Behavior-Inferred Intent as Governed Observation

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What Inferred-Intent-as-Observation Specifies

When a unit infers another unit's intent (e.g., 'vehicle B is preparing to merge'), the inference is published as a credentialed observation. The observation declares: the inferring unit's credential, the inferred operator's identifier (or pseudonym), the inferred intent class, the inference function reference, and the supporting cues that produced the inference.

Other consumers in the mesh can integrate or contradict the inference. The inferred operator (vehicle B in this example) can challenge the inference through governance-credentialed retraction. The architecture supports the bidirectional retraction that pure-detection systems lack.

Why Sensor-Based Inference Without Architecture Has Structural Gaps

Generic sensor-based situational awareness produces inferences that are private to the producing system. The inferences may be wrong; the architecture has no mechanism for cross-validation, no mechanism for the inferred subject to challenge, no mechanism for the inference function to evolve under verification feedback.

Inferred-intent-as-observation closes these gaps. The inference becomes observable to other consumers, who can corroborate or contradict. The inferred subject can challenge structurally. The inference function evolves under verification feedback rather than being frozen at training time.

How Bidirectional Retraction Operates

A unit inferred to have a specific intent receives the inference observation through the same mesh that broadcasts it. The unit can publish a counter-observation: 'I am vehicle B; the inference that I'm preparing to merge is incorrect; my actual intent is X.' The counter-observation is itself credentialed; it carries the unit's signature.

The original inferring unit consumes the retraction through its admissibility evaluator. The retraction may be admitted (the unit updates its inference) or rejected (the unit's policy doesn't admit the retracting party's authority over the inference). The architecture supports both outcomes structurally.

What This Enables for Adversarial-Aware Inference

Adversarial environments produce inference contests. An adversary may publish false inferences about other entities; targets may publish false retractions of true inferences. The architecture supports the contest through credentialed observation flow with policy-driven admission.

Defense, security, and high-stakes commercial operation gain structural support that current per-system inference architectures cannot match. The patent positions the primitive at the layer where inference becomes governance-credentialed rather than per-system private.