delta} \right\}. \end{aligned} \quad (38)$$

Equation 38 records appearance and disappearance relative to a declared mode and comparison rule. The construction does not assign equal weight to all elements. Gaining one continuation and losing one continuation does not imply that the practical horizon is unchanged, and cardinality differences do not provide a general measure of agency.

Cross-stage comparison can also retain continuations whose descriptor remains comparable while their practical mode changes. A route can remain institutionally available while becoming non-initiable, or remain initiable while losing maintainability after a resource withdrawal. Such cases are not captured by unmatched elements alone. The full diagnostic therefore compares both descriptor correspondence and mode assignment. The diagnostic equivalence $\approx_{\text{hor}}$ selected in Section 5 should state which mode differences are constitutively relevant for the application.

10.4 Expansion, Narrowing, Substitution, and Mixed Reorganization

The vocabulary of expansion and narrowing is useful only after the comparison domain and relevant modes have been declared. A local *expansion* occurs when the later profile contains warranted practical possibilities or control routes absent from the comparable earlier profile without a constitutively relevant compensating loss under the declared diagnostic. A local *narrowing* is the converse. These terms are therefore diagnostic-relative rather than global rankings of a person's life possibilities.

Many support histories produce *substitution* rather than pure expansion or narrowing. A subject can lose one route while gaining another, replace discretionary access with entitlement-based access, exchange a helper-dependent initiation route for self-initiated use of an institution, or leave one role while entering another. Mixed reorganization can also cross modes: availability can expand while refusal narrows; initiation can strengthen while maintenance becomes more fragile; a continuation can become sustainable only through a dependency that also increases exit cost.

The present framework therefore treats the practical-horizon change record as typed rather than scalar. Equation 39 defines the mode-indexed change profile.

$$\Delta \mathcal{H}_{i,t' \leftarrow t}^{\kappa,\delta} := \left(\text{Gain}_{i,t' \leftarrow t}^{\kappa,\delta;m}, \text{Loss}_{i,t' \leftarrow t}^{\kappa,\delta;m} \right)_{m \in \mathcal{T}_{\text{hor}}}, \quad (39)$$

with mode changes among matched descriptors retained alongside the profile when the application requires them. Equation 39 is descriptive. It does not say whether the resulting horizon is better, freer, more autonomous, more just, or more desirable.

A recurrent volunteer example illustrates the distinction. Suppose A helps B obtain access to an educational programme. At the first stage, the programme can become available to B only when A negotiates with an institution; B cannot yet initiate the procedure and continued participation depends on A's recurrent mediation. At a later stage, B acquires the knowledge, authorization, and institutional standing required to initiate and maintain participation directly. The endpoint may involve fewer interactions with A while containing a stronger initiation profile for B. The relevant transformation is not captured by counting institutional contacts. It lies in the organization of routes through which B can activate and sustain future continuations.

The reverse pattern is equally possible. A support intervention can multiply nominal options while concentrating their activation in one gatekeeper, making maintenance conditional on continued compliance, or weakening effective refusal. Such a history can display wider availability together with narrower initiation or refusal. The metaphysical diagnosis should preserve that mixed structure before any normative assessment is added.

10.5 Dependency, Scaffolding, and Effective Practical Control

Section 9 distinguished retained interfaces from practical horizon. The present section adds a corresponding distinction between relational scaffolding and effective practical control. A continuation can depend on social or institutional support and still belong to the subject's practical horizon when the supporting route is sufficiently retained, usable, and activatable under the declared criterion. A wheelchair, interpreter, public benefit, digital platform, legal representative, or recurring collaborator can be part of the relational conditions through which practical agency is exercised. Treating every supported continuation as less genuinely available would smuggle an ideal of isolated self-sufficiency into the formalism.

Dependency becomes analytically relevant when the mode profile depends on another bearer in ways that alter activation, maintenance, refusal, or revision. A helper can supply resources while retaining unilateral power to withdraw them. An institution can provide durable access while allowing predictable activation through a right or procedure. These cases can involve similar material assistance while producing different practical horizons.

The horizon diagnostic can therefore be paired with the boundary and provenance diagnostics when the research question concerns control over enabling routes. Such coupling should remain explicit. Boundary dependence, practical-horizon narrowing, and generative-capacity limitation are distinct objects even when they occur together. Section 12 will examine capacity directly; the current section asks which continuations are practically organized as available, initiable, maintainable, or refusible under the retained conditions.

10.6 Constitutive Relevance and Relation-Specific Provenance

Practical-horizon reorganization becomes subject-constitutive only through the diagnostic architecture already established. Let q_{hor} denote the practical-horizon dimension. A warranted practical-horizon reorganization over the tracked interval is stated in Equation 40.

$$\text{HReorg}_{i,t' \leftarrow t}^{\kappa,\delta} \iff q_{\text{hor}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta} \quad (40)$$

Equation 40 avoids a second, competing criterion of constitutive change. The detailed mode structure supplies evidence and interpretation for d_{hor} and $\approx_{\text{hor}}$; the changed-dimension set remains the common interface to the whole-paper diagnostic architecture.

A practical-horizon change supports a co-formation claim only when relation-specific provenance is also warranted. Under Definition 8.1, q_{hor} becomes a co-formation witness precisely when it belongs to the robust witness set of Equation 27. Temporal overlap with volunteering, receipt of material assistance, or subjective gratitude does not by itself establish that the focal relation generated the later horizon.

Provenance can be distributed. B's changed initiation capacity can depend jointly on A's instruction, B's repeated practice, institutional authorization, material resources, and a third party's certification. Maintenance can later be stabilized by a public entitlement that reduces A's importance. Refusal capacity can arise through B's own boundary work together with an external review route. The provenance record should preserve these pathways rather than attributing the entire practical horizon to the most visible helper.

Asymmetry also remains possible. A support relation can reorganize B's horizon strongly while leaving A's practical horizon stable. Repeated volunteering can conversely reorganize A's future commitments, professional routes, or role-dependent possibilities while B experiences little retained change. Bilateral practical-horizon reorganization can differ in kind and timing. The co-formation profile of Section 8 already accommodates these cases without requiring reciprocal symmetry.

10.7 Three-Level Evidence and Normative Restraint

Practical horizon belongs to relational reality in the present framework. Manifested choice, expressed preference, institutional classification, and self-description can provide evidence, but none is an automatic readout of the horizon. A subject may report that an option is available while lacking a usable

activation route; an institution may list a service as accessible while repeated attempts reveal practical exclusion; a subject can possess a viable refusal route without exercising it; and a continuation can remain relationally available before the subject has recognized or articulated it.

The three-level distinction therefore matters to empirical reconstruction. Observed behavior shows realized selections, not the complete continuation family. Non-use does not establish unavailability. Expressed willingness does not establish maintainability. Publicly advertised eligibility does not establish practical access. Conversely, the absence of a visible attempt does not establish that the subject lacked initiation capacity. Evidence from procedures, resources, permissions, actual refusals, route failures, repeated use, institutional responses, and first-person reconstruction can jointly support or contest the relational interpretation.

Manifestations can also feed back into later horizons through Equation 9. Public recognition can open institutional access; a stigmatizing classification can close a route; an articulated refusal can establish a later procedural safeguard; a visible success can attract resources that make maintenance possible. The later practical-horizon profile remains the constitutive object, while the manifestations become historical contributors when the provenance evidence warrants that interpretation.

No normative ordering is built into the horizon diagnostic. More options do not necessarily mean greater welfare, justice, autonomy, or dignity. A new option can impose burdens, obligations, surveillance, or dependency. A lost option can reflect chosen commitment, protective closure, or successful completion rather than deprivation. Refusal capacity can be ethically important while still being costly; maintenance can be secure through institutions that are themselves unjust. The present section therefore supplies a metaphysical and formal diagnostic that later ethics, justice, power, and jurisprudence papers can evaluate under additional premises.

10.8 Interfaces with Value, Capacity, and Subject Reopening

Practical-horizon reorganization interacts strongly with the next diagnostic dimensions while remaining analytically distinct from them. Section 11 will examine value-orientation migration: a continuation can become available without becoming valued, and a value can change while the corresponding action remains unavailable. Section 12 will examine generative capacity: a subject can acquire a skill without acquiring the institutional route needed to exercise it, or can gain practical access through another subject without acquiring the underlying skill. Section 13 will examine self-reconstruction: the subject's interpretation of newly available or foreclosed futures can itself become historically consequential without being identical to the continuation profile.

Later sections on role positions, recognition, third-position pathways, asymmetry, and path dependence can also act on the horizon. A public role can make some continuations socially expected and others costly to refuse. Third-position review can reopen a blocked appeal route. Repetition can stabilize a maintenance pathway or create dependence on one continuation. Section 19 will return to these structures when analyzing subject reopening, including the recovery of routes previously closed, the dissolution of dependencies, and the reappearance of refusal or initiation capacities after a period of constraint.

Practical-horizon reorganization therefore supplies one recurrent way in which a relation can become constitutively important to a tracked subject. The decisive object is not the sheer number of represented futures, but the typed organization of practical continuation under historically retained conditions. When that organization changes under an admissible diagnostic and the focal volunteer/support relation is robustly included in its provenance, q_{hor} can serve as a scoped witness of subject co-formation under Section 8. Other cases remain ordinary relational modification, non-focal constitutive change, or underdetermined transformation according to the evidence available.

11 Value-Orientation Migration

Value-orientation analysis asks whether a volunteer or support relation participates in a retained reorganization of the evaluative structures through which a subject interprets situations, recognizes reasons, orders commitments, justifies refusals, and selects among practical continuations. The role of this section is to specify that diagnostic without reducing values to expressed preferences, observed choices, scalar utilities, or propositions copied from one subject into another. The discussion proceeds from a typed value-descriptor carrier to modes of uptake, endorsement, practical efficacy, and contestation; it then develops structured orientation relations, cross-stage migration, stabilization and revision, mediated circulation, and the interface with constitutive change and relation-specific provenance. The method remains model-relative. A value-orientation claim concerns relationally retained evaluative organization under a declared diagnostic and does not establish moral truth, authentic identity, or ultimate ontology.

11.1 Typed Value-Descriptor Carrier

Let $\mathfrak{V}_{i,t}^{\kappa,\delta}$ denote the finite or otherwise explicitly delimited class of value descriptors retained for focal subject i at stage t , resolution κ , and diagnostic purpose δ . A descriptor can represent a commitment, priority, prohibition, evaluative distinction, reason-type, ideal, practical concern, or other evaluative object justified by the application. The carrier is descriptive and typed. It does not presuppose that every descriptor is endorsed, internally coherent, consciously articulated, morally valid, or mutually commensurable with the others.

A value descriptor is therefore different from a public statement such as “I value independence,” a repeated behavioral regularity, or an institutional classification of the subject. Those manifestations can provide evidence for the relational diagnostic, but the diagnostic concerns the retained evaluative organization reconstructed from the relevant history. Section 4 supplies the three-level discipline required for this distinction.

When value orientation is retained by the admissible constitutive diagnostic of Section 5, let $q_{\text{val}} \in Q_\delta$ denote the corresponding dimension and let d_{val} be its partial extraction map. The constructions below specify one admissible internal structure for the codomain $\mathcal{Z}_{\text{val}}$. They do not make value orientation a mandatory dimension of every co-formation analysis.

11.2 Modes of Evaluative Incorporation

Exposure to a value claim and incorporation of that claim into a subject’s evaluative organization are analytically distinct. A subject can understand a proposed value while rejecting it, endorse a value without allowing it to guide later action, act in ways compatible with a value for external reasons, or continue to contest a value that has nevertheless become a recurrent object of self-interpretation. Paper III therefore distinguishes several modes of evaluative incorporation.

Let

$$\mathcal{T}_{\text{val}} := \{\text{uptake, endorse, eff, contest}\} \quad (41)$$

denote the retained value-orientation modes. Equation 41 fixes the local mode vocabulary, and their assignment is represented by the typed relation in Equation 42.

$$\text{ValMode}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{V}_{i,t}^{\kappa,\delta} \times \mathcal{T}_{\text{val}}. \quad (42)$$

For $m \in \mathcal{T}_{\text{val}}$, define the corresponding mode-specific family by

$$\mathcal{V}_{i,t}^{\kappa,\delta;m} := \left\{ v \in \mathfrak{V}_{i,t}^{\kappa,\delta} \mid (v, m) \in \text{ValMode}_{i,t}^{\kappa,\delta} \right\}. \quad (43)$$

Equation 43 derives the mode-specific families used throughout the section. Here *uptake* means that a descriptor has entered the subject-relative evaluative repertoire as an intelligible and recurrent object of assessment. *Endorsement* means that the descriptor is reconstructed as an accepted reason, commitment,

Table 12: Value-orientation modes and recurrent evidential questions. Each mode concerns a distinct relation between a value descriptor and the tracked subject.

Mode	Local question	Illustrative evidential routes and cautions
Uptake	Has the descriptor entered the subject’s recurrent evaluative repertoire?	Repeated engagement, deliberative records, remembered distinctions, recurring interpretation; exposure alone is insufficient
Endorsement	Is the descriptor accepted as a reason, commitment, priority, or standard in the declared context?	First-person reconstruction, repeated justification, defended commitment, stable preference under reflection; public attribution alone is insufficient
Practical efficacy	Does the descriptor materially organize later interpretation, choice, refusal, or maintenance?	Decision histories, reason-giving, patterned tradeoffs, refusal records, continuation selection; behavioral conformity can have non-evaluative causes
Contestation	Is the descriptor actively rejected, revised, qualified, or held in unresolved tension?	Counter-arguments, exceptions, reversals, ambivalence, refusal to internalize, competing commitments; contestation can coexist with uptake or practical efficacy

priority, or evaluative standard within the declared context. *Practical efficacy* means that the descriptor materially participates in later interpretation, justification, selection, refusal, or maintenance of practical continuations. *Contestation* means that the descriptor remains an object of active rejection, revision, qualification, ambivalence, or internal dispute within the retained record.

The modes do not form a universal hierarchy. Endorsement can be aspirational and weakly efficacious. A contested value can strongly organize attention and refusal. A descriptor can acquire practical efficacy through habit, institutionalization, or repeated justification before the subject articulates an explicit endorsement. A concrete application can impose stronger relations among the modes when its evidence and conceptual commitments warrant them, but the general framework preserves their separability.

Table 12 prevents several common substitutions. A subject’s compliance with an institutional norm does not by itself establish endorsement. A public claim that the subject “now values service” does not establish uptake. A first-person declaration has distinctive evidential importance for endorsement and self-understanding, while its relation to practical efficacy or distributed relational structure still requires diagnostic justification. The evidential route must therefore remain visible for each mode.

11.3 Structured Orientation Relations

A value orientation is more than a set of descriptors. Subjects can treat commitments as mutually supportive, place one priority ahead of another in a declared context, experience persistent tension between them, or retain exception structures that condition when a value applies. The formalism therefore permits typed relations among value descriptors without presupposing a total ranking or a common numerical scale.

Let $\mathcal{T}_{\text{vrel}}$ be an application-declared finite class of evaluative relation types, such as priority, support, tension, or exception. The retained relation is

$$\text{ValRel}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{V}_{i,t}^{\kappa,\delta} \times \mathfrak{V}_{i,t}^{\kappa,\delta} \times \mathcal{T}_{\text{vrel}}. \quad (44)$$

Equation 44 preserves typed relations among retained descriptors without imposing a total order. The local value-orientation profile is then represented by

$$\mathcal{O}_{i,t}^{\kappa,\delta} := \left(\mathfrak{V}_{i,t}^{\kappa,\delta}, \text{ValMode}_{i,t}^{\kappa,\delta}, \text{ValRel}_{i,t}^{\kappa,\delta} \right). \quad (45)$$

Equation 45 deliberately avoids a utility vector or universal preference order. A subject can retain incommensurable commitments, context-dependent priorities, unresolved tensions, and partial evaluative orderings. Quantitative specializations remain possible when an application independently justifies a metric, weighting scheme, or choice model, but the metaphysical framework does not treat such a specialization as the general form of value orientation.

11.4 Cross-Stage Migration and Descriptor Reframing

Value migration is historical reorganization rather than literal transmission of a value token from one subject to another. The same linguistic label can carry different evaluative content across stages, while a retained commitment can be redescribed through new vocabulary. Cross-stage comparison therefore requires a declared relation between earlier and later value descriptors.

Let

$$\nu_{i,t' \leftarrow t}^{\kappa,\delta} \subseteq \mathfrak{V}_{i,t}^{\kappa,\delta} \times \mathfrak{V}_{i,t'}^{\kappa,\delta} \quad (46)$$

be the cross-stage value-descriptor comparison relation. Equation 46 defines the cross-stage comparison interface. Membership $(v, v') \in \nu_{i,t' \leftarrow t}^{\kappa,\delta}$ means that the application treats v and v' as historically comparable for the purpose of value-orientation analysis. The relation can be many-to-many. An earlier broad commitment can later differentiate into several priorities, several inherited rules can be reorganized under one newly articulated principle, and a value can be reframed through translation, institutional vocabulary, or retrospective self-interpretation.

Migration can therefore occur through changes in mode, relation, or descriptor structure. A value can move from uptake to endorsement, from endorsement to contestation, from explicit commitment to weak practical efficacy, or from one priority relation to another. A new descriptor can also enter the repertoire while an earlier one loses salience. The diagnostic comparison d_{val} and its equivalence rule $\approx_{\text{val}}$ must state which of these transformations count as constitutively relevant for the local inquiry.

This approach preserves the difference between *exposure* and *migration*. A volunteer can articulate a value repeatedly without producing any retained change in the other subject's evaluative organization. Conversely, a brief encounter can participate in a later migration when the subject subsequently interprets, practices, contests, and stabilizes the introduced distinction through other relations. The relevant object is the historical reorganization of $\mathcal{O}_{i,t}^{\kappa,\delta}$, not the duration or rhetorical intensity of the original message.

11.5 Stabilization, Contestation, and Revision

Value-orientation migration can be transient, retained, recursive, or reversible. Paper III therefore treats stabilization as a historical property rather than as a separate intrinsic status possessed by a value at one instant. A descriptor is stabilized only relative to a declared observation window and evidential criterion, for example through repeated endorsement, recurrent practical efficacy, persistence across changed contexts, or continued organization of later justification.

Stabilization does not imply finality. A previously stabilized commitment can later be contested, narrowed by exceptions, subordinated to another value, or abandoned. Contestation can itself become constitutively important when it reorganizes how the subject interprets demands, refuses roles, or reconstructs earlier commitments. Section 19 will analyze reopening and de-internalization more directly; the present section keeps revision available within the value diagnostic from the outset.

The distinction between value orientation and self-reconstruction is especially important here. A subject can narrate a dramatic change in values while the retained relational evidence for practical efficacy remains limited. The reverse can also occur: a subject's later decisions can display a durable evaluative reorganization before the subject has articulated a coherent autobiographical interpretation of that change. Section 13 will analyze these first-person reconstruction dynamics without treating either pattern as automatically privileged across every diagnostic purpose.

11.6 Relational Circulation and Public Mediation

Value-orientation change can arise through direct dialogue, repeated joint practice, institutional participation, public recognition, translation, role expectations, or other mediated pathways. A dyadic record is adequate when the relevant provenance is adequately represented by the focal relation and the subject's own activity. A triadic or public record becomes necessary when a third position materially conditions which values become intelligible, legitimate, salient, or practically consequential.

A recurrent pathway can involve circulation rather than one-way transfer. A articulates a commitment in the focal relation; an institution or public translates that commitment into a rule, identity, or role expectation; B encounters the mediated form and contests or appropriates it; the resulting public manifestation later returns to A and reorganizes A's own evaluative repertoire. Such a history can produce bilateral co-formation while containing no single moment at which a fixed value is copied intact from one subject to another.

Section 7 already provides the required provenance architecture. The focal support relation, the subject's reflective activity, public records, institutions, translators, material conditions, and third-position pathways can all appear as provenance bearers when the evidence warrants their contribution. Value migration should therefore be represented as distributed generative history rather than attributed automatically to the most visible speaker, helper, teacher, or institution.

Public attribution requires additional restraint. A community can classify B as altruistic, independent, grateful, disloyal, civic-minded, or irresponsible without B endorsing the corresponding value description. Such classifications belong initially to manifestation and public relational structure. They become part of B's value-orientation provenance only when the later history shows a warranted feedback pathway into B's retained evaluative organization. Equation 9 supplies the general mechanism for this possibility.

11.7 Constitutive Relevance and Co-Formation Provenance

Value-orientation migration becomes a subject-constitutive transformation through the common diagnostic architecture rather than through a separate criterion. Let q_{val} denote the retained value-orientation dimension. A warranted value-orientation reorganization is stated in Equation 47.

$$\text{VReorg}_{i,t' \leftarrow t}^{\kappa, \delta} \iff q_{\text{val}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}. \quad (47)$$

Equation 47 says only that the earlier and later tracked subject configurations are diagnostically nonequivalent on a constitutively retained value dimension. It does not yet establish that the focal volunteer/support relation generated the change. Under Section 8, q_{val} becomes a co-formation witness only when robust focal-relation provenance is also established for that changed dimension.

This separation permits several important cases. B can undergo value reorganization largely through an institution encountered during the same period as A's volunteering, leaving focal-relation provenance unsupported. A can expose B to a value while B's later appropriation depends primarily on peer relations and self-directed reflection, producing mixed provenance. A and B can both change evaluatively through a recurring support relation while the relevant descriptors, modes, and timing differ. A public mediation pathway can become indispensable to one subject's change while remaining peripheral to the other's.

The framework also preserves provenance underdetermination. If the evidence supports both a history in which the focal support relation materially contributes to q_{val} and another admissible history in which the same endpoint is generated without that contribution, the correct result is relation-specific provenance underdetermination under Equation 24. The presence of an attractive narrative of influence is insufficient to resolve that ambiguity.

11.8 Normative Independence and Interfaces with Later Diagnostics

Value-orientation migration is a metaphysical and historical diagnosis, not a normative endorsement of the migrated values or of the process that generated them. Deliberative learning, coercive indoctrination,

adaptive preference formation, reflective revision, institutional socialization, moral education, ideological capture, and resistance can all produce retained evaluative reorganization under different histories. Their ethical or political status depends on additional premises concerning autonomy, justice, domination, consent, welfare, legitimacy, or other normative standards developed elsewhere in the programme.

The diagnostic is also distinct from practical horizon and generative capacity. A subject can endorse a value while lacking the practical route or capacity needed to act on it. A new practical option can appear without becoming valued. A learned capacity can make an existing commitment more efficacious without changing the commitment itself. Section 12 will examine generative-capacity transformation; Section 13 will examine self-reconstruction; Sections 14–16 will examine role positions, recognition, and third-position pathways through which evaluative structures can be stabilized, contested, or recirculated.

Value-orientation migration therefore supplies one recurrent subject-constitutive pathway rather than a universal definition of subject formation. The relevant object is the typed, historically retained organization through which evaluative descriptors are taken up, endorsed, made practically efficacious, contested, related, stabilized, and revised. When that organization changes under an admissible diagnostic and the focal volunteer/support relation is robustly included in the provenance of the change, q_{val} can serve as a scoped witness of subject co-formation under Section 8. Other cases remain exposure without migration, value change with non-focal provenance, ordinary manifestation change, or underdetermined transformation according to the evidence available.

12 Generative-Capacity Transformation

Generative-capacity analysis asks how a subject’s retained organization changes the kinds of transformations, performances, learning processes, or relational operations that the subject can competently generate across a declared class of situations. The role of this section is to distinguish capacity from observed success, practical access, role assignment, and value orientation while preserving the relational conditions through which capacities can be acquired, scaffolded, exercised, retained, impaired, or lost. The discussion proceeds from a typed capacity-descriptor carrier to overlapping capacity modes, support-route dependence, cross-stage comparison, gain and loss, and the common constitutive/provenance architecture established in Sections 5–8. The method remains diagnostic-relative. Paper III does not posit a complete inventory of human or social capacities and does not reduce generative capacity to a scalar quantity.

12.1 Typed Capacity Descriptors

A practical continuation and a capacity answer different analytical questions. A continuation descriptor in Section 10 records a future-directed route that is available, initiatable, maintainable, or refusible under a declared inquiry. A capacity descriptor records a retained competence or transformation possibility attributed to the subject under specified conditions. A subject can possess a capacity while lacking a current route for exercising it, and a practical route can be available while the subject lacks the capacity needed to use it without additional support.

Let $\mathfrak{C}_{i,t}^{\kappa,\delta}$ denote the finite or otherwise explicitly delimited class of typed capacity descriptors retained for subject i at stage t , resolution κ , and diagnostic purpose δ . A descriptor can represent, for example, linguistic translation, self-advocacy, procedural navigation, technical operation, coordination, reflective revision, caregiving competence, refusal articulation, or another transformation capability justified by the application. Membership in $\mathfrak{C}_{i,t}^{\kappa,\delta}$ indicates analytical relevance, not verified possession.

When generative capacity is retained as a constitutive dimension, let $q_{\text{cap}} \in Q_\delta$ denote that dimension. Its extraction map d_{cap} remains partial and relationally anchored under Section 5. The internal constructions below specify one admissible structure for the corresponding diagnostic codomain $\mathcal{Z}_{\text{cap}}$; they do not make capacity a mandatory component of every subject model.

Table 13: Capacity modes, evidential burden, and recurrent inference limits. The modes can overlap and do not form a universal developmental sequence.

Mode	Local evidential burden	Inference that remains unwarranted without further support
Latent	Evidence for a subject-relative competence despite absent or sparse exercise in the retained context	Current exercise, practical access, historical acquisition route, or permanence
Learned	Evidence that the capacity was acquired or reorganized through a learning history	Independent exercise, retention, normative benefit, or focal-relation provenance
Scaffolded	Identified support conditions materially enter competent exercise	Incapacity without support, domination, fragility, or lack of agency
Exercisable	Effective activation of the capacity is available under declared conditions	Actual exercise, successful outcome, or availability across other conditions
Exercised	The history contains a warranted manifestation of the relevant performance	Stable competence, independent competence, retention, or repeatability
Retained	The competence persists across the declared interval or context criterion	Irreversibility, independence from infrastructure, or constitutive relevance in every inquiry

12.2 Overlapping Capacity Modes

Capacity evidence is easily overread when several distinct statuses are compressed into a single predicate such as “can.” Paper III therefore treats capacity status as a typed relation that permits overlap. Let the retained mode vocabulary be $\mathcal{T}_{\text{cap}} := \{\text{latent}, \text{learned}, \text{scaffolded}, \text{exercisable}, \text{exercised}, \text{retained}\}$. Equation 48 defines the mode assignment.

$$\text{CapMode}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{C}_{i,t}^{\kappa,\delta} \times \mathcal{T}_{\text{cap}}. \quad (48)$$

For each $m \in \mathcal{T}_{\text{cap}}$, Equation 49 derives the corresponding mode-specific family.

$$\mathcal{C}_{i,t}^{\kappa,\delta;m} := \left\{ c \in \mathfrak{C}_{i,t}^{\kappa,\delta} \mid (c, m) \in \text{CapMode}_{i,t}^{\kappa,\delta} \right\}. \quad (49)$$

The modes are deliberately nonexclusive. A learned capacity can remain latent because it has not yet been exercised in the retained context. A learned capacity can also be scaffolded when its competent exercise still depends on an external interface or recurring support arrangement. An exercised capacity is not automatically retained, because one successful performance can be episodic, externally directed, or insufficient to support a longitudinal inference. A retained capacity can later cease to be exercisable when infrastructure, health, authorization, or another necessary relational condition changes.

