Construct and Inquiry:
Why Life Energy Means Different Things in ISLE and in What Is This Thing Called Life?

By Lane Everett Sloan

The apparent tension surrounding life energy in this corpus arises from a category error: a bounded theoretical construct and an ontological proposition are being evaluated as though they were the same kind of claim. They are not, and once that governing distinction is made explicit, the rest follows. The ISLE corpus contains two distinct treatments of its most consequential construct. In the theoretical monograph and its companion papers, life energy is a constrained, cross-domain theoretical construct — the directional force of a perceptual entity to sustain, reinforce, or reconstruct the interpretive architecture through which it maintains viable coherence with its environment, grounded in the thermodynamics of dissipative systems and translated deliberately into organizational and individual-level theory (Sloan, 2026a). In What Is This Thing Called Life?, life energy is extended into a claim about physical reality itself: an undifferentiated cosmic energy, present since the first instant of the universe, that organizes itself into increasingly complex and aware forms, and whose totality — the reach itself, still underway — the book identifies with what religious traditions have called God (Sloan, forthcoming).

These are not the same claim, and treating them as if they were invites two errors: a reader who encounters only the monograph may wonder whether ISLE quietly depends on a metaphysical commitment it has not defended; a reader who encounters only the personal book may mistake a philosophical inquiry for a scientific one. This paper has two purposes, and it is organized in three parts to keep them distinct.

Its primary purpose is to explain why life energy is treated differently in the two works and how that difference originated. Part One does this. It traces the construct's history — from a conversation about the improbability of thought emerging from chemistry, through a gap left open in an early organizational behavior paper, to the integration of the two lines in ISLE and the deliberate decision to keep life energy bounded there once its resemblance to the discredited program of vitalism became clear. It then sets the two treatments side by side, explains why the corpus is structured this way rather than treating the difference as an oversight to be corrected, and shows why ISLE does not depend on the Life book's further claims.

Its second purpose is to evaluate the Life book's extension on its own terms. A reader who accepts that the two treatments are separate can still ask whether the Life book's argument is reasonable. Part Two answers with a three-tier framework for evaluating plausibility across claims of genuinely different kinds — empirical, interpretive, and metaphysical — organized around two properties a claim may possess independently of each other, generativity and accountability, so that the comparison can be made on fair terms rather than by placing two incommensurable arguments on a single scale. It then applies that framework to the Life book's argument, testing it against its most serious rivals.

Part Three returns to ISLE and asks the harder question the separation leaves open: whether ISLE's own construct can be tested on its own terms, independent of the Life book entirely.

Throughout, the governing point is the same. ISLE's theoretical treatment of life energy and the Life book's cosmological extension are not competing answers to the same question — they are answers to different questions. ISLE's academic claims do not depend on the cosmological extension being true, and that extension is best understood as a philosophical and theological argument, which the book itself offers as a theory and not a proof.

PART ONE: WHY THE TWO TREATMENTS DIFFER AND HOW THAT CAME ABOUT

1. THE PROBLEM

Every framework that introduces a construct as consequential as life energy inherits a burden of proof, and ISLE has acknowledged this from the start: life energy is ISLE's central generative construct, and for that reason the point in the architecture most exposed to the charge that the whole edifice rests on something undemonstrated. That vulnerability does not disappear because two different works in the corpus treat the construct differently. If anything, the difference sharpens the question a careful reader will eventually ask: which treatment is ISLE actually committed to? Is the organizational theory quietly smuggling in a cosmological and theological claim that it has not argued for on its own terms? Or is the personal book simply an unconstrained extension that the theory itself does not need and should not be judged by?

The answer is the second one, but it has to be earned rather than asserted. This paper earns it in two steps: first by showing how the two treatments arose and what each claims, and then by doing the comparative work directly: setting the current scientific understanding of life's origin and the evolutionary explanation of human cognitive sophistication against the plausibility of the argument developed in What Is This Thing Called Life?, using a method suited to the fact that these are not arguments of the same kind.

2. WHERE THE CONSTRUCT CAME FROM: A BRIEF HISTORY

The two treatments this paper compares did not arrive by design. They arrived in the order I actually worked, and that order is worth setting down, because it explains why the construct is bounded where it is bounded and open where it is open.

The starting intuition did not come from a literature search. It came from a conversation with my cousin, an astrophysicist, in a room above the Park Theater in Estes Park during the summer between my bachelor's and master's degrees. The question that would not resolve was simple to state and hard to dismiss: fuel explains how a living thing moves, but it does not explain why a living thing reaches, repairs itself, and presses toward its own continuation in a way a rock or a machine does not. Put another way, the possibility that thinking — reasoning, reflecting, wondering what life is — could emerge simply from chemicals combined under the right conditions felt remote. That sense of remoteness was the actual origin point of what later became life energy. It was not a theological premise adopted in advance and then defended. It was an unresolved question carried forward from a specific conversation.

The concept of structuring has a separate and later origin. It came out of a 1969 term paper I wrote for a graduate course, and I returned to it in a set of short papers in 1977 and a strategic-planning paper in 1978 (Sloan, 2026a). Those papers described the architecture — the perceptual entity, structural planes, the way structures deepen until they constrain — and each needed something internal to the perceptual entity that pressed it toward viability. None of them said what that something was. It was assumed rather than derived — a working premise the structural argument needed in order to function, but had not itself justified. In systems terms, the model had structure without energy. That gap did not close on its own; it persisted, unresolved, as the structural constructs were developed further over the following decades.

The two lines ran in parallel for decades — the life energy question pursued on its own terms, alongside thermodynamic accounts of how energy is distributed between maintaining structure and generating new structure, and the structural framework used as a working lens. I first sensed that they belonged together at my ranch in East Texas, but I did not have the time or the support to pursue the integration then. By 2025, two things had changed. AI was advancing the world to the point where reconstruction would

become more the norm than the exception, which is the condition ISLE is built to address; and having used AI myself, I felt it could support me in developing the integration. I brought the two lines together as ISLE: life energy as the directional force, structure as the architecture through which that force takes shape. In that stretch of writing, Bergson's élan vital came back up, and with it a long and, in places, discouraging history. Vitalism had proposed something like life energy a century earlier and had failed — not for lack of serious effort, but because the substance vitalism proposed was never located, and biology's turn toward mechanism and genetics gave a more adequate account of the phenomena vitalism had tried to explain. That history was decisive for how life energy would be handled inside ISLE. The construct posits no vital substance or force; it is grounded in the thermodynamics of dissipative systems (Prigogine & Stengers, 1984). Elaborating further on its ultimate nature risked reviving a program that had already been tried and had already failed on its own terms. The more defensible course, and the one the monograph takes, was to keep life energy scoped to the specific theoretical work it needed to do — explaining the direction of a perceptual entity's development — without asserting anything further about what the construct ultimately is. That scoping was a deliberate decision, not an oversight, and it is the reason the monograph's treatment stops where it stops.

The question did not stay closed, however, once work began on What Is This Thing Called Life? (the Life book). A research paper could stop at direction within a perceptual entity; a book asking what life is could not, because it had to ask when that direction first appeared. Returning to the question in that context, I reevaluated the current state of scientific thinking on the origin of life and found the original intuition sharpened rather than resolved: if science had not yet explained how life itself began, it seemed at least as remote, and arguably more remote, that the same explanatory apparatus could account for thought and consciousness — the most demanding product of the process being asked to explain itself. That reevaluation is what carried the inquiry from a bounded construct back into open philosophical territory for the Life book, this time pursued on its own terms rather than as a solution to a structural problem.

The claim in the Life book that resulted was framed deliberately, and the framing matters as much as the content. It was not offered as proof — I have been explicit that physics establishes only that physical energy is conserved, and that the step from there to the claim that life energy is that same energy, and so transitions rather than stops at death, is mine to argue, not physics's to certify. It was offered as an account that could not be proven, but that also could not be shown to be false — and on that basis offered as a theory I stand on, for the reader's own pondering, rather than as something settled. That is also the reason this further derivation was deliberately left out of The Big Puzzle: that book's purpose was to make the ISLE mechanism accessible through a mystery format for general readers, and there was no direct scientific proof on which to hang a metaphysical claim of this kind within it. I have been clear that the derivation needs to be asserted somewhere in the corpus, in its own place, clearly labeled as what it is. This paper, alongside the chapters of What Is This Thing Called Life? it analyzes, is that place.

3. TWO PASSAGES, TWO CLAIMS

The clearest way to see the difference is to place the two treatments next to each other in summary.

The theoretical monograph's claim. The argument for life energy begins from architectural necessity within ISLE, not from cross-domain borrowing, and this ordering matters: it is the strongest argument in the monograph's case and the one most easily lost if the construct is described only by its intellectual lineage. Existing organizational theory explains with real precision how perceptual entities act, adapt, and learn within an established interpretive architecture — but no existing construct integrates an explanation for why similarly situated entities diverge: why some continue deepening premises that have become misaligned with their environment while others reconstruct before breakdown. The claim is not that no combination of existing concepts — identity, leadership, dynamic capabilities, psychological safety, slack resources, environmental interpretation — could ever be assembled to approach this divergence. It is

narrower and more precise: no existing construct specifies, as a single integrated mechanism, the directional allocation of developmental capacity itself, the way life energy is built to do within ISLE's architecture. The monograph calls the resulting divergence life energy's empirical signature — the observable pattern the construct is built to explain. This is an argument that the construct is required to complete ISLE's explanatory architecture, not an argument that organizational scholarship as a whole has no other route to the same phenomenon.

Life energy operates in two forms, and the distinction between them is load-bearing for everything that follows. The construct does not refer to a quantity the entity holds. Developmental capacity arrives continuously through the entity's exchange with its environment, and life energy specifies how that capacity is committed. Kinetic life energy is capacity committed to reinforcing and deepening the existing interpretive architecture — what existing theory, without theorizing the deeper mechanism, already describes as exploitation, learning, and capability development. Potential life energy is capacity not yet committed to any plane: the latent capacity to decouple from the existing architecture and generate alternative governing premises entirely — not variation within an existing structure, but the structural capacity to reconstitute meaning at the level of the premises themselves. The monograph also specifies where potential life energy comes from. As consolidation narrows interpretive elasticity, a growing share of what the environment delivers cannot be absorbed by the existing architecture; when that unabsorbed input is registered rather than filtered out, it is potential life energy. Misalignment is therefore both the condition that makes reconstruction necessary and the source of the capacity that makes it possible. Redistribution between kinetic and potential life energy — a change in how incoming capacity is committed, not a transfer between two stores — as an interpretive architecture consolidates and approaches the limits of its elasticity, is what makes ISLE a developmental theory rather than a descriptive taxonomy.

