GOT-V1-1-0

0. Part 1: Prelude

On the Origin of Life

Reader introduction • Non-canonical. The Part 1 papers govern technical definitions, arguments and evidence.

1. If This Were Possible

What if some of the hardest problems in complex systems share a missing layer of causal explanation?

Science has given us extraordinary accounts of matter, energy and the machinery of living things. Yet explaining how complex organisation produces emergent behaviour remains difficult. General Organisation Theory starts from a specific proposition: we can understand a system's ingredients and still lack a clear account of how its organisation makes particular differences matter to what happens next.

Life is the central example. The line between complex chemistry and biology remains diffuse when we try to draw it from familiar traits alone. At what point does organised chemistry become a living system?

Part 1 proposes **Non-Trivial Computation (NTC)** as a candidate causal missing link. A physical system distinguishes between alternatives, and its organisation makes what happens next depend on that distinction. For life, that causal work must help maintain the organised system itself.

If we can locate and test that relationship, we gain more than another definition of life. We gain an additional layer of causal attribution: a way to explain which distinctions make a difference, through what organisation, and with what measurable consequences.

2. Why This Is Difficult

The familiar attributes of life tell us what to look for: organisation, metabolism, response, growth, reproduction and adaptation. They do not, by themselves, tell us what connects those activities.

A flame consumes fuel. A crystal grows. A dormant seed may show little activity. Such cases make any single visible property a poor place to draw the line.

The difficulty is not that biology has overlooked regulation or information processing. Explaining particular mechanisms and establishing a common, testable boundary between chemistry and life are different tasks. Calling everything "computation" would not help either. The framework has to identify a causal dependence that belongs to the physical system—not just a description we can attach to it.

3. What We Propose

Look beneath the familiar attributes and ask whether a common causal pattern is present. What difference is being distinguished? What organisation makes it consequential? What changes because of it?

The comparison below looks for that relation inside familiar biological processes. It is a map of where to investigate, not a table of experimental results.

Familiar attribute	Proposed causal connection
Order / cellular organisation	Biochemical distinctions guide the construction and maintenance of cellular structure.
Sensitivity / response	Environmental distinctions lead to different responses through an organised pathway.
Reproduction	Hereditary distinctions guide copying and offspring construction.
Adaptation	Conditional: distinction-dependent processes causally effect downstream system states.
Growth and development	Inherited and local distinctions shape what is built, where and when.
Regulation / homeostasis	Internal differences alter regulatory responses that help preserve operating conditions.
Energy processing / metabolism	Molecular and energy-state differences alter how metabolic pathways operate. Energy conversion alone is not enough.
Evolution	Conditional: inheritance, expression and reproduction make distinctions consequential across generations.

The proposed connection is not simply that these processes use energy or contain information. It is that organised discrimination helps bring about their outcomes. The life claim is stronger still: that causal work helps maintain the organisation that carries it, sustained by an ongoing supply of energy or matter.

4. What Had to Be Built

To make this more than an interpretation, the papers require a controlled comparison.

Suppose a chemical system switches pathways when a resource becomes scarce. The switch might reflect direct chemical forcing, or it might depend on an organisation that distinguishes resource states. How would we tell?

Vary the relevant distinction and measure the response. Then alter the proposed mediating pathway while preserving the relevant components, energy supply and surrounding conditions as far as possible. Does the dependence change as predicted? For a life claim, does disrupting that pathway also impair the system's ability to maintain its organisation over a stated period?

The framework calls this family of comparisons **Baseline Dynamics**. The organisation through which the distinction does its work is the **Information Processing Locus (IPL)**. One specifies the comparison; the other identifies what must be tested. Comparisons may be experimental, modelled or inferential, but their evidential limits must remain explicit.

General damage is not enough: a broken system tells us little unless we can isolate why it failed. The papers therefore specify the boundary, scale, timespan and noise conditions under which the comparison is meaningful. Their physical grounding adds no new force; the proposed causal layer remains within physics and chemistry.

5. Why Three Papers

On the Origin of Life asks what physical relation earns the term life. It develops NTC, the physical grounding, the controlled comparison and the proposed maintenance-based threshold.

The Identification of Life asks what, exactly, carries that relation. A living process inside an object does not make the entire object the living unit. A dormant seed with its own capacity to resume also requires a different account from a viral particle whose retained organisation needs host completion.

The Life Attribution Procedure turns those distinctions into a repeatable investigation. Its case studies illustrate the reasoning and identify where stronger evidence is needed. They are not final verdicts for every seed, virus or synthetic system.

6. What You Need to Grant – and What You Do Not

Only this much to begin: organisation may make a causal contribution that a list of components or traits does not capture.

You do not need to believe that cells are digital computers, that information exists apart from matter, or that life escapes chemistry. Nor must you accept the proposed threshold before examining it.

NTC can occur without life. The question is whether its role in maintaining an organised system supplies a useful discriminator—and whether observation supports that claim.

7. Where to Attack It

First, the causal test. Does changing the proposed mechanism isolate the distinction's contribution, or simply damage the system? If the claimed dependence survives an adequate disruption unchanged, that attribution needs revision.

Second, the life threshold. Does the maintenance relation distinguish life from persuasive non-living cases? A framework that can label anything alive by adjusting its boundaries has not explained the boundary.

Third, explanatory value. Does NTC help identify a dependency, design an informative comparison or resolve a genuine attribution problem? Or does it only rename what was already described?

Where evidence is incomplete, the procedure must state the missing condition and what observation would change the conclusion. Uncertainty should direct the next investigation, not protect the preferred answer.

8. If the Architecture Holds

If the framework holds, we would gain a clearer account of the chemistry-to-life transition: not a new ingredient, but a testable change in what organisation does. Distinctions would help explain how a driven system maintains the conditions of its own continued existence.

The gain would be an additional layer of causal attribution. Instead of stopping at "this system grows, responds or adapts", we could follow the distinctions and mechanisms through which that outcome becomes possible—and test what happens without their contribution.

The wider possibility reaches beyond life. This kind of causal organisation may already be present below the life threshold and continue through increasingly complex biological organisation into our most complex social systems. That broader reach is not established by these papers. Life is the first major test of the proposition.

If confirmed against observation, that added clarity would advance our understanding by connecting explanations across scales and making unresolved causal dependencies easier to investigate. The ambition is not to replace what science already explains, but to make the causal work of organisation more explicit.

The papers that follow set out the proposed bridge: what makes distinctions consequential, when that work becomes life-maintaining, and how we can tell where the relation belongs.

Canonical source note

Derived from the supplied Part 1 papers: GOT-V1-1-1, On the Origin of Life (FD16); GOT-V1-1-2, The Identification of Life (v18); and GOT-V1-1-3, The Life Attribution Procedure (v15). These papers remain the technical authorities.

The table adapts the exploratory Life Attribution comparison. The eight-stage structure follows GOT-SD-PRELUDE-01, Issue 1. Support materials remain secondary controls; this reader introduction does not redefine the framework or establish empirical validation.