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FRC 100.011 v1.2 - Translation Table: FRC Vocabulary and Claim Status

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Abstract

FRC 100.011 is a vocabulary and claim-status crosswalk, not a complete representation of FRC. Version 1.2 restores the canonical relation $dS + k^* d \ln C = 0$ and reserves indexed notation for declared operational realizations. It separates observed, target, and dynamical Lambda objects; distinguishes bookkeeping identities from the open physical reciprocity conjecture; and corrects the claim that uncertainty forbids stationary states. It maps FRC terms to mainstream counterparts while marking whether a relation is definitional, borrowed, model-specific, or an FRC conjecture.

> *Definitions, boundary conventions, and evidence status must be checked against the current primary papers.*

Paper ID: FRC 100.011. This is a vocabulary crosswalk, not a complete representation of FRC. Definitions, boundary conventions, and claim status must be checked against the latest primary papers.

1. Purpose, and the one rule

FRC's standing claim is that **it invents none of its parts.** Its coherence parameter is the synchronization order parameter; its ledger is Onsager–Prigogine irreversible thermodynamics; its measurement picture is decoherence plus quantum-trajectory relaxation with a Bohm–Valentini equilibrium; its transport law is a Landau–Ginzburg relaxational PDE. The only thing FRC claims as its own is (i) the assertion that these established shapes are **one structure differentiated across scale**, and (ii) a short list of **falsifiable predictions** that do not follow from any single one of the borrowed pieces.

This paper is the dictionary that makes that claim checkable. For each FRC term it names the mainstream concept whose shape it borrows and labels the relationship:

- **[same-shape-as]** — mathematically the same object, borrowed wholesale; FRC claims no novelty.
- **[borrowed-from]** — a direct generalization or reuse of an established result.
- **[own-bet]** — the genuinely FRC-specific, falsifiable claim; this is where scrutiny belongs.

The rule the corpus imposes on itself: *same-shape-as, never "is."* FRC says its coherence has the same shape as the Kuramoto order parameter; it does not claim to have discovered the Kuramoto order parameter. Read every row below in that register.

2. Core quantities

FRC term	Mainstream counterpart	Relationship
Coherence $C \in (0, 1]$	In phase systems, the Kuramoto/Haken **order-parameter magnitude** $r = \lvert\frac{1}{N}\sum_j e^{i\phi_j}\rvert$; in other domains, a separately declared operational channel.	[same-shape-as] only when the phase-system channel is actually used; other coherence channels require their own definitions and baselines.

Observed field $\Lambda_{\text{obs}} = \Lambda_0 \ln C_{\text{obs}}$	A logarithmic transform of an operational coherence channel.	[definition] instantaneous readout; no independent dynamics follows from the transform.
Target / dynamical fields $\Lambda_{\text{eq}}, \Lambda_{\text{dyn}}$	A calibrated target and an optional latent reaction-diffusion state.	[borrowed-from] state-space filtering and time-dependent Landau-Ginzburg closures. A fundamental field is a separate conjecture.
k^*	The starred Boltzmann bridge making entropy and $\ln C$ commensurable in the canonical relation.	[same-shape-as] k_B as a conversion bridge. In operational work k^*_μ labels the declared representation and units; it is not refitted to outcomes or evolving states.
Entropy S, d_iS, d_eS	Gibbs/Shannon entropy; **Prigogine's internal/external split** $dS = d_iS + d_eS$, $d_iS \geq 0$ (non-equilibrium thermodynamics).	[same-shape-as] the standard decomposition, verbatim.
σ_{ST} (standard production)	The **entropy production of stochastic thermodynamics** (Sekimoto, Seifert; the non-negativity is the second law).	[same-shape-as].

3. The reciprocity relation

FRC writes the canonical relation

$$dS + k^* d\ln C = 0. \tag{1}$$

Its form is scale invariant. At a declared scale and boundary it may be instantiated as $dS_\mu + k^*_\mu d\ln C_\mu = 0$. Operationally, this is a bookkeeping identity and control law. Physically, the claim that the canonical form governs real open systems remains FRC's open conjecture.

For $dS_{\text{sys},\mu} = d_iS_\mu + d_eS_\mu$, define $\lambda_{B,\mu} = d_iS_\mu + k^*_\mu d\ln C_\mu$. If the operational instantiation is applied to that same boundary, then $\lambda_{B,\mu} = -d_eS_\mu$. Under another boundary or residual convention, that identification need not follow. Every use must declare S, C, μ, the system boundary, the environment channel, and the sign convention.