The monograph then specifies precisely what potential life energy does when it is activated: it becomes thinking. Thinking is not a separate construct introduced alongside life energy — it is life energy's generative expression, the specific activity through which loosened premises become new ones. Life energy is the directional force; thinking is what that force does in its potential form; reconstruction is the outcome. This connection is the single most important thing to hold onto in comparing the two works, because it means the monograph already answers, at the organizational and individual level, a version of the same question the Life book asks at the cosmic level: how an animating force becomes thought. ISLE's answer is operational and bounded — thinking is observable in the loosening of governing assumptions and the generation of new organizing logics, and it is specified precisely enough to be differentiated from adjacent constructs such as double-loop learning and sensemaking — and the monograph does not extend that answer into a claim about what life energy ultimately is, where it originates, or what makes thought possible as a matter of physics.

Its intellectual provenance is stated directly on top of this operational account. The construct is grounded in the thermodynamics of dissipative systems (Prigogine & Stengers, 1984), which treats the distribution of energy between maintaining existing structure and generating new structure as a fundamental determinant of a system's developmental trajectory. The translation of that grounding into organizational theory is defended on three grounds: that perceptual entities are living systems in the relevant philosophical sense (Maturana & Varela, 1980); that the cross-domain translation is constrained to a single specific property — the directional force governing whether developmental capacity is committed to reinforcing or transforming structure — and posits no vital substance or force; and that organizational theory has a legitimate history of this kind of translation — Weick from psychology and phenomenology, Cyert and March from bounded rationality, Teece from evolutionary economics and resource-based theory. Bergson enters the monograph elsewhere, and for a different purpose: his distinction between intelligence and intuition grounds ISLE's account of thinking, not the life energy construct itself. The monograph is explicit that life energy is not reducible to motivation, cognition, attention, or Bruch and

Ghoshal's (2003) organizational energy; it is a structural construct describing whether an interpretive architecture is being reinforced or transformed. Nowhere in this treatment is a claim made about life energy as a physical quantity, a cosmological force, or a theological referent. The construct is scoped to do theoretical work at the level of individuals, organizations, and societies, and its justification rests on architectural necessity within ISLE and the productivity of the cross-domain translation, not on a claim about fundamental physics.

One further clarification in the monograph is worth stating explicitly, because it bears directly on the difference in treatment this paper is built around. ISLE treats life energy as a construct that names where a system's directed capacity is organized — not a substance, and not a quantity stored within the entity. The monograph makes the point with a comparison to dark energy: dark energy has never been isolated or located; it is inferred from what it does, and in the standard cosmological model it is a property of space itself rather than a substance within it. Life energy is a construct of the same kind — a property of the perceptual entity's organized exchange with its environment, inferred from its effects on the direction of development. The comparison identifies the kind of construct life energy is; it does not borrow dark energy's evidentiary standing, a distinction Section 11 returns to. What the monograph is committed to is the reality of the pattern the construct names: perceptual entities commit developmental capacity directionally, and that commitment produces observably different outcomes. It is not committed to any further claim about what, if anything, underlies that pattern ontologically. This is precisely the distinction the Life book crosses. Its argument does not stop at naming a directional pattern; it asks what the pattern ultimately is, and answers that life energy is the original energy of the universe, organized to the point where it becomes self-directing. Holding these two apart — a construct naming a pattern of directed development, against a substantive claim about what ultimately underlies it — is the clearest short statement of the difference in treatment this paper develops at length.

The Life book's claim. What Is This Thing Called Life? is itself built in two parts, and the distinction between them matters as much as anything else this paper argues, because it is a distinction the book draws for itself rather than one imposed on it from outside.

The first part explains life. It begins from the same starting observation as the monograph — that living systems reach toward their own continuation in a way that fuel alone does not explain — and extends it into a fuller account of directionality, thinking, and the relationship between them: life energy as the animating force that makes a living thing reach, repair, and press toward continuation, expressed in its most developed form as the capacity to think. This part of the argument stays within territory biology and philosophy of mind already occupy, even where it reaches conclusions biology alone does not require. It is this part that Tier 2 of this paper's framework, developed in Part Two, evaluates directly, alongside its most serious naturalistic rival in Deacon's teleodynamics, a rival the book now names itself.

The second part extends the first into a different kind of claim entirely. Having established, to its own satisfaction, that life energy explains life, the book goes further: it identifies life energy with the organizing energy of the universe since the Big Bang, and identifies life energy in its totality — the reach itself, still underway, not a creator standing outside the process — with what the major traditions have called God. This is where the argument moves from explaining a phenomenon to grounding a cosmology, and where its evidentiary character changes most sharply. Within this second part, conservation of energy is extended, explicitly as a philosophical step rather than a finding of physics, to the claim that the energy animating a life does not simply stop at death but changes form. The book is careful not to draw the further conclusion many readers will expect: it states that physics does not prove what happens after death, that physics does not establish that life energy is the same thing as physical energy, and it leaves open what the transition involves, including whether anything recognizable as a particular person persists. That same chain of reasoning is then followed to a claim about what existed before the Big Bang. I am explicit that this second part is a theory, not a proof, and flag the step from life energy to God as the longest step in the entire argument. In its final chapter the book gives its own answer to the question of

God, which is yes, and calls that the case it stands on, while still holding it as a theory rather than a proof. It is this second part, and only this second part, that Tier 3 of this paper's framework evaluates against Teilhard de Chardin's cosmology, Whitehead's process philosophy, the dark energy analogy, and the physicists' own competing answers to what came before the Big Bang.

Keeping these two parts distinct matters because they carry different weights. The first part is continuous with the monograph's own treatment of thinking as the generative expression of potential life energy, pushed further but not fundamentally discontinuous with it. The second part is where the book leaves ISLE's territory altogether and enters territory ISLE was never built to require. A reader who finds the first part compelling is not thereby committed to the second; a reader who resists the second part has not thereby undermined the first. This paper's tiered framework tracks that internal division precisely — Tier 2 corresponds to the first part, Tier 3 to the second — because the book's own structure, not just this paper's analytical convenience, supports treating them separately.

These are different claims, built for different purposes, and the purposes themselves are worth stating rather than leaving to be inferred from the difference in scope. ISLE's purpose is to build a theoretical framework for meaning systems and their dynamics — how interpretive architectures cohere, consolidate, and either reconstruct or fail as the environments they face continue to change. That purpose does not require, and is not advanced by, an account of what life ultimately is; it requires a construct that does specific explanatory work at the level of individuals, organizations, and societies, and life energy is scoped exactly to that requirement, defended as theory-building whose test is whether it does explanatory work existing organizational constructs cannot do. The Life book's purpose is different in kind. It is an attempt to understand life itself, more deeply and more personally, and a purpose stated that way cannot stop at a bounded construct — it has to ask what the foundations of life actually are, because that is the question the purpose itself poses. Its claim is defended as philosophical and, in its final movement, theological: a chain of reasoning followed past the point where organizational theory or biology can adjudicate it, offered with an explicit acknowledgment of its own limits. The two works are not answering the same question with different degrees of caution. They are answering different questions, set by different purposes, and the difference in treatment is simply what follows from taking each purpose seriously on its own terms.

A visitor moving from the ISLE Research section, where the ISLE monograph and its companion papers live, to a piece connected to What Is This Thing Called Life? will encounter the same term doing substantially more work in the second location than in the first. Left unexplained, that shift looks like inconsistency, or worse, like a theory quietly borrowing credibility from a metaphysical claim it has not earned. Explained, it is something else entirely: a research program that keeps its scientific and philosophical commitments in clearly separated compartments, so that a reader can evaluate each on its own terms and is never asked to accept the second in order to credit the first. That separation is the rationale for the difference in treatment, and it is worth stating — on this site and anywhere else the two works are encountered together — rather than leaving readers to infer it, or to suspect its absence.

4. WHY ISLE DOES NOT DEPEND ON THE LIFE BOOK'S EXTENSION

The practical payoff of this distinction is straightforward. ISLE's organizational and individual-level constructs — kinetic and potential life energy, the redistribution between them, their observable manifestation in reinforcing versus transforming behavior — are operationalized at the level of observable interpretive and behavioral patterns in individuals, organizations, and societies. Their theoretical justification rests on architectural necessity within ISLE, the productivity of the cross-domain translation described in the monograph, and whatever empirical support the companion research program eventually establishes at that level. None of that work requires the cosmological or theological extension developed in What Is This Thing Called Life? to be true. A reader could accept every construct in the

ISLE monograph while remaining entirely agnostic, or even skeptical, about the Life book's cosmological and theological argument, without any inconsistency. The Life book makes the same point in its own terms: ISLE neither requires nor depends on the further interpretation the book reaches. This is the structural fact for any reader moving between the two works: the theory does not stand or fall with the philosophy, because the theory was never built to require it.

5. POSITIONING THE TWO WORKS

Two statements apply wherever the two works are cross-referenced on this site. First, on the ISLE Research pages: life energy in the ISLE monograph is a bounded theoretical construct, grounded in the thermodynamics of dissipative systems, whose justification rests on its explanatory productivity at the level of individuals, organizations, and societies — not on any claim about the ultimate nature of physical reality. Second, wherever What Is This Thing Called Life? is introduced: the book extends the same starting observation into a personal philosophical and, in its final chapters, theological argument about the nature and origin of life energy itself — offered, in my own words, as a theory and not a proof, and best read as a companion inquiry rather than as an extension of the research program's evidentiary claims.

PART TWO: EVALUATING THE LIFE BOOK'S EXTENSION ON ITS OWN TERMS

Part One establishes that the two treatments answer different questions and that ISLE does not depend on the Life book's extension. A reader who accepts that can still ask a separate question: does the Life book's extension stand up on its own terms, and how does it compare with what current science explains? Part Two takes up that question. It does not reopen the separation. It evaluates the Life book's argument by the standard appropriate to each kind of claim it makes, and sets it against its most serious rivals and precedents.

6. A CATEGORY PROBLEM, NOT A CONTRADICTION

Comparing the current scientific position on life's formation and the evolutionary explanation of human cognitive sophistication to the plausibility of the argument in What Is This Thing Called Life? is a fair question to pursue, but answering it by placing both accounts on a single plausibility scale would misrepresent both. Evolutionary biology and origin-of-life research answer empirical questions: what happened, through what mechanisms, with what evidence. The Life book's core argument, once it moves past the observation that living systems display directionality, is answering a different kind of question: why is there a universe in which directionality, self-organization, and eventually reflective awareness are possible at all, and what — if anything — grounds that fact. No amount of additional data about hydrothermal vents or encephalization answers the second question, and no amount of philosophical reasoning about a cosmic ground of being answers the first. Confusing the two is the single most common error in debates of this kind, made by partisans on both sides: scientists who treat "why is there direction at all" as a question biology owes an answer to, and metaphysicians who treat unresolved details in origin-of-life chemistry as evidence for a missing force. The framework below is built to avoid both errors.

7. A THREE-TIER FRAMEWORK FOR EVALUATING PLAUSIBILITY

The proposal is to sort claims about life energy — and, by extension, any claim that mixes science, philosophy, and theology — into three tiers, each with its own evidentiary standard. A claim is evaluated against the standard appropriate to its own tier, and its plausibility is reported as a profile across tiers rather than collapsed into a single verdict.