The term *latent* is therefore local rather than metaphysical. It marks a capacity for which the declared evidence supports a subject-relative competence or disposition while the retained history does not require current exercise. *Learned* records warranted acquisition through a prior learning history. *Scaffolded* records competent generation whose exercise materially depends on an identified support arrangement under the declared conditions. *Exercisable* means that an effective activation route exists under those conditions. *Exercised* records manifested performance. *Retained* requires persistence across the observation window or context family specified by the application.

Table 13 separates observation from inference. Successful performance can support a capacity attribution, but performance alone can also be produced through instruction, coercion, automation, delegation, favorable coincidence, or temporary assistance. Conversely, lack of observed exercise does not establish absence when the relevant opportunity never arose or when the capacity remains latent under the declared conditions.

The nonaggregated capacity profile is defined in Equation 50.

$$\mathcal{G}_{i,t}^{\kappa,\delta} := \left(\mathcal{C}_{i,t}^{\kappa,\delta;m} \right)_{m \in \mathcal{T}_{\text{cap}}}. \quad (50)$$

Equation 50 is a typed profile rather than a scalar measure of capability. Two subjects can possess different capacity repertoires that are not meaningfully ordered, and the same subject can gain one capacity while losing another. A concrete application may introduce task-specific performance measures after establishing their interpretation, but Paper III does not assume a universal metric across heterogeneous capacities.

12.3 Scaffolding, Activation Routes, and Dependency

Relational scaffolding can participate in genuine capacity without being absorbed into the subject as an intrinsic possession. To preserve this distinction, let $\mathfrak{R}_{i,t}^{\text{cap},\kappa,\delta}$ denote the local class of retained capacity-support route descriptors. These routes can include another person, an institution, a technical interface, a language service, a recurring resource channel, an accessibility arrangement, or another represented condition through which a capacity is activated or sustained. Equation 51 records the local support relation.

$$\text{CapSupp}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{C}_{i,t}^{\kappa,\delta} \times \mathfrak{R}_{i,t}^{\text{cap},\kappa,\delta}. \quad (51)$$

The presence of $(c, r) \in \text{CapSupp}_{i,t}^{\kappa,\delta}$ means that route r is materially relevant to competent generation of capacity descriptor c under the declared conditions. It does not imply that r is the unique route, that the capacity disappears when r is absent, or that the route's bearer owns the resulting competence. Several support routes can be substitutable, jointly necessary, sequential, or context-specific.

This representation allows capacity expansion and dependence to coexist. A volunteer relation can enable B to perform a new activity through a stable technical or institutional route while also concentrating access through a single gatekeeper. Another relation can initially scaffold a capacity and later become dispensable as B acquires alternative activation routes. A third relation can preserve a capacity that would otherwise become unusable without adding any novel skill. These histories differ even when the manifested performance at one stage looks similar.

Route dependence is therefore not equivalent to incapacity. What matters is the typed organization of activation, substitution, maintenance, and failure conditions. A scaffolded competence can be a genuine part of the subject's retained capacity profile when the support relation is stably accessible and usable. The same competence can remain route-fragile when the subject has little control over the continuation of the required route or lacks alternatives. Ethical and political evaluation of such dependence belongs to later papers; the present section records its constitutive structure without assigning normative valence.

12.4 Cross-Stage Capacity Comparison and Loss

Longitudinal capacity analysis requires explicit cross-stage comparability because capacity descriptions can be refined, merged, split, or reinterpreted. Let $\lambda_{i,t' \leftarrow t}^{\text{cap},\kappa,\delta}$ denote the declared descriptor-comparison relation. Equation 52 defines its type.

$$\lambda_{i,t' \leftarrow t}^{\text{cap},\kappa,\delta} \subseteq \mathfrak{C}_{i,t}^{\kappa,\delta} \times \mathfrak{C}_{i,t'}^{\kappa,\delta}. \quad (52)$$

Membership $(c, c') \in \lambda_{i,t' \leftarrow t}^{\text{cap},\kappa,\delta}$ means that the application treats the two descriptors as comparable for the capacity inquiry. The relation can be many-to-many. An earlier broad competence can later differentiate into several specialized capacities; several task-specific competences can later be represented as one integrated capacity. Comparability does not by itself establish equivalence or persistence.

Capacity gain and loss are cross-stage relations, not present-time modes. Let $\text{CapGain}_{i,t' \leftarrow t}^{\kappa,\delta}$ contain later descriptors for which no adequately equivalent earlier capacity is warranted under the declared comparison, and let $\text{CapLoss}_{i,t' \leftarrow t}^{\kappa,\delta}$ contain earlier descriptors for which no adequately equivalent later capacity remains warranted. Equation 53 records these sets schematically.

$$\begin{aligned}
\text{CapGain}_{i,t' \leftarrow t}^{\kappa, \delta} &:= \left\{ c' \in \mathfrak{C}_{i,t'}^{\kappa, \delta} \mid \nexists c \in \mathfrak{C}_{i,t}^{\kappa, \delta} \text{ with } (c, c') \in \lambda_{i,t' \leftarrow t}^{\text{cap}, \kappa, \delta} \text{ and } c \approx_{\text{cap}} c' \right\}, \\
\text{CapLoss}_{i,t' \leftarrow t}^{\kappa, \delta} &:= \left\{ c \in \mathfrak{C}_{i,t}^{\kappa, \delta} \mid \nexists c' \in \mathfrak{C}_{i,t'}^{\kappa, \delta} \text{ with } (c, c') \in \lambda_{i,t' \leftarrow t}^{\text{cap}, \kappa, \delta} \text{ and } c \approx_{\text{cap}} c' \right\}.
\end{aligned} \tag{53}$$

Equation 53 is intentionally schematic because the local equivalence rule $\approx_{\text{cap}}$ must specify which modes, conditions, support routes, and retention criteria are material. A capacity that remains exercisable only through a new scaffold can count as preserved under one diagnostic and transformed under another. A capacity can also be impaired rather than fully lost when only some conditions, contexts, or activation routes remain available. Applications should therefore preserve partial and mixed verdicts rather than force every change into gain or loss.

Capacity transformation can also concern mode reorganization without a new descriptor. A previously latent competence can become exercised; a scaffolded competence can become independently activatable; a retained capacity can become fragile after losing alternative support routes; or an exercised competence can cease to satisfy the retention criterion. These changes can be constitutively relevant even when the descriptor vocabulary remains stable.

12.5 Capacity, Horizon, Role, and Manifested Success

Generative capacity is coupled to practical horizon but remains analytically distinct from it. Practical horizon concerns future-directed routes that are available, initiatable, maintainable, or refusible. Capacity concerns competent generation or transformation under specified conditions. A subject can know how to perform an activity while lacking access to the institution, authorization, resource, or interface needed to initiate it. Conversely, an institution can open a practical route while the subject still requires training or scaffolded competence to use it.

Capacity is also distinct from role performance. A subject can competently perform tasks associated with a role without internalizing the role as part of retained subject organization, and a role can be institutionally assigned despite weak capacity for its expected performances. Section 14 will analyze role-position reorganization directly.

Manifested success supplies evidence but does not define capacity. One successful episode can reflect unusually favorable conditions, hidden assistance, delegation, or chance. Repeated failures can coexist with a retained capacity when the relevant horizon is obstructed by inaccessible resources or hostile conditions. The three-level discipline of Section 4 therefore remains in force: observed performance belongs to manifestation reality; capacity attribution concerns the relational subject model; ultimate ontology remains suspended; and subject-relative or observer-relative reconstructions remain epistemic.

Value orientation is likewise distinct. A subject can acquire a competence that it rejects, avoid exercising a capacity it endorses for lack of opportunity, or use a learned capacity toward values different from those of the supporting relation. Capacity acquisition therefore does not establish value alignment, gratitude, role acceptance, or normative approval.

12.6 Constitutive Relevance and Co-Formation Provenance

Generative-capacity transformation becomes subject-constitutive through the common diagnostic architecture rather than through a capacity-specific shortcut. A warranted capacity reorganization is stated in Equation 54.

$$\text{CReorg}_{i,t' \leftarrow t}^{\kappa, \delta} \iff q_{\text{cap}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}. \tag{54}$$

Equation 54 indicates diagnostic nonequivalence on a retained capacity dimension. It does not establish that the focal volunteer/support relation generated the change. A learned skill can arise through peer interaction, institutional training, self-directed practice, environmental necessity, or several contributors jointly active during the same interval. Under Section 7, the focal relation enters a co-formation claim

only when its contribution to the relevant capacity change is supported as a relation-specific provenance bearer.

This separation is especially important for scaffolded capacities. A volunteer can provide the route through which B successfully performs a task without materially reorganizing B's retained competence. In another history, repeated scaffolded performance can participate in learning that remains after the volunteer exits. In a third, a new competence is retained but remains dependent on an institutional interface introduced through the focal relation. The manifested action can look similar across these histories while the capacity diagnosis and provenance structure differ.

The co-formation criterion of Section 8 therefore applies without modification. When q_{cap} is constitutively changed and the evidence-compatible provenance assignments robustly include the focal relation for that changed dimension, capacity transformation can serve as a scoped witness of subject co-formation. When capacity change is established but focal provenance remains unresolved, the appropriate result is provenance underdetermination. When successful performance is observed without warranted retained capacity change, the case remains manifestation or local state variation rather than constitutive capacity transformation.

12.7 Preservation, Fragility, and Later Diagnostic Interfaces

Generativity includes preservation as well as acquisition. A support relation can maintain a fragile competence, reopen a previously unusable capacity, prevent deterioration, redirect an existing competence to a new domain, or supply conditions under which a latent capacity becomes exercisable. These histories can matter constitutively even when the set of named capacity descriptors does not increase. The local diagnostic should therefore state whether preservation, reopening, mode change, route substitution, and loss are retained as materially distinct forms of capacity reorganization.

The same framework also accommodates mixed outcomes. A subject can acquire a new technical competence while losing independent access to the infrastructure needed to exercise it. Another subject can lose one capacity through injury or institutional exclusion while developing new compensatory competence through support. A third can become highly competent in a role-specific practice while becoming less able to exit that role because the surrounding practical horizon has narrowed. Such combinations reinforce the decision to keep capacity, boundary, practical horizon, value orientation, and role organization as distinct but coupled diagnostics.

Section 13 will examine how subjects reconstruct these changes autobiographically and how first-person accounts relate to public or external reconstructions. Sections 14–16 will then analyze role organization, recognition-mediated formation, and third-position pathways that can stabilize, authorize, obscure, or redistribute capacity attributions. Later normative papers can ask whether a particular capacity history is empowering, dependency-producing, exploitative, paternalistic, just, or valuable. The present section supplies the metaphysical and formal distinction needed before those evaluations are made.

Generative-capacity transformation therefore names a typed, historically retained change in what a subject can competently generate under declared conditions. It includes acquisition, preservation, reopening, mode reorganization, impairment, and loss without assuming one scalar direction of improvement. When such a change is constitutively retained and robustly linked by provenance to the focal support relation, it can witness subject co-formation; otherwise it remains a capacity change with different or unresolved provenance, a temporary scaffolded performance, a manifestation-level success, or an underdetermined case.

13 Self-Reconstruction Dynamics

This section specializes the subject-constitutive diagnostic architecture to historically retained reconstruction of the self. Its role is to distinguish a subject's reconstruction of itself from the represented

relational subject while preserving the possibility that self-reconstruction can become part of later subject organization. The objective is to represent autobiographical memory, self-attribution, retrospective interpretation, prospective self-projection, and practical self-commitment as typed and revisable structures; to clarify the evidential role of first-person accounts; to retain disagreement between self- and other-subject reconstruction; and to specify when self-reconstruction becomes sufficiently efficacious to enter a constitutive co-formation claim. The discussion proceeds through typed self-reconstruction profiles, memory and historical revision, cross-stage reconstruction comparison, first-person evidential standing, relational efficacy, public and other-subject disagreement, and the interface with the common constitutive and provenance criteria. The method is reconstructive and model-relative. The section does not treat narrative coherence as a complete theory of personal identity and makes no claim that a subject's self-description exhausts its relational reality.

Section 4 already introduced subject-relative reconstructions $\widehat{\text{Subj}}_{i,t}^j$ and their histories. The case $j = i$ records self-reconstruction. The present section refines that case because self-reconstruction can function in at least three analytically different ways: as evidence about the focal subject, as a manifestation of how the subject currently interprets itself, and as a possible provenance bearer in later relational reorganization. These roles can coincide, but the model keeps them distinct.

13.1 Typed Self-Reconstruction Profile

Let $\mathfrak{X}_{i,t}^{\text{self},\kappa,\delta}$ denote the finite application-relative carrier of self-reconstruction descriptors extracted from $\widehat{\text{Subj}}_{i,t}^i$ for the declared inquiry. A descriptor can represent a remembered episode, a self-attributed capacity or dependency, an interpretation of an earlier event, a projected future self-position, a practical commitment, or another retained component of self-understanding. The carrier records represented content rather than an ultimate interior self.

Paper III uses the self-reconstruction type family in Equation 55.

$$\mathcal{T}_{\text{self}} := \{\text{memory, attribution, retrospective, prospective, commitment}\}. \quad (55)$$

The types in Equation 55 may overlap. A remembered support episode can simultaneously carry a retrospective interpretation; a self-attribution of competence can organize a prospective continuation; a practical commitment can reinterpret earlier events as part of a longer autobiographical sequence. The family therefore provides analytical tags rather than mutually exclusive psychological compartments.

The type assignment is relation-valued, as stated in Equation 56.

$$\text{SelfMode}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{X}_{i,t}^{\text{self},\kappa,\delta} \times \mathcal{T}_{\text{self}}. \quad (56)$$

For $m \in \mathcal{T}_{\text{self}}$, define the mode-specific family $\mathcal{X}_{i,t}^{\text{self},m,\kappa,\delta}$ by the descriptors assigned mode m . The corresponding self-reconstruction profile is stated in Equation 57.

$$\mathcal{S}_{i,t}^{\text{self},\kappa,\delta} := \left(\mathcal{X}_{i,t}^{\text{self},m,\kappa,\delta} \right)_{m \in \mathcal{T}_{\text{self}}}. \quad (57)$$

Equation 57 is a typed profile rather than a vector. Paper III assumes no common metric by which a memory revision, a changed self-attribution, and a new practical commitment can be added or ranked. A concrete empirical study can introduce local scales when their interpretation is justified.

The profile also avoids identifying articulate narration with self-reconstruction as such. A subject can have a stable practical self-attribution with limited verbal articulation, while another subject can produce elaborate narratives that remain weakly connected to later conduct or commitment. The admissible descriptor carrier should therefore be built from the evidence appropriate to the focal subject and research setting rather than restricted to polished verbal autobiography.

13.2 Autobiographical Memory and Historical Reconstruction

Autobiographical memory occupies a special position because it concerns earlier history while remaining a present reconstruction. A descriptor in $\mathcal{X}_{i,t}^{\text{self},\text{memory},\kappa,\delta}$ records how the subject reconstructs an earlier episode at stage t ; it does not replace the independently retained historical record of that episode. The model therefore permits a remembered support event, an archived interaction record, and another subject's reconstruction of the same episode to differ without forcing an immediate reconciliation.

This distinction matters for co-formation analysis. A later subject can reinterpret an earlier episode as enabling, humiliating, formative, accidental, coercive, or largely irrelevant. Such reinterpretation can alter later commitments or practical possibilities even when the earlier event itself is unchanged. The constitutive object is then the later relational efficacy of the revised self-reconstruction together with its provenance, rather than a retroactive alteration of the historical event.

Memory revision can take several forms within the present framework. A subject can preserve an earlier memory while changing its interpretation, withdraw confidence from an earlier attribution, connect previously separate episodes, differentiate one broad autobiographical category into several, or adopt a new prospective significance for an old event. The formalism does not assume that revision moves toward greater accuracy. It records historical reorganization of reconstruction and leaves questions of accuracy to evidence appropriate to the relevant claim.

Cross-stage analysis requires an explicit comparison rule. Equation 58 records which earlier and later descriptors are treated as comparable under the declared inquiry.

$$\omega_{i,t' \leftarrow t}^{\text{self},\kappa,\delta} \subseteq \mathfrak{X}_{i,t}^{\text{self},\kappa,\delta} \times \mathfrak{X}_{i,t'}^{\text{self},\kappa,\delta}. \quad (58)$$

Equation 58 can be many-to-many. One earlier narrative descriptor can later differentiate into several more specific reconstructions, while several previously separate memories or attributions can later be integrated into one autobiographical interpretation. Comparability therefore establishes a basis for historical analysis without asserting literal content identity.

Cross-stage change can concern content, type assignment, internal relation, salience, or later efficacy. A remembered episode can remain descriptively similar while shifting from peripheral recollection to a central practical commitment. A self-attribution can persist linguistically while losing its capacity to organize later action. A projected self-position can disappear from explicit reconstruction while the role or capacity it helped stabilize remains relationally active. These cases motivate a separate efficacy criterion rather than a definition based solely on narrative difference.

13.3 First-Person Evidential Standing

First-person reconstruction has distinctive evidential standing because the focal subject participates directly in the commitments, remembered salience, reasons, refusals, and self-interpretations being reconstructed. Paper III therefore treats self-reports and self-produced records as important evidence for the self-reconstruction diagnostic. Their evidential importance remains dimension-specific. External institutional records can sometimes establish access restrictions or public classifications more directly, while the focal subject can supply evidence about whether a public role is accepted, strategically performed, resisted, or experienced as alien.

Table 14 summarizes recurrent evidence sources and their principal uses. The table states evidential roles rather than a universal hierarchy of credibility.

Table 14 preserves methodological pluralism. First-person evidence can carry exceptional relevance for one diagnostic question while remaining incomplete for another. The same applies to public records, behavioral traces, and other-subject reconstructions. A concrete study should state which evidential route warrants each descriptor and retain material disagreement rather than forcing premature convergence.

The framework also permits cases in which first-person access itself is historically altered. A subject can lose access to records, delegate memory to an external system, acquire new interpretive vocabulary, or become dependent on another person or institution for reconstruction of earlier events. These changes

Table 14: Evidence sources for self-reconstruction analysis and their inference limits.

Evidence source	Primary analytical use	Principal inference limit
First-person report or narrative	Memory, self-attribution, commitment, experienced salience, refusal, prospective self-position	Does not by itself settle external dependencies, public classifications, or every relational consequence
Repeated first-person reconstruction across time	Retention, revision, stabilization, or reopening of self-interpretation	Repetition alone does not establish accuracy or constitutive efficacy
Observed conduct and practical choice	Whether a self-reconstruction appears connected to later action or refusal	Similar conduct can arise through different self-understandings and external constraints
Institutional or documentary record	Public classification, formal standing, access, role assignment, documented historical events	Institutional description need not coincide with the focal subject’s self-reconstruction or relational significance
Other-subject reconstruction	Interpersonal recognition, attributed role, interpreted capacity, remembered interaction	Remains perspective-relative and can be mistaken, dominating, strategic, or incomplete
Cross-source convergence	Strengthens a retained reconstruction or feedback interpretation when sources bear on the same diagnostic object	Convergence does not establish ultimate ontology and can reflect shared institutional categories or common bias
Cross-source disagreement	Identifies contested reconstruction, lag, asymmetric access, or a possible power-bearing classification conflict	Disagreement does not determine in advance which reconstruction should govern the relational diagnosis

can affect the conditions under which self-reconstruction is produced. They belong to the relational history and can become relevant to boundary, capacity, power, or later normative analysis without reducing self-reconstruction to the external archive that supports it.

13.4 Relational Efficacy of Self-Reconstruction

Self-reconstruction becomes subject-constitutively relevant in Paper III when retained self-interpretation participates in later relational organization. A changed story about the past can remain a local change at the reconstruction level. A changed story that reorganizes later commitments, refusals, practical horizons, value orientation, role participation, or generative capacity can become part of the provenance of a constitutive transformation.

The existing provenance architecture of Section 7 is sufficient for this purpose. Let $\mathfrak{B}_{i,[t,t']}^{\text{self},\kappa,\delta}$ denote the self-reconstruction descriptors admitted as provenance bearers within the broader provenance class $\mathfrak{B}_{i,[t,t']}^{\kappa}$. Their later constitutive efficacy is recorded by Equation 59.

$$\text{EffSelfRec}_{i,t' \leftarrow t}^{\kappa,\delta} := \left\{ x \in \mathfrak{B}_{i,[t,t']}^{\text{self},\kappa,\delta} \mid \exists q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}, \exists \rho \in \mathcal{T}_{\text{prov}}^{\text{form}} \text{ with } (x, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa,\delta} \right\}. \quad (59)$$

Equation 59 does not require self-reconstruction to be the unique or dominant generator of the later change. A revised practical identity can operate jointly with institutional opportunity, support relations, material resources, public recognition, and the subject’s prior capacities. The set records self-reconstruction as one warranted provenance bearer when the evidence supports that interpretation.

This formulation also accommodates self-reconstruction that constrains rather than expands later possibility. A subject can come to regard a difficult task as categorically impossible, interpret reliance on support as evidence of permanent incapacity, or internalize an externally assigned role in a way that raises the cost of refusal. Conversely, a revised self-attribution can reopen a previously abandoned con-

tinuation, stabilize a recovered capacity, or support exit from a sedimented role. These are metaphysical and historical descriptions of generative efficacy; their normative evaluation remains separate.

The relevant temporal pathway can be delayed and recursive. A support interaction at t_0 can generate a public classification at t_1 ; the subject can reinterpret that classification at t_2 ; the new self-reconstruction can alter later choices at t_3 ; those choices can generate new manifestations that further revise public and self-reconstruction. Section 18 will later generalize such recursive histories. At the current stage, Equation 59 ensures that a self-reconstruction claim identifies the later constitutive dimension to which it is historically connected.

13.5 Self-Reconstruction and Other-Subject Disagreement

The focal subject's reconstruction can diverge durably from reconstructions produced by supporters, institutions, publics, or other participants. Paper III treats this divergence as an analyzable relational configuration. The task is not to choose a privileged narrative in advance. The task is to identify what each reconstruction concerns, what evidence supports it, how it circulates, and whether one reconstruction acquires practical power over later possibilities.

Several recurrent disagreement structures are especially important. A recipient can reconstruct itself as increasingly capable while an institution retains a dependency classification. A volunteer can regard continued activity as freely chosen while a public reconstruction stabilizes an identity whose reputational cost makes exit increasingly difficult. A subject can reject a diagnostic label that nevertheless controls access to support. Conversely, a subject can self-identify with a role that others refuse to recognize, limiting the practical efficacy of the self-reconstruction despite its internal stability.

Such disagreement can remain epistemic, or it can become generatively consequential. A public reconstruction that controls authorization, reputation, resource access, or role assignment can alter the subject's later practical horizon even when the focal subject rejects it. A self-reconstruction can also alter the subject's response to external classification and thereby change whether the classification stabilizes, is resisted, or becomes a target of later exit. Sections 14–15 will develop these interfaces directly.

Cross-perspective convergence should be treated with the same restraint. Agreement between self- and other-reconstruction can strengthen an evidential interpretation when the sources have partially independent access to the relevant object. Agreement can also emerge because one institutional vocabulary has become dominant across perspectives. Convergence therefore strengthens some claims while leaving provenance, power, accuracy, and ontological status open to separate analysis.

13.6 Self-Reconstruction Reorganization and Co-Formation

The recurrent diagnostic table in Section 5 assigns self-reconstruction constitutive relevance only insofar as historically retained self-interpretations reorganize later action, commitment, memory, or practical possibility. The self-reconstruction dimension is therefore represented by $q_{\text{self}} \in Q_\delta$. A warranted constitutive reorganization is stated in Equation 60.

$$\text{SReorg}_{i,t',t}^{\kappa,\delta} \iff q_{\text{self}} \in \text{Chg}_{i,t',t}^{\kappa,\delta}. \quad (60)$$

Equation 60 should be applied only when the local diagnostic has specified what retention and efficacy mean for the application. A newly stated narrative, remembered episode, or self-description can remain a manifestation or epistemic reconstruction without satisfying the constitutive threshold. Retained reorganization can instead concern a self-interpretation that alters later commitments, restructures memory organization, changes what the subject treats as possible or refusable, or enters another retained diagnostic through a warranted historical pathway.

The co-formation criterion of Section 8 then applies without modification. When q_{self} is constitutively changed and the evidence-compatible provenance assignments robustly include the focal volunteer/support relation for that changed dimension, self-reconstruction dynamics can provide a scoped witness of subject co-formation. When self-reconstruction changes but its relational efficacy is unresolved,

the correct result is a reconstruction-level change with constitutive status still open. When constitutive self-reconstruction is established but focal-relation provenance remains unresolved, the correct result is provenance underdetermination.

This distinction limits attribution to supporters. A volunteer can provide language, recognition, examples, criticism, encouragement, or practical experiences that contribute to another subject's self-reconstruction. The later subject remains a participant in the reconstruction process, and additional institutions, publics, histories, and prior commitments can share its provenance. Describing the supporter as having “given” the subject a new identity would therefore exceed what the present formalism establishes unless a much stronger and independently warranted account is available.

Self-reconstruction dynamics supply a constitutive layer that is neither reducible to introspection nor replaceable by external classification. The framework represents historically situated self-interpretation, tracks its revision across time, preserves first-person evidential standing, retains disagreement with other reconstructions, and identifies the conditions under which self-reconstruction acquires later relational efficacy. Section 14 will examine the neighboring case of role-position reorganization, where repeated social positions can be performed, resisted, internalized, sedimented, or exited with consequences that interact closely with the self-reconstruction histories developed here.

14 Role-Position Reorganization

This section applies the constitutive diagnostic framework to historically retained role positions. Its role is to distinguish occupation, performance, attribution, internalization, sedimentation, resistance, and exit while preserving the distinction between the tracked subject and the position through which that subject is presently organized. The objective is to identify when recurrent helper, recipient, mediator, coordinator, expert, dependent, advocate, or comparable positions remain local features of interaction and when a role history acquires retained efficacy for later action, refusal, expectation, access, self-reconstruction, or practical possibility. The discussion proceeds through typed role-position profiles, occupation and performance, attribution and internalization, sedimentation, resistance and exit friction, cross-stage comparison, and the interface with the common constitutive and co-formation criteria. The method is diagnostic and history-sensitive. Role continuity is neither treated as subject continuity nor taken to establish subject-constitutive transformation without an independently warranted retention and provenance chain.

Section 3.3 introduced the inherited subject-to-position relation $\varrho_t^\kappa \subseteq \mathcal{I}_t \times \mathcal{P}_t^\kappa$. That relation records which positions are occupied at a stage without identifying subject and position. The present section adds a finer diagnostic because one occupied position can be merely episodic, another can be strategically performed, another can be externally attributed and resisted, and another can become sufficiently retained to organize later possibilities. These differences matter for co-formation claims even when the visible role label remains unchanged.

14.1 Typed Role-Position Profile

Let $\mathfrak{P}_{i,t}^{\text{role},\kappa,\delta} \subseteq \mathcal{P}_t^\kappa$ denote the finite application-relative carrier of role-position descriptors retained for focal subject i . A descriptor can represent a formally assigned position, an informally recurrent interactional position, a publicly attributed role, or another role-bearing structure admitted by the local diagnostic. Membership in the carrier indicates analytical relevance; it does not imply endorsement, internalization, or constitutive importance.

