The Grammar of Absence

How Terrence Deacon's Absential Phenomena Ground and Are Grounded by the Closure Framework

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> *Longing, desire, passion, appetite, mourning, loss, aspiration — all are based on an analogous intrinsic incompleteness, an integral without-ness.*
> Terrence Deacon, Incomplete Nature, 2011

> *Every finite closure generates remainder. The remainder is not noise. It is the proof that the grammar is finite.*
> CF Dietz, Consciousness, Closure, and the Cosmos, 2026

Abstract

Terrence Deacon's Incomplete Nature proposes that the defining feature of life, mind, and all ententional phenomena is not what is present in them but what is absent: the constraints, the unrealized possibilities, the essential incompleteness that makes a living system a living system rather than a complex arrangement of chemicals. His central concept, the absential, names phenomena whose existence is constituted by something missing, separate, or unrealized. The hole at the hub of a wheel is his paradigm case: not a thing, not a substance, not a property of any part, but a structured absence that constrains the behavior of every component and gives the wheel its function. This paper argues that Deacon's absential phenomena and the closure framework developed in Consciousness, Closure, and the Cosmos are the same structural insight stated in different vocabularies. Deacon's constraint is the closure framework's closure boundary. His absential is remainder: the structural feature of any finite organized system that is constituted by what it cannot model or contain. His three nested levels of thermodynamic organization, homeodynamic, morphodynamic, and teleodynamic, are nested closure regimes of increasing organizational complexity. His claim that absence is causally efficacious is the closure framework's claim that remainder drives supersession. The convergence is precise and mutual: Deacon provides the thermodynamic derivation that shows why absence must be causally efficacious in any physical system that maintains organization far from equilibrium, and the closure framework provides the philosophical account of what absence is at the level of any finite organized system in an inexhaustible world.

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1. The Hole in the Wheel

Consider a wagon wheel. It has a hub, spokes, a rim, and at the center of the hub a hole. The hole is not a part of the wheel. It has no substance, no mass, no physical properties of the kind that the wood and metal of the wheel possess. You cannot point to the hole the way you point to a spoke. If you disassemble the wheel into its components, you will not find the hole among them. It is not there.

And yet the hole is causally efficacious. Remove it, fill it with wood, and the wheel cannot turn on an axle. The hole is what makes the wheel a wheel rather than a circular arrangement of wood. It constrains the behavior of every component in the system by being what it is: a structured absence around which the presence of the hub is organized. The causal power of the wheel does not lie solely in what is there. It lies equally in what is not.

This is Terrence Deacon's opening example in Incomplete Nature, and he chose it with precision. It is not a metaphor. It is an instance of the most general fact about organized physical systems that Deacon spent twenty years working out: that the causal power of any organized system, from a spinning wheel to a living cell to a conscious mind, cannot be accounted for by describing only what is present. You must account for what is absent: the constraints, the unrealized possibilities, the structured incompleteness that determines what the system can and cannot do. Absence is causally real. And the science that has systematically omitted it from its ontology has been systematically unable to explain the phenomena where it matters most: life, mind, meaning, and purpose.

That claim is Deacon's. The closure framework arrived at the same claim from a different direction. The remainder that every finite closure regime generates at its boundary is not nothing. It is the structured absence that makes the closure what it is, constrains what it can constitute, and drives its supersession when it accumulates beyond what the current organization can absorb. The hole in the wheel and the remainder at the boundary of a closure regime are the same kind of thing: structured absence with causal power. This paper shows why.

2. Deacon's Four Claims

Deacon's framework, developed across Incomplete Nature and his subsequent work, has four interconnected components. Each is worth stating clearly before the closure framework engages it.

2.1 Absential Phenomena: What Is Missing Determines What Is

Deacon coins the term absential to name a class of phenomena whose existence is constituted with respect to something missing, separate, or unrealized. Functions, adaptations, purposes, thoughts, meanings, and subjective experiences are all absential: they cannot be fully characterized by describing only the physical structures present in them. A function is defined by what it is for, not only by what it is made of. An adaptation is defined by its relationship to an environmental challenge that may or may not currently be present. A thought is defined by what

it is about, which is typically not the neural substrate in which the thought occurs. A purpose is defined by the goal it aims at, which is absent when the purpose arises.