The three tiers are not merely three degrees of certainty along a single scale. They are distinguished by two properties a claim may possess independently of each other: generativity — whether the claim produces its own testable predictions — and accountability — whether the claim can be contradicted by findings already established elsewhere. A claim's tier is determined by which combination of these two properties it has, not by how confident anyone feels about it.

Tier 1 — Empirical claims. These are claims about mechanism: what physical, chemical, or evolutionary processes produced an observed outcome, and what evidence supports the causal account. Tier 1 claims possess both properties fully: they generate direct predictions and are resolved by direct test. The standard of evaluation is ordinary scientific practice — predictive success, parsimony, convergence of independent lines of evidence, and falsifiability in Popper's original sense (Popper, 1959), where it separates settled science from claims still open to test. A claim earns high Tier 1 plausibility by being consistent with, and ideally predicted by, the accumulated evidence of the relevant sciences. This is the domain of what can be known.

Tier 2 — Interpretive or philosophical claims. These claims also possess both generativity and accountability, but resolution is pending rather than achieved. A Tier 2 claim generates falsifiable predictions and remains answerable to evidence in current practice, even where the evidence has not yet settled the matter — for instance, whether an empirical mechanism (natural selection filtering for directional systems) is a complete answer to a question, or whether it leaves open a further question (where did the property being filtered for come from in the first place) that competing, falsifiable research programs are still actively contesting. The standard of evaluation is argumentative coherence together with falsifiability in principle: does the claim follow from defensible premises, does it engage seriously with rival positions occupying the same territory, and could evidence in principle decide between them. This is the domain of what can be reasoned toward, even where reasoning has not yet converged.

Tier 3 — Metaphysical or theological claims. These claims possess accountability without generativity. A Tier 3 claim does not produce its own testable predictions — no experiment could confirm it — and for that reason it can never be proven. But this does not mean it floats free of empirical contact: it remains fully exposed to disconfirmation by anything already established at Tier 1 or Tier 2. It can be killed even though it cannot be proven. This is the precise sense in which Tier 3 is not a refuge for unfalsifiable claims: unfalsifiability protects nothing here, because negative accountability still applies in full force. Tier 3 is therefore not a domain of proof but of reasoned belief — claims about ultimate ground, evaluated not by whether they can be demonstrated true or false but by internal coherence, consistency with (not contradiction of) everything established at Tiers 1 and 2, and careful positioning relative to a real lineage of thought that has taken the same territory seriously. This is the domain of what is most reasonable to believe, and the most credible thinkers who have worked in this tier say so directly rather than dressing belief up as proof.

Tier	Generativity	Accountability	Standard of evaluation	Example
Tier 1 — known	Yes — generates direct, testable predictions	Yes — resolved by direct test	Predictive success, parsimony, convergent evidence, falsifiability	Evolutionary explanation of human cognitive sophistication
Tier 2 — reasoned toward	Yes — generates predictions not yet resolved	Yes — answerable to evidence in current practice	Argumentative coherence plus falsifiability in principle	Life energy vs. Deacon's teleodynamics as rival accounts of directionality
Tier 3 — reasonable to believe	No — produces no testable prediction of its own	Yes — exposed to disconfirmation by Tier 1 or Tier 2 findings	Internal coherence, consistency with Tiers 1–2, careful positioning in a real lineage of thought	Life energy identified with the organizing ground of the universe

The progression across the three tiers is therefore a progression of verb, not merely of confidence: Tier 1 asks what can be known, Tier 2 asks what can be reasoned toward, Tier 3 asks what it is reasonable to believe. A claim's tier is also not fixed permanently. A Tier 2 claim graduates to Tier 1 once its predictions are confirmed and the matter is settled, or degrades to Tier 3 if it turns out not to generate genuine testable predictions after all — a common fate for programs that appear scientific but cannot in practice be tested. A Tier 3 claim could migrate to Tier 2 if a way were found to derive a testable prediction from it that did not previously exist. The tiers describe a claim's current epistemic status, not a permanent verdict on its worth.

The discipline this framework enforces is simple: a claim should be evaluated by the standard of the tier it actually belongs to. An argument that borrows the rhetorical confidence of Tier 1 for a Tier 3 claim is making a category error. So is an argument that dismisses a Tier 3 claim by Tier 1 standards it was never trying to meet, when negative accountability — not falsifiability — is the standard it should actually be held to.

This framework is not built from nothing, and it is worth locating against the nearest existing work rather than presented as though no one had asked these questions before. Generativity maps closely onto Lakatos's distinction between progressive and degenerating research programmes (Lakatos, 1970): a progressive programme predicts novel facts and gets some of them corroborated, a degenerating one does not. But the two frameworks diverge at exactly the point that matters here. Lakatos built his distinction to sort good science from bad science, full stop — a degenerating programme is failing at the only thing it was trying to do. Tier 3 is not a degenerating programme being let off easy. It was never attempting science in the first place, and judging it by a standard built to separate good science from bad science would be the same category error this paper is built to avoid. Tier 3's reasoned belief is also evidentialist rather than properly basic in Plantinga's sense (Plantinga, 2000): it rests on an argued chain, not on a belief that requires no argument at all, of the kind Plantinga defends for theistic belief formed directly through religious experience. That places this framework closer to Swinburne's cumulative-case approach (Swinburne, 2004), in which no single line of reasoning is conclusive but several considered together carry more weight than any one alone — the same basic shape as the eight-link chain in Section 11.

8. TIER 1 APPLIED: WHAT CURRENT SCIENCE ACTUALLY EXPLAINS

Origin of life. The scientific account of how life began is genuinely unresolved in its mechanistic details, and this should be stated rather than minimized. Multiple hypotheses remain live: the RNA World hypothesis, in which a self-replicating and catalytic RNA molecule preceded proteins and DNA; the alkaline hydrothermal vent hypothesis, in which natural electrochemical gradients and mineral catalysis at the ocean floor provided the energy and compartmentalization needed for early chemistry; and metabolism-first models, in which self-sustaining chemical networks preceded genetic replication entirely. A 2025 article in Philosophical Transactions of the Royal Society B concluded that no single scenario has been established, with the conditions required by the leading candidates often incompatible within a single setting (Solé et al., 2025), and genetics and metabolism most likely having evolved together rather than one preceding the other. This is an active, well-funded, methodologically serious research program producing steady incremental progress — laboratory work has demonstrated RNA enzymes capable of self-sustained replication (Lincoln & Joyce, 2009) — not a settled account and not a mystery science has given up on.

It is important to be precise about what this open research frontier does and does not license. It does not license the inference that a missing physical force must be supplied from outside biology and chemistry to close the gap. Every open question in origin-of-life research is a question about which chemical and geological pathway actually occurred, not a question about whether chemistry and geology are in principle sufficient. The gap is evidentiary, of the ordinary kind that characterizes any live research

frontier, not categorical. This distinction is worth naming by its usual name: treating a current evidentiary gap as if it were a categorical one, and inserting a designed force to occupy it, is the god-of-the-gaps move that Bonhoeffer himself warned against as bad theology, not merely bad science (Bonhoeffer, 1997) — a god whose territory is only the present limit of human knowledge shrinks every time that limit moves, and is a poor foundation for either science or belief. Nothing in this paper's treatment of the origin-of-life frontier makes that move, and the distinction between an evidentiary and a categorical gap is what keeps it from doing so.

Evolutionary explanation of human cognitive sophistication. Here the scientific account is considerably more settled. The evolutionary trajectory from early hominins to a species capable of abstract reasoning, language, and self-reflection is explained through converging lines of evidence: the fossil record of steadily increasing brain-to-body ratio (encephalization) across the hominin lineage; comparative genomics identifying specific regulatory changes associated with human brain development; developmental biology (evo-devo) showing how small changes in the timing and regulation of gene expression can produce large changes in neural architecture and connectivity; and gene-culture coevolution models showing how the human capacity for cumulative culture and language created selection pressure that fed back on brain evolution itself, each generation's cultural inheritance raising the cognitive bar the next generation's biology had to meet. None of this requires a directional force external to the evolutionary mechanism. Differential survival and reproduction, acting on variation over deep time, is a well-evidenced and mechanistically detailed sufficient explanation for the trajectory, including its most sophisticated products.

Verdict at Tier 1. Both accounts examined in this section — the mechanistic study of life's origin and the evolutionary explanation of human cognitive sophistication — carry very high Tier 1 plausibility on their own terms, for the reasons given above: track record, independent convergence, and demonstrated falsifiability. That verdict is complete in itself. It settles what happened and by what mechanism; it does not, and was never designed to, settle whether directionality in physical systems needs a further account of its own — the question life energy is introduced to address at Tier 2, or the question of ultimate ground the Life book raises at Tier 3. This is the first and most important thing the framework clarifies: a high Tier 1 verdict on the origin-of-life and cognitive-evolution literatures neither confirms nor threatens life energy as a construct, because life energy is not competing for the same explanatory territory. It could be dropped from ISLE entirely and none of the Tier 1 evidence above would change; conversely, no future resolution of the RNA World/hydrothermal vent/metabolism-first dispute would by itself settle the Tier 2 question, because that dispute is about which chemical pathway occurred, not about whether directionality requires anything beyond mechanism.

9. TIER 2 APPLIED: THE QUESTION SCIENCE DELIBERATELY BRACKETS

This section evaluates specifically the first part of the Life book's argument identified in Section 3 — the account of life itself, prior to its extension into cosmology and theology. Before taking up that argument on its own terms, it is worth examining a narrower and more tractable question first: whether ISLE's own bounded use of life energy already does some of this work, and how it relates to the leading naturalistic rival to that kind of claim. Examining ISLE's case first, and separately, keeps the two treatments — one operational and modest, the other philosophical and further-reaching — from being read as though they answered to a single standard.

ISLE's answer, examined first. The monograph identifies thinking as the generative expression of potential life energy — the specific activity through which an entity produces new governing premises when existing ones can no longer sustain viable interpretation with its environment. ISLE answers this operationally, at the level of observable organizational and individual behavior, without extending the answer into a claim about what thinking ultimately is or what makes it possible as a matter of physics.

The most direct point of comparison for this bounded claim is the biological anthropologist Terrence Deacon's account of teleodynamics, developed at length in Incomplete Nature (2012). Deacon proposes a nested hierarchy of physical dynamics — homeodynamic processes that dissipate toward equilibrium, morphodynamic processes that spontaneously generate order (whirlpools, convection cells, snowflakes), and teleodynamic processes that emerge when two or more morphodynamic processes become reciprocally coupled and begin to sustain and reproduce each other's own conditions of existence. On this account, end-directedness emerges from the way ordinary thermodynamic and self-organizing processes become nested and mutually constraining, rather than being injected into physical systems from outside. ISLE's own grounding in Prigogine's dissipative structures sits in the same intellectual neighborhood as Deacon's morphodynamics, which is why the comparison belongs here, examined on ISLE's own terms, rather than folded into the Life book's case.