Paper III uses the role-mode family stated in Equation 61.

$$\mathcal{T}_{\text{role}} := \{\text{occupy, perform, attribute, internalize, sediment, resist}\}. \quad (61)$$

The modes in Equation 61 can overlap. A subject can occupy and perform a position without internalizing it; a publicly attributed role can be resisted while still structuring access or reputation; an

Table 15: Role-position modes and the additional burden required for constitutive interpretation.

Role mode	Local analytical meaning	Inference limit
Occupation	Subject is situated in the declared relational position at the relevant stage	Does not establish endorsement, repeated performance, internalization, or retained efficacy
Performance	Conduct recurrently instantiates expectations associated with the position	Can be strategic, constrained, temporary, or externally induced
Attribution	Another subject, institution, or public assigns the position to the focal subject	Attribution remains perspective-relative even when it has practical consequences
Internalization	The position enters retained self-reconstruction, commitment, expectation, or practical organization	Requires evidence beyond public labeling or compliant performance
Sedimentation	Role history retains efficacy for later organization after repeated or historically consequential enactment	Repetition alone is insufficient; retention and later efficacy must be shown
Resistance	Subject contests, refuses, reinterprets, or acts against the attributed or sedimented position	Resistance can coexist with continuing external attribution or structural constraint

internalized role can later become an object of resistance; and a sedimented role can continue to organize expectations after its formal assignment has ended. The corresponding mode assignment is therefore relation-valued, as stated in Equation 62.

$$\text{RoleMode}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{P}_{i,t}^{\text{role},\kappa,\delta} \times \mathcal{T}_{\text{role}}. \quad (62)$$

Equation 62 prevents a role label from carrying more interpretation than the evidence supports. For example, repeated volunteering can establish recurrent occupation and performance of a helper position while leaving internalization unresolved. Conversely, a subject can continue to identify strongly with a former position after formal occupation has ceased. The diagnostic should therefore state which role mode is being claimed and what evidence warrants that classification.

Table 15 summarizes the principal role modes and their inference limits.

Table 15 makes role-position analysis compatible with Section 13. Internalization can appear in self-reconstruction, but self-reconstruction and role organization remain distinct diagnostics. A subject can describe itself using a role vocabulary whose practical efficacy is weak, while a role the subject rejects can still structure institutional access, public expectation, or the cost of exit.

14.2 Occupation, Performance, and Attribution

Role occupation concerns a subject's position in a relational configuration; role performance concerns conduct that instantiates expectations associated with that position; role attribution concerns another perspective's classification of the subject. The three can coincide, yet none entails the others. A person can occupy a recipient position while refusing expected recipient behavior. A volunteer can perform coordination work without receiving the public role of coordinator. An institution can attribute dependency to a subject whose practical organization has already changed.

This distinction is especially important for volunteer and support relations because helper/supportee labels can become analytically coarse. The same interaction can distribute teaching, emotional support, coordination, authorization, translation, or material provision across several subjects. A binary helper/recipient vocabulary can therefore obscure changing role composition even when the broad rela-

tion remains recognizable. The role carrier should retain only those positions whose distinction matters to the declared constitutive question.

Attribution can become generatively consequential without becoming relational truth by declaration. Public, institutional, or interpersonal attribution can alter access, reputation, authority, expectations, or the practical horizon described in Section 10. When such consequences are retained, the attributed role enters the provenance of later subject organization through the existing mechanism of manifestation feedback and relational provenance. The analysis should record the pathway rather than infer internalization from visibility or institutional force.

14.3 Internalization and Role Sedimentation

Paper III uses *internalization* for cases in which a role position enters retained self-reconstruction, commitment, expectation, or practical organization. Internalization therefore carries a stronger burden than familiarity with a role. A subject may understand a public expectation while rejecting it; another subject may perform a role for instrumental reasons while keeping it external to later self-organization.

Sedimentation concerns retained efficacy across history. A role history is sedimented in the present diagnostic when its earlier occupation, performance, attribution, or internalization continues to organize later possibilities even when immediate role-eliciting conditions have weakened or disappeared. Sedimentation can appear through durable expectations, routinized obligations, changed refusal costs, stabilized access routes, reputation, self-reconstruction, or practical dependencies. The concept is therefore historical and relational rather than a synonym for frequency.

Let $\mathfrak{B}_{i,[t,t']}^{\text{role},\kappa,\delta}$ denote role-history descriptors admitted as provenance bearers within $\mathfrak{B}_{i,[t,t']}^{\kappa}$. The role histories with warranted later constitutive efficacy are collected in Equation 63.

$$\text{EffRole}_{i,t' \leftarrow t}^{\kappa,\delta} := \left\{ p \in \mathfrak{B}_{i,[t,t']}^{\text{role},\kappa,\delta} \mid \exists q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}, \exists \rho \in \mathcal{T}_{\text{prov}}^{\text{form}} \text{ with } (p, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa,\delta} \right\}. \quad (63)$$

Equation 63 does not require the role history to be the unique or dominant generator of the later change. A helper position can become sedimented jointly through repeated interaction, public recognition, organizational responsibility, self-reconstruction, and material dependency. The set records the role history as one warranted provenance bearer when the evidence supports that interpretation.

Sedimentation can also remain local to the role dimension. A stable expectation that A will organize meetings need not amount to subject-constitutive change if the declared diagnostic treats that expectation as easily reversible and weakly connected to retained subject organization. The stronger claim requires the role dimension itself to satisfy the constitutive criteria of Section 5 or to contribute through provenance to another constitutively changed dimension.

14.4 Resistance, Exit Friction, and Role Reopening

Resistance is analytically significant because sedimentation does not entail acceptance. A subject can contest a helper identity while others continue to rely on it, reject a dependency label while an institution continues to allocate resources through that classification, or attempt to leave a mediating position while reputational and organizational expectations reproduce it. Role persistence can therefore coexist with explicit opposition by the focal subject.

The difficulty of exiting a role should not be collapsed into a universal scalar cost. Paper III records the sources of exit friction through the typed family in Equation 64.

$$\mathcal{T}_{\text{exit}} := \{\text{material, institutional, reputational, relational, practical, selfrec}\}. \quad (64)$$

For the locally retained role carrier, the corresponding friction relation is stated in Equation 65.

$$\text{ExitFric}_{i,t}^{\kappa,\delta} \subseteq \mathfrak{P}_{i,t}^{\text{role},\kappa,\delta} \times \mathcal{T}_{\text{exit}}. \quad (65)$$

Equation 65 records the kinds of relation through which exit is made difficult; it does not quantify a common amount of difficulty. A concrete empirical study may add locally justified measures within one friction type. The present theory preserves heterogeneity because reputational loss, material deprivation, institutional exclusion, practical inability, interpersonal obligation, and self-reconstructive disruption are not automatically commensurable.

Resistance and friction should also be separated from impossibility. A subject can resist a role while lacking an effective exit route; another can retain an exit route while choosing to remain; a third can exit formal occupation while continuing to experience reputational or self-reconstructive sedimentation. Section 19 will later analyze reopening more generally. At the current stage, resistance and exit-friction records prevent continuing role performance from being interpreted automatically as endorsement or constitutive acceptance.

14.5 Cross-Stage Role Comparison

Longitudinal role analysis requires a comparison relation because roles can be renamed, split, merged, differentiated, or institutionally redefined. Let the cross-stage role relation be stated in Equation 66.

$$\eta_{i,t' \leftarrow t}^{\text{role}, \kappa, \delta} \subseteq \mathfrak{P}_{i,t}^{\text{role}, \kappa, \delta} \times \mathfrak{P}_{i,t'}^{\text{role}, \kappa, \delta}. \quad (66)$$

Equation 66 is many-to-many. A broad earlier helper role can later differentiate into teaching, advocacy, coordination, and gatekeeping positions; several informal positions can later be institutionalized as one formal office. Cross-stage comparability therefore supports historical analysis without asserting literal role identity.

Substantive reorganization can concern the role descriptor, its mode assignments, its relation to other positions, its exit-friction profile, or its efficacy for other subject-constitutive dimensions. A role label can remain stable while performance becomes compulsory, resistance increases, or public attribution acquires stronger control over access. Conversely, a role label can change while the relevant relational organization remains substantially equivalent. The diagnostic should therefore compare typed structures rather than labels alone.

14.6 Role-Position Reorganization and Co-Formation

The recurrent diagnostic family of Section 5 includes role-position organization as $q_{\text{role}} \in Q_{\delta}$ when the application can justify its constitutive relevance. A warranted role-position reorganization is stated in Equation 67.

$$\text{RReorg}_{i,t' \leftarrow t}^{\kappa, \delta} \iff q_{\text{role}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}. \quad (67)$$

Equation 67 should be applied only after the local diagnostic has specified what counts as retained role organization and which changes are constitutively relevant. Temporary occupation, isolated performance, or external labeling can remain role-level phenomena without satisfying the constitutive threshold. Stronger cases can involve retained internalization, sedimentation, changed exit friction, durable authority or dependency, or a role history that reorganizes another retained dimension such as practical horizon, self-reconstruction, or boundary organization.

The co-formation criterion of Section 8 then applies without modification. When q_{role} is constitutively changed and the focal volunteer/support relation is robustly included in the evidence-compatible provenance assignments for that change, role-position reorganization can provide a scoped witness of subject co-formation. When role reorganization is established but focal-relation provenance remains unresolved, the appropriate result is provenance underdetermination. When a role is repeatedly visible but its retained constitutive efficacy is unresolved, the analysis should remain at the role-history level.

This discipline is especially important for helper/supportee relations. Recurrent support can stabilize expectations that A will always help, that B will remain dependent, or that one party must translate, authorize, coordinate, or absorb relational costs for the other. Such histories can become constitutive

when they reorganize later possibilities, capacities, refusals, or self-reconstruction. They can also remain temporary arrangements or become objects of explicit resistance and later dissolution. Paper III therefore treats role formation as revisable historical organization rather than a fixed social essence.

Role-position reorganization supplies another constitutive layer without collapsing the tracked subject into its social positions. Occupation, performance, attribution, internalization, sedimentation, resistance, and exit friction can diverge across the same history, and each requires its own evidential burden. Section 15 will examine recognition-mediated subject formation, where audience, reputation, standing, and public uptake can stabilize or destabilize precisely the role structures analyzed here.

15 Recognition-Mediated Subject Formation

This section applies the constitutive diagnostic architecture to recognition-mediated organization. Its role is to determine when recognition, reputation, standing, audience effects, and public uptake remain external descriptions of a subject and when their retained relational consequences become part of the subject's later organization. The objective is to preserve the distinctions established in Paper II among publicity, acknowledgment, reputation, recognition, standing, contestation, and correction while identifying the narrower conditions under which those structures contribute to subject co-formation. The discussion proceeds through inherited recognitional records, an application-relative recognition profile, audience and reputational effects, standing and practical consequences, misrecognition and contestation, cross-stage comparison, and the interface with the common constitutive and provenance criteria. The method is historical and diagnostic. Recognition is treated as directed, typed, and revisable; public stabilization can be generatively consequential without becoming accurate, legitimate, reciprocal, or ontologically privileged.

Paper II already supplies the principal record types required here. Directed recognition records are indexed by recognizer, recognized subject, and recognition type. Public recognition adds an audience-level presentation structure. Reputation records retain circulating historical attributions rather than one subject's isolated opinion. Standing records retain entitlement to perform a declared procedural function. Public records can be contested, corrected, superseded, or withdrawn while their earlier effects remain historically consequential. Paper III therefore does not rebuild a separate theory of recognition. It asks when these inherited records acquire retained efficacy for the history-bearing subject tracked by the present paper.

15.1 Application-Relative Recognition Profile

For focal subject i , let the recognition-mediated profile admitted by diagnostic purpose δ at resolution κ be stated in Equation 68.

$$\mathcal{Z}_{i,t}^{\text{recg},\kappa,\delta} := \left(\mathcal{Q}_{i,t}^{\text{dir}}, \mathcal{Q}_{i,t}^{\text{pub}}, \mathcal{Q}_{i,t}^{\text{rep}}, \mathcal{Q}_{i,t}^{\text{stand}}, \mathcal{Q}_{i,t}^{\text{rev}} \right)^{\kappa,\delta}. \quad (68)$$

Equation 68 collects finite application-relative families of directed recognition, public recognition, reputation, standing, and contestation or correction records concerning i . The component families are inherited record classes rather than five interchangeable variables. A reputation record can circulate without conferring procedural standing; a standing record can exist without broad public recognition; a public-recognition record can be widely visible while remaining contested; and a directed recognition relation can remain private.

The profile also remains distinct from the subject carrier $\mathcal{K}_{i,t}^{\kappa}$. Equation 68 records recognition-bearing structures around and concerning the subject. Constitutive interpretation requires an additional historical argument showing that these structures reorganize retained subject-level conditions. This distinction is especially important when public labels are highly visible. Visibility can make an attribution socially consequential while leaving its descriptive accuracy, first-person acceptance, and constitutive relevance unresolved.

Table 16: Recognition-bearing structures and their constitutive inference limits.

Structure	Local analytical object	Inference limit	Possible constitutive pathway
Audience-indexed publicity	Shared presentation to a declared audience under retained access conditions	Public presentation does not establish uptake, acknowledgment, accuracy, or endorsement	Circulation changes later access, expectations, available procedures, or role interpretation
Directed recognition	Typed recognition of <i>i</i> by a declared subject or position	Recognition does not imply approval, symmetry, legitimacy, or reciprocal recognition	Recognition changes later interaction, invitation, refusal credibility, or role treatment
Reputation	Historically circulating attribution structure concerning <i>i</i>	Reputation does not reduce to one observer's judgment or a scalar score	Accumulated attribution changes trust, opportunity, access, burden, or default interpretation
Public recognition	Recognition presented through a declared audience structure	Public status can remain contested, inaccurate, or unstable	Public uptake stabilizes or destabilizes roles, expectations, institutional pathways, or self-reconstruction
Standing	Typed entitlement to claim, witness, review, authorize, enforce, appeal, or another declared function	Standing does not imply competence, credibility, authority in other domains, or normative legitimacy	Granted, denied, delegated, or withdrawn standing changes the subject's procedural and practical possibilities
Contestation and correction	Challenge, revision, retraction, or supersession of a retained record	Current correction does not erase prior circulation or its historical effects	Revision reopens roles, restores access, changes public interpretation, or alters later self-reconstruction

Table 16 summarizes the main recognition-bearing objects and the additional burden required for subject-formation analysis.

Table 16 prevents recognition-mediated analysis from collapsing several relational processes into one concept of “being recognized.” A subject can be publicly known without being granted standing, reputable without being accurately understood, institutionally recognized while privately resisted, or publicly misrecognized in a way that still reorganizes later opportunities. Each case requires a separate record and a separate constitutive argument.

15.2 Audience Effects, Reputation, and Public Role Stabilization

Audience effects arise when presentation to a declared public changes how later interactions begin. A support event can remain a local A–B episode, become known to a limited audience, enter an institutional record, or circulate as a durable reputation-bearing attribution. The relational consequences of those trajectories can differ even when the initiating event is unchanged.

A recurrent volunteer can, for example, acquire a public reputation for reliability that generates later invitations and expectations. A support recipient can acquire a public reputation for dependence that narrows later opportunities even after the original support need has changed. Recognition of competence

can weaken an inherited beneficiary role, while repeated public recognition of generosity can increase the practical cost of refusing future requests. These trajectories connect directly to the role-position organization developed in Section 14, yet public role stabilization remains analytically distinct from internalization or sedimentation by the focal subject.

Public uptake is also heterogeneous. A record may be presented to one audience and interpreted differently across members, institutions, or later publics. Paper III therefore does not define constitutive efficacy by audience size or unanimity. The relevant question is whether a retained public or reputational structure materially reorganizes later subject-level conditions under the selected diagnostic. A small institutional audience can have strong practical consequences when it controls authorization or access, whereas a widely visible attribution can have weak constitutive relevance when it produces no retained relational effect.

The same restraint applies to reputational accumulation. Repetition can increase durability while leaving the attributed quality contested. A reputation can become path dependent because later observers interpret new events through inherited classifications. The resulting default can alter the burden required for the subject to be believed, trusted, invited, reviewed, or released from a role. Those consequences can enter boundary, practical-horizon, value, capacity, self-reconstruction, or role diagnostics through the common provenance architecture rather than through a separate reputation-to-subject shortcut.

15.3 Standing, Access, and Procedural Possibility

Standing is especially important for subject formation because it can alter what the subject is permitted or institutionally able to do within a procedure. Paper II distinguishes claim, witness, review, authorization, enforcement, and appeal standing. Paper III inherits that typed structure and treats standing change as one possible recognition-mediated bearer of later subject reorganization.

A grant of standing can create a retained route to challenge a public description, participate in review, authorize a continuation, or appeal a determination. A denial or withdrawal can close those routes. Delegated standing can make one subject dependent on another position for participation. Conditional standing can make future access contingent on a status or role that the subject contests. These changes can become constitutively relevant when they reorganize the practical horizon, boundary interfaces, role organization, or self-reconstruction of the tracked subject.

Standing should remain separate from epistemic competence and normative legitimacy. An institution can formally recognize a subject as entitled to speak without treating the subject as credible. A subject can be highly competent while lacking procedural standing. A standing arrangement can also be legally or normatively objectionable while remaining relationally efficacious. Paper III records the meta-physical and historical consequences of such arrangements without using their persistence as evidence of justification.

Recognition-mediated exclusion requires equal care. Mere absence of a recognition record can reflect missing evidence rather than social exclusion. A stronger exclusion claim should therefore identify a retained denial, omitted standing pathway, audience rule, procedural barrier, or other positive relational structure through which non-recognition becomes operative. This evidential discipline prevents silence in the archive from being converted automatically into a constitutive theory of exclusion.

15.4 Constitutive Efficacy, Misrecognition, and Contestation

Recognition becomes subject-constitutively relevant when recognition-bearing records participate in the provenance of later constitutive change. Let $\mathfrak{B}_{i,[t,t']}^{\text{recg},\kappa,\delta} \subseteq \mathfrak{B}_{i,[t,t']}^{\kappa}$ denote the recognition, reputation, standing, publicity, or correction records admitted as provenance bearers for focal subject i . The subset with warranted later constitutive efficacy is defined in Equation 69.

$$\text{EffRecg}_{i,t' \leftarrow t}^{\kappa,\delta} := \left\{ x \in \mathfrak{B}_{i,[t,t']}^{\text{recg},\kappa,\delta} \mid \exists q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}, \exists \rho \in \mathcal{T}_{\text{prov}}^{\text{form}} \text{ with } (x, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa,\delta} \right\}. \quad (69)$$

Equation 69 reuses the provenance relation from Section 7. A recognition record can therefore contribute to a later constitutive change through generation, enabling, constraint, selection, stabilization, reorganization, mediation, or another retained provenance type. The record need not be the unique or dominant source of the change.

This formulation is intentionally compatible with misrecognition. A public description can be inaccurate as an account of the subject while remaining relationally efficacious because institutions, audiences, or other subjects act on it. Misrecognition can therefore contribute to real boundary changes, practical restrictions, role sedimentation, self-reconstructive conflict, or altered standing. Constitutive efficacy and descriptive accuracy are separate questions.

The reverse case also matters. Accurate recognition can remain constitutively weak when it produces little retained change in later organization. A correct public acknowledgment of competence can have limited effect if authorization rules remain unchanged. A mistaken dependency attribution can have large effects if it controls benefits, permissions, or reputation. Paper III therefore tracks efficacy through provenance rather than ranking records by truth status alone.

Contestation and correction introduce revision without deleting history. A public record can be corrected at t' after shaping access or expectations between t and t' . A subject can later obtain standing to challenge a classification that previously governed its opportunities. The present record may therefore differ sharply from the historical record that generated earlier effects. Recognition-mediated formation requires both current status and provenance of earlier circulation.

15.5 Cross-Stage Recognition Comparison

Recognition-bearing records can change type, audience, scope, provenance, or procedural force across time. A private recognition can become public; several local attributions can consolidate into a reputation record; a disputed status can become institutionally stabilized; one formal title can divide into several roles; and a corrected public record can remain linked to the earlier record that it supersedes. Longitudinal comparison therefore requires a many-to-many relation rather than literal record identity.

Let $\Omega_{i,t}^{\text{recg},\kappa,\delta}$ denote the disjoint union of the typed component carriers retained in Equation 68. The cross-stage recognition relation is stated in Equation 70.

$$\zeta_{i,t' \leftarrow t}^{\text{recg},\kappa,\delta} \subseteq \Omega_{i,t}^{\text{recg},\kappa,\delta} \times \Omega_{i,t'}^{\text{recg},\kappa,\delta}. \quad (70)$$

Equation 70 records historical correspondence across reclassification, institutional translation, audience expansion, correction, consolidation, and fragmentation. It does not assert that the earlier and later records are substantively equivalent. The relevant diagnostic must still compare their recognition type, audience, practical effect, standing consequences, contestability, and relation to other subject-level dimensions.

Cross-stage comparison also helps separate public stabilization from first-person internalization. A public attribution can become more durable across time while the focal subject increasingly resists it. A subject can adopt a self-reconstruction that is poorly recognized by institutions. A formerly stigmatizing reputation can lose public force while leaving residual practical constraints. These divergent trajectories can be represented without forcing recognition, self-reconstruction, and role organization into one state variable.

15.6 Recognition-Mediated Reorganization and Co-Formation

The recurrent diagnostic family of Section 5 represents recognition-mediated organization by $q_{\text{recg}} \in Q_\delta$ when the application can justify its constitutive relevance. A warranted reorganization of that diagnostic dimension is stated in Equation 71.

$$\text{RecgReorg}_{i,t' \leftarrow t}^{\kappa,\delta} \iff q_{\text{recg}} \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}. \quad (71)$$

Equation 71 should be applied only when the local diagnostic states what recognition-mediated organization means for the application and which changes count as retained. Public visibility, isolated praise, one reputational judgment, or a transient standing decision can remain recognition-level phenomena without satisfying the constitutive threshold. Stronger cases can involve durable standing, reputation-mediated access, public role stabilization, repeated recognitional feedback, or a contested classification that continues to organize later possibilities.

The co-formation criterion of Section 8 then applies without modification. When q_{recg} is constitutively changed and the evidence-compatible provenance assignments robustly include the focal volunteer/support relation for that change, recognition-mediated reorganization can provide a scoped witness of subject co-formation. Recognition can also contribute to another changed dimension through Equation 69 without q_{recg} itself being retained as a constitutive dimension. This distinction permits a public recognition episode to contribute to later role, boundary, practical-horizon, value, capacity, or self-reconstruction change without requiring every study to treat recognition as independently constitutive.

Recognition-mediated formation can be strongly asymmetric. A recipient's public acknowledgment can transform a volunteer's reputation and later obligations while leaving the recipient's own recognition profile largely unchanged. An institution can grant B standing that changes B's practical horizon without materially changing A. Mutual recognition can be present without equal consequences. The analysis should therefore preserve the subject-specific and dimension-specific profiles already required by Section 8.

Third-position pathways can become essential when recognition depends on an audience, institution, reviewer, platform, witness, or mediator whose contribution cannot be represented adequately inside the focal dyad. Section 16 will specialize that problem. The present section establishes the prior point: recognition, reputation, standing, and public uptake can become part of subject formation when their retained relational consequences reorganize the tracked subject and when their provenance is warranted. They remain revisable relational structures rather than fixed social essences or direct windows onto ultimate subject ontology.

16 Third-Position Formation Pathways

This section specializes the co-formation architecture to histories in which a third position materially contributes to subject reorganization. Its role is to identify when translation, mediation, review, authorization, brokerage, institutional routing, public witnessing, or comparable third-position processes belong to the provenance of a constitutive change. The objective is twofold. First, the analysis must retain third-position contribution when a dyadic description would erase a formative pathway. Second, the mere presence of a third subject, institution, audience, or intermediary must not be converted automatically into a claim of irreducible triadic structure. The discussion proceeds through third-position pathway records, pathway types, mediated constitutive efficacy, position migration, a model-relative test for pairwise recoverability, institutional and public third positions, and the interface with the co-formation criterion. The method is diagnostic and provenance-sensitive. Triadic machinery is introduced only when it changes what can be represented or recovered about the formation history.

Section 3.5 inherited the coupled carrier $\mathfrak{S}_{ABC,t}^{\kappa}$ and required Paper III to retain C only when a third-position pathway materially contributes to formation. Section 7.5 then allowed mediated provenance to pass through translators, institutions, reviewers, publics, platforms, or other intermediate bearers. The present section develops that interface directly. Its analytical object is not a permanent third subject called C, but a historically situated *third position relative to a focal relation*. A subject can occupy a third position relative to A–B at one stage and cease to occupy it later; an institution can replace an interpersonal mediator; and several positions can jointly supply a pathway that no single bearer controls.

Table 17: Third-position pathway types and their formation-relevant inference limits.

Pathway type	Formation-relevant role	Additional burden
Translation	Makes meanings, requests, reasons, or constraints accessible across an interpretive boundary	Accessibility must be linked to a later constitutive change rather than merely to successful communication
Mediation	Reorganizes interaction, disagreement, or continuation conditions between focal positions	The mediator’s intervention must be retained in the provenance of the target change
Review	Reassesses conduct, standing, evidence, or an earlier decision	Review must alter a relation, record, or continuation that later matters to subject organization
Authorization	Opens, closes, or conditions a procedurally governed continuation	Formal authorization alone does not establish uptake, legitimacy, or constitutive effect
Brokerage / routing	Conditions access between otherwise weakly connected positions, resources, institutions, or publics	Route dependence and later retained effect must be shown; mere location on a path is insufficient
Witnessing / publicity	Makes an event available to an audience or stabilizes a public trace	Visibility must be distinguished from recognition, reputation, standing, and later relational efficacy

16.1 Typed Third-Position Pathway Record

Let $\mathfrak{B}_{i,[t,t']}^{3p,\kappa,\delta} \subseteq \mathfrak{B}_{i,[t,t']}^{\kappa}$ denote the finite application-relative class of provenance bearers admitted because they occupy or instantiate a third position relative to the focal relation during the comparison interval. The carrier can include a person, organization, reviewer, translator, authorization body, platform, public audience, documentary procedure, or another position-bearing structure. Membership means that the bearer is retained for analysis; it does not yet establish that the bearer changed the focal subject.

Paper III uses the third-position pathway-type family in Equation 72.

$$\mathcal{T}_{3p}^{\text{form}} := \{\text{translate, mediate, review, authorize, broker, route, witness, publicize}\}. \quad (72)$$

The family in Equation 72 is deliberately functional rather than identity-based. One bearer can translate and mediate; an institution can authorize and route; a public witness can also stabilize a reputation; and a platform can route communication without possessing authorization. Additional applications can refine the family when a distinction is required for the constitutive question.

The corresponding pathway record is relation-valued, as stated in Equation 73.

$$\text{TPPath}_{i,[t,t']}^{\kappa,\delta} \subseteq \mathfrak{B}_{i,[t,t']}^{3p,\kappa,\delta} \times \mathcal{T}_{3p}^{\text{form}}. \quad (73)$$

Equation 73 records which third-position functions are attributed to which retained bearers. It does not state that the function was necessary, sufficient, legitimate, or beneficial. Those stronger claims require separate evidence. The record is therefore compatible with distributed pathways in which several bearers jointly contribute to one later transformation.

Table 17 summarizes recurrent pathway types and the additional burden required before they can support a formation claim.

Table 17 makes the third-position analysis compatible with Sections 15 and 14. A public witness can contribute to reputation without the witness becoming part of the subject’s role organization. A reviewer can alter standing without being internalized in self-reconstruction. A translator can expand practical possibility without producing value migration. The pathway type identifies a historical route; the constitutive diagnostic identifies what, if anything, was reorganized in the subject.

