Systemics Minimal Specification (K1)

References

- GraphFrame K0 (GF0) (spec://_kernel/gf/gf0-k1)
- SpecFrame K1 (spec://_kernel/spec/specframe-k1)
- Composition (separate spec) (spec://domains/systemics/sigma-composition-k1)

1 Charter

Charter

specifies a contract-shaped kernel that produces decisions from posted evidence under benign variation, with replayable records, without making domain assumptions.

2 Alphabet (Objects & Maps)

Alphabet

- U: universe of artifacts
- V: valuation space (any measurable space; commonly R^k Œ B^m)
- 2: decision space 2 := {0,1}
- : frames / benign contexts
- P_n: probes / benign perturbations
- : floors/thresholds (partially ordered set)
- : invariance budgets (tolerances in a poset/lattice)
- C: capacity budgets (bits/time/energy constraints)
- : envelope/meta (versions, seeds, numeric modes, commits)
- R: records (canonical map bytes; hash/ledger optional)

3 Definition: Systemic Kernel

Systemic Kernel

A systemic kernel is the tuple: K^_ := (v, , , P_n, , , C,), where v: U V and : V Œ Œ 2.

4 Metrics & Order

Wobble and orderings

assumes a divergence ("wobble") w: V Œ V R_{0} on decision-relevant coordinates. Orders: ' means tightening floors; ' means tightening budgets; C' C means shrinking capacity.

5 Axioms (Minimal Core)

-A1 Well-typedness

All maps are measurable/continuous as needed; is total on V Œ Œ .

-A2 Posting / Records-only

For any run on u U, the record R contains (v(u), , , C, , P_n,), and the decision equals *(u;) = (v(u), ,), with no dependence on unposted data.

-A3 Benign invariance

Let (,p) Œ P_n act on the measurement/evaluation pathway to yield v_{,p}(u). Define W(u) := sup_{(,p)} w(v_{,p}(u), v_{0,p0}(u)). If W(u) then for all benign (,p), (v_{,p}(u), ,) = (v_{0,p0}(u), ,).

-A4 Minimal sufficiency under capacity

Among valuations preserving decisions under posted (,), v is minimal w.r.t. capacity cost subject to C: for all v', (v' = v) cost(v') cost(v), subject to C.

-A5 Reflexive reproducibility

There exists an admissible, independently realized v' (different numeric/route) such that (v(u), ,) = (v'(u), ,), with both posted in (self-warrant).

-A6 Determinism & idempotence

For fixed (v(u), ,), the decision is unique and idempotent under re-evaluation.

-A7 Monotonicity

Tightening floors or budgets cannot rescue a failure by hidden dependence. For ' and ' , (v, ,) = 1 implies (v, ', ') {0,1} with no hidden rescue: tightening must not create a pass whose justification depends on data not posted in the record.

-A8 Isomorphism invariance

If a frame induces a structure-preserving isomorphism on representation, decisions are invariant.

6 Conformance (Lawful Record)

-lawful record checklist

A record R is -lawful iff it includes: (1) contract (, , C, , P_n, and guards), (2) valuation v(u) (decision-relevant coords), (3) decision (v(u), ,) with reasons, (4) invariance evidence (wobble metrics + worst-case (,p)), (5) reflexive warrant (v'(u) and agreement), (6) canonicalization: canonical bytes, digest d, and optional chain root.

7 Morphisms of Systemics

Morphism preservation

A morphism preserves valuation and decision structure by satisfying: v' _U = _V v, ' (_V Œ id) = . It also maps contract parameters monotonically and preserves -A1..-A7.

Morphism F: '

A morphism F: ' is a pair (_U, _V) such that the following commutation laws hold: v' _U = _V v, and ' (_V Œ id) = . A morphism also maps contracts monotonically so that axioms remain satisfied.

8 Instantiation Recipe (Domain-Agnostic)

Recipe

Choose U,V,v,; post ,,C,,P_n, and wobble metric w; establish -A1..-A7 by construction/tests; emit lawful and optionally chain pages into books.

9 Notes

Notes

This specification does not fix what v measures, what decides, or how w is computed. It only requires posting, invariance under benign variation, minimal sufficiency under capacity, and reflexive reproducibility. Evidence Systemics is one instantiation where v encodes evidence gauges; other instances (Control, Protocol, Risk, Learning, etc.) keep the same contract while choosing different v, , .