Deacon is not invoking anything mysterious or non-physical. He is pointing out that standard physicalist descriptions, which account for systems entirely in terms of the properties of their present components, systematically miss the constitutive role of absence in organized systems. The absence is real. It is not merely a description we impose from outside. The constraint that the hole in the hub exerts on the wheel's components is physically real: it actually determines which arrangements of the components are possible and which are not. Absential phenomena are not additions to physical reality. They are the physical reality of organized systems described completely rather than partially.

2.2 Constraints: What Cannot Happen Determines What Does

Deacon's central formal concept is constraint, and he uses it with precision. A constraint is not a force or a mechanism. It is a reduction in the number of possible states a system can occupy. Constraints are defined by what they exclude: the states, transitions, and arrangements that the constrained system cannot realize. A constraint does not push the system anywhere. It narrows the space of where the system can go, and within that narrowed space, the system follows its natural thermodynamic tendencies.

The crucial insight is that constraints are real physical features of systems even though they are defined negatively, by exclusion. The cylinder of an internal combustion engine constrains the motion of the piston by excluding the spatial directions the piston cannot move. That constraint is physically real: it channels the energy of combustion into useful work rather than dispersing it in all directions. Without the constraint, the same chemical energy would produce heat and noise rather than motion. The constraint does not add energy to the system. It organizes the energy that is already there by closing off possibilities.

Deacon argues that this is the correct way to think about all organized phenomena, including biological and mental ones. A gene does not instruct the cell. It constrains the space of possible protein configurations. A concept does not represent an object. It constrains the space of possible interpretations of sensory experience. A purpose does not push behavior from behind. It constrains the space of actions that count as serving the purpose. The causal role of constraints, constituted by their absential character, is the physical mechanism of organization at every level.

2.3 Three Nested Levels: Homeodynamic, Morphodynamic, Teleodynamic

Deacon organizes his account of emergence around three nested levels of thermodynamic organization, each more constrained than the one below it and each producing emergent properties that the lower level cannot account for.

Homeodynamic systems are thermodynamic systems near equilibrium: gases, solutions, diffusing molecules. They spontaneously move toward maximum entropy, distributing their energy and components evenly across available states. They have no persistent organization. The second law governs them directly and completely.

Morphodynamic systems are systems far from equilibrium that maintain organized patterns through continuous energy throughput. Convection cells, whirlpools, flames, and certain chemical oscillators are morphodynamic: they maintain their pattern as long as energy flows through them. They are not alive, but they are organized in a way that homeodynamic systems are not. Their organization is self-reinforcing: the pattern channels energy flows in ways that maintain the pattern. But if the energy throughput stops, the pattern dissolves. Morphodynamic organization is real but fragile and externally dependent.

Teleodynamic systems are systems that maintain their organization by actively working to preserve it against thermodynamic degradation. Living systems are teleodynamic: they capture energy from their environment, use it to maintain and repair their organization, and reproduce that organization across time. Teleodynamic organization is self-maintaining and self-reproducing in ways morphodynamic organization is not. And crucially, teleodynamic systems exhibit genuine absential causation at the organizational level: their behavior is constituted by what they are organized toward, by the goal-like states their organization maintains them in relation to, in ways that go beyond anything thermodynamics alone can describe.

2.4 Emergence from Absence: How Mind Arose from Matter

Deacon's overarching claim is that consciousness, meaning, and mind are not additional substances or properties layered onto physical matter. They are the emergent products of increasingly nested levels of absential organization: constraints generating higher-level constraints, teleodynamic systems generating cognitive systems, cognitive systems generating symbolic thought and conscious experience. At each level the relevant causal factors include both what is present and what is absent, and the absent factors become more significant as the level increases.