16.2 Mediated Constitutive Efficacy

Third-position presence becomes formation-relevant when a retained third-position bearer participates in the provenance of a diagnosed constitutive change. Let the effective third-position bearer set be defined by Equation 74.

$$\text{Eff3P}_{i,t' \leftarrow t}^{\kappa,\delta} := \left\{ x \in \mathfrak{B}_{i,[t,t']}^{3p,\kappa,\delta} \mid \exists q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa,\delta}, \exists \rho \in \mathcal{T}_{\text{prov}}^{\text{form}} \text{ with } (x, q, \rho) \in \Pi_{i,t' \leftarrow t}^{\kappa,\delta} \right\}. \quad (74)$$

Equation 74 reuses the provenance relation of Section 7; it does not create a parallel theory of mediation. A translator belongs to the effective set only when the translation history is warranted as a contributor to a later changed dimension. A reviewer whose report leaves later subject organization unchanged can remain procedurally important without becoming a subject-formative bearer. An institution can belong to the effective set even when no individual official is treated as the relevant generator, provided the institutional route itself is retained as a provenance bearer under the application.

Mediated efficacy can be indirect and delayed. A public witness can make an episode reviewable; review can alter standing; changed standing can open training or work access; repeated access can later transform generative capacity or practical horizon. In such a history, the third-position contribution need not connect directly to the final diagnostic dimension in one step. The burden is to warrant the intervening historical relations sufficiently for the provenance assignment, not to compress the sequence into a direct C-to-subject causal arrow.

The same history can contain both dyadic and mediated contributions. A volunteer can teach B directly while an institution certifies the learned competence, and both pathways can matter to B's later practical horizon. A helper can introduce B to a public audience while the audience's recognition stabilizes a role that neither A nor B could establish alone. Paper III therefore allows a focal A–B relation to remain part of the co-formation provenance while retaining third-position bearers inside the same evidence-compatible provenance fiber.

16.3 Position Migration and Distributed Thirdness

Third position is indexed to a focal relation and historical stage. It should therefore be separated from stable subject identity. C can occupy a translating third position relative to A–B during one episode, become a direct collaborator with B later, and cease to function as third position in the original sense. A can later occupy a third position relative to B–C. An institution can replace a personal mediator while preserving part of the route previously supplied interpersonally.

This historical migration matters for subject formation because the provenance bearer can change while the function remains partially continuous. A subject can first rely on one volunteer for translation, later gain access to an institutional interpreter, and eventually develop direct competence. Treating the whole history as “dependence on C” would conceal the reorganization of both capacity and boundary conditions. Treating only the final state would conceal the route through which the later autonomy became possible.

Distributed thirdness is also possible. Translation can be supplied by one bearer, authorization by another, and public uptake by a third. None individually needs to control the complete pathway. The relevant formation history can therefore be polycentric. Paper III records the contributing positions through $\text{TPPath}_{i,[t,t']}^{\kappa,\delta}$ and the constitutive effects through the existing provenance relation, rather than assigning the whole process to one privileged mediator.

Position migration can itself become constitutively relevant when the subject's later organization depends on a durable change in how third-position functions are accessed. A subject may move from personal brokerage to institutionally guaranteed access, from discretionary review to standing-based review, or from dependence on one translator to a replaceable translation infrastructure. Such cases can reorganize boundaries, refusal possibilities, practical horizon, and capacity even when the nominal resource remains similar.

16.4 Pairwise Recoverability of Formation Pathways

A third-position pathway can be materially important without being irreducibly triadic under the selected representation. This distinction inherits the reducibility discipline of Paper II. The local question is whether the formation-relevant distinction can be reconstructed from the retained pairwise histories or whether a full triadic record preserves information that every selected pairwise shadow loses.

Let $\mathfrak{U}_{i,q}^{3p,\kappa,\delta}$ be a declared finite or otherwise controlled comparison domain of full formation histories for focal subject i and changed diagnostic dimension q . Let $\sim_{2,i,q}^{\kappa,\delta}$ denote equivalence under the retained family of pairwise formation-relevant shadows, and let $\sim_{3,i,q}^{\kappa,\delta}$ denote the declared full-history equivalence for the same diagnostic. The local formation-pathway equivalence gap is defined in Equation 75.

$$\mathcal{G}_{i,q,3|2}^{\text{form},\kappa,\delta} := \left\{ (H, H') \in \mathfrak{U}_{i,q}^{3p,\kappa,\delta} \times \mathfrak{U}_{i,q}^{3p,\kappa,\delta} \mid H \sim_{2,i,q}^{\kappa,\delta} H' \wedge H \not\sim_{3,i,q}^{\kappa,\delta} H' \right\}. \quad (75)$$

Equation 75 is a local diagnostic, not a metaphysical measure of “amount of thirdness.” When the gap is empty on the declared domain, the selected formation distinction is pairwise recoverable even if a third subject participated historically. When the gap contains a witness, the retained pairwise shadows fail to recover a distinction that the full formation analysis still treats as relevant.

A simple example is distributed authorization. Suppose the A–B shadow records a support action and its later effect, A–C records that C issued an authorization, and B–C records B’s communication with C. Those three pairwise records may still fail to determine whether C’s authorization was issued in response to B’s request, against B’s refusal, or under a jointly constituted procedure if the retained ordering and joint procedural relation exist only in the full record. If those alternatives matter to the provenance of later role, standing, or self-reconstruction, a nonrecoverability witness can arise. If the pairwise records retain enough ordered procedural information to distinguish them, triadic participation remains historically real while pairwise reconstruction can still be sufficient.

The same restraint applies to mediation and public witnessing. The presence of a mediator does not by itself establish a nonempty gap. A public audience can be analytically represented as several pairwise audience relations when that representation preserves every distinction needed by the local formation question. Full triadic machinery becomes necessary only when the selected pairwise representation loses a formation-relevant distinction that the full configuration retains.

16.5 Institutional and Public Third Positions

Third positions need not be natural persons. Volunteer and support relations are frequently mediated by organizations, eligibility systems, professional reviewers, platforms, legal procedures, publics, and documentary infrastructures. These structures can authorize, route, classify, publicize, certify, or review without being reducible to the intentions of one human bearer at the moment of effect.

Institutional third positions are especially important when they stabilize pathways across changing personnel. A recurring volunteer may initially broker access to training, while a later institutional rule gives B a standing entitlement to the same training. The relation can thereby move from person-dependent access to rule-mediated access. The later practical horizon can be more durable even though the original volunteer’s direct involvement declines. The formative history remains relationally distributed across the earlier dyad, the institutional third position, and B’s later use of the route.

Public third positions operate differently. An audience can make an act publicly inspectable, enable reputation circulation, or stabilize recognition. Such effects should be represented through the recognition architecture of Section 15. “The public” should not be introduced as a homogeneous subject when the analysis can retain a typed audience, platform, institutional public, or distributed set of witnesses more accurately.

Institutionalization can also increase dependence or reduce revision capacity. A personal mediator can sometimes be replaced easily while a formal classification becomes harder to contest; a public reputation can open access while also sedimenting a role that becomes costly to exit. Paper III records these

consequences as subject-specific constitutive changes and leaves their ethical or political evaluation to later papers.

16.6 Third-Position Pathways and Co-Formation Claims

Third-position pathways enter the co-formation criterion through provenance, not through a separate threshold. For changed dimension q , define the effective third-position provenance set in Equation 76.

$$3PWit_{i,q,t' \leftarrow t}^{\kappa,\delta}(E) := \left\{ F \in \mathfrak{F}_{i,q}^{\kappa,\delta}(E) \mid F \cap (\mathfrak{B}_{i,[t,t']}^{3p,\kappa,\delta} \times \mathcal{T}_{\text{prov}}^{\text{form}}) \neq \emptyset \right\}. \quad (76)$$

Equation 76 collects evidence-compatible provenance fibers that include at least one admitted third-position bearer. Its nonemptiness means only that third-position contribution remains compatible with the evidence. A robust claim that the changed dimension is third-position mediated requires stronger support: every admissible provenance fiber relevant to the claim should retain at least one third-position contribution under the declared pathway class, or the application should supply another explicit robustness criterion.

The warranted co-formation criterion of Section 8 remains unchanged. A third-position pathway can help constitute a co-formation witness when the focal relation is robustly included in the changed dimension's provenance and the third-position pathway is part of the warranted generative history. The same subject can therefore be co-formed through a history that is dyadically initiated and triadically mediated. Conversely, a third-position pathway can transform the subject even when the original A–B relation is not robustly included; that history can support a broader relational-formation claim without satisfying the specific A–B co-formation claim.

This distinction prevents conceptual overreach. Third-position mediation does not by itself establish joint authorship of the later subject, equal formative influence, or triadic irreducibility. A translator can be essential to one capacity transition while having little effect on value orientation; an institution can reorganize standing while the volunteer remains the principal contributor to learned competence; a public can sediment a role that both focal participants resist. The appropriate conclusion is dimension-specific and provenance-specific.

The section also preserves normative independence. Mediation, review, authorization, brokerage, and public recognition can support autonomy, constrain alternatives, enable revision, stabilize dependency, widen participation, or intensify exclusion. Their formative efficacy does not establish their legitimacy. Section 17 will use the subject-specific profiles developed so far to compare differential co-formation across participants, dimensions, persistence, reversibility, revision capacity, and exposure without converting those differences into one scalar asymmetry score.

17 Differential Co-Formation

This section develops the comparative layer of the co-formation framework. Its role is to describe how two subjects can be co-formed through the same volunteer or support history in different ways without translating those differences into a universal scalar magnitude. The objective is to compare subject-specific formation profiles across the kind of constitutive change, historical persistence, reversibility, revision capacity, exposure to formative pathways, and provenance. The method is typed and diagnostic-relative. Each comparison coordinate receives its own carrier, definedness domain, equivalence rule, and, where warranted, directional-consequence criterion. This structure preserves incomparability, mixed direction, partial evidence, and cross-coordinate tension.

Section 8 already permits one-sided or bilateral co-formation and records the coupled verdict profile in Equation 29. The present section refines that result. A bilateral warrant establishes that both A and B satisfy the local co-formation criterion; it does not specify whether they changed in the same dimensions, whether their changes persisted for comparable intervals, whether either subject retained greater revision capacity, or whether one subject was more exposed to pathways controlled by the other. Those

Table 18: Typed coordinates for differential co-formation. Each coordinate addresses a distinct comparison question and retains its own inference limits.

Coordinate	Principal comparison object	Main inference restraint
Kind	Constitutively changed dimensions and their local change descriptors	Different kinds of change need not be rankable by magnitude
Persistence	Retention, recurrence, stabilization, attenuation, or interruption across a declared interval	Longer persistence does not by itself establish greater value, legitimacy, or causal importance
Reversibility	Availability of pathways that can undo, dissolve, reopen, or substantially reorganize an earlier formation	Apparent stability does not establish irreversibility when reopening pathways are unobserved
Revision capacity	Subject-relative ability to contest, reinterpret, refuse, renegotiate, or reorganize retained structures	Revision capacity is distinct from whether revision has already occurred
Exposure	Degree and type of dependence on, susceptibility to, or unavoidable contact with formative pathways	High exposure can coexist with resistance; low exposure can coexist with strong retained effects
Provenance	Distribution of formative contribution across the focal relation, subject activity, institutions, publics, third positions, resources, and exogenous events	Contribution structure does not supply a scalar causal share or normative credit allocation

distinctions require a typed differential profile rather than a single statement that the relation was “more formative” for one participant.

17.1 Typed Differential Coordinates

Let the differential coordinate family be the finite set stated in Equation 77.

$$\mathcal{L}_{\text{DCF}}^{\kappa, \delta} := \{\text{kind, persist, reverse, revise, expose, prov}\}. \quad (77)$$

Equation 77 is an analytical family rather than an exhaustive ontology of subject difference. An application can refine one coordinate or add another when the research question requires it. The six retained coordinates serve the present paper because they capture recurrent ways in which co-formation can differ even when both subjects satisfy the same baseline criterion.

For each subject $i \in \{A, B\}$, interval $[t, t']$, resolution κ , diagnostic δ , and evidence base E , let the differential co-formation profile be the typed family in Equation 78.

$$\text{DCFProf}_{i|AB, t' \leftarrow t}^{\kappa, \delta}(E) := \left(P_{i, \lambda, t' \leftarrow t}^{\kappa, \delta}(E) \right)_{\lambda \in \mathcal{L}_{\text{DCF}}^{\kappa, \delta}}, \quad (78)$$

where $P_{i, \lambda, t' \leftarrow t}^{\kappa, \delta}(E)$ is the application-specific record for coordinate λ . The coordinates are typed independently. A kind record can be set-valued, a persistence record can be interval-structured, an exposure record can be relation-valued, and a provenance record can contain several admissible contributors. Equation 78 therefore does not define a vector in a common metric space and does not authorize summation across coordinates.

Table 18 summarizes the six coordinates and the inference burden attached to each.

The profile in Table 18 is available only where the relevant records are sufficiently defined. A comparison may therefore be possible for persistence and provenance while remaining underdetermined for revision capacity. Undefined comparison is preserved as a substantive result rather than being converted into equality.

17.2 Kind of Constitutive Reorganization

The first differential coordinate concerns what changed. Section 5 defined the changed-dimension set $\text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}$, while Sections 9–16 supplied richer structures for boundary organization, practical horizon, value orientation, generative capacity, self-reconstruction, role position, recognition, and third-position pathways. The kind coordinate retains these distinctions instead of counting changed dimensions.

Two subjects can both satisfy the co-formation criterion while exhibiting disjoint or only partially overlapping change kinds. A may acquire a retained generative capacity and an expanded practical horizon, while B's later organization changes primarily through value orientation, role sedimentation, or recognition-mediated standing. The profile can also contain mixed directional descriptors inside one dimension, such as widened practical availability together with reduced refusal capacity.

For this reason, the cardinality of $\text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}$ is not interpreted as a formation magnitude. Three weakly retained changes do not automatically exceed one deeply consequential constitutive reorganization, and one boundary change cannot be added numerically to one value change without a locally justified commensuration rule. Differential analysis should therefore report the typed content of change before asking whether a directional comparison is meaningful.

17.3 Historical Persistence of Co-Formed Structure

Persistence concerns the historical retention of a constitutive reorganization after its initial formation. The relevant object is not elapsed clock time alone. A retained structure can persist through repeated use, institutional reinforcement, memory stabilization, recurring role expectations, infrastructural dependence, or repeated public recognition. Another structure can remain latent for long intervals and become active only when a corresponding context reappears.

Let $\text{Ret}_{i,q,I}^{\kappa, \delta}$ denote the application-relative retention record for subject i , diagnostic dimension q , and interval I . The persistence coordinate can then include the family of retained records stated in Equation 79.

$$P_{i,\text{persist},t' \leftarrow t}^{\kappa, \delta}(E) := \left\{ \text{Ret}_{i,q,I}^{\kappa, \delta} \mid q \in \text{Chg}_{i,t' \leftarrow t}^{\kappa, \delta}, I \subseteq [t, t'] \right\}, \quad (79)$$

where membership requires the evidential conditions declared by the local study. Equation 79 supports descriptions such as recurrent, intermittently retained, institutionally stabilized, attenuated, or no longer observed. It does not require a universal persistence scale.

Persistence is historically coupled to provenance. A change initially generated through the focal support relation can later be stabilized mainly by the subject's own practice, by an institution, by a public reputation, or by a different relational network. Later stabilization therefore need not preserve the original contribution structure. Section 18 will examine those changing historical dependencies directly.

17.4 Reversibility and Revision Capacity

Reversibility and revision capacity concern different analytical questions. Reversibility asks whether a formed structure can be dissolved, reopened, displaced, or substantially reorganized under some admissible continuation. Revision capacity asks whether the subject has retained pathways for contesting, refusing, reinterpreting, renegotiating, or reorganizing that structure. A subject can possess substantial revision capacity while choosing to retain the current arrangement, and a structure can prove reversible only because an external institution intervenes despite limited subject-relative revision capacity.

Let $\text{RevPath}_{i,q,t'}^{\kappa, \delta}$ denote the retained family of admissible reopening or reorganization pathways for dimension q , and let $\text{RevCap}_{i,q,t'}^{\kappa, \delta}$ denote the subject-relative records relevant to activating, contesting, or sustaining such pathways. The present section keeps these objects relation-valued or typed according to the application. It does not identify reversibility with the number of available exits or revision capacity with a general psychological trait.

Several earlier diagnostics contribute to revision capacity without becoming identical to it. Refusal capacity in Section 10, contested value uptake in Section 11, self-reconstruction in Section 13, resistance and exit friction in Section 14, and contestation or correction in Section 15 can each enter the local record. Their contribution depends on whether the subject can actually mobilize them within the relevant relational configuration.

Section 19 will analyze reopening as a historical process. The present coordinate is narrower: it records the comparative structure of available revision and reopening pathways at the interval under study. A later successful reversal can confirm one pathway, while the absence of observed reversal leaves unobserved pathways unresolved.

17.5 Exposure to Formative Pathways

Exposure concerns how the subject is situated relative to processes capable of reorganizing retained subject structure. It can arise through dependence on a support relation, institutional embedding, repeated role expectations, public visibility, gate-conditioned access, resource dependence, technological infrastructure, or recurrent third-position routing. Exposure is therefore relational and pathway-specific rather than an intrinsic vulnerability score.

For each admissible provenance bearer $b \in \mathfrak{B}_{i,[t,t']}^{\kappa}$ and changed dimension q , let $\text{Expo}_i(b, q)$ denote the typed record describing the subject's access to, dependence on, avoidability of, or insulation from the relevant formative pathway. The coordinate can preserve several exposure modes simultaneously. For example, B can be highly dependent on an institutional route for material access while remaining able to contest the institution's public classification, whereas A can have little material dependence but substantial reputational exposure to the same public process.

Exposure should not be inferred directly from effect magnitude. A low-frequency event can have durable consequences, while repeated exposure can be resisted or remain manifestationally salient without producing constitutive change. Exposure also does not determine responsibility. A subject who is highly exposed to another's action is not thereby the author of the resulting transformation, and a bearer that controls an exposure pathway is not automatically normatively culpable. Later papers on power, ethics, and justice will supply the additional evaluative premises required for those claims.

17.6 Provenance Distribution Across Subjects

Section 7 defined dimension-specific provenance fibers and Section 8 used robust focal-relation inclusion to support a co-formation warrant. Differential analysis retains the full provenance distribution rather than replacing it with a binary focal-relation flag. Two subjects can both be co-formed through the same relation while the internal contribution structure differs substantially.

A's value reorganization can depend primarily on A's own interpretation and later peer network, with the focal relation acting as an enabling event. B's practical-horizon change can depend more directly on resources controlled by A and an authorizing institution. Both satisfy relation-specific provenance, yet the location and type of generative contribution differ. The difference can matter for persistence, exposure, revision capacity, and later path dependence.

Provenance profiles can also change over time. A helper can be important during initial learning and nearly irrelevant once the capacity is retained. A public reputation can begin as an external manifestation and later become a major gatekeeper of opportunities. A mediator can be indispensable during formation but disappear from later maintenance. The differential profile should therefore preserve stage-indexed provenance rather than infer a permanent asymmetry from one early interval.

17.7 Typed Comparison and Directional Consequence

Differential co-formation requires a comparison rule for each coordinate. For $\lambda \in \mathcal{L}_{\text{DCF}}^{\kappa,\delta}$, let $\mathcal{P}_{\lambda}^{\kappa,\delta}$ be the carrier of admissible coordinate records, $\mathcal{D}_{\lambda}^{\kappa,\delta} \subseteq \mathcal{P}_{\lambda}^{\kappa,\delta} \times \mathcal{P}_{\lambda}^{\kappa,\delta}$ the definedness domain, $\simeq_{\lambda}^{\kappa,\delta}$ the

retained equivalence rule, and $\chi_\lambda^{\kappa,\delta}(x, y)$ the proposition that the identified difference has a directional consequence under the declared research question. The comparison frame is stated in Equation 80.

$$\mathfrak{C}_\lambda^{\kappa,\delta} := \left(\mathcal{P}_\lambda^{\kappa,\delta}, \mathcal{D}_\lambda^{\kappa,\delta}, \simeq_\lambda^{\kappa,\delta}, \chi_\lambda^{\kappa,\delta} \right). \quad (80)$$

Equation 80 inherits the typed-comparison discipline of the earlier dyadic paper while applying it specifically to co-formation outcomes. Difference and asymmetry remain distinct. For comparable records x and y , the local predicates are defined in Equation 81.

$$\begin{aligned} \text{Diff}_\lambda^{\kappa,\delta}(x, y) &\iff (x, y) \in \mathcal{D}_\lambda^{\kappa,\delta} \wedge x \not\succeq_\lambda^{\kappa,\delta} y, \\ \text{Asym}_\lambda^{\kappa,\delta}(x, y) &\iff \text{Diff}_\lambda^{\kappa,\delta}(x, y) \wedge \chi_\lambda^{\kappa,\delta}(x, y). \end{aligned} \quad (81)$$

Equation 81 prevents a descriptive mismatch from becoming an asymmetry claim without an additional directional consequence. Different kinds of value change, for example, need not favor or constrain either subject. A difference in revision capacity becomes asymmetry-relevant when it changes who can reopen, refuse, renegotiate, or escape a retained structure. A difference in provenance becomes directional when one subject's later organization depends materially on pathways controlled by the other or by an institution in a way that alters future possibilities.

Definedness remains prior to both predicates. If $(x, y) \notin \mathcal{D}_\lambda^{\kappa,\delta}$, the present study does not classify the coordinate as symmetric or asymmetric. This restraint is especially important when one subject's persistence is richly observed while the other's evidence is sparse, or when two subjects are represented at incompatible resolutions.

17.8 Multidimensional Profiles and Non-Cancellation

The subject-pair differential profile is the family of coordinate comparisons stated in Equation 82.

$$\text{PairDCF}_{AB,t' \leftarrow t}^{\kappa,\delta}(E) := \left(\text{Comp}_\lambda \left(P_{A,\lambda,t' \leftarrow t}^{\kappa,\delta}(E), P_{B,\lambda,t' \leftarrow t}^{\kappa,\delta}(E) \right) \right)_{\lambda \in \mathcal{L}_{\text{DCF}}^{\kappa,\delta}}, \quad (82)$$

where Comp_λ records undefined comparison, retained equivalence, typed difference, or typed asymmetry according to Equation 81. Equation 82 is a structured profile and carries no default aggregation rule.

Oppositely oriented asymmetries therefore do not cancel. A can retain greater revision capacity while B's changed role position persists more strongly. B can be more exposed to material dependence while A is more exposed to reputational stabilization. A's change can have more distributed provenance while B's depends on a narrower institutional route. These findings jointly characterize the co-formation history; they do not sum to an equality or a net asymmetry score.

The same restraint applies to bilateral co-formation. A profile in which both subjects satisfy the baseline criterion can remain highly differential across all six coordinates. Conversely, one-sided co-formation can coexist with strong asymmetries in exposure or revision capacity that affect the relation even though only one subject meets the constitutive-change criterion over the selected interval.

17.9 Normative Scope and Historical Interface

Differential co-formation is descriptive and historical within the present paper. A typed asymmetry in persistence, revision capacity, exposure, or provenance does not by itself establish domination, exploitation, injustice, paternalism, responsibility, or moral wrongdoing. Some asymmetries can support effective care, accessibility, learning, specialization, or stable collaboration. Others can become power-relevant or normatively objectionable when additional conditions are satisfied. Papers on justice, intervention ethics, and political economy will provide those criteria.

The framework also avoids treating greater persistence or lower reversibility as inherently stronger formation. A short-lived transformation can be highly consequential, and a durable transformation can remain easily contestable. Likewise, high exposure can coexist with substantial revision capacity, while

low exposure can still generate durable change through a rare event. The coordinates should therefore remain separate until an application justifies a local relation among them.

Section 17 supplies a comparative snapshot of already warranted co-formation histories. Section 18 will add historical ordering, feedback, branching, delayed effects, and recursive stabilization. That next step matters because differential profiles themselves can change: an asymmetry in exposure can generate a later asymmetry in persistence, a temporary difference in revision capacity can disappear after learning, and provenance can migrate from the focal relation to institutions, publics, or the subjects' own retained practices. Differential co-formation is therefore a historical profile to be tracked rather than a fixed property of the dyad.

18 Historical Path Dependence

This section develops the historical-composition layer of the subject co-formation framework. Its role is to move from interval-level comparison to ordered formation histories in which the sequence of interactions, the recurrence of earlier structures, delayed effects, changing provenance, and branch selection can condition later subject organization. The objective is to specify when historical ordering carries analytical content beyond the fact that change occurred over time. The discussion proceeds through typed stage profiles, admissible formation histories, branch-comparison frames, path-dependence criteria, repetition and recursive stabilization, lagged effects, provenance migration, and the relation between endpoint similarity and historical nonequivalence. The method remains diagnostic- and representation-relative. Paper III does not assume a single global state space, a deterministic transition law, or a universal counterfactual model of persons.

Section 7 established that constitutive change requires a warranted generative history rather than temporal coincidence, and Section 17 showed that already warranted co-formation can differ across persistence, reversibility, revision capacity, exposure, and provenance. Historical path dependence adds a further question. Two admissible histories can begin from sufficiently comparable subject organization and still arrive at different constitutive outcomes because their intermediate ordering, retained feedback, or branch structure differs. Conversely, two endpoints can appear equivalent under the selected diagnostic while retaining different provenance histories that condition later continuations. The historical analysis therefore concerns ordered generative structure rather than elapsed duration alone.

18.1 Typed Stage Profiles and Ordered Formation Histories

For a fixed diagnostic family $\mathfrak{D}_{i,I}^{\kappa,\delta}$, the defined constitutive stage profile of subject i at time t is the typed family stated in Equation 83.

$$\mathfrak{C}_{i,t}^{\kappa,\delta} := \left(q, d_q(\mathcal{K}_{i,t}^{\kappa}) \right)_{\substack{q \in Q_\delta \\ \mathcal{K}_{i,t}^{\kappa} \in \text{Dom}(d_q)}}. \quad (83)$$

Equation 83 is a typed family rather than a vector. Its components retain the codomains and equivalence rules declared in Section 5. Dimensions for which the extraction map is undefined are omitted from the stage profile and remain unresolved rather than being imputed. The profile therefore records what the selected representation can warrant about relational subject organization at one stage; it is not a complete state description of the person.

Let $t_0 \preceq t_1 \preceq \dots \preceq t_n$ be the ordered stages retained by a local study. An admissible formation history combines the corresponding stage profiles with the interval-specific provenance relations developed in Section 7. The history record is defined in Equation 84.

$$\gamma_{i,I}^{\kappa,\delta}(E) := \left((\mathfrak{C}_{i,t_r}^{\kappa,\delta})_{r=0}^n, (\Pi_{i,t_{r+1} \leftarrow t_r}^{\kappa,\delta})_{r=0}^{n-1} \right), \quad I = [t_0, t_n]. \quad (84)$$

Equation 84 does not presuppose that each stage follows functionally from the preceding one. Several later profiles can remain compatible with one earlier profile, and several historical reconstructions

can remain compatible with the same evidence base E . The history record also does not identify the provenance relations with the subject profile. One records diagnosed subject organization; the other records warranted generative participation in changes among those profiles.

