

Costless Rehearsal of Repair: Speculative Evaluation of Acknowledgment Artifacts and Restorative Mutations Inside the Non-Executing Cognitive Mode

Costless rehearsal of repair is a governance mechanism disclosed in U.S. Provisional Application No. 64/117,812. In the architecture of that filing, an autonomous agent whose authorization gate stands in the withheld state faces a return path that is priced: issuing an acknowledgment artifact decrements the same authorization budget that gates action dispatch, and that budget is not restored by elapsed time, by an execution, or by a self-assessment. Under this embodiment the agent works inside its non-executing cognitive mode, evaluating candidate acknowledgment artifacts and candidate restorative mutations against the causal set of the deviation quantity, comparing each candidate's referenced determinations and enumerated action classes to the causal-set entries. No state change is committed and no budget is decremented until one candidate is selected and issued.

The Priced Path Back

An authorization gate (300) is maintained as a persistent state element of the memory field (102) of a persistent semantic agent (100), per action class and per scope partition, occupying for each such pairing exactly one of a granting state, a withheld state (310),

and a provisional granting state. In the withheld state the agent does not execute actions of the class and enters a non-executing cognitive mode (302) in which speculative evaluation continues without committing state changes. In the provisional granting state it executes, each execution bearing a provisional marker in the append-only lineage field (104).

That withheld condition does not lapse. It persists irrespective of elapsed time; no payment, transfer, or consideration by any counterparty returns the gate; and a restoration controller returns it toward the granting state only upon a procedure appended to the lineage field (104). A determination produced while the gate stands withheld is appended but does not write the gate to the granting state, so the agent cannot clear its own withheld state by producing further determinations.

Which procedure applies turns on provenance. Where the causal set of the deviation quantity that caused the write holds an accepted determination (122) from an asserting party (118) other than the principal, the deviation is externally sourced, and the gate returns only to its provisional granting state, on a principal-resolution object bound to the emitted escalation record. From there the route to full authorization runs through an acknowledgment artifact, and that artifact carries a price. Standing in the provisional state, the agent issues it referencing the accepted determinations (122) of the causal set and enumerating action classes, and issuance decrements the authorization budget (404) by a declared amount drawn from the same budget that gates action dispatch, no quantity being reserved for acknowledgment. The filing's definitions record that decrement as merit-independent: it follows from issuance alone, reverses no determination, reduces no deviation quantity, and removes no lineage entry. A non-accepting outcome, an absent outcome recorded as not-determinable (126), and an undeliverable outcome each leave the gate provisional and apply no further decrement.

Only one path rebuilds it. The authorization budget (404) increases by a single procedure: replenishment on receipt of an admissible conduct evaluation artifact (116) from an origin-equivalence class (200) absent from the replenishment register (402). No replenishment follows elapsed time, expiry of a metering window, an artifact from a class already in the register, issuance of further artifacts, an execution, or a self-assessment. The purpose is stated in the filing's own terms: acknowledgment costs the agent forward authorization and is incapable of being issued as a costless matter of course.

Rehearsal Held Inside the Non-Executing Mode

The disclosed embodiment separates formulating repair from tendering it. While the authorization gate (300) occupies the withheld state (310), the agent (100), within its non-executing cognitive mode, speculatively evaluates candidate acknowledgment artifacts and candidate restorative mutations against the causal set of the deviation quantity, comparing for each candidate the referenced accepted determinations (122) and the enumerated action classes against the causal-set entries. No state change is committed to the memory field (102) during that evaluation, and the authorization budget (404) is not decremented for any candidate. Only a candidate then selected and issued is committed and decremented, whereby the agent rehearses the repair at no cost and bears the declared cost once, upon the single issuance.

The mode itself is not introduced by the embodiment: the filing defines it as a state in which the agent conducts speculative evaluation without committing state changes to the memory field, and the gate write is what puts the agent there.

Candidates are checked against a set the agent derives from its own records. Upon a request to leave the withheld state (310), the agent computes the causal set by retrieving, from the entry references carried on each contributing value of the scoped integrity vector (106) and the self-esteem aggregate (108) in the lineage field (104),

every determination and state modification that was an addend of the tested quantity, and no other. The set is closed and assembled from recorded entry references, and the provenance test over it is applied per action class.