Teleodynamics is an origin account: it explains how end-directedness could first emerge, in principle, from nested and mutually constraining physical processes, starting from dynamics that possess no directedness at all — the entire job it was built to do, worked out at the level of autogens and proto-metabolic chemistry, the boundary where directedness enters the physical world for the first time. Life energy, as ISLE actually uses the construct, is not an origin account and does not compete to be one. Its job is to track the state and trajectory of directedness that is already present in an established meaning system — how developmental capacity is being committed (to sustaining the existing architecture, or held available for reconstruction), and how that relates to a system's capacity to reconstruct its governing premises — across individual, organizational, and societal levels at once. That is an operational and cross-level tracking task, not an origin question, and it is a task teleodynamics was never built to perform and does not attempt. The consequence is straightforward, and it is the same category discipline Section 6 already applied to Tier 1 and Tier 2 as a whole, now applied within Tier 2 itself: life energy does not depend on defeating teleodynamics to do its own work, and it is not weakened by teleodynamics being a serious, well-evidenced account of its own question. A reader could accept Deacon's account of how directedness first arises in physical systems in full, and nothing about ISLE's use of life energy to track directedness once it exists would be disturbed by that acceptance — the two claims are not in the same argument. Judged against the question teleodynamics answers — the origin of end-directedness from non-directed physics — importing a distinct life energy construct is not obviously the most economical route, and a fair assessment should say so. But judged against the question life energy is actually built to answer within ISLE — a single construct usable for tracking directedness across three different levels of analysis without switching ontologies at each level — reproducing Deacon's three-tier physical hierarchy would be the less economical choice, not the more economical one. Parsimony is a comparison relative to a task, and ISLE's construct and Deacon's hierarchy were built for different tasks.

This ISLE-level verdict is narrower than what the Life book itself claims for the same term, which is why this section now turns to the Life book separately rather than treating the case just made as though it covered both. The book now draws the same line for itself: Deacon's account, it says, explains how directedness could first switch on, while the book's own interest is in what a living system does with directedness once it has it. But the book's first part also asks where that direction came from in the first instance, and on that question it stands closer to teleodynamics' own territory than ISLE's tracking task ever reaches; its second part becomes an explicit origin claim for the universe's directionality, taken up directly in Section 11. What follows examines the Life book's version on its own terms.

The Life book's answer, examined second. The book's most defensible move is a philosophical one, made early and made directly: natural selection explains how directionality persisted and spread once it existed, by filtering for it, but filtering presupposes the property it filters for — selection cannot manufacture the fact that some systems reach toward continuation in the first place. This is a legitimate philosophical observation, not a scientific error, and it deserves to be evaluated at Tier 2 rather than dismissed as if it were a failed Tier 1 argument. Tier 2 has its own literature, and the Life book's route

through it — positing life energy as a distinct organizing property — is one candidate among several, not the only available answer. Deacon's teleodynamics, already introduced above as ISLE's point of comparison, is also a serious, actively discussed naturalistic answer to the question the Life book raises at this level: that end-directedness in living systems could be a structural consequence of nested, mutually constraining physical processes, rather than a separate substance or force layered on top of them. The book acknowledges the rival and sharpens its own question in response: selection explains which reachers survive, but not why there is reaching, experienced as reaching, anywhere in the universe — a gap the book calls one of kind rather than of current knowledge. That sharpened question moves the claim toward the boundary of consciousness taken up in Section 12, where Deacon's account is not the only rival and not obviously a decisive one. This does not settle the question in either direction, and settling it is not what this section needs to do. What it establishes is that the Life book's claim has a genuine naturalistic rival, properly evaluated by the standard of argumentative coherence rather than empirical confirmation, since neither account is testable in the way Tier 1 claims are.

What can still be said in the Life book's favor, independent of this comparison, is that the underlying question it raises — why is directionality present in physical systems at all, rather than nothing being present — is a genuine philosophical question that Tier 1 science is not built to answer and does not claim to answer. Raising it is not illegitimate, and the specific answer offered there is one reasonable position among several.

The book's case for that answer is built partly on a specific physical framing, and that framing is worth examining directly before this section closes, because it carries real physics content of its own. The book's foundational image is a motor: the body is an armature, mass, structured and capable of motion but inert without a current running through it; life energy is the electricity, the source of every movement the armature makes. Stated more generally, mass does not move itself; energy moves it — one is substance, the other is what acts on substance. This is a serviceable and intuitively clear analogy, and it maps cleanly onto ordinary mechanics: an inert object requires a force or energy input to move, and nothing about that observation is in tension with physics as taught in any classroom.

But the analogy is doing more work than ordinary mechanics can support once it is asked to carry the weight the book places on it — the claim that life energy is a real, distinct form of energy that specifically does the animating. Modern physics does not actually sustain mass and energy as two separate categories related as substance to actor-on-substance. Special relativity's central result, mass-energy equivalence, holds that mass is itself a form of energy — the two are interconvertible expressions of a single underlying quantity, not a substance on one side and an external force that acts on it on the other. A body's mass already is a store of energy in the strict physical sense; it does not merely sit inertly awaiting an external energy source to move it, the way the armature-and-electricity image suggests. This matters for how the mass/energy framing should be read: taken as literal physics, the substance-versus-actor structure does not hold up against relativity's actual account of the relationship between the two. Taken instead as a structural analogy — closer to Aristotle's distinction between matter and the form or principle that organizes it than to a claim about physical energy transfer — the image works as well as it ever did, and does the conceptual job the book needs it to do: naming that something beyond inert matter is required to explain directed behavior. This paper takes the same position here that it takes toward the dark energy analogy and the conservation-at-death argument in Section 11: the mass/energy image is a legitimate and clarifying philosophical device, presented as one rather than as a direct application of what physics says about the relationship between mass and energy. The book now says this itself, noting that mass-energy equivalence makes mass already a form of energy, and that the image is a philosophical one, closer to Aristotle than to physics.

10. COMPATIBILITY WITH EVOLUTIONARY THEORY: SUBSTRATE CLAIM AND TRAJECTORY CLAIM

The claim that life energy is compatible with evolutionary science is precise enough to test directly, and the test yields two different answers, because the claim is actually two claims sharing one sentence.

Claim A: life energy is a substrate condition — the property that makes directedness and self-maintenance possible at all, present in every living thing, upon which natural selection then acts. This claim is compatible with evolutionary theory cleanly, because it operates at a different explanatory layer than evolution does. Evolution answers a mechanism question: given variation and heredity, differential survival explains which traits persist and spread. It has nothing to say about why physical reality permits self-replicating, self-maintaining chemistry in the first place — that possibility is a background condition evolutionary theory takes as given, the way it takes conservation of energy as given rather than derives it. This is the version of the claim already stated directly elsewhere in this analysis: selection filtered for the directional property; it did not create it. There is a long-standing and respectable philosophical structure for exactly this kind of layered coexistence, in which a foundational condition and a mechanistic process operate at different levels without either one crowding out the other — classical philosophy's distinction between a primary and a secondary cause has this shape. Life energy as substrate, evolution as the mechanism operating on top of that substrate, fits without strain, and this is the version of the claim closest to the ISLE monograph, which needs only that directedness exists in the entities it studies, not an account of where it came from.

Claim B: life energy drives the universe along a built-in trajectory toward increasing viability — the sustained capacity of an organized system to continue engaging its environment — with rising complexity as a consequence of that trajectory rather than its target. This distinction is not cosmetic. Complexity and viability are not interchangeable: a cancer is more complex than the tissue it replaces without being more viable, and an organization can add complexity in ways that erode rather than sustain its capacity to function. What the Life book's Big Bang chapters actually track is finer-grained than "more complex": it is a continuous process of structuring — energy organizing itself to better engage what it has not yet organized — that produces rising complexity as an ordinary byproduct while it succeeds, and that same accumulated complexity is what eventually strains a configuration past what it can hold, forcing reconstruction into a new and typically more sophisticated configuration. Complexity is not the trajectory's destination. It is what the trajectory leaves behind and periodically must outgrow. This is a stronger claim than Claim A, and it has real, specific friction with how most working evolutionary biologists understand their own theory. The standard view, associated most forcefully with Stephen Jay Gould's argument that replaying the tape of life would very plausibly not produce anything resembling a reflective species (Gould, 1989), holds that evolution has no inherent trend toward greater complexity built into its mechanism: outcomes are shaped by contingent, local pressures, not by a target. Most of life, across nearly the whole of its multi-billion-year history and by any reasonable count of lineages, has remained microbial; complexity increase is real within particular lineages but is treated by most evolutionary biologists as local and reversible rather than as a general law the mechanism itself contains.

This friction is real, but it is worth locating precisely, because it does not close off Claim B — it only means Claim B cannot rest on biological evolution for its support. Framed around viability rather than complexity as such, Claim B is already less exposed to this objection than the complexity-only version would be, because it no longer requires that biological evolution's mechanism be aimed at complexity — only that viability-seeking, wherever it occurs, tends to leave complexity in its wake. That reframing narrows the exposure; it does not remove the need for cosmic-scale evidentiary support, since viability is itself a claim about direction that still needs grounding independent of biological evolution specifically. The friction is specifically with the idea that evolution's mechanism contains a built-in trend toward complexity. It is a separate and separately arguable question whether the universe, examined at cosmic scale across physics, chemistry, biology, and culture together, shows an empirical trend toward rising complexity — and here there is a serious, if contested, scientific literature to draw on. The astrophysicist Eric Chaisson (2001) has developed and defended, across several decades, a quantitative account of what

he calls energy rate density — the rate of free energy flow per unit mass — as a metric that rises, on the data he presents, across the full fourteen-billion-year span from the first stars through planets, life, and human society, with successive stages of cosmic history showing measurably higher values on the same scale. Chaisson is explicit that no new physics is required to describe the pattern, only ordinary non-equilibrium thermodynamics applied consistently across scales, and reviewers who consider his metric less precise than he claims have generally still accepted that the underlying trend he is pointing to is real, even where they dispute how cleanly it can be quantified.

That gives Claim B a foothold that does not depend on biological evolution being progressive, and it does not need to be abandoned. The trajectory the Life book describes — the universe organizing itself into ever more complex and capable forms — can be defended as an observation about cosmic-scale energy flow and structural complexity, standing on its own scientific literature, entirely apart from any claim that biological evolution's mechanism is itself aimed at that outcome. What precision requires is only a change in attribution: the trend belongs to cosmic evolution in Chaisson's sense — physics, chemistry, biology, and culture together, over the largest scale — and not to biological evolution's mechanism specifically, which remains, on the mainstream view, locally contingent and non-progressive. Framed that way, Claim B survives as a live, defensible position that the Big Bang chapters can continue to build on, resting on its own evidentiary base rather than on a claim about evolution that would draw immediate and justified objection from working biologists. The Life book now draws this attribution itself, citing Gould and Chaisson and separating viability from complexity in the same way.

11. TIER 3 APPLIED: THE COSMOLOGICAL AND THEOLOGICAL EXTENSION

This section evaluates specifically the second part of the Life book's argument identified in Section 3 — the extension from an account of life into a claim about the universe's origin and its identification with God. The Life book's final movement — from life energy as a directional property, to life energy as the organizing energy of the universe since the first instant, to the identification of that totality with God — is a Tier 3 claim, and it should be evaluated as one.