Let $\Gamma_{i,I}^{\kappa,\delta}(E)$ denote the family of histories of the form in Equation 84 that satisfy the tracking, diagnostic, provenance, and evidential conditions declared by the local study. Membership in $\Gamma_{i,I}^{\kappa,\delta}(E)$ therefore means that a history is admissible under the current reconstruction. It does not mean that every member occurred in one actual world. Depending on the research design, the family can contain competing reconstructions of one historical record, matched histories from different cases, institutionally generated branch contrasts, or explicitly modeled counterfactual histories whose evidential status is stated separately.

18.2 Branch Comparison and Path-Dependence Warrants

Path dependence requires more than a before/after difference. A useful comparison must state why two histories can be compared as alternative or contrastive developments for the research question. Paper III therefore leaves branch matching to an application-relative comparison relation. Let $\text{BrCmp}_{i,I}^{\kappa,\delta}(E)$ be the declared relation on admissible histories in Equation 85.

$$\text{BrCmp}_{i,I}^{\kappa,\delta}(E) \subseteq \Gamma_{i,I}^{\kappa,\delta}(E) \times \Gamma_{i,I}^{\kappa,\delta}(E). \quad (85)$$

Membership $(\gamma_1, \gamma_2) \in \text{BrCmp}_{i,I}^{\kappa,\delta}(E)$ means that the local study warrants comparing the two histories as sufficiently matched at the declared baseline and sufficiently controlled with respect to the contextual differences that are not the target of the historical contrast. The relation can be supported by within-case reconstruction, matched comparative cases, institutional discontinuities, natural or designed interventions, or a declared formal counterfactual model. The evidential burden differs across those designs and should remain visible in the study.

Let $\simeq_{\text{term}}^{\kappa,\delta}$ be the declared equivalence relation on terminal constitutive profiles that are comparable under the selected diagnostic. Historical path dependence is witnessed when a branch-comparable pair terminates in nonequivalent profiles. The criterion is stated in Equation 86.

$$\text{PathDep}_{i,I}^{\kappa,\delta}(\gamma_1, \gamma_2; E) \iff (\gamma_1, \gamma_2) \in \text{BrCmp}_{i,I}^{\kappa,\delta}(E) \wedge \mathfrak{C}_{i,t_n}^{\gamma_1} \not\simeq_{\text{term}}^{\kappa,\delta} \mathfrak{C}_{i,t_n}^{\gamma_2}. \quad (86)$$

Equation 86 is intentionally local. It does not claim that every difference between two life histories is caused by ordering, nor does it require one universal terminal-state metric. The branch-comparison relation carries the burden of declaring which baseline conditions, exposures, background institutions, and exogenous events are sufficiently comparable for the historical contrast. The terminal equivalence states which subject-level differences count for the research question. A path-dependence claim is therefore no stronger than those two declarations and the evidence that warrants them.

Table 19 distinguishes several recurrent historical patterns that can be represented within this architecture.

18.3 Repetition and Recursive Stabilization

Repetition can matter because an interaction that is transient at one stage can become retained through recurrence, expectation, practice, institutional reinforcement, public recognition, or repeated use. The relevant object is therefore not a count of episodes by itself. A repeated support practice can strengthen a capacity, sediment a role, narrow a refusal route, stabilize a public reputation, or become irrelevant as the subject acquires independent alternatives. The same nominal repetition can have different constitutive consequences depending on the surrounding history.

Recursive formation occurs when an earlier constitutive reorganization helps generate a later one. To represent this possibility without treating dimensions themselves as causal agents, let $\text{Carry}_{i,t}^{\kappa,\delta}$ be a declared relation linking an earlier retained constitutive dimension to a provenance bearer through which that retained organization remains historically efficacious. The relation is defined in Equation 87.

Table 19: Recurrent historical patterns in subject co-formation. Each pattern requires a distinct evidential burden and should not be collapsed into a generic claim that history matters.

Pattern	Historical structure	Main inference restraint
Sequence sensitivity	Similar components occur in a different order and later constitutive profiles diverge	Ordering must be separated from changes in content, intensity, or background conditions
Repeated stabilization	Recurring interaction or recognition retains a structure that one episode would not establish	Repetition alone does not establish constitutive retention or normative legitimacy
Branch selection	An earlier event selects or closes later practical, institutional, or relational continuations	Selection requires a warranted pathway from the earlier branch to later possibilities
Delayed effect	An earlier bearer enters the provenance of a change that becomes diagnosable only later	Temporal lag does not by itself establish hidden early transformation
Recursive formation	An earlier constitutive reorganization becomes part of the provenance of a later one	Recursion should preserve the intermediate bearer or mechanism rather than compressing the history into one direct cause
Provenance migration	The bearers stabilizing a structure change over time while the structure persists or develops	Later autonomy from the original relation does not erase the earlier formation history
Endpoint convergence	Different histories reach equivalent present profiles under the current diagnostic	Present equivalence does not establish historical equivalence or identical future continuation families

$$\text{Carry}_{i,t}^{\kappa,\delta} \subseteq Q_\delta \times \mathfrak{B}_{i,[t,t_n]}^\kappa. \quad (87)$$

Membership $(q, b) \in \text{Carry}_{i,t}^{\kappa,\delta}$ means that the local study warrants representing provenance bearer b as carrying forward organization associated with constitutive dimension q at stage t . The bearer can be the subject's retained practice, a role position, an institutional status, a learned interface, a public record, a self-reconstruction, or another tracked structure admitted by Section 7. The relation does not imply that q is itself a substance or agent.

For $t_0 \preceq t_1 \preceq t_2$, a recursive formation witness occurs when an earlier changed dimension is carried by a bearer that later enters the provenance of another changed dimension. The witness set is defined in Equation 88.

$$\begin{aligned} \text{RecWit}_{i,t_2 \leftarrow t_1 \leftarrow t_0}^{\kappa,\delta} := \left\{ (q_0, b, q_1, \rho) \mid \begin{aligned} &q_0 \in \text{Chg}_{i,t_1 \leftarrow t_0}^{\kappa,\delta}, \\ &(q_0, b) \in \text{Carry}_{i,t_1}^{\kappa,\delta}, \\ &q_1 \in \text{Chg}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}, (b, q_1, \rho) \in \Pi_{i,t_2 \leftarrow t_1}^{\kappa,\delta} \end{aligned} \right\}. \end{aligned} \quad (88)$$

Equation 88 permits histories such as capacity acquisition that later expands practical horizon, public recognition that later sediments a role, role sedimentation that later changes self-reconstruction, or a new self-reconstruction that later reorganizes value orientation. It also permits constraining recursion: dependency can narrow refusal capacity, the narrowed refusal structure can increase later exposure, and the increased exposure can stabilize further dependency. The framework records the typed historical chain while leaving normative evaluation to later papers.

18.4 Delayed Effects and Cross-Level Lag

A formative contribution can precede the stage at which a constitutive change becomes diagnosable. Section 4 already established that relational reorganization, manifestation, self-reconstruction, and public reconstruction need not change synchronously. Historical analysis therefore requires a distinction between an early provenance bearer and a later diagnostic manifestation of its effect.

For $t_0 \preceq t_1 \preceq t_2$, define the lagged witness set in Equation 89.

$$\text{LagWit}_{i,t_2 \leftarrow [t_0, t_1]}^{\kappa, \delta} := \left\{ (b, q, \rho) \mid \begin{array}{l} b \in \mathfrak{B}_{i, [t_0, t_1]}^{\kappa}, q \in \text{Chg}_{i, t_2 \leftarrow t_0}^{\kappa, \delta}, \\ (b, q, \rho) \in \Pi_{i, t_2 \leftarrow t_0}^{\kappa, \delta}, q \notin \text{Chg}_{i, t_1 \leftarrow t_0}^{\kappa, \delta} \end{array} \right\}. \quad (89)$$

Equation 89 marks a candidate delayed contribution, not proof that the constitutive change was absent at t_1 . If dimension q was unresolved at the intermediate stage, the correct interpretation is that the later change was not yet warranted under the selected diagnostic. A stronger delayed-onset claim requires the local study to establish intermediate constitutive equivalence for q before the later nonequivalence appears.

Several mechanisms can produce such lag. Training can alter latent capacity before a context permits exercise. A public classification can circulate before it changes institutional access. A support relation can establish trust that later makes a difficult refusal or disclosure possible. A role can be externally attributed before it becomes self-relevant. Conversely, a dramatic immediate manifestation can fade without producing any retained subject-level change. Temporal distance and visible intensity therefore remain weak substitutes for a typed provenance reconstruction.

Cross-level lag also permits feedback in the opposite direction. A later manifestation can reveal an earlier relational change; a later self-reconstruction can reinterpret an earlier episode and then become a new provenance bearer for subsequent organization; a public correction can alter the future effect of an earlier reputational record without deleting its past consequences. The historical record must therefore distinguish revision of later relational trajectories from retroactive alteration of past events.

18.5 Provenance Migration across Formation Stages

The provenance of a retained structure can change after its initial formation. A helper can be central to early learning while later maintenance depends primarily on the subject's own practice. A translator can be indispensable during initial coordination and later disappear after direct communication becomes stable. An institution can initially authorize access and later be replaced by a different infrastructure. A public reputation can begin as a secondary manifestation and later become the principal gatekeeper of opportunities.

For a constitutive dimension q tracked across successive intervals, let the stage-indexed provenance sequence be the family stated in Equation 90.

$$\text{ProvSeq}_{i, q, I}^{\kappa, \delta} := \left(\text{ProvFib}_{i, t_{r+1} \leftarrow t_r}^{\kappa, \delta}(q) \right)_{r=0}^{n-1}, \quad (90)$$

where the fiber is retained only on intervals for which q is diagnosed as changed or historically reorganized in the sense required by the local study. Equation 90 preserves changing contribution structure without assigning causal shares. The sequence can show migration from the focal support relation to subject-maintained practice, from a person to an institution, from dyadic support to public recognition, or from one third-position pathway to another.

Provenance migration matters for interpretation of dependence and autonomy. A later structure can become self-maintaining without erasing the relation that helped generate it. Conversely, a relation can cease to be visibly active while an institution, reputation, role, or technical dependency generated through the earlier history continues to organize the subject. Historical disappearance of the original bearer therefore does not by itself establish disappearance of its formative consequences.

The same logic applies to normative credit and blame. Paper III does not infer that an early contributor owns the later achievement, bears responsibility for every later effect, or remains entitled to control the resulting structure. Those questions require independent normative and legal criteria. Provenance migration is a historical description of changing generative participation.

18.6 Endpoint Equivalence and Historical Nonequivalence

Path dependence can remain analytically important even when terminal constitutive profiles are equivalent under the current diagnostic. Two subjects can arrive at comparable practical horizons through different dependence structures; the same capacity can be learned through supportive teaching or acquired after exclusion and compensatory adaptation; an equivalent public standing can follow recognition, litigation, institutional correction, or replacement of the relevant institution. If those historical differences condition later continuations, endpoint equivalence is insufficient for historical equivalence.

Paper III therefore retains a separate declared equivalence $\simeq_{\text{hist}}^{\kappa, \delta}$ on admissible formation histories. The relation can compare ordered provenance, branch structure, recurrence, lag, and retained feedback at the resolution appropriate to the study. The implication in Equation 91 is intentionally one-way.

$$\gamma_1 \simeq_{\text{hist}}^{\kappa, \delta} \gamma_2 \implies \mathfrak{C}_{i, t_n}^{\gamma_1} \simeq_{\text{term}}^{\kappa, \delta} \mathfrak{C}_{i, t_n}^{\gamma_2}, \quad (91)$$

provided that the historical equivalence adopted by the application is at least as discriminating as its terminal equivalence. The converse is generally unavailable without an additional assumption. Equation 91 preserves a central commitment of the paper: present-state similarity can coexist with different formation histories, different dependencies, different revision routes, and different future continuation families.

This distinction also prevents path dependence from becoming a synonym for endpoint divergence. Equation 86 captures one strong witness in which branch-comparable histories reach nonequivalent terminal profiles. Historical nonequivalence can be present even when that witness is absent. A later study can therefore report terminal convergence together with provenance or pathway divergence, rather than forcing the two histories into one class because the present diagnostic no longer distinguishes their endpoints.

18.7 Historical Scope and Interface with Reopening

Historical path dependence in Paper III is a model-relative description of ordered relational formation. An early branch can condition later possibilities without making them inevitable, and a stabilized structure can remain open to resistance, reinterpretation, replacement, or dissolution. Path dependence, persistence, and recursive stabilization therefore do not imply historical determinism or irreversibility.

The same restraint applies to stronger dynamical language. Attractors, hysteresis, bifurcation, criticality, phase transition, and basin structure require additional mathematical structure and empirical justification; sequence sensitivity or retained feedback alone does not establish them. The historical carrier remains compatible with later dynamical specializations without presupposing their results.

Historical analysis also remains distinct from normative evaluation. Path-dependent formation can preserve competence, stabilize care, create dependency, sediment stigma, or support collective recognition. Historical provenance explains how structures become retained; justice, legitimacy, paternalism, responsibility, and power require independent criteria in later papers.

Section 19 examines reopening directly through resistance, de-internalization, role dissolution, recovered capacity, reinterpretation, and reorganization. The interface matters because a history can strongly condition later subject organization without fixing the subject's future, and durable co-formation need not be final.

19 Subject Reopening after Constitutive Stabilization

This section develops the revision layer of the co-formation framework. Its role is to analyze how a subject can resist, loosen, reinterpret, dissolve, recover from, reroute around, or otherwise reorganize a previously retained constitutive formation without treating the later process as erasure of the earlier history. The objective is to distinguish pathway availability from realized reopening, direct revision of a previously formed dimension from indirect reopening through another constitutive dimension, and successful revision from resistance that remains relationally consequential without yet altering the retained structure. The method is historical, typed, and diagnostic-relative. Reopening is represented through later provenance-bearing changes in subject organization rather than through an assumption that the subject returns to a pristine earlier state.

Section 17 introduced reversibility and revision capacity as comparative coordinates, while Section 18 represented ordered formation histories, recursive stabilization, delayed effects, and provenance migration. The present section adds the corresponding realized historical process. A subject can retain revision capacity without exercising it, attempt resistance without changing the retained organization, or successfully reorganize a structure only after new resources, recognition, allies, institutions, capacities, or practical alternatives become available. Reopening therefore belongs to the same provenance-sensitive architecture as initial formation.

19.1 Typed Modes of Reopening

The term *reopening* covers several historically distinct processes. Paper III uses the finite mode family stated in Equation 92 as an application-relative inventory rather than an exhaustive ontology.

$$\mathcal{T}_{\text{open}} := \{\text{resist, deint, dissolve, recover, reinterpret, reroute, recompose}\}. \quad (92)$$

The modes in Equation 92 need not be mutually exclusive. Resistance can precede de-internalization; reinterpretation can support role dissolution; capacity recovery can create a rerouting pathway; institutional replacement can recompose a dependency structure without restoring the earlier relation. Table 20 states the principal analytical object and inference restraint for each mode.

The table preserves processes that can look superficially similar at the level of manifestation. Leaving a volunteer programme, for example, can represent role dissolution, practical rerouting, public reclassification, temporary withdrawal, or only a visible interruption while the underlying dependency remains. The diagnostic burden therefore concerns retained relational change rather than the manifest event alone.

19.2 Reopening Routes and Prior Formed Structure

A reopening process requires a pathway through which later reorganization becomes possible. For subject i and interval $[t_1, t_2]$, let the typed reopening-route relation be stated in Equation 93.

$$\text{OpenRoute}_{i,[t_1,t_2]}^{\kappa,\delta} \subseteq \mathfrak{B}_{i,[t_1,t_2]}^{\kappa} \times \mathcal{T}_{\text{open}}. \quad (93)$$

Membership $(b, \eta) \in \text{OpenRoute}_{i,[t_1,t_2]}^{\kappa,\delta}$ means that the local study warrants treating provenance bearer b as carrying an admissible reopening route of mode η . The bearer can be the subject's own retained practice, a refusal pathway, an alternative institution, a new collaborator, a legal or administrative appeal, a public correction, a recovered competence, a self-reconstruction, or another admissible bearer from Section 7. Equation 93 records pathway type and bearer; it does not yet establish that reopening succeeded.

The framework also requires a declared target: reopening is reopening *of* some retained formation. Let the prior-formed set in Equation 94 contain the constitutive dimensions for which the evidence supports a retained formed organization at stage t_1 .

$$\text{Formed}_{i,t_1}^{\kappa,\delta}(E) \subseteq Q_{\delta}. \quad (94)$$

Table 20: Typed modes of subject reopening. The modes describe historically distinct revision processes and do not form a universal developmental sequence.

Mode	Principal historical process	Main inference restraint
Resistance	Contestation, refusal, withholding, or opposition to a retained formation	Resistance can be consequential without yet changing the retained constitutive structure
De-internalization	Weakening or displacement of an internalized role, value, expectation, or self-attribution	Reduced endorsement does not by itself dissolve public, institutional, or material effects
Dissolution	Unmaking a retained role, dependency, authorization, standing relation, or organizational coupling	Formal termination need not remove reputational, practical, or self-reconstructive sedimentation
Recovery	Reactivation or restoration of previously unusable capacity, refusal, access, or practical possibility	Recovery need not reproduce the earlier form or route through which the capacity was once available
Reinterpretation	Revised autobiographical, evaluative, or relational understanding of earlier formation history	New interpretation becomes constitutively relevant only when it acquires retained relational efficacy
Rerouting	Establishment of an alternative route that bypasses, displaces, or reduces dependence on an earlier pathway	A new route can coexist with continued dependence on the older pathway
Recomposition	Reorganization of several retained relations into a new configuration, often with changed provenance	Recomposition does not imply restoration of a pre-formation subject state

A dimension can enter Equation 94 because its earlier formation was directly observed in the current study or because the study begins from a historically justified retained baseline. Inclusion does not imply that the structure is desirable, permanent, irreversible, or wholly generated by the focal volunteer relation. It states only that the local analysis has enough evidence to treat the corresponding subject organization as historically retained at t_1 .

Reopening can operate through the same diagnostic dimension or through another dimension that loosens the earlier structure. The application therefore declares a reopening-target relation as stated in Equation 95.

$$\text{OpenTarget}_{i,t_1}^{\kappa,\delta}(E) \subseteq \text{Formed}_{i,t_1}^{\kappa,\delta}(E) \times Q_\delta. \quad (95)$$

Membership $(q_0, q_1) \in \text{OpenTarget}_{i,t_1}^{\kappa,\delta}(E)$ means that, for the declared research question, a later reorganization in dimension q_1 can count as a pathway that reopens the retained structure associated with earlier dimension q_0 . The relation is intentionally many-to-many. A sedimented role can be loosened through change in the role dimension itself, through expanded refusal capacity in the practical-horizon dimension, through reinterpretation in the self-reconstruction dimension, or through recognition and standing changes that alter the external expectations sustaining the role.

19.3 Realized Reopening and Dimension-Level Witnesses

Reopening becomes historically realized when an admissible reopening route participates in the provenance of a later constitutive change that targets an earlier retained formation. For $t_0 \preceq t_1 \preceq t_2$, define the witness set in Equation 96.

$$\begin{aligned}
\text{ReopenWit}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}(E) := \left\{ (q_0, b, \eta, q_1, \rho) \mid \right. & q_0 \in \text{Formed}_{i,t_1}^{\kappa,\delta}(E), \\
& (b, \eta) \in \text{OpenRoute}_{i,[t_1,t_2]}^{\kappa,\delta}, \\
& q_1 \in \text{Chg}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}, \\
& (q_0, q_1) \in \text{OpenTarget}_{i,t_1}^{\kappa,\delta}(E), \\
& \left. (b, q_1, \rho) \in \Pi_{i,t_2 \leftarrow t_1}^{\kappa,\delta} \right\}.
\end{aligned} \tag{96}$$

Equation 96 reuses the provenance architecture of Section 7. A route counts because it is warranted as a contributor to a later constitutive change, not because the subject intended revision or because an observer describes the episode as recovery, liberation, or return. The witness can therefore support reopening even when the process is gradual, distributed, or partly unintended.

The dimension-level reopening set is then stated in Equation 97.

$$\begin{aligned}
\text{Reopened}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}(E) := \left\{ q_0 \in \text{Formed}_{i,t_1}^{\kappa,\delta}(E) \mid \exists b, \eta, q_1, \rho : \right. & \\
& \left. (q_0, b, \eta, q_1, \rho) \in \text{ReopenWit}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}(E) \right\}.
\end{aligned} \tag{97}$$

A nonempty set in Equation 97 warrants a scoped claim that at least one earlier retained constitutive formation has entered a realized reopening process under the declared diagnostic and evidence base. It does not imply that every consequence of the earlier formation has disappeared or that the later subject is equivalent to a pre-formation subject.

Direct and indirect reopening can be distinguished by the relation between the earlier target dimension and the later changed dimension. The two witness classes are defined in Equation 98.

$$\begin{aligned}
\text{DirOpen}_i^{\kappa,\delta}(E) &:= \left\{ w = (q_0, b, \eta, q_1, \rho) \in \text{ReopenWit}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}(E) \mid q_0 = q_1 \right\}, \\
\text{IndOpen}_i^{\kappa,\delta}(E) &:= \left\{ w = (q_0, b, \eta, q_1, \rho) \in \text{ReopenWit}_{i,t_2 \leftarrow t_1}^{\kappa,\delta}(E) \mid q_0 \neq q_1 \right\}.
\end{aligned} \tag{98}$$

Direct reopening can include a role losing sedimentation, a value becoming de-internalized, or a previously narrowed practical horizon becoming reorganized within the same diagnostic dimension. Indirect reopening captures cases in which another constitutive dimension changes the conditions sustaining the earlier structure. Recovery of a capacity can reopen practical alternatives; public correction can weaken a role attribution; self-reinterpretation can alter the efficacy of an internalized expectation. Equation 98 therefore preserves cross-dimensional formation rather than requiring each structure to be revised only within its original diagnostic carrier.

19.4 Resistance and De-Internalization

Resistance is a recurrent precursor or component of reopening, but resistance by itself does not establish constitutive reorganization. Section 14 already permits resistance to coexist with continued role occupation, performance, public attribution, and exit friction. The same logic applies more broadly. A subject can reject a value while continuing to act under institutional incentives aligned with it, contest a dependency classification while remaining materially dependent on the associated resource route, or reinterpret a volunteer relationship while public reputation continues to stabilize the earlier role.

De-internalization is more specific. It concerns weakening, displacement, or reorganization of a previously internalized structure in a way that becomes retained in later subject organization. A person can cease to identify with a helper role while still performing some helper tasks, or reject an imposed supporter identity while continuing to receive assistance. This separation is analytically important because the disappearance of self-identification need not dissolve the external structures through which the earlier role remains consequential.

The evidence burden therefore combines first-person reconstruction with later relational effects. Repeated self-description can support a de-internalization hypothesis, while changes in refusal, role performance, practical horizon, value orientation, access patterns, or relation-specific provenance can support the stronger claim that the internalized formation has been reorganized constitutively. First-person evidence retains distinctive standing under Section 13, but Paper III does not infer constitutive reopening from narration alone.

Resistance can also alter future history without immediately changing the targeted structure. An unsuccessful attempt to refuse a role can generate new alliances, institutional review, public recognition, or alternative routes that later enter the provenance of successful reopening. Historical analysis should therefore preserve failed or partial resistance when it becomes a provenance bearer for later change rather than classifying it as irrelevant merely because the initial structure persisted.

19.5 Role Dissolution, Capacity Recovery, and Practical Rerouting

Several reopening processes operate through resources and practical structures rather than through explicit reinterpretation. A role can dissolve when expectations, authorizations, or dependencies cease to organize later action. A previously latent or impaired competence can become exercisable again when conditions change. A subject can establish a new route that reduces dependence on an earlier gatekeeper, institution, helper, or technical interface. These processes can be constitutively important even when the subject offers no explicit narrative of personal transformation.

Role dissolution should be distinguished from formal exit. Ending an assigned position can leave reputational expectations, material obligations, internalized routines, or public standing unchanged. Conversely, a role can lose constitutive efficacy before its formal title disappears. The relevant diagnostic concerns the retained organization described in Section 14, including occupation, performance, attribution, internalization, sedimentation, resistance, and exit friction.

Capacity recovery should likewise be distinguished from simple return. Section 12 permits latent, scaffolded, exercisable, exercised, and retained capacity modes. Reopening can involve a previously unused capacity becoming exercisable, a lost route being restored through new scaffolding, or a competence being reacquired in a different form. Historical recovery therefore need not reproduce the earlier competence carrier, support route, or dependence structure.

Practical rerouting concerns the practical-horizon architecture of Section 10. A new route can widen initiation, maintenance, or refusal possibilities without removing the older route. The subject can remain partly dependent while acquiring an alternative, or an institution can replace an interpersonal support path while preserving some of the same continuation possibilities. Reopening is therefore compatible with partial substitution and mixed dependence rather than requiring complete independence from the earlier configuration.

19.6 Reinterpretation and Revision of Formation History

Reinterpretation concerns the later reorganization of how a subject understands earlier formation history. A support relation once reconstructed as rescue can later be understood as paternalistic; a dependency once experienced as unavoidable can later be reinterpreted as institutionally produced; a helper identity can be reframed as one temporary role among several rather than as a central self-description. Such changes belong initially to self-reconstruction and manifestation rather than automatically to relational subject organization.

Reinterpretation becomes part of reopening when it participates in later retained relational change. A revised autobiographical account can support refusal of a sedimented role, motivate recovery of an abandoned competence, justify exit from an institution, alter value orientation, or create a new public claim that changes standing. In those cases, the self-reconstruction itself can enter the provenance of another constitutive change through Equation 96.

The historical record remains asymmetric in time. Later reinterpretation changes the subject's present relation to an earlier event; it does not alter what occurred at the earlier stage. Public correction can

change the future effects of an inaccurate reputation without deleting the period during which that reputation organized opportunities. De-internalization can weaken a role's present efficacy without making its earlier sedimentation unreal. Reopening therefore revises later trajectories while preserving the historical reality of prior formation.

This distinction is especially important for accountability and normative analysis. A later subject can reject values, roles, or dependencies that were partly generated through an earlier support relation without thereby proving that the earlier relation was coercive, illegitimate, or wrongful. Conversely, continued endorsement does not prove that the formation process was legitimate. Those evaluations require additional criteria in later ethics, justice, and power papers.

19.7 Historical Nonequivalence after Reopening

Reopening generally does not restore an earlier subject state in the strong sense of historical equivalence. A recovered capacity can be exercised through new institutions; a dissolved role can leave durable memory and reputation; a reopened practical horizon can contain alternatives that were unavailable before the original formation; a revised value orientation can retain concepts learned during the very history being contested. The later subject therefore carries the formation and reopening history even when selected diagnostic features resemble an earlier profile.

The distinction introduced in Section 18 between terminal equivalence and historical equivalence applies directly. A later profile at t_2 can be equivalent to a profile at t_0 under a selected terminal diagnostic while the ordered history from t_0 through t_1 to t_2 remains historically nonequivalent to a history in which the intermediate formation never occurred. Reopening is consequently compatible with recovery, reactivation, or restoration language at the local diagnostic level while remaining historically non-restorative in a stronger sense.

This point also clarifies subject persistence. Successful reopening does not imply numerical replacement of the subject at t_2 , just as earlier constitutive reconfiguration did not imply replacement at t_1 . The tracking and successorship architecture of Section 6 remains prior. A local study can report continued tracking through formation and reopening, or it can identify a discontinuity that requires successor analysis. Reopening itself supplies neither result automatically.

