

Systemics Minimal Specification (K1)

Charter

Charter (*normative*)

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

Alphabet (Objects & Maps)

Alphabet (*normative*)

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

Definition: Systemic Kernel

Systemic Kernel (*normative*)

A systemic kernel is the tuple: $K_{mu}^{Sigma} := (v,$
 $chi,$
 $Pi, P_n,$
 $Theta,$
 $beta, C,$
 $Gamma),$ where $v : U$
 $to V$ and
 $chi : V$
 $times$
 $Theta$
 $times$
 $beta$
 $to 2.$

Metrics & Order

Wobble and orderings (*normative*)

Sigma assumes a divergence ("wobble") $w : V$

timesV

to

$\mathbb{R}_{\geq 0}$ on decision-relevant coordinates. Orders:

Theta

preceq

Theta' means tightening floors;

beta'

preceq

beta means tightening budgets; C'

preceqC means shrinking capacity.

Axioms (Minimal Core)

-A1 Well-typedness (*normative*)

All maps are measurable/continuous as needed; w is total on $V \subseteq \mathbb{E}$.

-A2 Posting / Records-only (*normative*)

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

-A3 Benign invariance (*normative*)

Let $(, p) \in P_n$ act on the measurement/evaluation pathway to yield $v\{, p\}(u)$. Define $W(u) := \sup\{(, p)\} w(v\{, p\}(u), v\{0, p_0\}(u))$. If $W(u) = 0$ then for all benign $(, p)$, $(v\{, p\}(u), \dots) = (v\{0, p_0\}(u), \dots)$.

-A4 Minimal sufficiency under capacity (*normative*)

Among valuations preserving decisions under posted $(,)$, v is minimal w.r.t. capacity cost subject to C : for all v' , $(v' = v) \rightarrow \text{cost}(v') \leq \text{cost}(v)$, subject to C .

-A5 Reflexive reproducibility (*normative*)

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

-A6 Determinism & idempotence (*normative*)

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

-A7 Monotonicity (*normative*)

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

-A8 Isomorphism invariance (*normative*)

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

Conformance (Lawful Record)

-lawful record checklist (*normative*)

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

Morphisms of Systemics

Morphism F: \cdot (*normative*)

A morphism $F: \cdot$ is a pair (U, V) such that the following commutation laws hold: $v' \circ U = V \circ v$, and $\cdot \circ (_V \otimes id) = \cdot$. A morphism also maps contracts monotonically so that axioms remain satisfied.

Morphism preservation (*normative*)

A morphism preserves valuation and decision structure by satisfying: $v' \circ U = V \circ v$, $\cdot \circ (_V \otimes id) = \cdot$. It also maps contract parameters monotonically and preserves -A1..-A7.

Instantiation Recipe (Domain-Agnostic)

Recipe (*informative*)

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.

Notes

Notes (*informative*)

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 $v, ,$.

References

- GraphFrame K0 (GF0) ()
- SpecFrame K1 ()
- Composition (separate spec) ()