The argument stated directly. I want to state that extension in the terms I actually reasoned through it, before turning to how it stands against the field, because the chain deserves to be judged on its own logic rather than assumed to be a leap. I did not arrive at a claim about God the way it might look from the outside — quickly, on a ranch deck, because the view invited it. I arrived at it the way I arrived at everything else in this corpus: by refusing to stop at the first convenient answer, and following the question as far as my own thinking could actually take it. I do not offer what follows as proof. I offer it as the record of where that refusal actually led, link by link, with every link tested against the strongest objection I could find to it.

The first link is the plainest, and it is where the whole inquiry starts. Mechanism explains living things with extraordinary precision — but a struck billiard ball obeys the forces on it perfectly and has no stake in where it lands. A living thing does. It reaches, it repairs, it presses toward its own continuation, and that direction is not something the mechanism itself explains, no matter how completely the mechanism is described.

The second link is naming that direction directly rather than talking around it, and choosing the right category to put it in. Bergson reached for this same territory a century before me and called it élan vital — and it failed, not because he was wrong to notice something, but because he reached for the wrong kind of thing: a substance biology had supposedly missed and would someday locate. Physics has since handed me a better category. Dark energy is real, load-bearing in the standard cosmological model, and it has never been detected directly — only inferred from what it undeniably does. In that model it is a property

of space itself rather than a substance within it. That is the category life energy belongs to: a directional property, established by its effects, not a substance waiting to be weighed.

The third link has to be stated as a matter of measured fact, not just asserted, because dark energy is not simply "a real thing inferred from effects" in some loose sense. It is a specific, measured share of everything there is: roughly two-thirds of the total, with dark matter accounting for most of the remainder and ordinary matter only a few percent, all pinned down by the universe's flatness in the cosmic microwave background and large-scale structure data. There is no unclaimed remainder in that ledger waiting for a new entry.

A reasonable objection has to be met directly at this point, because left unanswered it looks decisive: if three terms already account for the entire budget, doesn't that settle the matter on Tier 1 grounds — eliminate life energy empirically, the way a missing term in a balanced equation eliminates a proposed fourth one? The objection fails, but for a reason worth stating precisely rather than waved past. It applies a Tier 1 test to a claim that was never advanced at Tier 1. What the fully-accounted budget rules out is a life energy that functions as a literal fourth term in the cosmological field equations, competing for a line item the way dark energy itself does — and nothing in this paper, or in the Life book, proposes that. What is proposed is a Tier 3 claim about how the energy the ledger already fully accounts for is oriented and expressed, not a claim about an unaccounted-for quantity. A budget fully explained by three terms is silent on whether one of those terms, or some portion of what it comprises, is additionally organized directionally in the way life energy describes; it only rules out a fourth term existing alongside them. The closed budget cannot eliminate life energy at Tier 1 or Tier 2, because it is not answering the question life energy is asking.

The category defense should not be left standing alone, because a skeptical reader could reasonably ask what happens if life energy is held to the harder standard anyway — treated, for the sake of argument, as though it needed to show up as a measurable quantity within the ledger rather than as an orientation within it. The rounding-error point answers that stricter version too, on its own terms. Whatever energy is currently organized directionally — bound up in every living cell and thinking brain that has ever existed — is such a vanishingly small fraction of the total that it would register, if it could be measured at all, as a rounding error against a budget already precisely accounted for. Even granting the harder test, the claim survives it: a contribution that small is exactly what would be expected to be invisible in data precise enough to fix the budget's other terms to within a percent or two. Its complete absence from every cosmological measurement to date is not a gap requiring explanation; it is what a rounding error looks like. The category defense and the magnitude defense are doing different work — one says the objection is asking the wrong question, the other says that even the right question, pressed as hard as it can be pressed, still produces no contradiction — and the argument stands on firmer ground holding both than resting on either alone.

None of this requires the rounding error to be a fixed verdict on what life energy is or could become, though that is a separate question from the one just answered — a matter of plausibility, not of surviving elimination. Section 10 has already established, through Chaisson's energy rate density, that whatever this measure is tracking has risen steadily across the full span of cosmic history — from the first stars, through galaxies and planets, to life and human society — with no new physics required to describe the climb. Chaisson's own claim is about that historical trend; treating today's negligible share as an early point on a trajectory still climbing is a further step this paper takes, not one Chaisson's data compels on its own. Taken as that — an explicit extrapolation rather than a documented finding — it is a reasonable position, not a settled one: whether the climb continues, plateaus, or is bounded by something the current data cannot yet show is a further and genuinely open question this paper does not attempt to settle.

The fourth link is a further step the parallel makes possible, and it may be the most important one: different forms of energy are not interchangeable expressions of the same purpose. They point in

genuinely opposite directions. Dark energy disperses — it drives space apart, pushes everything outward, dilutes rather than gathers. Life energy does the opposite. It organizes. It concentrates. It builds against entropy rather than accelerating it. That is not a minor detail bolted onto the parallel — it is evidence that the parallel is a real structural one and not just a convenient borrowing of credibility. If dark energy and life energy behaved the same way, there would be no basis for treating them as distinct categories doing distinct work. The fact that they behave in direct opposition is what shows each is organized around its own purpose within the single total of energy, rather than being one undifferentiated thing wearing two names.

The fifth link is an admission of what remains genuinely open, and it is worth being precise about what exactly stays open, so that saying so does not read as a hedge but as a statement of what is and is not at stake. What remains unresolved is a question of mechanism: whether directional self-organization can eventually be derived entirely from chemistry and thermodynamics already known, with nothing further required — the same question research on dissipative structures, autogens, and origin-of-life chemistry is actively pursuing, and one that could in principle be answered either way. That is live, real, unresolved science, and it could resolve fully in the naturalist's favor without anything I am about to say being falsified. The reason is that my claim was never staked on that question resolving against mechanism in the first place. I am not arguing that chemistry and thermodynamics must fail to produce directional self-organization, and I do not need them to fail. What I am claiming is narrower, and it does not depend on how the mechanism question is eventually settled: that whatever directional self-organization turns out to be, and however it comes to exist, it is a mode of the one energy the universe conserves — not a rival account of its origin, but an orientation within it, exactly as dark energy is an orientation within the same total rather than a competing entry in its ledger. If a complete chemical and thermodynamic account of directional self-organization is someday established, that account settles how organization comes to exist; it does not by itself settle what that organization is made of, or where it goes once it has come to exist, which is the question the sixth and seventh links take up next. I do not need to win the mechanism argument for anything else here to hold, because the two arguments are not opposed to each other in the first place — one is about origin, the other is about conservation, and a full answer to the first leaves the second exactly where it was.

The sixth link is what happens when the question is pushed back rather than left where it is convenient to stop. Follow the actual chain: hydrogen into stars, stars into heavier elements, elements into chemistry, chemistry into the first molecule that could copy itself, copying into cells, cells into sensation, sensation into thought, thought into a human being lying awake wondering what any of it is for. If life energy is real, it did not switch on abruptly at that first molecule. The same leaning toward organization was already visible in the hydrogen gathering into stars. The simplest position — the one that keeps faith with a law that has never once been observed broken, that energy is conserved in every local process and only ever changes form — is that it was present as unexpressed potential from the first instant, waiting on the conditions that would let it organize into what we now call life. (Across an expanding universe as a whole, the energy accounting is subtler; the argument relies on the local principle, which governs every step in the chain.)

The sixth link establishes presence, not motive, and a further question belongs here that presence alone does not answer: why organization rather than permanent stillness? This requires being precise about what, exactly, is being claimed present at that first instant, because a totality of energy can mislead if it is read as a claim about organized, finished content rather than about quantity. What conservation actually licenses is narrower: that the energy was wholly present, not that it was wholly formed. Organization — any particular structure that energy might take — is a separate matter, and nothing in the conservation argument requires it to have already been decided. On that basis, the more defensible position is that life energy was present as unorganized potential: maximum energy, minimum structure, oriented toward

organization rather than dissolution, but with nothing yet settled about what that organization would become.

This is where the reasoning is at its most speculative in the entire chain, and I say so here as directly as anywhere in this argument. I do not think the reach toward organization can be established as a logical necessity — as though stillness were somehow impossible and expression forced. What can be said is narrower: reaching is the one thing every subsequent expression of life energy has done, without exception, at every scale examined in this paper, from the substrate condition Claim A describes to the reflective awareness the eighth link addresses. That is being named here as an orientation, not a necessity — the same distinction drawn in Section 3 between life energy as a construct naming a pattern and life energy as a claim about what underlies it. Why the orientation exists rather than not existing is not something this paper claims to establish. What can be claimed is only that it is what everything since has consistently exhibited, and that whatever was present at the beginning must have carried it, because nothing observed since has been without it. This does not carry the confidence of the sixth link's conservation argument, which rests on a law never once observed to fail. It is a further step past what conservation alone requires, offered as the most coherent account available rather than as something the physics itself establishes, and it should be held accordingly.

The seventh link follows the same law forward instead of only backward, and it is the one that changes how a person actually lives inside the question. If life energy is the same energy conserved throughout, then what animates a life does not simply stop at its end. It transitions — moves from an active state, animating a particular form, to a potential state, available for what comes next. I am not claiming physics proves what that transition involves, or that physics establishes that life energy is the same thing as physical energy. Physics establishes that physical energy is conserved. The further step — that life energy is that energy, and so transitions rather than stops — is mine to argue, not physics's to certify. Once that boundary is drawn, the question of what comes next remains genuinely open rather than settled by either the materialist dismissal or the doctrinal answer, including whether anything recognizable as a particular person persists, which I have not resolved.

The eighth link is the pull that is hardest to state without overreaching, and here I want to hold the claim rather than soften it more than the case warrants. Sensation, self-repair, directed thought, and an awareness capable of asking what any of it means did not arrive separately — they arrived integrated, in one creature, on one planet, as far as we know anywhere in fourteen billion years and two trillion galaxies. Told in advance, no one would have called that likely. The likelihood is remote. There is an old objection to leaning on that fact, and an old answer to the objection that I think holds up. The objection says any single outcome looks impossibly unlikely after the fact, and we could only be here to ask the question in the universe where it worked out, so the improbability proves nothing. I borrow a case from the philosopher John Leslie (1989) to answer it: imagine a prisoner standing before a firing squad of fifty expert marksmen, and every rifle misses. He is alive to wonder about it only because he survived — but that does not make the survival unremarkable, and "you would not be here to ask otherwise" does not explain why fifty trained marksmen missed. Something still has to explain that. The same holds here. That we can only observe a universe that permitted us does not, by itself, retire the question of why it did.

So here is where this link actually stands. It is not provable, and I will not pretend otherwise — no experiment settles whether a conscious, self-directing creature required something more than chance acting on chemistry across enough time, or whether chance was always sufficient on its own. But it has not been shown wrong, either. As far as I know, nothing in physics, chemistry, or biology has demonstrated that this account fails — not because it has been shielded from the test, but because no test yet reaches far enough to settle it either way. That is not a proof, and I am not presenting it as one. It is a chain of thought that held up, for me, against every objection I could bring against it, and I offer it here the same way: not as doctrine, but as something worth a reader's own pondering, wherever they land with it.