FRC term	Mainstream counterpart	Relationship
Entropy–coherence reciprocity ("order is rented, paid in exported disorder")	**Prigogine's dissipative structures** — order sustained far from equilibrium by exporting entropy. The word "reciprocity" echoes **Onsager's reciprocal relations** (1931).	[borrowed-from] the dissipative-structures picture, with coherence as the explicit order variable.
Standard production $d_iS \geq 0$	Entropy production in irreversible and stochastic thermodynamics.	[same-shape-as] a standard theorem under its assumptions.
100.005 boundary result	A slow driven Langevin protocol with a quadrature-resolved free-energy reference.	[model-specific] rejects its registered erasure floor at $k^*_{\mu_{\mathrm{nat}}} = 1$ in the tested normalization; does not establish a universal directional replacement law.
UCC	A candidate effective transport closure for C or $u = \ln C$. Linear diffusion of C and linear diffusion of u are different models; transforming the former adds a gradient-square term.	[borrowed-from / candidate closure] reaction-diffusion mathematics; not a deduction from reciprocity or a universal thermodynamic law.

4. Dynamics

FRC term	Mainstream counterpart	Relationship
Relaxation law $\tau_\Lambda(\partial_t \Lambda_{\mathrm{dyn}} + u\cdot\nabla\Lambda_{\mathrm{dyn}}) = D_\Lambda \nabla^2 \Lambda_{\mathrm{dyn}} - \Lambda_{\mathrm{dyn}} + \Lambda_{\mathrm{eq}} + \xi$	**Time-dependent Landau–Ginzburg / Model A** relaxational dynamics; a reaction-diffusion-advection closure.	[borrowed-from] an optional latent closure, not dynamics of the instantaneous transform Λ_{obs}.

Coherence current $J_C = -D_C \nabla \ln C$	**Fick's / Fourier's law** for the coherence field.	[same-shape-as].
Critical slowing ($\tau_{\text{relax}} \to \infty$ near a transition)	**Critical slowing down** at a bifurcation; Scheffer's early-warning signals; Landau theory.	[same-shape-as] the standard precursor; FRC's [own-bet] is only that it appears in a pre-registered *coherence* channel before collapse.
Coherence landscape / attractor basins	The **potential landscape** of a dynamical system; **folding funnels** (Onuchic–Wolynes); Haken's synergetics.	[borrowed-from] the funnel-with-a-drain object, imported into measurement.
Pe_Λ, St_Λ (Lambda-Flight numbers)	**Péclet and Stokes numbers** — advection-vs-diffusion and relaxation-vs-transport ratios.	[same-shape-as] dimensionless transport numbers.

5. Measurement and quantum foundations

FRC term	Mainstream counterpart	Relationship
Collapse as finite-time basin relaxation	Decoherence and einselection for stable sectors; quantum-trajectory theory for conditioned evolution; objective-collapse models for finite reduction.	[candidate own-bet] the present microstate-distribution realization remains conditional on operational-equivalence, bipartite no-signaling, Born-weight origin, and explicit entropy accounting.

Born rule as equilibrium	**Bohm–Valentini quantum equilibrium** and the **sub-quantum H-theorem** (Valentini 1991); the stationary measure of a Fokker–Planck flow.	[borrowed-from] quantum equilibrium; credit shared explicitly. FRC's [own-bet] is the out-of-equilibrium *deviation* it predicts.
Pointer states	**Einselected pointer basis** (Zurek).	[same-shape-as], recast as basin maxima of $\mathbf{\Lambda}$.
Threshold realization $O = \Theta(R \otimes E)$	Measurement as **system–apparatus coupling**; the instrument/POVM view; "measurement is an interaction."	[borrowed-from] the coupling view of measurement, no revelation of pre-existing values.
Coupling as resonance	**Resonant mode coupling** / interaction-generated entanglement.	[same-shape-as] at the quantum scale (entanglement); phase-locking at the classical scale.

6. Chaos, and the field's mathematical status

FRC term	Mainstream counterpart	Relationship
Structure functional $\Sigma = S_{\mathrm{vM}}(C) - S$	Deviation from the **maximum-entropy (Jaynes) distribution**; the residual organization above the von Mises curve.	[borrowed-from] max-ent; $\Sigma \geq 0$ is a theorem, not a finding.
KAM island hierarchy (where $\Sigma > 0$ persists)	**Kolmogorov–Arnold–Moser** tori; the mixed phase space of near-integrable maps.	[same-shape-as] the textbook object; FRC relocates its "fractal" content here (no fitted exponent).
Dynamical localization / coherence-lifetime $t^{*}\gamma_C$	**Anderson/dynamical localization** in the kicked rotor (Fishman–Grempel–Prange); localization break time vs. decoherence rate.	[borrowed-from] localization; read as coherence arresting diffusion.
Leading resonance (the decay-rate anchor)	**Ruelle–Pollicott resonances** of the transfer operator (Venegeroles 2008 for area-preserving maps).	[own-bet, then killed] FRC pre-registered "the coherence-channel rate is the leading resonance"; executing it showed the bare phase autocorrelation is the wrong observable — retracted and

		retained as a negative result (100.002 v2.4).
Λ as a canonical coordinate	**Information geometry**: dual-affine coordinates, the Fisher–Rao potential (Amari).	[own-bet, then killed] $\ln C$ is **not** dual-affine and **not** the Fisher potential on the von Mises family (826.829 §6).