The historical interpretation is therefore path-sensitive without becoming fatalistic. Earlier formation can leave durable traces while later reorganization changes what those traces do. A role can remain remembered without controlling present conduct; a dependence can become historically important without remaining practically binding; a public classification can persist in archives while losing standing effects. The framework can represent durable history together with changing efficacy.

19.8 Normative Scope and Interface with History Representation

Subject reopening is a metaphysical and historical diagnosis within Paper III. It does not establish that reopening is good, emancipatory, autonomous, authentic, or normatively required. Reopening can recover agency, dissolve harmful dependence, abandon valuable support, destabilize beneficial commitments, reactivate destructive capacities, or create new vulnerabilities. Normative evaluation therefore requires additional criteria concerning welfare, consent, autonomy, justice, care, legitimacy, power, and responsibility.

Reopening can also have distributed provenance across the subject's own practice, peers, institutions, legal procedures, public correction, technologies, or later support relations; its provenance should therefore be reconstructed independently of the earlier formation. Section 20 will require the history representation to preserve the earlier formation, its retention or stabilization, and the later reopening. Compressing equivalent initial and final profiles while deleting the intermediate history would erase the path dependence, provenance migration, and revision structure developed in Sections 18–19. The representational task is to preserve those historical distinctions without identifying the chosen carrier with the ultimate ontology of the subject.

20 Representation of Co-Formation Histories

This section develops an optional representation layer for the co-formation histories constructed in Sections 18–19. Its role is not to add a new metaphysics of the subject, but to provide finitely inspectable carriers on which ordered formation, constitutive retention, provenance migration, delayed effects, and reopening can be recorded without collapsing those substantive distinctions into one diagram or one terminal state. The objective is to specify what a representation must preserve, how several encodings of one history can coexist, how one compressed encoding can remain compatible with several substantive histories, and how cross-resolution comparison can be conducted without treating coarse-graining as ontologically neutral. The discussion proceeds through admissible history representations, realization relations, typed support, preservation of historical distinctions, a cellular specialization, representation ambiguity, and cross-resolution correspondence. Ontological reality remains suspended throughout.

The central methodological distinction is between a substantive formation history and a carrier used to represent it. The admissible histories $\gamma_{i,I}^{\kappa,\delta}(E)$ of Section 18 already contain typed constitutive stage profiles and interval-specific provenance. Later sections add recursive carry, lagged effects, provenance migration, and reopening witnesses. A graph, labelled cell complex, event ledger, process diagram, database schema, or other finite structure can encode selected parts of that history. None of those carriers is thereby identified with the subject or with the ultimate ontology of the history.

20.1 Admissible History Representations and Realization

Fix subject i , interval I , analytical resolution κ , diagnostic family δ , evidence base E , and a declared representation scheme ϑ . Let $\mathbf{HRep}_{i,I}^{\kappa,\delta;\vartheta}$ denote the class of admissible history representations under that scheme. A selected representation is written in Equation 99.

$$\mathfrak{R}_{i,I}^{\kappa,\delta;\vartheta} := \left(X_{i,I}^{\kappa,\delta;\vartheta}, \Lambda_{i,I}^{\kappa,\delta;\vartheta}, \text{Supp}_{i,I}^{\kappa,\delta;\vartheta}, \preceq_{\mathfrak{R}}, \text{Conn}_{\mathfrak{R}} \right) \in \mathbf{HRep}_{i,I}^{\kappa,\delta;\vartheta}. \quad (99)$$

Here X is the retained family of representational units, Λ is a family of typed labels, Supp records which units support which substantive objects, $\preceq_{\mathfrak{R}}$ records the temporal or historical ordering retained by the scheme, and $\text{Conn}_{\mathfrak{R}}$ contains whatever adjacency, incidence, route, or compositional structure the representation requires. Equation 99 is intentionally generic. A representation scheme may use events, regions, cells, institutional records, process nodes, or another finite carrier. The tuple states the minimum bookkeeping burden rather than a claim that all admissible representations share one natural geometry.

The relation between substantive history and representation is made explicit by Equation 100.

$$\text{HistReal}_{i,I}^{\kappa,\delta;\vartheta}(E) \subseteq \Gamma_{i,I}^{\kappa,\delta}(E) \times \mathbf{HRep}_{i,I}^{\kappa,\delta;\vartheta}. \quad (100)$$

Membership $(\gamma, \mathfrak{R}) \in \text{HistReal}_{i,I}^{\kappa,\delta;\vartheta}(E)$ means that $\mathfrak{R}$ is admitted as a representation of the distinctions retained by substantive history γ under the declared interpretation rules. The realization relation is allowed to be many-to-many. One substantive history can admit several representations, and one representation can remain compatible with several substantive histories when the carrier omits distinctions that the evidence or research question has not resolved.

This many-to-many design prevents two opposite errors. First, it prevents representational multiplicity from being redescribed automatically as substantive historical multiplicity. Two different diagrams can represent the same formation history. Second, it prevents a compressed representation from being treated as a complete reconstruction merely because it is internally coherent. One diagram can be compatible with several histories that differ in provenance, timing, or reopening structure.

20.2 Typed Support for Historical Objects

A representation must state which of its units support each substantive object that it claims to encode. Let $\text{Obj}(\gamma)$ be the family of substantive objects retained by history γ , including constitutive stage components, provenance tuples, carry relations, lagged witnesses, stage-indexed provenance records, and

Table 21: Substantive historical distinctions and corresponding representational burdens.

Substantive distinction	Representation should retain	Main failure if omitted
Constitutive stage profile	typed dimension and stage association	local state or manifestation can be mistaken for constitutive subject change
Formation provenance	bearer, target dimension, contribution type, and interval	temporal co-occurrence can be mistaken for generative contribution
Repeated stabilization	recurrence or retained carry across stages	repeated episodes can collapse into one isolated event
Delayed effect	early bearer and later diagnostic stage	visible onset can be mistaken for the beginning of the formative process
Provenance migration	changing provenance fibers across intervals	later self-maintenance can erase the role of earlier support, or vice versa
Reopening	prior retained formation, later route, target relation, and changed dimension	initial and final similarity can erase the intervening formation–revision history
Third-position pathway	bearer, focal relation, function type, and historical interval	mediation can be collapsed into direct dyadic influence or reified as permanent identity
Cross-level feedback	distinction among relational, manifestation, and reconstruction records	public or first-person descriptions can be treated as direct relational facts

reopening witnesses when those objects are defined. For $x \in \text{Obj}(\gamma)$, define its representational support by Equation 101.

$$\text{supp}_{\mathfrak{R}}(x) \subseteq X_{i,I}^{\kappa,\delta;\vartheta}. \quad (101)$$

The support in Equation 101 is representation-relative. It can contain one unit or several units, and different admissible realizations of the same history can use different supports. A constitutive change can be localized to one retained episode in one representation and distributed across several records in another. The substantive claim remains the typed change and its warranted provenance, not the number or dimension of representational units used to encode it.

The three-level discipline of Section 4 continues to constrain representation. Relational subject organization, manifestations, and subject-relative reconstructions may each receive distinct supports when the scheme represents them. Ontological reality remains suspended and therefore receives no positive carrier by default. A manifestation record and a relational subject-change record may occupy adjacent or even identical bookkeeping units without becoming identical objects.

Table 21 summarizes recurrent substantive distinctions and the minimum representational burden associated with them.

20.3 Preserving Formation, Stabilization, Migration, and Reopening

The representation layer must preserve the ordered distinctions that make co-formation historical. A carrier that records only an initial profile and a terminal profile is insufficient whenever the claim depends on stabilization, recursive formation, delayed effects, provenance migration, or reopening. In those cases, the intermediate history is part of the analytical object rather than expendable metadata.

For a substantive history γ and representation $\mathfrak{R}$ with $(\gamma, \mathfrak{R}) \in \text{HistReal}_{i,I}^{\kappa,\delta;\vartheta}(E)$, define the represented historical signature in Equation 102 as the family of supports actually retained by the scheme.

$$\text{HSig}_{\mathfrak{R}}(\gamma) := \left(\text{supp}_{\mathfrak{R}}(\mathfrak{e}_{i,t}^{\kappa,\delta}), \text{supp}_{\mathfrak{R}}(\text{II}), \text{supp}_{\mathfrak{R}}(\text{Carry}), \right. \\ \left. \text{supp}_{\mathfrak{R}}(\text{LagWit}), \text{supp}_{\mathfrak{R}}(\text{ProvSeq}), \text{supp}_{\mathfrak{R}}(\text{ReopenWit}) \right)_{\text{def}}. \quad (102)$$

where the subscript “def” means that only substantive objects actually defined for the selected history and representation are retained. Equation 102 is not a new state description. It is a bookkeeping device for checking whether the representation preserves the historical distinctions on which a later inference depends.

This preservation requirement is especially important for reopening. Suppose a subject has a constitutive profile at t_0 , undergoes a retained formation by t_1 , and reaches a later profile at t_2 that is diagnostically similar to the profile at t_0 . A representation that identifies the t_0 and t_2 profiles and deletes the t_1 formation can no longer support the historical claim developed in Section 19. The loss is substantive because the omitted interval can contain the very provenance, stabilization, resistance, and reopening structure that distinguishes recovery from non-occurrence.

The same applies to provenance migration. If an interpersonal support relation generates a competence that is later maintained through subject-relative practice or institutional infrastructure, a representation that stores only the current maintenance bearer can erase the earlier formative contribution. Conversely, a representation that permanently attaches the original helper to the later capacity can erase the later migration of maintenance and falsely imply continuing dependence. Historical representation therefore needs stage-indexed provenance rather than one timeless source label.

20.4 Optional Cellular Specialization

One useful specialization of Equation 99 is a labelled cellular carrier. Let the selected oriented combinatorial 2-complex be defined in Equation 103.

$$C_{i,I}^{\kappa,\delta;\vartheta} := \left(V_{i,I}^{\kappa,\delta;\vartheta}, E_{i,I}^{\kappa,\delta;\vartheta}, F_{i,I}^{\kappa,\delta;\vartheta}, \partial_{i,I}^{\kappa,\delta;\vartheta} \right). \quad (103)$$

Vertices, edges, and faces in Equation 103 have no fixed social semantics. A vertex may mark an episode, observation point, or bookkeeping site rather than a person. An edge may encode a tracking or provenance route rather than an interpersonal relation. A face may encode compatibility among several records rather than a “higher” social entity. Cell dimension therefore does not determine metaphysical level or constitutive importance.

A cellular realization can be useful when a study needs explicit incidence, branching, overlap, or localized versus distributed support. Formation and reopening can occupy overlapping regions; a provenance migration can be represented by a change in labelled support across stages; a third-position pathway can cross several regions without being represented by one dedicated “mediator cell.” The carrier can also make information loss under restriction or coarse-graining visually inspectable.

The cellular specialization is optional. A sequential ledger or event graph may be more faithful when the relevant history has no analytically useful two-dimensional incidence. A database-style representation may be preferable when evidence provenance and uncertainty dominate. The choice of a 2-complex therefore requires representational justification rather than inheritance by convention from Papers I–II.

20.5 Representation Fibres and Ambiguity

The many-to-many realization relation in Equation 100 generates two useful fibres. For a substantive history γ , define its representation fibre in Equation 104.

$$\begin{aligned} \text{RepFib}_{i,I}^{\kappa,\delta;\vartheta}(\gamma) &:= \left\{ \mathfrak{R} \mid (\gamma, \mathfrak{R}) \in \text{HistReal}_{i,I}^{\kappa,\delta;\vartheta}(E) \right\}, \\ \text{HistFib}_{i,I}^{\kappa,\delta;\vartheta}(\mathfrak{R}) &:= \left\{ \gamma \mid (\gamma, \mathfrak{R}) \in \text{HistReal}_{i,I}^{\kappa,\delta;\vartheta}(E) \right\}. \end{aligned} \quad (104)$$

The first fibre records representational multiplicity for one substantive history. A large representation fibre is not itself historical ambiguity; it may simply reflect several equally adequate encodings. The second fibre records substantive ambiguity left by one representation. When $\text{HistFib}(\mathfrak{R})$ contains histories that differ on a claim of interest, the representation is insufficient by itself to identify that claim.

This distinction provides a direct test for encoding artifacts. Let Φ be a partial diagnostic on admissible representations, with codomain $\mathcal{Y}_\Phi$ and declared equivalence $\approx_\Phi$. For a fixed substantive history γ , representation stability of Φ is stated in Equation 105.

$$\text{RepStable}_\Phi(\gamma) \iff \Phi(\mathfrak{R}_1) \approx_\Phi \Phi(\mathfrak{R}_2) \quad \text{for all defined } \mathfrak{R}_1, \mathfrak{R}_2 \in \text{RepFib}_{i,I}^{\kappa,\delta;\vartheta}(\gamma). \quad (105)$$

Failure of Equation 105 does not automatically refute the substantive history. It shows that the selected diagnostic depends on representation choice within the admitted scheme. The appropriate response can be to narrow the claim, refine the representation family, add a missing interpretation rule, or report representation sensitivity explicitly. Section 23 will develop the broader verification architecture.

20.6 Cross-Resolution Correspondence

Analytical resolution can change both the substantive history carrier and its representation. A coarse study may encode one “support episode” where a finer study distinguishes request, translation, authorization, performance, public recognition, and later reinterpretation. Conversely, a finer representation can introduce distinctions that are irrelevant to the constitutive diagnostic. Paper III therefore does not assume a universal coarse-graining function between resolutions.

Let κ and κ' be two declared analytical resolutions. The substantive cross-resolution correspondence is the relation in Equation 106.

$$\text{HistCorr}_{i,I}^{\kappa' \leftarrow \kappa, \delta}(E) \subseteq \Gamma_{i,I}^{\kappa, \delta}(E) \times \Gamma_{i,I}^{\kappa', \delta}(E). \quad (106)$$

A parallel representational correspondence is defined in Equation 107.

$$\text{RepCorr}_{i,I}^{\kappa' \leftarrow \kappa, \delta; \vartheta} \subseteq \mathbf{HRep}_{i,I}^{\kappa, \delta; \vartheta} \times \mathbf{HRep}_{i,I}^{\kappa', \delta; \vartheta}. \quad (107)$$

Neither relation is assumed functional. One coarse history can correspond to several finer reconstructions, and several fine-grained histories can collapse into one coarse description. Cross-resolution comparison is warranted only when the declared correspondences preserve the substantive distinctions required by the claim under study. A representation that preserves terminal constitutive equivalence but erases provenance migration may be adequate for one question and inadequate for another.

This point also limits visual or geometric intuitions. A topologically simpler carrier at coarse resolution need not indicate a simpler subject or a less complex history. A face that disappears under coarse-graining may have encoded a distinction that the coarser research question intentionally ignores, or it may have encoded a crucial third-position pathway whose omission invalidates the later claim. Representation change must therefore be interpreted through the substantive diagnostic rather than by geometric simplicity alone.

20.7 Representational Restraint and Interface with Finite Illustrations

The representation layer supports inspection, comparison, and finite verification without settling the ontology of subject formation. A successful realization shows only that the selected history can be encoded while preserving declared distinctions; it does not establish that a person is fundamentally a graph, cell complex, process network, database object, or another chosen carrier. Mathematical equivalence between carriers likewise does not establish numerical identity of represented subjects.

Apparent emergence requires the same restraint. A compact, recurrent, or higher-dimensional pattern witnesses an earlier substantive criterion only when its distinguishing structure realizes a defensible relational difference rather than an encoding artifact. Section 21 therefore uses finite diagnostic illustrations that declare the diagnostic family, local history family, representation scheme, and inference target before testing relational modification, constitutive reorganization, warranted co-formation, underdetermination, or reopening. The purpose is diagnostic stress testing, not proof of a uniquely correct carrier.

21 Finite Diagnostic Illustrations

The formal architecture developed in Sections 5–20 separates several claims that can appear similar in ordinary description: relational modification, constitutive reorganization, relation-specific co-formation, historical underdetermination, representation sensitivity, path dependence, and reopening. This section stress-tests those distinctions through finite local illustrations. Each case declares a restricted diagnostic domain, uses only the minimum formal objects required for the local inference, and states an explicit inference limit. The cases are diagnostic examples rather than empirical findings, universal taxonomies, or proofs that the selected representation is uniquely adequate.

Let the finite case index set be

$$\mathcal{I}_{\text{fin}} := \{\text{I, II, III, IV, V, VI}\}. \quad (108)$$

Equation 108 is only a bookkeeping device for this section. Table 22 summarizes the local burden assigned to each case before the cases are developed in detail.

Table 22: Finite diagnostic cases and their intended inference targets.

Case	Local configuration	Intended diagnostic conclusion
I	Repeated interaction changes coordination records, while the retained constitutive diagnostic remains stable	Relational modification without constitutive reorganization
II	A retained constitutive dimension changes, but every evidence-compatible provenance assignment excludes the focal relation	Constitutive reorganization without warranted focal-relation co-formation
III	A tracked subject has one changed constitutive dimension whose evidence-compatible provenance assignments robustly include the focal relation	Scoped warranted co-formation
IV	Constitutive change is established, but admissible provenance assignments disagree about focal-relation inclusion	Co-formation provenance underdetermination
V	Two admitted representations of one substantive history produce nonequivalent diagnostic outputs	Representation-sensitive diagnosis requiring qualification or refinement
VI	An early retained formation changes later continuations and is subsequently loosened through a new constitutive pathway	Path-dependent formation followed by historically constrained reopening

21.1 Case I: Relational Modification with Constitutive Stability

Consider a tracked subject B participating in a short volunteer coordination episode with A . The episode changes the timing of messages, the immediate division of tasks, and a local record of who performs which action. Let the application diagnostic retain only practical horizon and generative capacity,

$$Q_{\delta_I} := \{q_{\text{hor}}, q_{\text{cap}}\}. \quad (109)$$

Equation 109 fixes the local comparison domain. Suppose both retained dimensions are resolved and equivalent across the comparison interval $[t_0, t_1]$. Then Equation 16 yields

$$\text{CVerd}_{B, t_1 \leftarrow t_0}^{\kappa, \delta_I} = \text{equivalent}, \quad \text{Chg}_{B, t_1 \leftarrow t_0}^{\kappa, \delta_I} = \emptyset. \quad (110)$$

Equation 110 is compatible with genuine relational change in the sense of Section 2.1. The support episode may matter to the relation, alter expectations during the episode, and produce new records without satisfying the declared burden for subject-constitutive reorganization.

The inference is intentionally local. If a broader diagnostic retained recognition, self-reconstruction, or role organization, the same episode could require a different verdict. Case I therefore illustrates diagnostic-relative stability rather than an assertion that the subject changed in no possible constitutive respect.

21.2 Case II: Constitutive Reorganization with Relation-Excluding Provenance

Let B undergo a retained change in generative capacity during an interval in which a volunteer relation with A is also active. The changed-dimension set is

$$\text{Chg}_{B,t_1 \leftarrow t_0}^{\kappa, \delta_{\text{II}}} = \{q_{\text{cap}}\}. \quad (111)$$

Assume the evidence-compatible provenance family for q_{cap} contains several admissible assignments, but every assignment attributes the retained capacity change to B 's independent practice and an institutional training programme while excluding the focal relation AB . Using the provenance status defined in Equation 26, the local status is

$$\text{RelProvStat}_{B|AB,t_1 \leftarrow t_0}^{\kappa, \delta_{\text{II}}}(q_{\text{cap}}; E) = \text{excluded}. \quad (112)$$

Equations 111–112 support a constitutive-reorganization claim while withholding a focal-relation co-formation claim. Temporal overlap with the volunteer relation does not overcome the provenance burden established in Section 7.

Case II also prevents a common retrospective attribution error. The fact that A was present during a formative period does not by itself make A a provenance bearer for every later retained competence. The local conclusion is compatible with AB contributing to other dimensions not retained in δ_{II} .

21.3 Case III: Scoped Co-Formation from One Robust Constitutive Witness

Consider a longer support relation in which A repeatedly assists B in learning a procedure, while B practices independently and later retains the competence after the direct support ends. Let the diagnostic retain capacity, practical horizon, and self-reconstruction,

$$Q_{\delta_{\text{III}}} := \{q_{\text{cap}}, q_{\text{hor}}, q_{\text{self}}\}. \quad (113)$$

Suppose capacity is established as constitutively changed, practical horizon remains unresolved, and self-reconstruction is equivalent. Assume further that every evidence-compatible provenance assignment for the capacity change includes the focal relation as one material contributor, while also retaining B 's own practice as another contributor. The witness set from Equation 27 is then stated in Equation 114.

$$\text{CFWit}_{B|AB,t_1 \leftarrow t_0}^{\kappa, \delta_{\text{III}}}(E) = \{q_{\text{cap}}\}. \quad (114)$$

Equation 113 records the three retained dimensions for this local case. If warranted tracking also holds, Equation 28 yields

$$\text{WCF}_{B|AB,t_1 \leftarrow t_0}^{\kappa, \delta_{\text{III}}}(E). \quad (115)$$

Equation 115 licenses a scoped co-formation claim concerning the retained capacity transformation. It does not imply that A produced the whole later subject, that the change was exclusively caused by A , or that the practical-horizon dimension should be imputed as changed merely because it remains unresolved.

This case also illustrates why the framework allows one robust witness to be sufficient. Requiring every retained dimension to be resolved and relation-generated would make co-formation claims depend on a completeness burden that is often unnecessary for a local historical argument. The scope of the conclusion remains tied to the witnessed dimension and declared interval.

21.4 Case IV: Constitutive Change with Provenance Underdetermination

Suppose B develops a retained role-position reorganization during a period containing repeated interaction with A , institutional reassignment, and a public recognition event. The role dimension is resolved as changed in Equation 116.

$$q_{\text{role}} \in \text{Chg}_{B, t_1 \leftarrow t_0}^{\kappa, \delta_{\text{IV}}} \quad (116)$$

The evidence, however, admits two provenance assignments. In one, the focal relation materially contributes to the later sedimented role; in the other, the institutional reassignment and public recognition suffice to explain the retained role organization without a material contribution from AB . The evidence-compatible provenance family therefore contains both relation-including and relation-excluding possibilities. Using Equation 26, the resulting provenance verdict is stated in Equation 117.

$$\text{RelProvStat}_{B|AB, t_1 \leftarrow t_0}^{\kappa, \delta_{\text{IV}}}(q_{\text{role}}; E) = \text{underdetermined}. \quad (117)$$

The appropriate conclusion is constitutive reorganization with focal-relation provenance underdetermination. A binary verdict that either credits or excludes the volunteer relation would exceed the current evidence.

Case IV is useful because the uncertainty concerns provenance rather than whether subject change occurred. Additional evidence can therefore target the disputed intermediate pathway: records of how the role was assigned, repeated interaction sequences, institutional decision traces, testimony, or later evidence showing which prior relation actually governed the sedimented expectation.

21.5 Case V: Representation-Sensitive Diagnosis

Let γ be one admitted substantive history with formation, provenance migration, and later stabilization. Suppose two representations $\mathfrak{R}_1$ and $\mathfrak{R}_2$ belong to its representation fibre in Equation 104. Representation $\mathfrak{R}_1$ preserves the distinction between the initial interpersonal provenance bearer and the later institutional maintenance bearer. Representation $\mathfrak{R}_2$ compresses both stages into one timeless “support source” label.

Let Φ_{mig} be a partial diagnostic whose target is whether provenance migration is represented. The finite case assumes

$$\Phi_{\text{mig}}(\mathfrak{R}_1) \not\approx_{\Phi_{\text{mig}}} \Phi_{\text{mig}}(\mathfrak{R}_2), \quad \mathfrak{R}_1, \mathfrak{R}_2 \in \text{RepFib}_{i, I}^{\kappa, \delta; \vartheta}(\gamma). \quad (118)$$

Equation 118 is a finite witness of failure of the representation-stability condition in Equation 105. The conclusion is representation sensitivity for the migration diagnostic, not that the substantive history is internally inconsistent.

A suitable repair depends on the research question. The analyst may exclude $\mathfrak{R}_2$ from the admissible family for provenance-migration questions, refine its stage indexing, narrow the claim to a terminal-state question that does not require migration information, or report the sensitivity explicitly. Case V therefore stress-tests the representational restraint developed in Section 20.

21.6 Case VI: Path-Dependent Formation and Reopening

Consider two branch-comparable histories γ_a and γ_b for the same tracked subject. In γ_a , an early support relation contributes to a retained role structure, the role later narrows refusal capacity, and an institutional pathway subsequently enables reinterpretation and role dissolution. In γ_b , the early role never stabilizes. Assume the two histories satisfy the local branch-comparison condition in Equation 85.

At an intermediate stage t_1 , the terminal profiles of the two branches are diagnostically nonequivalent, so the local path-dependence condition in Equation 86 is satisfied. Later, at t_2 , branch γ_a contains the realized reopening witness stated in Equation 119, targeting the earlier role formation.

$$\text{RWit}_{i, q_{\text{role}}, t_2 \leftarrow [t_0, t_1]}^{\kappa, \delta} \neq \emptyset. \quad (119)$$

Suppose the later role profile in γ_a becomes diagnostically equivalent to the corresponding role profile in γ_b . Historical equivalence still does not follow, because γ_a retains the sequence of formation, stabilization, constraint, resistance, and reopening, whereas γ_b does not. The local comparison can therefore be summarized by

$$d_{q_{\text{role}}}(\mathcal{K}_{i,t_2}^{\kappa,\gamma_a}) \approx_{q_{\text{role}}} d_{q_{\text{role}}}(\mathcal{K}_{i,t_2}^{\kappa,\gamma_b}), \quad \gamma_a \not\sim_{\text{hist}}^{\kappa,\delta} \gamma_b. \quad (120)$$

Equation 120 restates the historical distinction developed in Sections 18–19 in a finite local case. Reopening can loosen or dissolve an earlier structure without deleting its historical contribution or restoring an untouched earlier subject.

21.7 Diagnostic Lessons from the Finite Cases

The six cases show that the Paper III framework supports several distinct verdicts without forcing them into a single hierarchy. Case I separates relational modification from subject-constitutive change. Case II separates constitutive reorganization from focal-relation co-formation. Case III shows how one robust constitutive witness can support a scoped co-formation claim. Case IV preserves provenance uncertainty after constitutive change has already been established. Case V isolates representation sensitivity from substantive historical inconsistency. Case VI shows how path dependence and reopening can coexist with later terminal similarity.

The cases also reveal a common discipline. A local diagnosis should declare the comparison interval, diagnostic family, tracking or successorship assumption, evidence base, provenance target, representation family when relevant, and the exact inference being tested. Table 22 is therefore better read as a set of reusable diagnostic templates than as a taxonomy of social situations.

No case establishes a universal ordering among forms of subject change. None assigns normative valence to formation or reopening. None implies that the chosen finite carrier is ontologically privileged. Their role is narrower: to demonstrate that the formal distinctions developed in the paper remain nontrivial when instantiated in small, inspectable configurations. Section 22 turns from these local diagnostics to the metaphysical interpretation of relational individuality, persistence, agency, and alterity that the framework can support without dissolving the subject into the relation.

22 Metaphysical Interpretation of Relational Individuality

The formal architecture developed in Sections 3–21 supports a limited metaphysical interpretation of subject individuality under relational change. The purpose of the present section is interpretive rather than ontological or normative. It asks what can be said about persistence, individuality, agency, alterity, and co-formation when subjects are represented as history-bearing relational beings whose constitutive organization can change without requiring numerical replacement. The argument proceeds through seven claims: persistence is historical rather than static; relational constitution is compatible with subject distinction; agency can be scaffolded without being erased; alterity places a limit on complete reconstruction; co-formation does not imply fusion or symmetry; reopening preserves historical remainder; and none of these claims resolves ultimate subject ontology.