That is the chain, stated in its own terms rather than assumed from the outside. Some of it is as solid as physics gets. Some of it is a live question I am content to leave open. The rest asks to be judged by the standard I just stated — not proven, not yet shown wrong. Having stated it, I now set it against its most serious rivals and precedents, both theological and scientific, so the reader can judge for themselves how it stands.

Before turning to those precedents, one objection to the chain's own structure deserves to be met directly rather than left for a reader to raise unanswered. Plantinga's principle of dwindling probabilities (Plantinga, 2000), aimed originally at Swinburne-style cumulative-case arguments, notes that even when every link in a chain of reasoning is individually probable, multiplying uncertain steps together can drive the joint probability of the final conclusion down sharply, even where no single link looks weak in isolation. The objection has real force here, and it should not be waved away. But it does not bear evenly on all eight links. Several are not independent probabilistic premises being multiplied together at all: choosing the right category for the claim, correcting an analogy's overreach, and naming what remains open are definitional and corrective moves, not empirical bets carrying their own uncertainty. The objection bears with real weight only on the smaller set of links making an actual claim about the world — chiefly the sixth, seventh, and eighth. That is a narrower target than the whole chain, and it is where the dwindling-probabilities concern actually lands.

It is worth separating explicitly what the chain above has actually established from a further step that goes beyond it, because the two are held with different confidence and should not be presented as one claim of uniform weight. The first claim is what the eight links argue for: that life energy could be part of the energy present at the very first instant, one form among others rather than something added later. The second claim goes past the links themselves. The Life book states it directly: God is not a creator standing outside the universe, complete before it began, but life energy in its totality — the reach itself, still underway, no more complete now than the universe is complete. The book reaches this by elimination: rule out a finished creator directing the universe from beyond it, and a separate intelligence that inserted consciousness as a special case, and the candidate left standing is the process itself. On this account, no living thing is a fragment cut from a source that was already whole; each is a live instance of the same reach, occurring now, part of a process that is no more finished than the universe it moves through. That elimination is an argument, but it is not one the eight links supply, and it rests on the strength of the alternatives it rules out as much as on the case for what remains. It deserves to be marked as distinctly more speculative, and held with less confidence, than the claim that precedes it.

That second, more speculative claim is not without company, even though citing precedent is not an argument that it is true. The intuition that individual beings are portions or expressions of a single underlying reality, rather than external creations wholly separate from it, has a long history under different names: Spinoza's identification of God with the substance of nature itself, the Stoic account of a divine reason distributed through all things, Vedantic non-dualism's identification of the individual self with the ultimate ground of reality, and, closest to the Life book's own claim, Whitehead's process theology and Charles Hartshorne's dipolar theism (Hartshorne, 1948), in which God's own nature is affected by and inclusive of the world's becoming rather than standing wholly apart from it. The book also names Peirce's evolutionary cosmology (Peirce, 1893) and Stuart Kauffman's secular account of creativity in nature as worth calling sacred (Kauffman, 2008). None of these makes the Life book's specific claim, and their existence does not make the claim more likely to be true. It is only evidence that the shape of the claim — each part sharing in the nature of the whole — is a recurring and seriously held position across independent philosophical and religious traditions, not an idea invented to serve this argument alone.

Positioning against theological precedent. The most useful comparison is not to biology but to the paleontologist and Jesuit priest Pierre Teilhard de Chardin, whose Phenomenon of Man (1955) makes an argument with a strikingly similar structure: matter organizes into increasing complexity across cosmic

history, complexity begets consciousness, consciousness feeds back to drive further complexification, and the whole process converges toward a culminating point — Teilhard's Omega Point — which he identified explicitly with the divine, describing evolution as pulled toward this convergence rather than only pushed from behind by chance variation and selection. The parallel to the Life book's argument is close enough to be genuinely useful: both begin from a scientifically respectable observation about the trajectory of cosmic and biological complexity, both propose an organizing directional principle beyond what mechanism alone supplies, and both take the final step of identifying that principle with God. Teilhard's work is a serious precedent for the kind of move being made — and also a warning about its reception. His theological superiors restricted publication of his major philosophical work during his lifetime, concerned that it blurred the line between science and doctrine in ways that were difficult to adjudicate by either discipline's standards; the work was published only after his death and has since drawn both serious theological engagement and serious criticism, from scientists who consider it insufficiently rigorous as science and from theologians who consider it insufficiently orthodox as doctrine. The lesson for this paper is not that the argument is therefore wrong. It is that this specific kind of argument — grounded in real observation, reasoned carefully, but terminating in a claim no empirical or doctrinal authority can fully adjudicate — has a known reception pattern, and the Life book, which takes that history as a warning worth heeding rather than a reason to set the comparison aside, should expect the same kind of response from readers on both sides.

There is also an accountability asymmetry worth naming directly, since it bears on which version is more defensible rather than merely which came first. Teilhard's Omega Point rests on evolution's mechanism itself being aimed at a goal — and Section 10 above already shows that exact claim runs into direct friction with mainstream evolutionary theory, where progress is treated as local and reversible rather than as a general trend the mechanism contains. My own version does not make that mistake: Claim B is deliberately relocated onto Chaisson's cosmic-scale energy rate density rather than left resting on biological evolution's mechanism specifically. Where Teilhard's argument is most exposed to disconfirmation, mine has already been moved off that ground, and the Life book now makes this point in its own account of Teilhard.

Alfred North Whitehead belongs in this lineage as well, and enters this argument in two places that should be kept distinct. Whitehead's process metaphysics (1929) treats creativity as an ultimate principle of reality itself — the ground by which actual entities continually produce novelty rather than merely repeating what already exists — present at the deepest level of becoming, not something that appears only once biological life exists. That is a serious, academically respected precedent for the proposition that a novelty-generating capacity is fundamental rather than late-arriving. But the correspondence is closer to ISLE's construct of thinking than to life energy itself: Whitehead's creativity, like ISLE's thinking, accounts for the generation of new form rather than the mere reinforcement of existing structure. Life energy, in ISLE's own terms, is the directional force that thinking expresses — the two are related but distinct constructs, and Whitehead's creativity maps onto the second, not the first. Used carefully, Whitehead supports a narrower and more defensible claim than the full cosmological argument: that a novelty-generating principle at the foundation of reality is a position philosophy already takes seriously, not an invention manufactured to rescue this argument. The Life book draws on Whitehead for something else: his dipolar conception of God, with one nature holding unrealized potentiality and a second that is temporal, developing, and affected by the world, which Hartshorne developed into dipolar theism. That correspondence is to the book's Tier 3 claim, not to ISLE, and it is the closest existing precedent for the book's view of God as a process still underway.

Thomas Nagel offers the strongest contemporary secular version of the same intuition. In Mind and Cosmos (2012), Nagel argues that materialist naturalism, on its own, may be unable to fully account for the emergence of life, consciousness, reason, and value, and entertains a natural teleology in which the universe has an inherent disposition toward generating conscious beings capable of eventually

understanding it. Nagel does not call this life energy, does not claim any physical energy was present at the Big Bang, and his argument drew serious and sustained criticism from working philosophers and scientists for reaching too far beyond what naturalism's failures actually license — that reception is itself worth naming, for the same reason Teilhard's is. But a respected analytic philosopher outside any theological tradition arguing that the universe's original character may need to already contain a disposition toward life and mind is a direct precedent for the structure of the argument advanced here, even where the conclusions differ.

Positioning against scientific rivals. The "before the Big Bang" argument deserves the same positioning against its own field, and the book itself now does this directly: it names Hartle-Hawking and Penrose before proceeding past them, crediting both as serious, rigorous, non-theological attempts at the same question, rather than writing as though no such answer existed. What follows here is the fuller technical picture behind that acknowledgment — the specific falsifiable predictions each proposal makes, and which tier of this paper's framework each one actually occupies — the kind of detail a work written for general readers does not need to carry, but that a careful reader deserves to have available somewhere in the corpus. James Hartle and Stephen Hawking's no-boundary proposal (Hartle & Hawking, 1983) holds that the question is malformed rather than open: traced back far enough, space and time themselves become indistinct, so that asking what came before is, in Hawking's own analogy, like asking what lies south of the South Pole — there is no further south to go, not because something blocks the way, but because the concept stops applying at that point. Roger Penrose's conformal cyclic cosmology (Penrose, 2010) proposes the reverse: no true singularity at all, but an endless sequence of cosmic "aeons," each Big Bang the smooth continuation of the state left behind once the previous aeon's matter and black holes have fully decayed. Neither proposal commands unanimous acceptance among working physicists — Penrose's in particular remains a minority position, contingent on unresolved questions about whether black holes destroy information — but both are serious, mathematically developed attempts by working cosmologists to answer the same question the Life book raises, without requiring anything resembling a ground of being or a creative source. Their existence does not refute the book's argument; Tier 3 claims are not refuted by the existence of rival Tier 3-adjacent claims. But a fair plausibility assessment has to name them, for the same reason it named Deacon against the directionality claim and Chaisson for the complexity trend: a complete picture includes the naturalistic competitors, not only the destination the book arrives at.

It is worth being precise about which tier these two proposals actually occupy, because it changes what kind of rivals they are. Both are falsifiable in principle and therefore Tier 2, not Tier 3: Penrose's conformal cyclic cosmology predicts specific concentric ring patterns — so-called Hawking points — that should appear in the cosmic microwave background, a prediction other research groups have searched for and disputed; Hartle-Hawking's no-boundary proposal carries its own testable implications for the shape of primordial fluctuations. That means Hartle-Hawking and Penrose compete with a Tier 2 piece of this argument — the physical mechanism of what preceded or replaced the singularity — not with the Tier 3 conclusion that identifies an ultimate ground with God. Even a fully confirmed version of either proposal would not, on its own, settle whether the confirmed mechanism constitutes God or not; that identification is a separate, still-open Tier 3 question sitting one level above the physics either of them supplies.

Two claims that deserve direct scrutiny. The first is the analogy to dark energy. The analogy is doing real rhetorical work — it establishes that physics already accepts the reality of something inferred entirely from its effects rather than direct detection, which is a fair point as far as it goes. But the evidentiary basis of dark energy is not analogous to the evidentiary basis offered for life energy, and the difference matters. Dark energy is inferred from a specific, quantitative, and falsifiable fit within general relativity's cosmological models: the observed acceleration of cosmic expansion measured through Type Ia supernova redshifts, corroborated independently by the cosmic microwave background and the large-scale

structure of galaxy distribution. It is a term required to make a mathematically precise and independently cross-checked model match multiple, independent bodies of quantitative observation. Life energy's inference, by contrast, rests on a qualitative philosophical observation — that living systems display directionality that mechanism alone does not obviously explain — with no equivalent mathematical formalism, no independent quantitative cross-check, and no predictive test that could in principle fail. The analogy is illustrative and worth keeping as a bridge for lay readers, but it should not be presented as if it places life energy on the same evidentiary footing as a term in a cosmological field equation. This is why the ISLE monograph uses the dark energy comparison only to identify the kind of construct life energy is — a property inferred from its effects rather than a substance — and never as evidence for it; used as evidence, it would not survive the scrutiny an academic reviewer would apply. The Life book uses it as a philosophical bridge and now labels it as one: it states that the evidence behind the two is not equal, and that the comparison is a bridge for thinking about what kind of category life energy belongs to, not proof that life energy has earned dark energy's kind of evidence.