7. Stance and philosophy (mapped, lightly)

FRC term	Mainstream counterpart	Relationship
"No closed systems"	**Open quantum systems** (Lindblad); non-equilibrium thermodynamics; the impossibility of perfect isolation (gravity is unshieldable).	[same-shape-as] the open-system stance, taken as primitive.
"No true rest" / the tremble	Zero-point structure and the broader open-process stance. Quantum mechanics permits stationary states, zero current, and zero expected momentum; uncertainty forbids simultaneous exact conjugate values, not every meaning of rest.	[FRC philosophical/physical stance], not a theorem obtained from the uncertainty relation alone.
Non-locality (phase-only, no-signalling)	**Bell non-locality** of a non-local realist theory (Bohm), with Lorentz-scalar phase correlations.	[borrowed-from] the Bohmian non-local-realist slot.

8. False friends — terms a physicist will misread

FRC reuses common words with narrowed meanings. Do **not** import the dominant everyday or other-field meaning:

- C / **"coherence"** means the phase-alignment order parameter in $(0, 1]$ — **not** the speed of light c, **not** heat capacity, **not** quantum-optical coherence only, **not** "consciousness."
- Λ_{obs}, Λ_{eq}, **and** Λ_{dyn} are different objects. Do not give the observed transform independent dynamics or treat a useful latent closure as proof of a fundamental field.
- k^* is the canonical starred Boltzmann bridge, not an outcome-fitted constant. k^*_μ labels a declared operational representation; it is not an evolving state variable.
- **"collapse"** is resonant relaxation across a threshold into an attractor — **not** gravitational collapse, and **not** observer-caused Copenhagen collapse.

- **"resonance"** is the general coupling operator (frequency-matched fusion into a shared state at any scale) — **not** electrical-circuit resonance only, and not mystical "vibration."
- **"maximize coherence"** is **not** the goal: the live physics is in the non-closing band (intermediate C), never at $C \to 1$ (the dead, fully-locked pole).

9. What is actually FRC's own — the losable bets

Strip the borrowed vocabulary and this is the residue a physicist should actually argue with. None of it follows from any single borrowed piece; each is falsifiable:

1. **One differentiated structure.** The claim that the order parameter, the reciprocity ledger, the relaxation landscape, and the localization arena are *the same object at different scales* — not four analogies. This is the framework's central, riskiest assertion.
2. **Physical reciprocity across open systems.** The canonical scale-invariant form, with predeclared operational channels and boundary, is proposed as a law of nature. This remains open; one finite model can constrain a registered bound but cannot settle the conjecture.
3. **Born-rule deviations** out of equilibrium under specified resonant-driving protocols. Their existence and magnitude are platform-specific open predictions; no universal amplitude bound is presently established.
4. **The coherence-lifetime crossover** $t^{*}\gamma_C = O(1)$ governing delocalization (100.002).
5. **Critical-slowing precursors in a pre-registered coherence channel** before collapse (787.787 P3; 841.005).
6. **Finite-time collapse with lead-time markers** matching catch-and-reverse data (100.003 P1).

Everything in §§2–7 is borrowed shape. Everything in §9 is the wager. Aim scrutiny at §9.

10. The kills, kept visible

Honesty is part of the map. Claims that were FRC's own and have been retracted:

- **The registered coherence-erasure floor** — decided negatively in the 100.005 Langevin closure and declared normalization; no universal replacement law follows.
- **The Ruelle–Pollicott coherence-channel match** — the observable was mis-specified; retracted and retained as a negative result (100.002 v2.4).
- **$\ln C$ as a canonical (dual-affine / Fisher) coordinate** — negative on the von Mises family (826.829 §6).

- **$D \approx 1.90$ as a universal signature** — demoted to a representative value; the robust claim is "structure, not noise" ($D < 2$).
- **The golden-ratio coherence value and the Higgs-mass extremum** — rejected in their tested forms.
- **The printed ρ-level Lambda drift and tested completion as Born carriers** — rejected; the replacement microstate ontology remains conditional.

11. How to read FRC as a physicist

Take the vocabulary as a coordinate change, not a discovery. Where FRC says "coherence," read "order parameter"; where it says "the ledger," read "Prigogine plus Landauer"; where it says "collapse," read "relaxation in a decohered landscape with a Bohm–Valentini equilibrium." Under that translation almost every sentence becomes a statement you can already evaluate — which is the point. Then turn to §9, where the translation runs out and a genuinely new, losable claim begins. That is the only place FRC asks you to grant it anything, and the only place worth the fight.

Connections

- [[FRC-100-010]] — Orientation and working toolkit (the companion front door)
- [[FRC-566-001]] — canonical reciprocity, operational realization, and boundary discipline
- [[FRC-100-005]] — closure-scoped boundary experiment
- [[FRC-826-829]] — Mathematical foundations, status-labeled
- [[FRC-787-787]] — Lambda-Flight; the discipline of the residual closure

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Version note

Version 1.2 restores the elegant canonical relation, confines indexed notation to operational realizations, and corrects the uncertainty/rest crosswalk. It retains v1.1's removal of settled-directional framing, separation of the three Lambda objects, and conditional status of the collapse realization.