22.1 Historical Persistence and Relational Individuality

Section 6 distinguishes tracking continuity from constitutive equivalence. That distinction carries a direct metaphysical implication within the present framework. A subject can remain the same focal historical individual for purposes of longitudinal inquiry while undergoing retained changes in capacity, practical horizon, role organization, evaluative orientation, recognition, boundary organization, or self-reconstruction. Persistence therefore does not require structural stasis.

The relevant individuality is historical. The subject is tracked through an organized sequence of relations, capacities, memories, commitments, institutional positions, practical possibilities, and revisions whose configuration can change over time. The model does not identify individuality with an immutable

core extracted from those histories. It also does not reduce individuality to whatever attributes happen to be present at one time. What persists analytically is a warranted historical trajectory whose continuity remains sufficient for the declared research purpose.

This interpretation makes room for strong transformation without converting every transformation into replacement. A subject may learn a capacity that reorganizes later possibilities, internalize and later dissolve a role, reinterpret an earlier support history, or acquire a new institutional interface while remaining the same tracked subject. Section 19 further shows that later reopening can reorganize a previously stabilized formation without restoring an untouched earlier state. Relational individuality is therefore compatible with cumulative history, revision, and retained remainder.

The framework also preserves a boundary to this claim. Tracking continuity is model-relative and evidentially warranted; it is not a proof of numerical identity in an ultimate metaphysical sense. The successorship structures introduced in Section 6 remain available precisely for cases in which ordinary same-subject tracking becomes inadequate, including splitting, merging, reidentification, and discontinuous succession.

22.2 Relational Constitution and Subject Distinction

The co-formation criterion in Section 8 treats some subject-level reorganizations as historically generated through relations. This permits a relational account of constitution without treating the relation as the only real unit of analysis. The focal subject remains distinguishable from the relation, from the other participant, from institutional or public third positions, and from the representations through which any of these become manifest.

Relational constitution therefore concerns dependence of formation history, not collapse of analytical boundaries. A practical horizon can be reorganized through a support relation while remaining the practical horizon of the focal subject. A capacity can be learned through another person, an institution, or a technical scaffold while becoming part of the subject's retained competence. A role can be socially attributed and later become sedimented in subject-level organization without making the subject identical to that role. Recognition can alter standing, access, or self-reconstruction without turning the recognizing public into a component of the subject by definition.

This distinction is especially important for the language of "relational being." Within the present framework, relationality means that the subject's stable and causally efficacious organization can depend on historically generated relations. It does not mean that every external relation is constitutive, that subject boundaries are arbitrary, or that all distinctions between self and other disappear. Section 5 requires an explicit diagnostic precisely because only some retained structures are relevant to a particular constitutive claim.

The resulting picture is one of distinguishability without relational isolation. Subjects can be individually tracked and held analytically distinct while their capacities, values, practical horizons, roles, memories, and interfaces remain partly generated through relations that precede and exceed any single act of self-authorship.

22.3 Agency through Relationally Supported Capacity

Sections 10 and 12 support an account of agency that does not require autarky. Practical possibility can depend on translators, institutions, assistive technologies, legal representatives, collaborators, infrastructures, or other durable supports while still being attributable to the focal subject when the relevant routes are retained, usable, and subject-relative under the declared diagnostic.

The metaphysical implication is modest but important. Relational dependence and agency are not mutually exclusive categories within this framework. A subject can exercise agency through stable relations that expand or sustain its capacity to initiate, maintain, refuse, revise, or redirect action. Dependence becomes analytically significant when the enabling route is controlled by another bearer, is fragile, is revocable without the subject's participation, narrows refusal, or substitutes for retained competence.

These possibilities require typed analysis rather than an assumption that independent action is the only genuine form of agency.

The same point applies to self-reconstruction. Section 13 gives first-person reconstruction distinctive evidential standing while allowing self-interpretation to be historically mediated by language, memory, public descriptions, institutions, and prior relations. Agency can include the capacity to reinterpret those materials, contest them, refuse them, or reorganize their practical consequences. A relationally formed subject can therefore remain an agent of later revision even when the resources of revision were themselves historically acquired through relations.

This interpretation avoids two opposite simplifications. One treats relational dependence as evidence that agency is merely apparent. The other treats any action performed by a tracked subject as fully self-originating. The present framework supports a more differentiated analysis in which agency can be relationally scaffolded, unevenly distributed, historically acquired, constrained, and later reopened.

22.4 Alterity and the Limits of Reconstruction

The three-level architecture in Section 4 and the reconstruction analysis in Section 13 preserve a distinction between the subject, the subject's manifestations, and the reconstructions produced by self or others. This distinction gives alterity a formal role. Another subject is never exhausted, within the present model, by the representation through which it becomes accessible to an observer, institution, helper, public, or analyst.

Alterity here does not require a claim that another subject is absolutely unknowable. The framework permits increasingly rich and well-supported reconstruction through history, testimony, interaction, institutional records, practical response, and other evidence. The limitation is more specific: successful reconstruction remains a relation to the subject rather than an identity with the subject. Public recognition can be influential while inaccurate; self-reconstruction can be deeply informative while revisable; institutional classifications can control access while remaining contested.

This limit matters for volunteer and support relations because intervention often depends on claims about what another subject needs, values, can do, or should become. The metaphysical architecture therefore supports a standing requirement of revisability in interpretation. A helper's model of the supported subject may guide action without becoming the supported subject's essence. A public or institution may stabilize a role without thereby settling the subject's own future possibilities. Section 15 shows that even inaccurate recognition can become generatively consequential, which makes the distinction between relational efficacy and exhaustive truth especially important.

Alterity also places a limit on the language of co-formation. To say that a relation contributes to subject formation is not to say that either participant fully authors, owns, or understands the other's becoming. Mixed provenance, distributed third-position pathways, unresolved dimensions, and later reopening all preserve room for trajectories that exceed the intentions and interpretations of any one participant.

22.5 Co-Formation without Fusion or Symmetry

Section 17 establishes that co-formation can be bilateral while remaining asymmetric across kind, persistence, reversibility, revision capacity, exposure, and provenance. The metaphysical interpretation is therefore incompatible with an image of two subjects merging into a single homogeneous relational unit. Co-formation concerns historically coupled change among distinguishable subjects.

The same relation can contribute to different transformations in A and B. One participant may acquire retained competence while the other develops a sedimented role identity. One may gain practical alternatives while the other becomes more publicly exposed. One transformation may persist while another is later reopened. These differences are preserved as typed historical facts rather than averaged into a common quantity of mutual influence.

Nor does co-formation imply reciprocity, consent, benefit, or moral equality. The formal criterion established in Section 8 is descriptive and historical. It can be satisfied in supportive, exploitative, pa-

ternalistic, coercive, emancipatory, ambivalent, or normatively mixed relations, depending on premises that lie outside the present metaphysical criterion. The later justice, ethics, and power papers therefore remain necessary.

Co-formation is also compatible with one-sided warrant. A relation may be shown to have materially contributed to a constitutive reorganization of B while no corresponding constitutive reorganization of A is established. The term “co-formation” refers to formation through relation, not to equal transformation of all participants.

22.6 Historical Remainder, Reopening, and Non-Teleology

Sections 18 and 19 make subject formation temporally non-teleological. A formation can stabilize, become constraining, be resisted, partially dissolve, migrate into another bearer, or be reorganized through later capacities and relations. A later configuration can resemble an earlier one while remaining historically nonequivalent because the intervening history leaves retained memories, concepts, institutional records, competencies, dependencies, or revision routes.

This historical remainder limits restoration metaphors. Reopening need not recover an original, pre-relational subject. The subject that resists a role, recovers a capacity, or revises a self-understanding does so from within a history that has already altered the available materials of action and interpretation. Revision can therefore be real without implying erasure of the path through which the earlier structure formed.

The same point limits developmental narratives. Expansion of practical horizon, increased capacity, stronger recognition, or role stabilization can be important constitutive changes without automatically representing progress. Narrowing, dependency, loss, and constraint can also be constitutive. Later reopening can create new possibilities without automatically constituting emancipation or justice. The metaphysical framework therefore describes trajectories of formation and revision while leaving their normative evaluation open.

Non-teleology also preserves genuine contingency. Section 18 treats branch sensitivity and delayed effects without imposing a universal deterministic law. The subject’s later organization can depend on sequence, repetition, institutional uptake, third-position mediation, and later acts of resistance. The history is structured, but its structure need not imply an inevitable endpoint.

22.7 Interpretive Commitments and Metaphysical Limits

Table 23 summarizes the principal metaphysical interpretations supported by the formal architecture and the stronger conclusions that remain outside its scope.

Table 23: Interpretive commitments supported by the Paper III architecture and corresponding limits.

Theme	Supported interpretation	Conclusion not established
Persistence	A tracked subject can persist through retained constitutive reorganization.	Numerical identity in ultimate ontology.
Relational constitution	Subject organization can be historically generated through relations while the subject remains analytically distinguishable.	Dissolution of subject distinction into a relation or field.
Agency	Agency can be exercised through retained relational scaffolds and acquired capacities.	Complete independence, unrestricted autonomy, or absence of dependency.
Alterity	Manifestation and reconstruction can support knowledge without exhausting the subject represented.	Absolute unknowability or equivalence of all interpretations.
Co-formation	Relations can contribute to constitutive change in one or several distinguishable subjects.	Symmetry, fusion, reciprocity, benefit, consent, or moral approval.
Reopening	Later subject reorganization can loosen or displace previously stabilized formations while preserving historical remainder.	Restoration of a pristine earlier subject or automatic emancipation.
Ontology	Relational individuality is a productive model of relational reality under ontological suspension.	Proof that relational metaphysics is the ultimate ontology of subjects.

The strongest metaphysical conclusion available at this stage is therefore deliberately limited. Within the GR framework, a subject can be treated as a history-bearing relational individual whose constitutive organization may be partly generated, stabilized, contested, and reopened through relations while remaining sufficiently distinguishable for tracking, agency attribution, disagreement, responsibility analysis, and later normative evaluation. This position rejects neither individuality nor relational constitution. It treats individuality as historically organized and relationally sustained without making relational dependence equivalent to fusion.

Ontological suspension remains in force. The formal and interpretive success of the model does not establish what a subject ultimately is, whether relational individuation exhausts personhood, or whether some non-relational ground of identity exists outside the model. The present contribution is methodological and metaphysical in a narrower sense: it identifies a coherent way to discuss persistence and constitutive change together, to preserve agency and alterity within relational formation, and to formulate subject co-formation without presupposing either atomistic independence or ontological dissolution. Section 23 turns from this interpretive layer to the verification architecture required for claims about co-formation in formal, representational, and empirical inquiry.

23 Verification Architecture for Co-Formation Claims

This section specifies how claims of subject co-formation should be checked, delimited, and reported within the present framework. Its role is methodological. Sections 5–21 developed diagnostic, provenance, historical, representational, and finite-case resources for identifying subject-constitutive change and relation-specific formation; Section 22 then interpreted those resources at the level of relational metaphysics. The present section separates the burdens that an application must discharge before moving among formal, representational, empirical, normative, and ontological claims. The method is diagnostic rather than foundational: success at one burden does not automatically settle another.

Five burdens organize the verification architecture: formal coherence, representation robustness, empirical identification, normative independence, and ontological interpretation. Table 24 summarizes their

Table 24: Distinct burdens in the verification architecture for subject co-formation.

Burden	Primary object	Typical test or evidence	Stronger conclusion requiring independent support
Formal coherence	Types, definedness, diagnostics, tracking, provenance, and historical composition	carrier audit, dependency audit, equation-level definedness, finite calculation	empirical truth
Representation robustness	Boundary, resolution, segmentation, coding, and mathematical carrier	comparison across an admitted representation family	representation-independent ontology
Empirical identification	Candidate histories compatible with observed manifestations	coding protocol, longitudinal evidence, process tracing, triangulation, discriminating observations	normative validity
Normative independence	Evaluation of the established formation history	explicit ethical, political, legal, or justice premises	descriptive or causal fact from normative approval alone
Ontological interpretation	Relation between the model and claims about what subjects ultimately are	separate metaphysical argument under explicit assumptions	identification of a successful carrier with ultimate ontology

roles. Their ordering reflects a practical research workflow rather than a hierarchy of epistemic importance. A formally coherent model can remain empirically underidentified; an empirically supported co-formation history can remain normatively ambivalent; and a useful representation can remain silent about ultimate ontology.

The architecture is also level-sensitive. Manifestation-level materials can be coded from records, observations, testimony, technical logs, institutional documents, or other admissible evidence. Relational-reality histories can then be reconstructed as candidates supported by those manifestations under declared interpretation rules. Ultimate ontological reality remains suspended. Verification therefore concerns warranted use of the model at relational and manifestation levels rather than direct confirmation of an ultimate ontology of subjects.

23.1 Formal Coherence and Dependency Audit

Formal verification begins with the declared carriers and dependency structure of the manuscript. A co-formation claim should preserve the type, index, definedness, and scope conditions of every object on which it depends. This requirement includes the focal subject and comparison interval; analytical resolution κ ; diagnostic specification δ ; the constitutive carrier and its partial diagnostics; the tracking or successorship relation; the changed and unresolved dimension sets; the provenance family; any third-position pathway; and the historical and representational carriers used in the application.

The dependency audit is substantive as well as notational. A claim of co-formation should inherit the sufficient criterion in Equation 28 rather than replace it with a proxy such as frequency of contact, self-reported importance, number of changed attributes, or persistence of a role label. A path-dependence claim should inherit the branch-comparison burden in Equation 86; a reopening claim should reuse the reopening witness architecture of Section 19; and a representation-stability claim should use the history-realization and representation-fibre machinery of Section 20.

A formal audit should therefore record, for each nontrivial object used in an application, at least: its carrier; its source and target when it is a map or relation; any partiality condition; its historical interval and analytical resolution; its diagnostic and subject indices; the GR reality level represented; the admissible comparison relation; and the prior objects from which it is derived. A mathematically well-typed claim remains limited to formal admissibility. Correct typing does not establish that the empirical episode has been reconstructed correctly or that the resulting formation is ethically justified.

23.2 Representation Robustness and Resolution Sensitivity

Section 20 separates substantive histories from their representations through the many-to-many realization relation in Equation 100. Verification should preserve that separation. A result that appears only under one optional segmentation, resolution, or encoding may remain useful, but its representational dependence should be reported rather than suppressed.

For a fixed substantive history, Equation 105 already defines stability of a diagnostic across admissible representations. The verification task is therefore to specify the admitted representation family and test the retained conclusion against reasonable alternatives. Relevant variations can include historical segmentation, stage boundaries, diagnostic granularity, event identifiers, provenance-link retention, subject or role typing, third-position encoding, audience specification, and mathematical carrier. Cross-resolution comparison should additionally respect the substantive and representational correspondence relations in Equations 106 and 107.

Representation sensitivity has several possible interpretations. It may indicate that the research claim depends on a substantively meaningful resolution choice; that an encoding omitted a distinction required by the claim; that two coding conventions treat an ambiguous manifestation differently; or that the diagnostic itself is too coarse or too fragile. The appropriate response can therefore be to narrow the claim, refine the representation family, preserve multiple admissible encodings, collect discriminating evidence, or state the dependence explicitly. Representation disagreement alone does not establish substantive historical contradiction, as illustrated by Case V in Section 21.

23.3 Empirical Coding, Relational Reconstruction, and Identifiability

Empirical verification requires an explicit interface between observed materials and the relational-history objects used by the formalism. The interface should preserve the distinction developed in Section 4: observed or recorded manifestations do not directly reveal relational reality, and relational reconstruction remains epistemically mediated.

Let $\mathcal{E}_{i,I}^\zeta$ denote an empirical evidence carrier for focal subject i over interval I under empirical specification ζ . The specification can include source selection, temporal segmentation, coding rules, uncertainty handling, and admissibility conditions. Let $\widehat{\mathcal{M}}_{i,I}^\zeta$ be the corresponding carrier of admissible manifestation-history codings. The observation-to-manifestation coding relation is defined in Equation 121.

$$\text{Code}_{i,I}^\zeta \subseteq \mathcal{E}_{i,I}^\zeta \times \widehat{\mathcal{M}}_{i,I}^\zeta. \quad (121)$$

Equation 121 is relation-valued because one empirical record can admit several manifestation codings. Ambiguous timing, disputed role interpretation, incomplete audience records, retrospective testimony, or uncertain event linkage can all make a single deterministic coding unjustified.

Manifestation histories are connected to candidate substantive formation histories through the reconstruction relation in Equation 122. Let $\widehat{\Gamma}_{i,I}^{\kappa,\delta;\zeta}$ denote the carrier of substantive histories considered admissible candidates under empirical specification ζ before a particular empirical record selects among them. This carrier can include histories of the form developed in Section 18 across the evidence-compatible reconstructions admitted by the local study.

$$\text{Recon}_{i,I}^{\kappa,\delta;\zeta} \subseteq \widehat{\mathcal{M}}_{i,I}^\zeta \times \widehat{\Gamma}_{i,I}^{\kappa,\delta;\zeta}, \quad (122)$$

Equation 122 does not assert that every manifestation coding has a unique relational interpretation. The reconstruction relation can remain one-to-many when several histories preserve the observed manifestations while differing in constitutive status, provenance, delayed effects, third-position pathways, or reopening.

For an empirical record $e \in \mathcal{E}_{i,I}^\zeta$, the corresponding candidate-history set is defined in Equation 123.

$$\text{Cand}_{i,I}^{\kappa,\delta;\zeta}(e) := \left\{ \gamma \in \widehat{\Gamma}_{i,I}^{\kappa,\delta;\zeta} \mid \exists m \in \widehat{\mathcal{M}}_{i,I}^\zeta : (e, m) \in \text{Code}_{i,I}^\zeta \wedge (m, \gamma) \in \text{Recon}_{i,I}^{\kappa,\delta;\zeta} \right\}. \quad (123)$$

Equation 123 turns empirical underdetermination into an explicit analytical object. The set can contain several histories that agree on some diagnostics and disagree on others. The resulting notion of empirical identifiability should therefore be diagnostic-relative rather than global.

Let Φ be a partial diagnostic on substantive histories with codomain $\mathcal{Y}_\Phi$. The empirical record e identifies Φ under the declared specification when Equation 124 holds.

$$\begin{aligned} \text{Ident}_\Phi^{\kappa,\delta;\zeta}(e) \iff \text{Cand}_{i,I}^{\kappa,\delta;\zeta}(e) \neq \emptyset \\ \wedge \exists y \in \mathcal{Y}_\Phi \forall \gamma \in \text{Cand}_{i,I}^{\kappa,\delta;\zeta}(e) : \Phi(\gamma) \downarrow \wedge \Phi(\gamma) = y. \end{aligned} \quad (124)$$

The symbol $\downarrow$ in Equation 124 means that the partial diagnostic is defined on the candidate history. This criterion permits partial empirical conclusions. Evidence may identify a capacity transformation while leaving value migration unresolved; it may identify public recognition while leaving self-reconstruction ambiguous; or it may establish constitutive change while leaving focal-relation provenance underdetermined. Those outcomes should be reported separately rather than compressed into a single validity score.

23.4 Constitutive and Provenance Burdens in Co-Formation Verification

The empirical interface does not replace the co-formation criterion. It determines which candidate histories remain compatible with the evidence; the constitutive and provenance architecture determines what claims those histories support. An empirical claim of tracked subject co-formation therefore requires convergence on the components of Equation 28: warranted tracking, at least one constitutively changed diagnostic dimension, and robust inclusion of the focal relation in the admissible provenance assignments for a changed dimension.

The verification sequence should retain the separations already built into Sections 6–8. Tracking can be unresolved while constitutive manifestations appear stable. Constitutive reorganization can be identified while focal-relation provenance is excluded, as in Case II of Section 21. Provenance can remain underdetermined even when the changed dimension is clear, as in Case IV. A local witness can warrant a scoped co-formation claim while other dimensions remain unresolved. Verification therefore asks which parts of the diagnostic chain are identified, excluded, or underdetermined under the current evidence and representation choices.

Evidence for one layer should not silently substitute for another. Repeated self-description can support a reconstruction claim without by itself establishing retained relational efficacy. A stable role label can support manifestation or institutional classification while the subject-constitutive role diagnostic remains unchanged. Observed performance can support capability of a coupled configuration while retained subject capacity remains unresolved. Public recognition can alter access or standing even when its descriptive content is inaccurate. The verification architecture should preserve these distinct inferential routes.

Empirical falsification is correspondingly local. A proposed co-formation account can fail because tracking cannot be warranted, the claimed constitutive dimension remains equivalent, the focal relation is robustly excluded from provenance, a required third-position pathway is unsupported, the claimed historical sequence is incompatible with the retained record, or the result disappears under reasonable representation changes. These failures do not have identical implications for the rest of the framework.

23.5 Boundary Adequacy and External Explanatory Burden

A focal volunteer or support relation is an analytical boundary rather than a closed causal world. Subject formation can depend on families, institutions, legal rules, markets, platforms, infrastructures, educational systems, publics, material resources, prior relationships, later collaborators, or other positions outside the focal A–B history. Verification should therefore examine whether the chosen boundary carries enough explanatory structure for the specific co-formation claim.

Boundary insufficiency appears when an omitted structure carries a material part of the claimed provenance while the internal model represents the transformation as though it were generated inside the focal relation. A helper may appear to generate a new practical horizon when an external institution actually creates the relevant access route. A role may seem to sediment through repeated dyadic interaction while a public or organization stabilizes the role through recognition and standing. A capacity may appear relation-generated when later practice and technical infrastructure carry most of its stabilization. The appropriate repair can be to widen the modeled system, introduce an explicit boundary condition, represent the omitted bearer in the provenance family, or narrow the claim.

Temporal boundaries require the same discipline. Short observation windows can miss pre-existing capacities, prior role histories, delayed effects, provenance migration, or later reopening. Section 18 already shows that endpoint comparison can miss history-sensitive structure. Verification should therefore justify the beginning and end of the historical interval as part of the claim rather than treating the observed window as naturally self-delimiting.

23.6 Normative Independence and Ontological Interpretation

Subject co-formation is a descriptive and metaphysical-historical diagnosis within the present model. Establishing that a relation contributed to a subject's retained capacity, value orientation, role organization, practical horizon, self-reconstruction, recognition structure, or boundary organization does not by itself determine whether the transformation was legitimate, beneficial, harmful, exploitative, paternalistic, emancipatory, just, or desirable. Those conclusions require independent normative premises and belong to the later justice, ethics, jurisprudence, and power interfaces of the research programme.

The same independence applies to consent and voluntariness. Consent can be normatively important while remaining insufficient to determine whether a formation was beneficial or non-dominating; conversely, a constitutive transformation can occur in the absence of consent without the descriptive co-formation criterion thereby endorsing it. Verification should therefore report normative assumptions explicitly whenever they are introduced rather than allowing descriptive terms such as "formation," "capacity," "recognition," or "reopening" to carry implicit evaluative force.

Ontological interpretation has an additional burden. Section 22 develops a relational account of persistence and individuality under ontological suspension. Successful empirical reconstruction or stable representation can strengthen the case that the framework is analytically useful for relational reality. It does not prove that subjects are ultimately graphs, event histories, relational fields, cellular complexes, diagnostic profiles, or any other representational carrier. Stronger ontological claims require independent metaphysical argument and should remain clearly distinguished from verification of the present formalism.

23.7 Failure Modes and Repair Strategies

Table 25 summarizes recurrent failure modes for applications of Paper III. The final column emphasizes repair because several failures call for narrower claims, revised representations, or additional evidence rather than abandonment of the framework.

Table 25: Selected failure modes and repair strategies for co-formation claims.

Failure mode	Diagnostic condition	Appropriate repair
Type or definedness failure	an object, comparison, or diagnostic is used outside its declared carrier or domain	repair the typing, restrict the domain, or retain an unresolved verdict
Tracking collapse	later material is treated as the same focal subject without satisfying the declared tracking rule	restore the tracking burden or move to successorship analysis
Constitutive overreach	relational, manifestational, or local state change is treated as subject-constitutive without an admitted diagnostic witness	justify the diagnostic or narrow the claim to the observed level
Provenance overreach	temporal overlap, testimony, or repeated interaction is treated as relation-specific generation	construct the evidence-compatible provenance family and retain underdetermination where required
Total-authorship overreach	one robust focal-relation witness is used to explain the subject's complete transformation	report the scoped witness and preserve mixed provenance and unresolved dimensions
Representation fragility	the conclusion changes across reasonable encodings, resolutions, or boundaries	report representation sensitivity, refine the carrier, or narrow the claim
Empirical underidentification	materially different candidate histories remain compatible with the evidence and disagree on the target diagnostic	retain multiple candidates or gather discriminating evidence
Cross-level collapse	manifestation, reconstruction, and relational reality are treated as interchangeable	restore the three-level architecture and explicit reconstruction relation
Boundary insufficiency	omitted social, institutional, material, public, or temporal structure carries essential explanatory burden	widen the model, encode an external bearer or boundary condition, or narrow the claim
Historical compression	endpoint similarity is used to erase provenance migration, path dependence, or reopening	restore the history-bearing comparison required by the target claim
Normative overreach	co-formation, stability, recognition, or capacity is treated as legitimacy, benefit, justice, or emancipation	introduce independent normative premises and domain-specific argument
Ontological overreach	a useful diagnostic or representational carrier is identified with ultimate subject ontology	preserve ontological suspension or supply a separate metaphysical argument

The table also clarifies the meaning of failure in a preliminary research programme. An application can fail at formal typing while remaining substantively suggestive; it can be formally coherent but representation-sensitive; it can be empirically informative while provenance remains unresolved; or it can establish a co-formation history while leaving normative evaluation open. Keeping these failures distinct allows revision at one layer without discarding conclusions that remain warranted at another.

23.8 Reusable Verification Protocol

A later application of the co-formation framework should record the following information whenever the corresponding object is used:

1. the research question, focal subject or subjects, comparison interval, analytical resolution, diagnostic specification, focal relation, and known external interfaces;
2. the tracking or successorship rule that defines the comparison target;
3. the retained subject-constitutive diagnostic family, including types, partiality, equivalence rules, and omitted dimensions;
4. the evidence supporting each claimed changed, equivalent, or unresolved constitutive dimension;

5. the provenance bearers, contribution types, and evidence-compatible provenance families supporting any relation-specific formation claim;
6. third-position, public, institutional, material, or infrastructural pathways where they contribute to the formation history;
7. the historical sequence relevant to path dependence, delayed effects, recursive carry, provenance migration, or reopening;
8. the substantive-history representation relation, admitted alternative encodings, and representation-stability result for each claim that depends on representation choice;
9. the empirical specification ζ , including evidence sources, segmentation, coding rules, uncertainty handling, and alternative manifestation codings;
10. the candidate substantive histories supported by the coded manifestations and the observations that discriminate among them;
11. the diagnostic-relative identifiability status of the tracking, constitutive, provenance, historical, and reopening claims actually reported;
12. the social, institutional, material, public, and temporal boundaries of the model and any known explanatory burden left outside them;
13. the independent normative premises used for claims about justice, obligation, legitimacy, harm, benefit, autonomy, dignity, paternalism, or emancipation;
14. the ontological status assigned to the formal and representational language and the conditions under which the application would be narrowed, revised, or rejected.