Stated in the terms developed in Section 7, the asymmetry is exactly the difference between generativity and its absence. Dark energy possesses both generativity and accountability — its predictions were confirmed independently by supernova surveys and the cosmic microwave background, which is why it counts as Tier 1. Life energy, understood the way the third link states it — a rounding error against a budget three other terms already fully account for, not a new quantity competing for space in it — explicitly disclaims generativity and rests on accountability alone: it is not offered as a term that generates its own independently falsifiable predictions the way dark energy's share of the cosmological budget does. The scrutiny given just above reaches the same conclusion from the opposite direction — not by restating what the physical ledger can and cannot hold, which the third link already settled, but by comparing life energy's qualitative, philosophical inference directly against dark energy's quantitative, cross-checked one and finding no equivalent formalism or predictive test on life energy's side. The two routes converge rather than compete: once the analogy is corrected to stop claiming a share of the physical budget, what is left is exactly the qualitative, non-generative claim the scrutiny above describes. The analogy therefore borrows dark energy's legitimacy as a category — a real thing inferred from effects — without borrowing its evidentiary tier, and the paper is clearer for saying so rather than leaving the two properties conflated.

A second scientific claim in the same chapters deserves the same direct scrutiny, because it trades on a related but distinct equivocation, even though the book itself is careful about how far it takes the claim. The argument that the energy animating a life does not simply stop at death but changes form is defended by extension of the first law of thermodynamics — energy cannot be created or destroyed, only changed in form. That law is real and has never been observed to fail. But what it conserves, in the ordinary physical sense, is the kinetic and chemical energy bound up in a body's matter, which upon death disperses as heat into the surrounding environment exactly as thermodynamics and increasing entropy predict — a trivial and uncontested application of the law that says nothing about whether life energy specifically, as a coherent, individuated, directional property, persists or transitions anywhere in particular. Conservation of energy licenses the claim that the body's energy is redistributed. It does not, on its own, license the further claim that what animated this particular life continues as a distinguishable thing — and the book does not draw that further conclusion. It now draws the boundary in so many words: physics establishes that physical energy is conserved; it does not establish that the directional life energy the book describes is the same thing as that physical energy, or that it survives death as a continuing, individuated capacity; that further step, the book says, is the author's to argue, not physics's to certify. The book also leaves open what the transition involves, including whether anything recognizable as a particular person persists. The equivocation worth flagging is narrower than it might first appear: the physics is being asked to establish that something changes form, which is true but trivial, and the more interesting question — what, if anything, that means for continuity of a particular life — is correctly left unresolved rather than smuggled in as a further physical conclusion. This piece of the argument is

disciplined in the same way as the book's current use of the dark energy analogy, because it stops where the evidence stops instead of borrowing more authority from the law than the law can supply.

In the vocabulary of Section 7, this is accountability without generativity handled correctly: the claim never asks conservation of energy to prove more than it can, and it is exposed to disconfirmation — it would fail instantly if it required violating the law — without ever claiming the law generates a prediction about personal continuity that could confirm it. That is the discipline the eighth link of the chain above was built on, applied here to a different question with the same standard.

The book itself does most of this work. It states directly that the step from life energy to God is a theory and not a proof, that it is the longest step in the argument, that no experiment settles it, and that the reader is free to stop short of it. In its final chapter it also gives its own answer to the question of God, which is yes, and calls that the case it stands on. Holding a conclusion firmly while naming it a theory is not a contradiction. It is the correct epistemic posture for a Tier 3 claim, and it is what distinguishes a serious philosophical inquiry from an overreaching one.

12. WHAT TIER 1 CONFIDENCE ACTUALLY RESTS ON

The comparative summary in Section 13 rests on the claim that Tier 1 carries very high plausibility while Tiers 2 and 3 are properly judged by standards of their own. That claim should not be left as an assertion. It is worth making explicit exactly what Tier 1 confidence consists of — not to score the Life book's later movements against a standard they were never built to meet, but so that treating the tiers differently, argued for in Sections 6 and 7, is fully earned rather than simply asserted. What follows are the features that make Tier 1 evidence Tier 1. They are not contest results, and reading them as a scorecard on which the Life book comes out behind would repeat, inside this paper's own analysis, the exact error Section 6 identifies as the most common mistake in debates of this kind.

Four features define Tier 1 confidence. First, track record. Evolutionary and origin-of-life science has repeatedly staked novel, falsifiable predictions in advance of confirmation and been vindicated: the molecular clock and the fossil record were developed independently and cross-validate the same divergence timelines; transitional forms predicted by the theory, such as Tiktaalik, were searched for in strata of a specific predicted age and found there (Daeschler et al., 2006); the RNA World hypothesis predicted that RNA should be capable of catalyzing its own replication, and a ribozyme with exactly that capacity has since been demonstrated in the laboratory (Lincoln & Joyce, 2009). Second, independent convergence. Genetics, geology, paleontology, and comparative anatomy are methodologically unrelated to one another, and yet they converge on the same evolutionary tree and the same rough timeline; convergence of that kind across independent methods is one of the strongest markers of plausibility available in any empirical field, because it would be a remarkable coincidence for unrelated methods to agree if the underlying account were false. Third, falsifiability and risk. The evolutionary account is built to be vulnerable: a single fossil rabbit in Precambrian strata would be a serious problem for it, and none has turned up despite over a century of deliberate searching. A claim that has repeatedly risked refutation and survived earns a kind of credit that is only available to claims structured to take that risk in the first place.

None of these three features is available to the Life book's cosmological and theological movement, and this is the point worth making carefully. The absence is not a defect the argument suffers relative to Tier 1 — a claim about the ultimate ground of the universe is not the kind of claim that stakes falsifiable predictions, generates independent convergent tests, or accumulates a track record of vindicated novelty, any more than a claim about the meaning of a piece of music is that kind of claim. Treating the absence of these three features as a mark against the Life book's argument would be applying Tier 1's standard to a Tier 3 claim, which is precisely the mistake this paper's framework was built to avoid. The accurate

statement is narrower and more useful: these three features explain why Tier 1 evidence carries the specific, very high confidence it carries, and that confidence simply does not transfer to questions of a different kind — not because the Life book's argument has failed a test, but because the test does not apply.

The fourth feature, parsimony, is different in character from the first three, because it operates as a genuine same-tier comparison rather than a cross-tier one — and it is important to be precise about which claim it actually compares, since Section 9 has already established that ISLE's own bounded, operational use of life energy is not in competition with Deacon's account in the first place. What is being compared here is not ISLE's construct but the Life book's broader claim: that life energy is the answer to why directionality is present in physical systems at all. That claim is itself a Tier 2 claim, and it has a real Tier 2 competitor in Deacon's teleodynamics, discussed in Section 9. If Deacon's account, or the dissipative-structure self-organization already cited in the ISLE monograph, can explain the directional, self-maintaining behavior of living systems without positing any further entity, then life energy as an additional postulate is not required by the phenomena it is invoked to explain at that level, and the simpler account is preferred unless there is something the simpler account cannot handle. This is a fair comparison because both accounts are answering the same kind of question with the same kind of tools — philosophical coherence about what best explains directionality — not because one is empirical and the other is not. None of this reopens the question Section 9 already closed for ISLE's own construct: whatever this comparison concludes about the Life book's ontological claim, ISLE's operational life energy answers a different question than either candidate does, and stands or falls on its own indispensability argument in Section 3, not on this one.

There is something the simpler account does not handle, and it deserves to be stated as clearly as the four features above, because it is where my original intuition has genuine and serious standing rather than merely rhetorical appeal. The gap between chemistry and thought is not the same kind of gap as the gap in origin-of-life chemistry. The origin-of-life gap, discussed in Section 8, is a data-and-mechanism gap: an active research frontier that ordinary science is visibly narrowing, hypothesis by hypothesis. The gap between a complete physical description of a brain and the existence of subjective experience — why there is something it is like to be the system being described, rather than the same functions occurring with no one home — is, on a serious and widely held position in philosophy of mind associated with thinkers such as David Chalmers (Chalmers, 1995), not obviously the same kind of gap. It may not be a gap that further neuroscience closes by the same method that is steadily closing the origin-of-life gap, because a complete causal and functional account of a system, however detailed, does not by itself explain why that functioning is accompanied by experience at all. This is not a fringe view, and it is exactly the territory my own intuition was pointing to from the beginning: that a purely mechanistic story of thought emerging from chemistry has, at minimum, an open seam that the equivalent story for the origin of life does not obviously share once the chemistry is finally worked out. It is also the gap the Life book now names as its own: not why reachers survive, but why there is reaching, experienced as reaching, at all.

What follows from that is narrower than it may first appear, and also more solid than Tier 1's absence at Tier 3 might suggest. A real, unclosed explanatory seam at the boundary of consciousness does not by itself make life energy the correct account of that seam, or even the best available one. It makes the seam a legitimate place to stand, alongside several other serious positions that occupy the same territory without a scientific consensus adjudicating among them — panpsychism, dual-aspect monism, strong emergentism, mysterianism, process philosophy, Giulio Tononi's Integrated Information Theory (Tononi, 2004), and the account developed in What Is This Thing Called Life? among them. Integrated Information Theory is worth naming specifically, because it shows this territory is not only philosophers arguing in the abstract: it is a live, mathematically formalized research program that attempts to quantify consciousness directly through a measure its proponents call phi, has attracted serious scientific

engagement for two decades, and has also drawn public challenge, including a 2025 article in a major neuroscience journal questioning whether it qualifies as science at all (Klincewicz et al., 2025), a challenge Tononi and colleagues disputed in the same issue (Tononi et al., 2025). None of these positions currently commands Tier 1's kind of convergent, falsifiable, predictively vindicated support, and none needs to, because none is making a Tier 1 claim. The accurate summary is this: Tier 1 evidence earns its very high confidence through track record, convergence, and falsifiability — features a cosmological or theological claim was never structured to have and is not weakened by lacking. Tier 2's parsimony question is a genuine same-tier contest, and life energy has a real, serious rival in it. And at the boundary of consciousness, where even Tier 1's methods may not reach, life energy stands as one reasonable position among a genuine plurality — not because it has won a competition, but because the competition Tier 1 runs was never the one being played there.