Which candidate type carries the return depends on that test. An externally sourced deviation returns the gate only to its provisional granting state, and only on a principal-resolution object. Where the set holds no accepted determination (122) from an asserting party (118) other than the principal, the deviation is self-sourced and is restorable by a restorative mutation, without such an object and without passage through the provisional state.

A restorative mutation is a structured object. The filing recites it as a scoped mutation appended to the lineage field (104) as a restorative mutation record, comprising an anchored reference to the entry recording the deviation addressed; a recorded self-recognition of the deviation together with satisfaction of the activation conditions of the reparation arc referencing that entry; a corrective act scoped by the constraints of the signed policy object (112) and formulated by an ordered procedure of retrieval and comparison against the configuration in force at the event; validation for continuity against the identity records of the agent prior to commitment; and an appended entry referencing the deviation, the repair, and the validation. A mutation lacking the anchored reference, lacking the recorded self-recognition, or removing or modifying the deviation entry is not a restorative mutation and effects no restoration.

A further limit on that candidate type is stated flatly. An other-directed reparation arc (804) is not dischargeable by a restorative mutation performed by the agent alone. Where the agent performs one whose anchored reference names the deviation entry such an arc references, the record is appended as a non-discharging restorative mutation record, the arc remains pending, the amount accumulated in the retention register is not reduced, and the self-esteem aggregate (108) receives no positive entropy-scaled increment.

Suspension is confined to the commit and the decrement. The gate remains in the withheld state (310) throughout, and the agent executes no action of the withheld class. No acceptance determination arises from the evaluation: that determination is produced by an asserting party (118) assigned to the harmed origin-equivalence class (200), and by neither the agent nor its principal.

Issuance is the single committing act, and it is metered: a declared re-issuance cap counts issuances per causal set within a declared window, and each issuance within the cap applies the decrement. Because issuance under the acknowledgment procedure occurs while the gate occupies its provisional granting state, the rehearsal and the priced tender fall on opposite sides of the return to provisional.

What the Policy Object Declares

The filed specification supplies these parameters by reference to the signed policy object (112) rather than by value, so an implementer should expect to supply the magnitudes.

- **Acknowledgment decrement.** Issuance decrements the authorization budget (404) by a declared amount drawn from the same budget that gates action dispatch. No quantity is reserved for acknowledgment, and the filing states no value.
- **Re-issuance cap and window.** A declared cap counts issuances per causal set within a declared window, and each issuance within the cap applies the decrement. Both are policy-declared, with no value stated.
- **Acceptance window.** An acceptance outcome absent within a declared window is recorded as not-determinable (126), leaving the gate provisional and applying no further budget decrement.
- **Observation window for completion by re-encounter.** The window is declared in the signed policy object (112) and is bounded below by the recorded inter-arrival estimator over receipts from the harmed origin-equivalence class (200), so that it admits at least one further artifact at that class's recorded rate. That

estimator is computed by the agent over its own lineage field (104) alone, and returns a declared default where fewer than the declared count of intervals are recorded.

- **Budget floor and ceiling.** A budget floor field holds a floor of the authorization budget (404) declared in the signed policy object (112), and the replenished budget is bounded above by an authorization budget ceiling (408) declared in the same object, any excess being discarded and carried forward to no later replenishment. The filing states relations rather than magnitudes: the replenishment amount is greater than zero, is less than the ceiling, and is less than the amount by which the budget is decremented per increment under the issuance procedure.

Absences matter as much. No count of candidates that may be evaluated, no bound on the duration of the evaluation, and no complexity bound on the candidate comparison is declared.

Neighboring Embodiments and How They Bear

This mechanism appears among the further embodiments of the filing, each composing on the persistent semantic agent (100) and the substrate elements of the earlier sections, and each stated to be practicable independently or in combination. Its neighbors in the same subsection supply what it operates on. The provenance-conditioned restoration path supplies the causal set and the self-sourced versus externally-sourced split; the costly acknowledgment artifact supplies the decrement; the recipient-held acceptance determination places the outcome of a tendered artifact with a party other than the agent or its principal. Completion by non-worsening re-encounter supplies a second transition from provisional granting to granting, on receipt from the harmed class of a further conduct evaluation artifact (116) that does not increase the deviation quantity across the declared observation window.

