Systemics   Composition (K1)

References

- GraphFrame K0 (GF0) (spec://_kernel/gf/gf0-k1)

- SpecFrame K1 (spec://_kernel/spec/specframe-k1)

- Systemics   Minimal Specification (spec://domains/systemics/sigma-k1)

1   Charter

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This spec defines how lawful kernels compose in serial, parallel, and temporal forms, preserving lawfulness via posted adapters/combinators and monotone contract combination.

2   Serial Composition

Posted adapter requirement

For serial composition with $K1^\wedge = (v1, 1,)$ and $K2^\wedge = (v2, 2,)$, any adapter f used to produce the second valuation MUST be posted as part of the record/contract. In particular, if v2 is defined from u and the upstream decision by: $v2(u) = f(u, 1(v1(u), 1, 1))$, then f MUST be included in posted data so downstream decisions remain records-only.

Monotone contract combination

The composite kernel K2 K1 is lawful only if (-A1 -A7) hold for the composite and if the combined contracts (, , C) are formed via a monotone operator (domain-chosen), i.e. tightening in any component must not rely on hidden slack.

3   Parallel / Product Composition

Posted decision combinator

For parallel/product composition K1 K2, both kernels evaluate and decisions are aggregated via a posted combinator comb: $2 \times 2 \to 2$ (e.g., AND/OR). The choice of comb MUST be posted as part of the record/contract.

Monotone floors/budgets

Floors and budgets for parallel composition MUST be combined monotonically (tightening cannot rely on hidden slack).

4   Temporal Composition (window page book)

Pages and books

A page is a lawful record for one window. A book is an ordered sequence of pages; optionally, pages may be hash-chained. Chaining preserves replay and does not alter decisions.

5   Composition Invariants

Records-only preserved

Composition MUST preserve -A2 (records-only): any dependency introduced by composition must be posted.

Replay preserved

Composition MUST preserve reflexive reproducibility and replayability obligations implied by the contract.