It is worth naming directly what the last several sections have been doing twice over, using the same method against two different targets, because seeing it that way — rather than as the identical argument repeated — changes how a reader should weigh it. Section 3 argues that no existing organizational construct specifies, as a single integrated mechanism, the directional allocation of developmental capacity itself — that removing life energy from ISLE's architecture leaves a question no existing theory of learning, adaptation, or dynamic capability is built to answer. That is an indispensability argument for ISLE's own bounded, operational construct, and Section 9 has already established that this construct does not compete with Deacon's teleodynamics in the first place; nothing that follows reopens that question. Section 12 applies the same method — does removing a claim leave a gap nothing else fills — to a different target: not ISLE's construct, but the Life book's broader ontological claim that life energy is the answer to why directionality exists in physical systems at all. There, the comparable question is whether Deacon's teleodynamics, or the dissipative-structure self-organization already cited in the ISLE monograph, can explain living systems' directionality without positing anything further; if it can, the Life book's ontological claim is not required by the phenomena it is invoked to explain at that level — a conclusion about that broader claim only, which leaves ISLE's own construct exactly where Section 9 left it, untouched either way. Both are indispensability arguments, not plausibility arguments, aimed at two different claims in the corpus rather than the same claim twice. Neither asks a reader to accept that life energy, in either sense, is true, or even that it is the most plausible account available. Each asks a narrower and more answerable question: does removing the claim in question leave a gap that nothing else in the relevant literature fills? The organizational-theory answer, for ISLE's own construct, is that it does — existing theories provide rich accounts of learning, adaptation, leadership, and change, but none specifies, as an integrated construct, the mechanism governing the directional allocation of developmental capacity between reinforcing an existing interpretive architecture and reconstructing it. The parsimony answer at the biological level, for the Life book's broader ontological claim, is less settled, and Section 12 says so. Stating the method explicitly here also states the paper's own standing challenge to a critical reader: name the construct that already does this work without the claim in question, at either level, and the case for including it weakens accordingly; failing that, the gap the claim fills is the paper's actual claim, not any assertion that life energy is confirmed.

13. A COMPARATIVE SUMMARY

Read across the three tiers, the comparison looks like this. Current evolutionary and origin-of-life science carries very high plausibility at Tier 1, where it is doing the only kind of work it claims to do, and it neither depends on nor is threatened by anything at Tiers 2 or 3. The Life book's argument does not compete at Tier 1 and should not be read as attempting to; at Tier 2 it raises a legitimate philosophical question and offers one reasonable answer among several live candidates, including a serious naturalistic rival in Deacon's teleodynamics, and — where the question turns to what preceded or replaced the singularity itself — genuine Tier 2 competitors in the Hartle-Hawking and Penrose proposals, both falsifiable in principle and neither yet settled. At Tier 3, the argument takes a step that is coherent, has a

genuine precedent in Teilhard de Chardin's cosmology, and is more disciplined than that precedent at exactly the point where Teilhard's own argument proved vulnerable — his mechanism-level teleology conflicts with mainstream evolutionary theory in a way this argument's cosmic-scale grounding does not. It is explicitly and appropriately offered as a matter of reasoned belief rather than demonstrated fact: not provable, but — as far as current physics, chemistry, and biology show — not shown wrong either. Its most exposed point is the dark energy analogy, which shares a real category with dark energy (something inferred entirely from its effects) without matching its evidentiary tier; the book now uses it for that illustrative purpose and labels it accordingly, rather than leaning on it as evidence.

PART THREE: TESTING ISLE'S OWN CONSTRUCT

The separation established in Part One means ISLE does not depend on the Life book. It does not settle whether ISLE's own construct can be tested. Part Three takes up that question directly.

14. WHAT WOULD MAKE THE CONSTRUCT FALSIFIABLE

Section 4 establishes that ISLE's academic claims do not depend on the Life book's cosmological extension. A separate and harder question remains: are ISLE's own organizational and individual-level constructs falsifiable on their own terms, independent of that extension entirely. This question deserves a direct answer, because the answer is uncomfortable, and the corpus already contains more of the answer than it has been given credit for.

The problem. As currently specified, kinetic and potential life energy are read off the same evidence they are meant to explain. An entity that reconstructs successfully is described, after the fact, as having had high potential life energy; an entity that deepens an exhausted premise into collapse is described as having remained kinetic. Both readings are compatible with any outcome, which means no outcome could contradict them. This is not a flaw unique to ISLE — it is the ordinary failure mode of any construct introduced to explain a pattern before independent measurement of the construct exists — but naming it is more useful than describing around it, particularly in a paper whose purpose is to get ahead of exactly this kind of objection.

What would close the gap. Falsifiability requires that the construct's state be measurable before the outcome it predicts, using indicators that are not themselves the outcome. Three families of indicator fit ISLE's existing vocabulary without requiring new theoretical apparatus: discourse indicators (the coded frequency of premise-questioning language against execution language in strategic communications, taken at a point in time); structural indicators (interpretive diversity in leadership, tolerance for dissent in decision processes, permeability of unwelcome external signals into strategic review); and resource-allocation indicators (the share of attention and budget directed at premise-level experimentation, as distinct from ordinary exploration that leaves governing assumptions intact). Scored at a time prior to an environmental disruption, these indicators would generate a genuine, riskable prediction: entities scoring high on potential-energy indicators reconstruct at a higher rate than those scoring low, when the disruption arrives. That prediction could fail. A construct whose predictions could fail, and have not yet been tested against the possibility of failing, is in a different — and more defensible — position than a construct with no path to failure at all.

The corpus has already done real work toward this, in Structural Encroachment (Sloan, 2026b). Two things in that paper move past illustration toward genuine test logic, and both deserve to be named directly rather than left implicit.

The first is the Kodak case, which functions as a discriminating case even though it is not labeled as one. The case is built specifically to eliminate the rival explanations a skeptic would reach for first: Kodak was

not resource-constrained (it ran film margins near seventy percent at its peak), and it was not technologically blind (its engineers built a digital prototype in 1975, and internal studies accurately projected film's displacement decades in advance). A resource-based or awareness-based account of competitive failure would not have predicted Kodak's collapse. ISLE's account — that the organization lacked the structural decoupling needed to evaluate the digital logic on its own terms, regardless of resources or awareness — predicts exactly the outcome that occurred. That is the shape a falsifiable claim takes: naming what a specific rival theory would have expected, and showing the construct predicted something different that actually happened.

The second is the section differentiating reconstruction potential from dynamic capabilities, which states a genuine divergent prediction rather than a compatible restatement. Dynamic capabilities theory would expect stronger sensing, seizing, and reconfiguring — particularly AI-enhanced versions of each — to improve competitive outcomes. ISLE's account predicts the opposite for organizations without reconstruction potential: the same capabilities, deployed with increasing sophistication on premises that are becoming nonviable, accelerate the failure rather than prevent it. That is a prediction a rival theory would not make, evaluated against the same evidence, and it could turn out to be wrong.

What remains undone. Structural Encroachment is explicit that its six cases are illustrative existence proofs, not empirical tests, and that systematic testing is a research agenda rather than a completed program. The indicators used in the Kodak and dynamic-capabilities arguments — interpretive elasticity, structural decoupling, embedded renewal — are still being read retrospectively, after the outcome is known, in each case discussed. The paper itself specifies the design that would close this gap completely: comparative longitudinal studies of matched organizations, with reconstruction potential indicators scored before field-level recognition of the encroaching logic, then tracked forward through the coexistence, response, and transition phases to see whether the prior scoring predicts the outcome. That design, once executed rather than proposed, is what would make the construct falsifiable in full rather than falsifiable in principle.

The comparison sharpens further if Kodak is read against a near-contemporary matched case rather than in isolation. IBM entered the early 1990s in a strikingly similar position: a dominant, decades-validated incumbent logic (mainframe hardware, generating more than ninety percent of profit) facing a technology shift serious analysts described as existential, cumulative losses near sixteen billion dollars, and public discussion of breaking the company apart entirely. Where Kodak collapsed, IBM reconstructed — Gerstner's decision to keep the company intact and pivot toward services rather than hardware was a premise-level revision, not a tactical adjustment, and it required dismantling exactly the kind of entrenched evaluative apparatus ISLE identifies as the obstacle: division-level incentive structures that had rewarded defending the incumbent logic were replaced with measures tied to total corporate performance, and the resulting reallocation of attention is what made the new logic evaluable on its own terms rather than filtered through the old one. Two organizations, comparably positioned at comparably severe moments of encroachment, producing opposite outcomes, is precisely the shape a discriminating comparison needs. What is not yet available is the harder evidence this paper's own standard requires: a measurement of the two organizations' structural indicators taken before the crisis forced either company's hand, rather than assembled afterward to fit the outcome already known. Until that prior measurement exists, IBM strengthens the illustrative case considerably without yet closing the gap Section 14 opened.

Why this matters for the argument this paper is making. It matters because it distinguishes ISLE's constructs from vitalism's in a way that the history recounted in Section 2 does not, on its own, establish. Vitalism failed not because its intuition was unreasonable but because the substance it proposed was never specified precisely enough to be tested and located — there was no design, even in principle, that could have shown it wrong. ISLE's constructs are different in two respects, not one. As Section 3 establishes, the monograph's use of the term names a pattern of directional action rather than positing a substance in the first place, which avoids the reification problem vitalism never escaped. And on top of

that, a test has been specified — indicators, a measurement point prior to the outcome, a comparison against a named rival theory's prediction — even though the test has not yet been run. That is the difference between a construct that has avoided falsification and a construct that has not yet been given the chance to fail. The second position is more defensible than the first, and it is the position ISLE is actually in.

15. CONCLUSION

The corpus does not have a contradiction to fix. It has two works with two different purposes — one building a theoretical framework for meaning systems and their dynamics, the other asking what life itself ultimately is — and a shared construct that necessarily does different work in each, because the purposes themselves demand different things of it. The discomfort a careful reader might feel on noticing the difference dissolves once the difference is named as what it actually is: not an inconsistency to be smoothed over, but the ordinary and expected result of two inquiries pursued on their own terms. Current science gives a strong, detailed, and still-developing account of how life began and how evolution produced a species capable of the sophistication on display in human thought — an account that does not need, and is not threatened by, a further claim about life energy as a cosmic or theological reality. What Is This Thing Called Life? takes up a question ISLE's purpose never required it to answer, follows it as far as reasoning can go, and marks explicitly where reasoning ends and belief begins. Both treatments can be right about what they claim, because they were never claiming the same thing. That is the difference in treatment, and it is also the rationale for it.

A note on the preparation of this paper. The construct of life energy, its intellectual history, the distinction between its two treatments across the corpus, and the judgments about where each treatment's plausibility stands are my own. The investigation into current evolutionary biology, origin-of-life research, philosophy of mind, comparative cosmology, and the specific rival and precedent literatures this paper draws on — Deacon's teleodynamics, Chaisson's cosmic evolution, Teilhard de Chardin's cosmology, the Hartle-Hawking no-boundary proposal, Penrose's conformal cyclic cosmology, and Tononi's Integrated Information Theory among them — was conducted with AI-assisted research (Claude, Anthropic, and ChatGPT, OpenAI), since this scientific and comparative-theological terrain falls outside my own disciplinary background in management and organizational theory. The three-tier framework, its application to this corpus, and the conclusions drawn from it were developed collaboratively and reviewed by me at every stage. I take full responsibility for the accuracy and integrity of the finished argument.

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