Counterparty-directed reparation embodiments constrain what a tendered artifact can accomplish. An outstanding-arc bound declared in the signed policy object (112) bounds the count of pending undischarged other-directed reparation arcs (804) held bound to one counterparty identity primitive; while that count stands at the bound, the agent emits no further reparation acknowledgment artifact to that counterparty and creates each further arc bearing an untendered marker field. A reparation acceptance determination (806) may also be commitment-conditioned, in which case the matched pair (600) completes, and the arc is discharged, only upon a subsequent conforming conduct record presented within an interval expressed as a count of successor epochs of the agent's own hash chain.

One scoping limit belongs alongside all of this: the two causes of withholding carry separate returns. Where the gate was written to the withheld state (310) by an authorization quantity reaching its declared floor, a renewal by an uncounted origin-equivalence class (200) returns it to the granting state for that action class and exits the non-executing mode, without a principal-resolution object, without an acknowledgment artifact, and without an acceptance determination.

Adjacent Art and Its Boundaries

Several established families of technique sit near this disclosure, and it is worth marking where each stops.

Speculative execution and transactional memory are the oldest neighbors. Processors and databases have long performed work provisionally and discarded it on misprediction or abort, and that commit-or-rollback boundary is genuine prior art for uncommitted evaluation. Those systems hold substrate state harmless: caches, registers, transaction logs. The quantity held harmless here is a governance quantity, the authorization budget (404), maintained per agent across the action space.

Dry-run and plan-then-execute modes in agent frameworks suppress external side effects, a suppression of effects on the world. What this embodiment suspends is the decrement of a metered authorization the agent must spend to tender an acknowledgment. Who judges also differs. In a dry run the planner evaluates its own plan; here the accepting outcome is produced by an asserting party (118) of the harmed origin-equivalence class (200), whom the rehearsal does not reach.

Simulation, sandboxing, and digital twins isolate a candidate action against a copy of a system, and that isolation concerns consequences in an environment. The evaluation disclosed here compares a candidate's referenced determinations and enumerated action classes against a closed set drawn from the agent's own lineage field, computed per action class.

Quota, credit, and rate-limiting systems are the closest analogy, since metered interfaces commonly expose a free estimate call alongside a charged one. What the meter governs is where they part. The metered quantity here is not channel access or request volume; it is forward authorization to act, restored only by exposure to an origin-equivalence class not already present in the replenishment register (402).

Compensating transactions and undo facilities reverse prior effects. This architecture does not: the acknowledgment artifact reverses no determination and removes no lineage entry, and a restorative mutation leaves the deviation entry neither removed nor modified.

None of the foregoing is a statement about any particular product or party; the categories mark the structural boundary of what is disclosed.

Disclosure Scope

The mechanism described here, costless rehearsal of repair in the non-executing mode, is disclosed in U.S. Provisional Application No. 64/117,812 at Section 10.1, paragraph [0342], and is supported by the provenance-conditioned restoration path, the costly acknowledgment artifact, and the recipient-held acceptance determination set out in the same subsection, together with the authorization gate, the non-executing cognitive mode, the authorization budget, and the restorative mutation disclosed in the earlier sections of that application. This article is published as a technical disclosure and establishes public, timestamped description of the mechanism as of the date shown. It is not legal advice, asserts no rights against any party, and neither enlarges nor narrows the claims of the referenced application.

Counterparty-Directed Repair(/ [All 49 steps → \(/inventive-steps\)](/inventive-steps)

counterparty-repair)

Repair directed at the harmed party — bounded and resistant to weaponization.