This is not a mysterian position. Deacon does not invoke non-physical causes. He invokes the full physical reality of organized systems, which includes their constraints and absential features, not only their present components. Mind emerged from matter not by adding something to matter but by organizing matter into systems whose defining causal properties are absential: whose existence and behavior are constituted by structured absence at every level from the molecular to the phenomenal.

3. What Deacon Needs

Deacon's framework is the most ambitious and technically precise attempt in contemporary philosophy of science to account for life, mind, and meaning in fully physical terms without reducing them to what current physics describes. The absential ontology, the constraint-based account of emergence, and the three nested levels of thermodynamic organization together constitute a framework of considerable power.

There is a gap, however, that Deacon's thermodynamic approach does not fully close. He establishes that absence is causally efficacious. He demonstrates that constraints constitute the organizational properties of living and mental systems. He derives three nested levels of increasing organizational complexity from thermodynamic first principles. What he does not provide is an

account of why any finite organized system must generate absential features: why the very nature of being a finite organized system entails that its causal power is partly constituted by structured absence.

Deacon's argument proceeds empirically and thermodynamically: he shows that the systems we find in nature, from convection cells to cells to conscious organisms, exhibit absential causation, and he traces the thermodynamic conditions under which each level of absential organization emerges. This is powerful and important. But it leaves open the possibility that absential causation is a contingent feature of the specific kinds of organized systems that happen to exist in this universe rather than a structural necessity of any finite organized system at all.

The closure framework closes this gap by deriving absential causation from structural first principles. Any finite closure regime generates remainder at its boundary: this is not a thermodynamic contingency but a logical consequence of what it means to be a finite organized system in an inexhaustible world. A finite closure has identity criteria. Identity criteria draw distinctions. Distinctions constitute some features of the world within the closure and leave others outside it as remainder. Remainder is the absential feature of the closure: the structured absence that constitutes the closure's boundary and determines what the closure can and cannot do. Deacon shows that absence is causally efficacious in the systems we find. The closure framework shows why it must be causally efficacious in any finite organized system whatsoever.

4. Two Concepts That Close the Gap

The closure framework is introduced here at the minimum level needed to ground Deacon's account and show what each framework provides the other. Two concepts only.

4.1 Closure Regime: What Deacon's Constraint Is Philosophically

A closure regime, in the CC-C framework, is a system that stabilizes some content by drawing distinctions, establishing identity criteria, and maintaining lawful relationships among its elements. The closure constitutes facts within its scope and generates remainder at its boundary: the content that the closure's identity criteria cannot model, the aspects of the world the closure's distinctions cannot capture.

Deacon's constraint is the closure boundary stated in thermodynamic terms. A constraint reduces the number of possible states a system can occupy: it closes off some possibilities while leaving others open. The closure boundary does the same thing: it constitutes what is inside the closure as facts and leaves what is outside as remainder. The constraint of the cylinder that channels combustion energy into piston movement is the closure boundary of the engine's organizational regime: it determines what counts as part of the system's organized behavior and what falls outside it as waste heat. Remainder is the thermodynamic expression of the absential: the structured absence that constitutes the closure's boundary is physically identical to what Deacon calls a constraint.

The concept of remainder formalizes what Deacon's absential implies but does not state as a general structural principle. Every finite closure has remainder, not because of the specific thermodynamic conditions under which it exists but because of what it means to be a finite system

with identity criteria in a world that exceeds those criteria. The closure framework derives absential causation from this structural necessity. Deacon demonstrates it thermodynamically in specific organized systems. Both derivations are correct. The structural derivation shows why the thermodynamic demonstration must find what it finds.

4.2 Nested Closure: What Deacon's Three Levels Are Structurally

Deacon's three nested levels of thermodynamic organization are nested closure regimes of increasing organizational complexity. Homeodynamic systems are minimal closures: they have boundaries and maintain certain internal states, but their remainder is large relative to their organization and dissipates without driving supersession. Morphodynamic systems are closures that have developed self-reinforcing patterns: their remainder is channeled back into maintaining the pattern rather than dissipating. Teleodynamic systems are closures that actively manage their remainder: they use the energy and information generated at their boundaries to maintain and reproduce their organizational identity.