The protocol specifies the methodological status of Paper III. The manuscript provides a typed framework for tracking persistence, constitutive reorganization, relation-specific provenance, co-formation, differential formation, historical dependence, reopening, and optional representation. It does not provide a uniquely privileged empirical coding procedure, a complete causal identification strategy for every domain, a normative theory of good support, or a final ontology of persons. Those remain explicit interfaces for later empirical, ethical, jurisprudential, political, aesthetic, and metaphysical work.

Section 24 therefore turns from claim-level verification to programme-level inheritance. It identifies which parts of the present architecture later papers may reuse, which substantive burdens they must supply independently, and which future results would require backward revision of Paper III itself.

24 Programme-Level Research Interfaces

This section specifies how the subject-co-formation architecture developed in this paper may be inherited by later papers in the GR volunteer, aid, and support research programme. Its role is architectural rather than substantive. Paper III provides a typed language for tracking subjects through constitutive change, locating relation-specific formation provenance, comparing differential co-formation, representing path dependence and reopening, and reporting uncertainty. It does not thereby settle psychoanalytic interpretation, aesthetic judgment, justice, ethics, power, humanitarian standing, legal personality, adjudicative authority, social-contract membership, or legal duties of protection. Those remain independent research burdens.

Programme inheritance should therefore be selective. A later paper may reuse a Paper III construction only when that construction performs analytical work for the later paper's own research question. The later paper need not reproduce every diagnostic dimension, historical carrier, or representational device developed here. Conversely, later work should not silently strengthen the meaning of an inherited

Table 26: Reusable Paper III resources and their programme-level inference limits.

Reusable resource	What it can support downstream	What it does not establish by itself
History-bearing tracking	Longitudinal comparison of a focal subject or successor relation	immutable identity, numerical identity in every domain, or final ontology of persons
Three-level reality discipline	Separation of relational change, manifestation, and reconstruction	direct access to ontological subjectivity or first-person experience
Constitutive diagnostics	Application-relative identification of retained subject-structural change	an exhaustive definition of subjecthood or a scalar degree of personhood
Formation provenance	Evidence-supported contribution of relations, institutions, publics, infrastructures, or other bearers	unique causation, necessity, sufficiency, dominance, blame, or moral responsibility
Co-formation witness criterion	Scoped warrant that a focal relation materially contributed to a constitutively changed dimension	benefit, consent, justice, legitimacy, emancipation, domination, or ethical permissibility
Differential co-formation	Typed comparison of persistence, reversibility, revision capacity, exposure, provenance, and change kind	a single net amount of formation or a moral ranking of subjects
Path dependence and reopening	Historical sequence sensitivity, recursive carry, delayed effects, provenance migration, resistance, and later revision	determinism, irreversibility, restoration to a pristine earlier state, or historical necessity
Representation and verification	Explicit encoding, cross-resolution comparison, empirical underidentification, and representation-sensitivity analysis	privileged representation, complete causal identification, or empirical truth without evidence

object. If a later theory requires a different subject-tracking rule, a new constitutive dimension, a stronger provenance relation, a different notion of reopening, or a different treatment of subject uncertainty, the discrepancy should be stated as a backward-revision issue rather than absorbed by terminological drift.

Four interface questions organize the discussion:

1. Which Paper III commitments are stable enough to inherit?
2. Which constructions are reusable but optional?
3. Which substantive burdens must later papers supply independently?
4. Which later findings would require revision of Paper III itself?

24.1 Stable Commitments and Optional Constructions

The most stable commitments are methodological. Later papers may inherit the distinction among ontological suspension, relational reality, manifestation reality, and subject-relative epistemic reconstruction; the treatment of subjects as history-bearing comparison targets; the separation of tracking continuity from constitutive equivalence; the requirement that constitutive claims be diagnostic-relative; and the distinction between constitutive change and relation-specific provenance. These commitments constrain inference without predetermining the substantive theory developed downstream.

A second layer consists of optional constructions. Depending on the research question, later papers may reuse the constitutive diagnostic family, changed and unresolved dimension sets, the three-valued constitutive verdict, successorship relations, provenance fibres, or the co-formation witness criterion. They may also reuse domain-specific diagnostics for boundaries, practical horizons, values, capacities, self-reconstruction, roles, recognition, and third-position pathways. Historical comparison, differential co-formation, reopening, substantive-history realization, and the verification architecture of Section 23 remain available where they perform analytical work. None is mandatory merely because it appears earlier in the programme.

Table 26 summarizes the principal reusable resources and the inference limits that travel with them.

Table 27: Paper III interfaces with the remaining core Papers IV–IX.

Paper	Primary Paper III inheritance	Independent burden	Inference that remains unavailable from Paper III alone
IV	role-position history, self-reconstruction, repetition, boundary and recognition pathways	psychoanalytic account of desire, lack, identification, fantasy, repetition, and alterity	role sedimentation does not establish unconscious identification, rescue fantasy, desire, or psychoanalytic motivation
V	three-level reality, manifestation feedback, recognition, timing, historical retention	aesthetic differentiation, sensibility, form, fittingness, dignity, and explicit aesthetic judgment	constitutive or manifestation change does not establish beauty, grace, tact, aesthetic fittingness, or aesthetic value
VI	constitutive change, recognition, differential exposure, standing, historical provenance	criteria of distributive, procedural, recognitional, epistemic, and relational justice	asymmetry, dependence, misrecognition, or co-formation does not by itself establish injustice
VII	uncertainty, practical horizon, refusal, revision capacity, reopening, provenance	duties, permissions, restraint, competence, paternalism, supererogation, and ethical revisability	co-formation does not establish that intervention was permissible, obligatory, beneficial, or non-paternalistic
VIII	differential co-formation, access, dependency, gate-conditioned pathways, institutional and material provenance	theory of resources, control, structural power, symbolic capital, unpaid labour, and political economy	directional formative asymmetry does not by itself establish power, domination, exploitation, or resource control
IX	path dependence, recursive carry, provenance migration, representation across resolutions, reopening	system-level nucleation, stabilization, attractors, scale transition, institutionalization, and dissolution	an individual formation history does not establish system formation or macrohistorical significance

This distinction between stable commitments and optional constructions is important for programme cohesion. Reuse should reduce avoidable notation drift and repeated foundational argument, but it should not force later inquiries into an unnecessarily heavy formalism. In particular, a later paper should not introduce co-formation machinery merely because a relation is historically extended. The machinery is relevant only when subject-constitutive change is itself part of the research object.

24.2 Interfaces with the Core Papers IV–IX

Papers IV–IX study domains that are already latent in the subject-co-formation architecture but require new substantive theories. Table 27 records the principal interface for each paper.

Paper IV is especially sensitive to over-inference. Paper III can show that a helper or supportee role became retained, that a subject repeatedly reconstructed itself through that role, or that exiting the role became costly. Those findings may motivate psychoanalytic inquiry, but they do not establish desire, fantasy, identification, lack, or unconscious investment. The psychoanalytic paper must supply its own evidential and theoretical criteria.

Paper V has a parallel burden. Manifestation can participate in subject formation, and public or interpersonal form can feed back into later relational organization, but these facts do not constitute an aesthetic theory. Aesthetic salience, fittingness, dignity, rhythm, restraint, delicacy, awkwardness, or beauty require their own account rather than being inferred from retained manifestation effects.

Papers VI–VIII are likewise downstream rather than entailed. Paper III deliberately permits enabling, constraining, mixed, unwanted, welcomed, reversible, and durable formation histories. Whether a particular history is just, ethical, paternalistic, dominating, exploitative, or politically acceptable depends on normative and structural premises not contained in the co-formation criterion. Preserving this separation prevents descriptive relational metaphysics from quietly becoming moral theory.

Table 28: Conditional Paper III interfaces with Papers X–XVI under heterogeneous-subject conditions.

Paper	Potential inheritance	Independent burden	Possible pressure on Paper III
X	manifestation, reconstruction, recognition, practical-horizon effects, relational exposure	suffering attribution, epistemic translatability, recognition of vulnerability, and reasons for aid/support	subject-recognition may need to be modelled before stable subject tracking is admitted
XI	uncertainty, partial diagnostics, revisability, reopening, practical horizons	ethics of assistance under uncertain subjectivity and moral patienthood	co-formation analysis may require explicit subject-status uncertainty rather than a fixed focal-subject admission
XII	vulnerability histories, severe loss, provenance, institutional/public pathways	humanitarian standing, protection, intervention, non-intervention, and cross-subject severity criteria	irreversible destruction or radically heterogeneous persistence may exceed current reopening and successorship assumptions
XIII	history-bearing tracking, successorship, provenance, role/standing records	legal subjecthood, norm address, responsibility, sanctionability, culpability, rights, and procedural standing	copying, forking, merging, legal registration, or distributed control may require stronger identity/successorship machinery
XIV	third-position pathways, expertise, recognition, standing, revision/appeal structures	adjudicative authority, enforcement authority, legitimacy, contestability, and heterogeneous expertise	distributed adjudicative systems may require multi-subject or institutional formation objects beyond the present focal-subject scheme
XV	third-position mediation, shared norms, recognition, standing, path dependence	normative membership, representation, heterogeneous participation, mediator nomos, and shared social contract	collective or non-symmetric membership may require subject/collective boundaries unavailable in the present individual-centred diagnostics
XVI	uncertainty, standing, provenance, institutional pathways, practical access	legal permission, rights to assist, rescue duties, protection duties, intervention thresholds, and institutional responsibility	legal protection may need to operate before subjecthood or co-formation status is resolved

Paper IX inherits the strongest historical interface. Nevertheless, the scale of its object is different. Paper III can represent how subjects and relations carry history, but a theory of system formation must additionally explain when local formation events nucleate shared practices, institutional structures, public norms, relational attractors, or wider historical transformations. Scale transition remains a separate burden.

24.3 Interfaces with Heterogeneous-Subject Papers X–XVI

The appended heterogeneous-subject cluster creates a more demanding interface because some later cases may challenge assumptions that are merely convenient in the present paper. Papers X–XVI therefore inherit Paper III conditionally. They may reuse history-bearing subjects, manifestation/reconstruction distinctions, provenance, constitutive diagnostics, and reopening where those notions are applicable, while remaining free to revise the admission conditions under which a being is treated as a trackable subject at all.

Table 28 summarizes the current division of labour.

The first pressure concerns *subject admission*. Paper III begins once a focal subject or successor relation is sufficiently specified for longitudinal comparison. Papers X–XII may instead ask whether a heterogeneous being should be recognized as a possible subject, patient, sufferer, or recipient before that status is settled. Such work must not be forced into the current subject-tracking language prematurely. If subject-status uncertainty becomes formally central, Paper III may require an extension from tracking a declared subject to tracking a family of candidate subject interpretations.

The second pressure concerns *identity architecture*. Paper XIII may encounter copying, forking,

partial memory continuity, model replacement, distributed control, merger, or legal registration structures for which ordinary one-to-one tracking is inadequate. Section 6 already permits successorship, splitting, and merging, but later jurisprudential work may reveal that these structures require richer typed continuity relations. Legal identity and relational subject tracking should not be assumed to coincide automatically.

The third pressure concerns *heterogeneous manifestation and evidence*. Paper X asks how suffering or vulnerability becomes recognizable across beings with different bodies, cognitive architectures, expressive systems, or temporal scales. The present distinction between manifestation and reconstruction can be inherited, but the actual coding and calibration rules must be supplied independently. Failure of human-readable manifestation cannot be treated as absence of subject-relative states merely because Paper III's ordinary examples are human-centred.

The fourth pressure concerns *normative and legal pre-emption*. Papers XI, XII, and XVI may justify provisional assistance or legal protection before subject ontology, moral patienthood, legal personality, or co-formation history is fully resolved. Such protection would not contradict Paper III. It would show that normative or legal response can operate under a weaker evidential threshold than metaphysical identification. The verification architecture should therefore be inherited without turning its co-formation criteria into prerequisites for protection.

24.4 Backward-Revision Triggers

Programme inheritance is not one-directional. Later papers can reveal that an earlier formal distinction was underspecified, that an apparently optional dimension is structurally necessary in a wider class of cases, or that a current carrier cannot represent an important phenomenon without distortion. Paper III should be revised when such results are sufficiently supported rather than protected as a fixed foundation.

The following findings would constitute strong backward-revision triggers:

1. a later paper requires longitudinal comparison but cannot state a coherent tracking or successorship relation using the current architecture;
2. repeated applications identify a subject-constitutive dimension that cannot be represented as a typed diagnostic view of the current relational subject carrier;
3. later causal or historical analysis shows that the present provenance relation systematically collapses distinct contribution structures that matter for the research question;
4. collective, distributed, artificial, alien, or institutionally composite subjects require boundary or identity structures that cannot be represented without treating an entire network as an untyped focal individual;
5. subject-status uncertainty must itself persist through time and materially affect later formation, making fixed focal-subject admission inadequate;
6. later work shows that third-position or higher-arity formation is systematically nonrecoverable from the present dyadic/triadic interfaces and requires a richer compositional carrier;
7. later cases exhibit transformation, destruction, succession, copying, merging, or reopening patterns for which the current historical comparison relations produce contradictory or representation-dependent verdicts across equally admissible encodings;
8. empirical work repeatedly shows that the current diagnostic equivalence rules cannot distinguish substantive stability from measurement or coding artefacts;
9. a later normative or jurisprudential paper demonstrates that a term inherited from Paper III has acquired a misleading normative implication that cannot be repaired by local clarification alone;
10. cross-paper notation or definitions drift enough that the same symbol or concept no longer denotes a compatible object across the programme.

A backward revision need not invalidate every earlier result. The verification architecture of Section 23 permits local repair. A revised tracking rule may leave a value-orientation result intact; a richer provenance carrier may preserve the existence of constitutive change while revising attribution; a new subject-admission layer may extend the framework to heterogeneous cases without altering ordinary human dyads. Revision should therefore be targeted to the layer whose assumptions have failed.

24.5 Programme Coherence without Formal Uniformity

The purpose of a research programme is not to make every paper look mathematically identical. Programme coherence instead requires that inherited distinctions remain recognizable, that stronger claims announce their additional premises, and that local innovations do not silently redefine shared concepts. Paper III should therefore function as a reusable metaphysical and historical layer rather than a compulsory template.

This yields a practical inheritance discipline for later papers. A paper should first state which Paper III commitments it accepts, then identify the constructions it actually uses, state the new substantive burden it introduces, and list any backward-revision pressure it discovers. When a later paper does not need a co-formation diagnostic, it should not invoke one. When a later paper does rely on subject formation, it should reuse the established distinction among tracking, constitutive change, provenance, and co-formation unless it explicitly argues for revision.

The resulting programme is layered but revisable. Paper III contributes a language for historically constituted relational individuality. Later papers add psychoanalytic, aesthetic, normative, political-economic, humanitarian, jurisprudential, and system-level theories without being reducible to that language. Their results can in turn modify the conditions under which the present metaphysical framework remains adequate. Section 25 closes the paper by synthesizing this contribution, its limits, and the principal open problems that remain after the first complete formulation of the subject-co-formation architecture.

25 Foundational Synthesis of Subject Co-Formation

This concluding section synthesizes the subject-co-formation architecture developed in Paper III and states the scope of the resulting contribution. Its role is consolidative rather than additive: it introduces no new formal object, diagnostic, or representational carrier. The section first summarizes the paper's central analytical contribution, then states the integrated warrant structure for co-formation claims, clarifies the metaphysical and normative limits of the framework, identifies the principal unresolved problems, and closes the interface with the wider volunteer, aid, support, and heterogeneous-subject research programme.

25.1 Analytical Contribution and Scope

Paper III begins from a gap left intentionally open by Papers I–II. The earlier papers provide history-bearing subject carriers, tracking relations, role records, triadic contexts, manifestation and reconstruction layers, provenance structures, and historically revisable relational configurations. Those constructions permit the programme to state that a tracked subject has changed. Paper III develops the additional analytical layer required to ask whether a change is sufficiently retained, subject-relative, and historically consequential to count as a constitutive reorganization of the tracked subject, and whether the focal volunteer or support relation materially contributed to that reorganization.

The resulting framework separates four burdens that can otherwise be conflated. First, the analysis must specify whether the same focal subject, a successor, or a discontinuous configuration is being compared across the relevant interval. Second, a declared subject-constitutive diagnostic must identify which retained dimensions are relevant to the local research question and which remain unresolved. Third, a constitutive-change verdict must distinguish retained reorganization from relational modification, local

state variation, manifestation change, or descriptive reclassification. Fourth, a provenance analysis must establish whether the focal relation is robustly included among the historical contributors to at least one constitutively changed dimension. Section 8 combines these burdens into a sufficient model-relative criterion for tracked co-formation without converting the criterion into a universal definition of personhood or subject identity.

This architecture yields a deliberately scoped understanding of co-formation. The term refers to historically situated relational genesis in which a focal relation contributes to retained subject-level reorganization under a declared diagnostic. It does not require symmetry between participants, simultaneous change, benefit, consent, permanence, reciprocity, or exclusive causation. One participant may change while another remains diagnostically stable; two participants may change in different dimensions; a change may be enabling in one respect and constraining in another; and the same constitutive outcome may have distributed provenance across the focal relation, subject activity, institutions, publics, infrastructures, material conditions, and third positions.

The paper therefore treats co-formation as a typed historical claim rather than a global magnitude. Boundary organization, practical horizon, value orientation, generative capacity, self-reconstruction, role-position organization, recognition-mediated organization, and third-position pathways provide recurrent diagnostic families, but they do not constitute an exhaustive ontology of subjects. Their purpose is to support explicit, revisable claims about retained organization in concrete inquiries. The diagnostic family can be extended, restricted, or retyped when a research question requires another dimension, provided the revised diagnostic preserves the evidential, historical, and three-level distinctions established earlier in the paper.

25.2 Integrated Warrant Structure

The integrated architecture can be read as a sequence of increasingly demanding warrants rather than as a ladder of metaphysical certainty. Historical tracking or successorship makes longitudinal comparison possible. The constitutive diagnostic identifies which subject-level dimensions matter for the declared purpose. The three-valued constitutive verdict preserves the difference among equivalence, reconfiguration, and underdetermination. Provenance analysis then asks which relations, subjects, institutions, publics, infrastructures, or other bearers contributed to the changed dimension. A co-formation warrant becomes available only when these burdens converge under the evidence and analytical resolution declared by the inquiry.

This separation is important because the same empirical record can support different kinds of conclusions. A support episode may produce a visible relational change without a retained subject-constitutive transformation. A subject may undergo a constitutive reorganization while the focal volunteer relation is robustly excluded from the relevant provenance. The focal relation may be one material contributor among several without being necessary or sufficient. The evidence may establish constitutive change while leaving focal-relation provenance unresolved. A later reopening may loosen an earlier formation without erasing its historical reality. A coarse representation may preserve a terminal profile while losing the provenance migration or reopening structure required by a stronger historical claim. The verification architecture of Section 23 therefore treats formal coherence, empirical identification, representation robustness, normative appraisal, and ontological interpretation as distinct burdens.

Several consequences follow from this integrated view. Subject persistence can coexist with strong constitutive reorganization. Constitutive reorganization can coexist with later reopening. Terminal similarity can coexist with historical nonequivalence. Bilateral co-formation can coexist with multidimensional asymmetry. Relational scaffolding can participate in agency without implying autarky, while externally performed competence remains distinguishable from subject-relative capacity. Public or institutional recognition can become causally consequential without becoming an infallible description of the focal subject. Third-position pathways can be formative without thereby establishing irreducible triadicity. These distinctions allow the framework to represent historically thick subject change without treating every relation as constitutive or every constitutive change as normatively significant.

The framework also permits partial conclusions. A study can warrant capacity reorganization while leaving value orientation unresolved; identify role sedimentation while leaving self-reconstruction contested; establish a changed practical horizon while remaining uncertain about the contribution of the focal relation; or identify a historically material third-position pathway while leaving pairwise recoverability open. Such partiality is a feature of the architecture rather than a defect. It keeps the strength of a claim aligned with the evidential and representational burden actually satisfied.

25.3 Relational Individuality, Agency, and Historical Openness

The metaphysical interpretation developed in Section 22 can now be stated more compactly. Within the present GR framework, individuality is historically persistent and relationally constituted without being dissolved into relation. A subject can remain a distinct comparison target while its capacities, boundaries, values, roles, practical horizons, recognition structures, or self-reconstruction are partly generated through relations. The history-bearing subject carrier therefore supports persistence through change without requiring an immutable bundle of attributes.

Agency is similarly treated as relationally organized rather than defined by complete self-sufficiency. A subject may act through retained institutions, technologies, interpreters, assistive devices, collaborators, or other scaffolds when those relations form part of the subject's stable practical organization. At the same time, the paper preserves the distinction between a subject-relative capacity and an outcome performed entirely by another bearer. Relational dependence, practical agency, refusal capacity, and revision capacity can therefore vary independently and require typed analysis.

Historical openness is the second major metaphysical implication. Formation does not fix a subject permanently. Section 19 shows how resistance, de-internalization, role dissolution, capacity recovery, reinterpretation, rerouting, and recomposition can reorganize previously retained structures. Reopening need not restore an earlier subject state, and the historical remainder of earlier formation can continue to matter after the focal structure has loosened. Path dependence therefore coexists with revision, while historical persistence coexists with the possibility of later transformation.

These interpretations remain inside ontological suspension. The framework does not establish that persons ultimately are state spaces, complexes, profiles, relations, or histories. It provides a structured language for relational reality, manifestation, epistemic reconstruction, and historically warranted comparison. The representations introduced in Section 20 are therefore instrumental and application-relative. Their success does not convert a useful formal carrier into an ontological proof.

25.4 Limitations of the Present Framework

The present formulation has several important limitations. First, subject admission is assumed before most of the Paper III machinery becomes available. The framework can compare a declared focal subject, a successor, or a family of candidate histories, but it does not yet provide a general theory for deciding when an unfamiliar being should count as a possible subject, patient, sufferer, or participant in normative relations. The heterogeneous-subject papers identified in Section 24 are likely to place direct pressure on this assumption.

Second, the identity and successorship architecture remains preliminary. The framework accommodates one-to-one tracking, splitting, merging, reidentification, and many-to-many successorship at an abstract level, but it does not yet settle difficult cases involving artificial copying, memory divergence, distributed control, collective subjects, institutional composites, or radically heterogeneous temporal organization. Those cases may require a richer continuity structure than the present subject-label and successorship relations provide.

Third, provenance remains an evidentially disciplined contribution relation rather than a complete causal theory. The framework can represent mixed, delayed, mediated, recursive, and migrating provenance, but it does not estimate causal shares, prove necessity or sufficiency, or supply a general intervention calculus. Empirical applications will need domain-specific identification strategies and may reveal contribution structures that the present provenance carrier collapses too coarsely.

Fourth, the constitutive diagnostics remain application-relative. This flexibility protects the framework from an exhaustive checklist theory of subjecthood, but it also creates a burden of diagnostic justification. A poorly chosen diagnostic can miss an important transformation, overstate a superficial change, or make results sensitive to analytical resolution. The verification architecture mitigates this problem through explicit definedness, evidence, boundary, representation, and revision checks; it does not eliminate the need for substantive judgment.

Fifth, Paper III remains principally descriptive and metaphysical. It does not determine whether a co-formation process is ethical, just, beautiful, emancipatory, paternalistic, dominating, exploitative, humanitarian, legally valid, or politically legitimate. A relation can satisfy the co-formation criterion while being beneficial, harmful, mixed, contested, or normatively indeterminate. Later normative and political papers therefore require additional premises rather than reading evaluative conclusions directly from the historical architecture.

Sixth, the paper does not establish a complete empirical measurement model. Section 23 provides a relation-valued coding and reconstruction interface, but concrete operationalization remains domain specific. Longitudinal qualitative inquiry, institutional records, behavioral observation, interviews, historical reconstruction, computational traces, or mixed methods may support different parts of the architecture. The appropriate evidential design depends on the subject type, the constitutive dimension, the historical interval, and the strength of the claim being evaluated.

25.5 Priority Open Problems

Several open problems follow directly from the first complete formulation. One concerns higher-arity formation. Paper II provides triadic machinery, and Section 16 imports third-position pathways selectively, but some formation processes may depend on institutions, publics, infrastructures, or collectives whose contribution cannot be represented adequately through repeated dyadic or triadic restrictions. The conditions under which a richer higher-arity carrier becomes necessary remain open.

A second problem concerns subject-status uncertainty. Future work on animals, artificial systems, alien intelligence, severe capacity limitation, and other heterogeneous cases may require the programme to track competing interpretations of subjecthood itself through time. Such a framework would need to preserve the distinction between uncertainty about a being's ontological subjectivity and the relational or normative reasons that may already justify provisional protection, recognition, or assistance.

A third problem concerns collective and distributed subjects. Many support relations involve organizations, teams, publics, institutions, or technical systems whose boundaries and agency are neither reducible to a single natural person nor well described as a homogeneous aggregate. Extending co-formation analysis to such cases may require explicit collective-boundary, distributed-control, and nested-subject structures.

A fourth problem concerns comparative empirical methodology. The diagnostic architecture permits application-relative comparison, but systematic research will need methods for testing representation robustness, cross-resolution stability, provenance identification, delayed formation, reopening, and differential co-formation across cases. The finite illustrations of Section 21 show logical possibilities rather than empirical frequencies or effect sizes.

A fifth problem concerns the relation between formation and normativity. Papers VI–VIII and XI–XVI must determine when differential exposure, constrained revision, dependency, misrecognition, humanitarian vulnerability, legal standing, or institutional control becomes normatively significant. Paper III supplies historical objects that these papers may analyze, but the thresholds and justificatory principles remain to be developed independently.

A final open problem concerns backward revision across the programme. Later work may show that subject admission, successorship, provenance, reopening, representation, or diagnostic equivalence requires stronger or different machinery. The backward-revision triggers of Section 24 are therefore part of the paper's substantive methodology. A research programme concerned with historical formation should remain capable of revising its own formal commitments when later cases expose their limits.

25.6 Paper-Level Synthesis and Programme Boundary

Paper III contributes a preliminary language for discussing subject formation without assuming either static atomism or relational fusion. The framework tracks historically persistent subjects, identifies application-relative constitutive dimensions, preserves underdetermination, distinguishes constitutive change from relation-specific provenance, permits asymmetric and distributed co-formation, represents path dependence and reopening, and separates substantive histories from their encodings. The resulting architecture is intentionally stronger than the claim that relations influence people and intentionally weaker than a universal ontology of the person.

Within the wider research programme, this contribution marks a boundary between foundational subject formation and the substantive theories that follow. Paper IV may ask how desire, fantasy, identification, and repetition organize support relations. Paper V may analyze aesthetic sensibility and fittingness. Papers VI–VIII may evaluate justice, ethics, power, and political economy. Paper IX may study larger-scale historical dynamics. Papers X–XVI may test the framework under heterogeneous subject conditions involving suffering recognition, assistance, humanitarian protection, legal subjecthood, adjudication, social contract, and jurisprudence of aid. None of these inquiries is reducible to Paper III, and each may return revision pressure to it.

The first-draft architecture therefore ends with a scoped claim. Subject co-formation can be analyzed as a historically situated relation between persistence, constitutive reorganization, and formation provenance under an explicit diagnostic and evidential regime. This formulation makes room for agency and dependency, recognition and misrecognition, scaffolding and substitution, asymmetry and bilateral change, stabilization and reopening, as well as uncertainty at each level of analysis. It leaves ultimate subject ontology suspended and normative judgment open to the later papers designed to address those questions directly.