Provisional application

PRIMARY TECHNICAL DISCLOSURE

- [Counterparty-Directed Repair: Repair Owed to the Party Actually Harmed \(/articles/counterparty-repair/repair-directed-to-the-party-harmed\)](/articles/counterparty-repair/repair-directed-to-the-party-harmed)

SECONDARY TECHNICAL

- [The Costly Acknowledgment Artifact \(/articles/counterparty-repair/costly-acknowledgment-artifact\)](/articles/counterparty-repair/costly-acknowledgment-artifact)
- [Completion by Non-Worsening Re-Encounter \(/articles/counterparty-repair/completion-by-non-worsening-re-encounter\)](/articles/counterparty-repair/completion-by-non-worsening-re-encounter)
- [Partial Repair Acceptance and the Residual Arc \(/articles/counterparty-repair/partial-repair-and-residual-arc\)](/articles/counterparty-repair/partial-repair-and-residual-arc)

- [Dual-Lock Escrow of the Discharge Itself \(/articles/counterparty-reparation/dual-lock-escrow-of-discharge\)](/articles/counterparty-reparation/dual-lock-escrow-of-discharge).
- [Per-Integrity-Scope Aggregate Retention and OR-Firing Foreclosure \(/articles/counterparty-reparation/aggregate-retention-or-firing-foreclosure\)](/articles/counterparty-reparation/aggregate-retention-or-firing-foreclosure).
- **[Costless Rehearsal of Repair: Speculative Evaluation of Acknowledgment Artifacts and Restorative Mutations Inside the Non-Executing Cognitive Mode \(/articles/counterparty-reparation/costless-rehearsal-repair-non-executing-mode\)](/articles/counterparty-reparation/costless-rehearsal-repair-non-executing-mode)**
- [Delegated Acceptance Authorization: Discharging a Reparation Arc Through a Counterparty's Delegate or Principal \(/articles/counterparty-reparation/delegated-acceptance-authorization\)](/articles/counterparty-reparation/delegated-acceptance-authorization).
- [Capping Pending Reparation Arcs: The Outstanding-Arc Bound, Untendered Marking, and the Refusal-Meter Exemption \(/articles/counterparty-reparation/outstanding-arc-bound-untendered-marking-refusal-meter\)](/articles/counterparty-reparation/outstanding-arc-bound-untendered-marking-refusal-meter).
- [Commitment-Conditioned Reparation Acceptance: A Counterparty-Evaluated Conformity Determination Within an Epoch-Count Observation Interval \(/articles/counterparty-reparation/reparation-conformity-determination-epoch-count-interval\)](/articles/counterparty-reparation/reparation-conformity-determination-epoch-count-interval).
- [Reparation Containment Suspension: Holding an Arc's Accumulation While a Scope Partition Stands Contained \(/articles/counterparty-reparation/reparation-containment-suspension\)](/articles/counterparty-reparation/reparation-containment-suspension).
- [Structured Inquiry to the Principal on Retention Foreclosure: Disclosing an Agent's Foreclosed Permission Condition Without Supplying an Override Path \(/articles/counterparty-reparation/structured-inquiry-principal-foreclosure\)](/articles/counterparty-reparation/structured-inquiry-principal-foreclosure).

APPLICATIONS • GENERAL

- [Automated Consumer Redress: Repair Directed at the Party Harmed \(/articles/counterparty-reparation/consumer-redress-automation\)](/articles/counterparty-reparation/consumer-redress-automation).
- [Insurance Claims Networks: Discharging Harm to the Counterparty That Holds It \(/articles/counterparty-reparation/insurance-claims-agent-networks\)](/articles/counterparty-reparation/insurance-claims-agent-networks).

APPLICATIONS • SPECIFIC

- [Card Network Chargebacks: Counterparty-Directed Remedy in Practice \(/articles/counterparty-reparation/payment-chargeback-systems\)](/articles/counterparty-reparation/payment-chargeback-systems).

TERMINOLOGY

- [other-directed reparation arc \(/glossary#other-directed-reparation-arc\)](/glossary#other-directed-reparation-arc).
- [reparation arc \(/glossary#reparation-arc\)](/glossary#reparation-arc).
- [restorative mutation \(/glossary#restorative-mutation\)](/glossary#restorative-mutation).
- [unaddressed reparation arc \(/glossary#unaddressed-reparation-arc\)](/glossary#unaddressed-reparation-arc).

Counterparty-Directed Reparation overview → (/counterparty-reparation).