The progression from homeodynamic to morphodynamic to teleodynamic is the progression from minimal to partial to full closure in the CC-C framework's terms. A fully developed teleodynamic system, a living cell or organism, is a closure regime that constitutes a world of relevant facts, generates remainder at its boundary, and uses that remainder as the engine of its continued existence. What Deacon describes thermodynamically as the nested emergence of higher organizational levels from lower ones, the closure framework describes structurally as the nesting of closure regimes in which higher-level closures set the boundary conditions for lower-level ones and use the remainder generated at their boundaries as the resource for maintaining their organization.

This nesting connects Deacon's framework directly to the other papers in the series. Noble's biological relativity is the multi-level circular causation that nested closure regimes necessarily produce. Friston's nested Markov blankets are nested closure regimes described mathematically. Maturana's autopoiesis is the teleodynamic level of closure in Deacon's hierarchy. Deacon provides the thermodynamic derivation of the nesting structure that Noble observes physiologically, Friston formalizes mathematically, and Maturana characterizes biologically. All four are reading the same structure from different directions.

5. Four Claims, One Structure

The vocabulary correspondence between Deacon's framework and the closure framework is the most technically precise in the series. What Deacon calls an absential feature, the CC-C framework calls remainder. What Deacon calls a constraint, the framework calls a closure boundary. What Deacon calls homeodynamic, morphodynamic, and teleodynamic levels, the framework calls nested closure regimes of increasing organizational depth. What Deacon calls the causal efficacy of absence, the framework calls the drive of remainder toward supersession. And what Deacon calls ententional phenomena, the full range of functions, purposes, thoughts, and experiences that are constituted by their relationship to something absent, the framework calls the products of closure regimes that have developed the organizational depth to use their remainder as more than dissipated energy.

5.1 Absential Is Remainder

Deacon's absential names phenomena whose existence is constituted with respect to something missing. The closure framework's remainder names the content that any finite closure cannot model: the structured absence at the boundary of any closure regime that constitutes what the closure is by specifying what it is not. These are the same structural concept stated in different registers.

The hole in the wheel is remainder. The cylinder's constraint on piston movement is a closure boundary. The function of a gene is the teleodynamic closure regime of the cell using its molecular remainder to specify which protein configurations are relevant to its organizational maintenance. The thought that refers to an absent object is the cognitive closure regime constituting a fact about what is not present within its current sensory input. In every case the absential feature is remainder: the structured absence that constitutes the closure's boundary and determines what the system can and cannot do from within its organizational identity.

Deacon's insight that absence is causally efficacious is the closure framework's structural claim that remainder drives supersession. A closure regime that encounters remainder it cannot absorb within its current identity criteria must either update those criteria, supersession, or dissolve. The causal power of the absence is the pressure it exerts on the closure to supersede or dissolve. This pressure is not mysterious. It is the thermodynamic pressure of organized systems against entropy, described at the level of organizational identity rather than at the level of molecular states. Deacon and the closure framework are both describing the same pressure from different vantage points.

5.2 Constraints Are Closure Boundaries

Deacon's constraint and the closure framework's closure boundary are formally equivalent. Both are defined by exclusion: a constraint reduces the space of possible states, a closure boundary constitutes what is inside the closure as fact and leaves what is outside as remainder. Both are physically real features of organized systems even though they are defined negatively. Both are the source of the causal power that organized systems exercise beyond what their component parts alone would produce.

The engine analogy makes the equivalence precise. The cylinder's constraint on the piston is a closure boundary: it defines what counts as part of the engine's organizational behavior, the directed motion of the piston, and what falls outside it, the heat and noise that dissipate into the environment as remainder. The same structure appears at every level. The cell membrane is a closure boundary that constitutes what is metabolically relevant to the cell's organization and leaves the rest as molecular remainder. The cortex's predictive model is a closure boundary that constitutes what is cognitively relevant to the organism's current situation and leaves the rest as prediction error, Friston's remainder, as the signal for supersession.

