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The First-Encounter Settled Pair and Promotion to the Persistent Tier

A semantic agent that verifies every incoming assertion against a recorded identity primitive faces a gap at first contact: a party it has never met holds no such primitive, so the first admissibility step has nothing to check against. The first-encounter settled pair, disclosed in U.S. Provisional Application No. 64/117,812, closes that gap without enrollment, a registry, or a certificate authority. The agent seeds an ephemeral-tier counterparty identity record from the presentation alone, emits a scaffolding observation naming exactly the canonical fields the presentation left absent, and awaits a completing observation whose continuity hash validates as a successor of the seeded sequence. Recognition of that matched pair writes a first-encounter settlement-lineage entry, promotes the record from the ephemeral tier to the persistent tier by slope continuity, and releases the held artifacts to the admission evaluator.

1. The Gap

The first step of the admissibility procedure verifies the signature borne by a conduct evaluation artifact (116) against an identity primitive recorded in the counterparty identity record (114) of the asserting party (118). That step is routine when the party is already known, and has nothing to work with when the party is a stranger. A semantic

agent (100) that holds no counterparty identity record (114) for a presenting party holds no recorded primitive against which the signature could verify, and the procedure stalls at its own first line.

The filing declines both of the obvious responses. It does not reject every unrecognized party, which would confine the agent to counterparties enrolled ahead of time. It also does not admit the artifact on presentation alone, which would leave a party minting a fresh key pair per message both unmetered and unbound to its earlier self. What it holds to instead is the property the rest of the architecture holds, that an assertion is admitted on evidence the receiver reconstructs from its own lineage rather than on trust conferred elsewhere.

The filed specification takes a third path. It neither admits nor rejects the first artifact. It defers, and it makes first contact into a bilateral settlement whose completion, and only whose completion, produces a record the admissibility procedure can use.

2. Mechanism

When the semantic agent (100) receives a conduct evaluation artifact (116) from a party for which it holds no counterparty identity record (114), it neither admits nor rejects the artifact. It extracts the presented identity material, being the attested epoch identifier, any carried predecessor epoch identifiers, the attested assertion-cost counter state, and the signature, and it constitutes a provisional identity primitive from the attested epoch identifier. The signature is verified against this provisional primitive. A signature that fails to verify appends the artifact unadmitted, with no record and no decrement. On success the agent instantiates an ephemeral-tier counterparty identity record, being a counterparty identity record (114) held at the most restrictive scope, seeded only from the presentation, with an empty encounter history, and it appends a provisional-identity record capturing the material, the verifications performed, and the tests not evaluated.

The seed comes from the presentation and from nothing else, so the agent consults no directory, no registry, and no third party. For what it does not yet hold, it computes an absent-field enumeration by comparing the seeded fields of the ephemeral-tier record against the canonical fields of a counterparty identity record (114). The enumeration names exactly those canonical fields the presentation did not supply. It names no field already supplied, so the presenter is never asked to restate what it carried, and it names no field outside the canonical set, so the exchange is structurally incapable of soliciting material a counterparty identity record (114) does not hold. The agent emits a scaffolding observation as the first governed observation (608) of a matched pair (600), bearing its authority credential and continuity hash field and a payload carrying the enumeration, an identifier of the provisional-identity record, and the pairing window. The scaffolding observation carries no conduct descriptor, is not admitted to the admission evaluator (120), and is not adverse to a party that never answers it.

The presenting party answers by emitting a completing observation as the second governed observation (610), referencing the scaffolding observation and carrying a value for each named absent field. Two independent tests gate the answer. Each value is tested for conformance to the declared structure of the canonical field it purports to supply. Separately, the continuity hash field of the completing observation is required to validate as a successor of the seeded sequence, which binds the completer to the presenter by slope continuity rather than by any external credential. The party that finishes the record must be the one that started it, and it proves this by its own hash chain rather than a certificate held elsewhere.

On recognition of the pair within the window, the agent writes a first-encounter settlement-lineage entry as the first entry of the previously empty encounter history and appends a first-encounter promotion record. It then writes the record's persistence from the ephemeral tier to the persistent tier, writes the provisional primitive as the recorded identity primitive, and writes the admissible scope categories. The record is thereafter a counterparty identity record (114) whose recorded primitive verifies the

first admissibility step, and the held artifacts now pass to the admission evaluator (120). The gap of Section 1 is closed by the exact object it lacked, a recorded primitive, produced by a settled exchange rather than conferred by an authority.

