Sequential Cascade Structures in Cross-Primitive Coherence

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Within the cross-primitive coherence engine, certain evaluation sequences must execute in strict order because each stage's output is a required input to the next. These sequential cascade structures define the backbone of cognitive processing: affective state must be computed before confidence because confidence depends on affective inputs; confidence must be computed before execution authorization because authorization depends on confidence. Violating the cascade order produces incoherent evaluations.

What It Is

Sequential cascade structures define mandatory ordering constraints within the cross-primitive coherence engine. These are not arbitrary conventions but structural dependencies: later stages require outputs from earlier stages as inputs. The primary cascade runs from affective state through confidence

through integrity through capability through authorization, with each stage's output feeding the next.

Why It Matters

Parallel evaluation of dependent stages produces inconsistent results: confidence computed without current affective input uses stale emotional data; authorization computed without current confidence uses stale reliability data. The sequential cascade ensures that each stage operates on the most current outputs from its predecessors.

How It Works

The coherence engine enforces cascade order by blocking later stages until their prerequisite stages have completed. Each stage receives its inputs from the immediately preceding stage's outputs. The cascade execution is atomic: if any stage fails, the entire cascade is aborted and no partial results are used for decision-making.

Parallel evaluation is still possible for stages without mutual dependencies. The cascade constraints define the minimum ordering requirement, not a total order.

What It Enables

Sequential cascades ensure that cognitive evaluations are internally consistent. Every decision is based on a coherent snapshot of cognitive state where all dependencies have been resolved in the correct order. This consistency is what enables predictable, trustworthy agent behavior: the same inputs always produce the same evaluation sequence and the same outputs.

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