5.3 The Three Levels Are Nested Closure Regimes

Deacon's progression from homeodynamic through morphodynamic to teleodynamic organization is the progression of nested closure regimes from minimal to full organizational

depth. Each level in Deacon's hierarchy is a more complete closure regime: one that maintains its identity against a wider range of perturbations, generates remainder at a more complex boundary, and uses that remainder more actively in maintaining its organization.

The closure framework adds structural precision to this progression. The transition from homeodynamic to morphodynamic is the emergence of a self-reinforcing closure: a system whose boundary conditions maintain themselves through the dynamics they constrain. The transition from morphodynamic to teleodynamic is the emergence of a self-superseding closure: a system that can update its own identity criteria in response to accumulated remainder rather than simply dissolving when remainder exceeds its current organizational capacity. These transitions are not merely thermodynamic accidents. They are structural necessities in a world where organized systems that can self-supersede will outcompete and outlast organized systems that cannot.

5.4 Ententional Phenomena Are Products of Deep Closure

Deacon's ententional phenomena, all the functions, purposes, thoughts, meanings, and experiences that are constituted by their relationship to something absent, are what the closure framework calls the products of teleodynamic closure regimes that have developed the organizational depth to use their remainder as more than dissipated energy. A living cell uses its molecular remainder to specify protein functions. An organism uses its perceptual remainder to update its model of the environment. A conscious being uses its cognitive remainder, the gap between what its current model constitutes and what the world presents, to generate the felt experience of meaning, longing, purpose, and understanding.

Deacon's claim that ententional phenomena require absential causation is the closure framework's claim that the products of deep closure regimes are constituted by their remainder. You cannot account for what a gene does by describing only the molecules present in it. You must account for its closure boundary: the specific space of protein configurations it excludes, the remainder it generates at its organizational boundary, the teleodynamic context in which that remainder is used. The same applies at every higher level. Mind is not more molecules. It is deeper closure: the organizational level at which remainder becomes felt, at which the structured absence at the boundary of the cognitive closure regime is experienced rather than merely processed.

6. The One Divergence Worth Naming

The convergence between Deacon's framework and the closure framework is deeper and more technically precise than most of the other convergences in this series. The divergence is correspondingly narrow but worth naming clearly.

Deacon, like Friston, brackets the question of conscious presence. He accounts for the emergence of ententional phenomena, including subjective experience, in terms of nested levels of absential organization without committing to a position on whether there is something it is like to be a teleodynamic system. His account is designed to be compatible with a range of positions on consciousness: it does not require and does not exclude the view that phenomenal experience is something over and above the functional organization his framework describes.

The closure framework does not bracket this question. It treats C, bare conscious presence, as a primitive: something that is not derived from any organizational level but that is the condition under which organizational levels are experienced rather than merely functional. From the closure framework's perspective, Deacon's account of ententional phenomena explains the c side of experience, the content-rich, functionally organized, absential structure of conscious thought and perception, without addressing what makes that structure felt. The closure framework's C is the primitive presence that Deacon's teleodynamic organization is always already occurring within, for any system that has it.

This divergence is not a criticism of Deacon. It is the same productive divergence identified in the Friston paper. Both Deacon and Friston have built frameworks of extraordinary precision and explanatory power that describe the functional and organizational structure of living and cognitive systems. Both bracket the question of what makes that structure felt. The closure framework treats that question as the most fundamental one and C as the primitive answer to it. The relationship between the two positions is not competition but complementarity: Deacon and Friston provide the organizational account, the closure framework provides the phenomenal primitive, and between them they cover the territory that neither covers alone.

7. What the Encounter Produces

The encounter between Deacon's absential ontology and the closure framework has consequences for both.