From instantiation until promotion or timeout, the ephemeral record and every artifact received from its party occupy a pre-settlement inert state. Each such artifact is appended to the append-only lineage field (104) and is not passed to the admission evaluator (120). No determination of the closed set is produced, no value of the scoped integrity vector (106) or the self-esteem aggregate (108) moves, no counter is incremented, the refusal counter (304) is not incremented, and the authorization gate (300) is not written to withheld (310) on account of it. The party is assigned to no origin-equivalence class (200). The holding is neither denial nor rejection: it is appended as a positive abstention under the conversion bar (502), so nothing adverse propagates from the mere fact that a stranger spoke first.

Two rules keep the completion honest. Under the seeded-versus-completed conflict rule, a completing observation that carries a value for a field already seeded from the presentation does not overwrite it: the carried value is not written, the seeded value is retained, and both facts are appended, so material a party established in its presentation cannot be displaced by material it supplies afterward and no field transitions silently. And the promotion is reversible. Where an epoch identifier later received from a promoted party fails the two-stage continuity validation against the sequence held in that record, the agent appends a tier demotion record and writes the record back from persistent to ephemeral tier. The recorded primitive ceases to verify the first admissibility step, scope reverts to its most restrictive form, and further artifacts re-enter the pre-settlement inert state until a new pair settles. The accumulated encounter history is left unmodified, and the demotion produces no rejected determination (124), moves no scoped integrity vector (106), and records no severance event.

3. Operating Parameters

The filing declares the parameters of this mechanism by reference to the signed policy object (112) in force rather than by fixing numeric values.

- **The pairing window.** Recognition of the completing observation must fall within the temporal proximity window (602) of the matched pair (600). A scaffolding observation with no answer yet is an orphan held under the deferral-expiration parameter; a completing observation arriving while it is held pairs identically to an immediately recognized pair, including where it was carried by store-and-forward across a disconnection. Expiry without pairing resolves as a timeout.
- **The first-encounter budget decrement.** The agent decrements its own authorization budget (404) by a first-encounter budget decrement drawn from the signed policy object (112), responsive to instantiating an ephemeral-tier record. The decrement is applied without regard to merit and identically whether the pair later settles, times out, or is refused.
- **Metering unit.** The decrement is metered per presented-material origin-equivalence class, computed over presented identity material alone, and a first-encounter register records borne decrements per class per window. Two parties are common where their carried predecessors resolve to a common position, where their attested assertion-cost counter states pass a common-accumulator test (one accumulator advanced by one chain, the lesser state's epoch a predecessor of the greater, and their state difference not exceeding the epochs separating them), or where a declared partition-entry relation holds. A party generating identities from one origin thus costs the receiver the same as a single presentation.
- **Instantiation scope.** The ephemeral-tier record is instantiated at the most restrictive scope, admitting no privileged category of interaction until promotion writes the admissible scope categories.

4. Composition

This mechanism is built from constructions declared elsewhere in the filing. Its parent is matched-pair settlement. The scaffolding observation and the completing observation are the first governed observation (608) and second governed observation (610) of a matched pair (600), recognized within a temporal proximity window (602) and recorded by a settlement-lineage entry (606), a settlement effected without a third-party intermediary, without centralized consensus, and without pre-negotiated session state. First contact is therefore not a new protocol; it is the ordinary settlement primitive applied to the problem of identity.

Downstream, the mechanism feeds the admission evaluator (120). Promotion is defined precisely so that the primitive it writes is a recorded identity primitive within the meaning of the first admissibility step, so held artifacts pass to the evaluator once the pair settles and resolve into the closed set of determinations, the accepted (122), rejected (124), not-determinable (126), and not-applicable (128) classes.