For Deacon's framework, the closure account provides the structural derivation of why absence must be causally efficacious in any finite organized system, not only in the specific thermodynamic systems Deacon studies. Deacon demonstrates absential causation empirically across a wide range of organized phenomena and derives it thermodynamically for his three nested levels. The closure framework shows why this must be so at the level of structural first principles: any finite system with identity criteria generates remainder at its boundary, and remainder is the physically real absential feature that constitutes the system's organizational power. The thermodynamic derivation and the structural derivation are convergent and mutually supporting.

For the closure framework, Deacon's work provides the most technically precise account available of how absential causation operates in physical systems, from the molecular to the cognitive level. His three nested levels of thermodynamic organization, his constraint-based account of emergence, and his careful derivation of teleodynamic from morphodynamic from homeodynamic organization give the closure framework a physical grounding it needs. The claim that remainder drives supersession is not only a structural claim about organized systems. It is a thermodynamic claim about the physical mechanisms by which organized systems maintain themselves far from equilibrium. Deacon's account of how constraints accumulate and how teleodynamic systems use their absential features to maintain organization is the thermodynamic expression of exactly that claim.

For philosophy of mind and philosophy of biology jointly, the convergence between Deacon and the closure framework is the strongest available evidence that the absential ontology is tracking something real. Two frameworks arrived independently at the same structural insight: that the causal power of organized systems cannot be accounted for by describing only what is

present, that absence is structurally real and causally efficacious, and that the full range of living and mental phenomena requires an ontology that includes structured absence as a fundamental category. When thermodynamics and philosophy of mind converge on the same ontological conclusion, the conclusion is almost certainly correct.

8. The Grammar of Absence

A hole in a wheel is not nothing. It is a structured absence with real causal power: the power to make the wheel a wheel, to channel energy into directed motion, to organize the presence of every other component around what it is not. Remove the hole and the wheel becomes wood. Keep the hole and the wood becomes a machine.

Terrence Deacon saw this and followed where it led. All the way from holes in wheels to genes and cells and conscious minds. All the way to the claim that the most important features of living and mental systems are constituted by what is missing from them: the functions they serve, the purposes they pursue, the meanings they carry, the experiences they have. He derived this from thermodynamics, from the physics of systems far from equilibrium, from the nested emergence of organizational levels each more deeply absential than the one below it.

The closure framework arrived at the same place from philosophy of mind: any finite organized system generates remainder at its boundary, and remainder is the absential feature that constitutes the system's organizational power and drives its supersession. The hole in the wheel is remainder. The constraint of the cylinder is a closure boundary. The teleodynamic organization of a living cell is a closure regime using its molecular remainder to maintain its identity against thermodynamic dissolution. The conscious experience of meaning, longing, and understanding is the felt interior of a cognitive closure regime whose remainder has become experienced rather than merely processed.

Deacon found the grammar of absence in physics and biology and built upward toward mind. The closure framework found it in philosophy of mind and built outward toward physics and biology. They met in the middle, and what they found at the meeting point is the same: absence is real, absence has structure, absence is causally efficacious, and the most important things about any organized system, living or thinking, are constituted by what it is not and what it has not yet reached. The grammar of absence is the grammar of every organized system that exists. It is also the grammar of every conscious being that reaches toward what it cannot yet name.

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Author's Note

This paper is the fifth in a series engaging thinkers whose work converges with the closure framework developed in Consciousness, Closure, and the Cosmos. Terrence Deacon is Professor of Anthropology and member of the Cognitive Science faculty at the University of California, Berkeley. His work spans biological anthropology, evolutionary biology, neuroscience, semiotics, and philosophy of mind. Incomplete Nature represents twenty years of sustained effort to account for the emergence of life and mind from physical matter without reductionism or mysterianism. The author regards the convergence between Deacon's absential ontology and the closure framework's account of remainder as the most technically precise alignment in this series: two frameworks that arrived at the same structural insight from thermodynamics and philosophy of mind respectively, with a precision that is unlikely to be coincidental. The author welcomes engagement from Deacon directly and from researchers in biosemiotics, systems biology, and philosophy of mind who find the convergence productive or who wish to contest the specific equivalences proposed in section 5.