The metering reuses the origin-equivalence machinery of the derivation used elsewhere in the filing, so a stranger cannot escape the cost of a meeting by minting new keys: the receiver charges the origin, not the identity. Where one presenting party in one encounter occasions both a first-encounter budget decrement and a receipt-presentation decrement, a single-encounter decrement coordination applies exactly one decrement of the authorization budget (404) rather than two, so one encounter bears one cost. Where the first encounter is mutual, each agent instantiates its own record and applies its own decrement against its own budget, the two exchanges being distinct matched pairs (600) with no decrement coordinated across the two budgets. The pre-settlement inert state is a positive abstention under the conversion bar (502), which lets a receiver defer on a stranger without appending anything adverse, and the promotion it grants is to the persistent tier and not the promoted tier, the promoted value being reserved for the separate conduct-driven promotion policy the filing describes.

5. Prior-Art Distinction

The problem of admitting an unknown party is old, and several established categories address it. The distinction here is structural.

Certificate authorities and public-key infrastructure resolve a stranger by chaining its key to a trusted root, and directory or registry models resolve it by lookup in a shared authoritative store. Both place the point of trust outside the bilateral relationship. The mechanism here seeds the record only from the presentation and promotes it only on a settled pair between the two parties, performing no lookup and consulting no root; the evidence is reconstructible by the receiver from its own lineage without recourse to any registry.

Trust-on-first-use schemes, familiar from host-key pinning, record a presented key on first contact and reuse it thereafter. That is closer in spirit, but it is a bare record-and-reuse: no bilateral completing exchange, no metering of the cost of first contact, and no reversible tier that demotes the record on a later continuity break. Here the record is inert until a matched pair settles, the receiver is charged for the meeting, and a continuity break demotes the promotion by an appended record without erasing history.

Sybil-resistance schemes limit the cost of minting identities through external scarcity: proof of work, staked value, or per-identity rate limits. Those either import a separate scarce resource or charge per identity, which a determined party pays by spreading effort across keys. The metering here is denominated in the receiver's own authorization budget (404) and charged per presented-material origin-equivalence class, so identities that resolve to one origin cost one meeting, and key generation is priced at its source. Federated and single-sign-on models delegate the admission decision to an identity provider; this mechanism has none to delegate to, and admits the party on a settlement it conducts itself.

None of the foregoing asserts that any named product or party practices, or fails to practice, the subject matter of the application. The categories locate the mechanism; they are not read onto anyone.

6. Disclosure Scope

The operative disclosure is U.S. Provisional Application No. 64/117,812, and the subject matter of this article is disclosed in its Section 10.4, at paragraph [0389], which recites the first-encounter settled pair and promotion to the persistent tier, read with the surrounding paragraphs of the same section covering provisional-identity verification, the scaffolding observation, the pre-settlement inert state, the origin-metered first-encounter budget decrement, demotion on a continuity break, the mutual first encounter, and the seeded-versus-completed conflict rule.

What is disclosed is the structure described above, from provisional-identity verification through the absent-field enumeration, the twice-gated completing observation, promotion to the persistent tier, the pre-settlement inert state, the origin-metered decrement, and reversible demotion on a continuity break. What is disclaimed is anything this article does not state. Specific numeric values for the decrement, the pairing window, the deferral interval, and any budget floor are set by the signed policy object (112) and are not fixed here, and certain further refinements in the applicant's working notes are withheld from this publication. This article is a defensive publication of the filed subject matter and states no claim scope; the claims of the application, as prosecuted, govern.

Provisional application

PRIMARY TECHNICAL DISCLOSURE

- Matched-Pair Settlement Between Agents: Bilateral Closure Without a Clearer (/articles/governed-settlement/matched-pair-settlement-without-a-clearer)

SECONDARY TECHNICAL

- The Derived-Artifact Provenance Chain and Chain-Head Identifier (/articles/governed-settlement/derived-artifact-provenance-chain)
- Provenance Withdrawal and the Provenance-Withdrawn Attribute (/articles/governed-settlement/provenance-withdrawal)
- Matched-Pair-Gated Corpus Contribution (/articles/governed-settlement/matched-pair-gated-corpus-contribution)
- Partition-Scoped Escrow Release Gated on Intersection Non-Emptiness (/articles/governed-settlement/partition-scoped-escrow-release)
- **The First-Encounter Settled Pair and Promotion to the Persistent Tier (/articles/governed-settlement/first-encounter-settled-pair)**

TERMINOLOGY

- governed observation (/glossary#governed-observation)
- matched pair (/glossary#matched-pair)
- scope partition (/glossary#scope-partition)

Governed Matched-Pair Settlement overview → (/governed-settlement)