The Grammar of Experience

Evan Thompson's Enactive Mind and the Closure Framework: Where Biological Self-Organization Becomes Lived Experience

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> *Where there is life there is mind, and mind in its most articulated forms belongs to life. Life and mind share a core set of formal or organizational properties, and the self-organizing features of mind are an enriched version of those fundamental to life.*
> Evan Thompson, Mind in Life, 2007

> *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

Evan Thompson is Professor of Philosophy at the University of British Columbia and among the most important contemporary philosophers of mind working at the intersection of biology, phenomenology, and cognitive science. His central thesis, developed across The Embodied Mind with Varela and Rosch, Mind in Life, and Waking Dreaming Being, is that life and mind are deeply continuous: the self-organizing properties of mind are an enriched version of the self-organizing properties of life, and conscious experience is the felt interior of biological self-organization rather than something added to it from outside. This paper argues that Thompson's enactive account of the mind-life continuity and the closure framework developed in Consciousness, Closure, and the Cosmos are convergent from different directions and mutually completing. Thompson's enaction, the emergence of cognition from the dynamic sensorimotor activity of embodied organisms in their environments, is closure regime activity: the organism constituting its world through its organized coupling with what it opens onto. Thompson's neurophenomenology, the methodological program that uses first-person phenomenological reports and third-person neuroscientific data as mutually constraining, is the empirical program for studying the relationship between c and C in the CC-C framework: between consciousness with content and bare conscious presence. And Thompson's account of the self as a dynamic process rather than a fixed entity, developed through the full spectrum of waking, dreaming, and deep sleep states, is the closure framework's account of closure identity maintained across time through continuous supersession. Thompson is the philosopher who brings the Maturana lineage all the way to the question of what it is like to be a living system. The closure framework provides the structural account of what that felt interior is.

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1. The Question That Maturana Left Open

Humberto Maturana demonstrated that living systems are self-producing organizational closures, and that cognition is coextensive with life: to live is already to know, in the sense that effective self-maintenance in a world that could dissolve you is what cognition means. This is a powerful and correct account of what living systems do. It leaves open, deliberately, a question that Maturana regarded as outside the scope of biology: what is it like to be a living system?

Not what it does. Not how it maintains its organizational identity. Not what mechanisms produce its behavior. What it is like, from the inside, to be the kind of system that maintains itself through structural coupling with its medium. Whether there is something it is like at all, and if so what that something is.

Evan Thompson saw this gap as the most important unsolved problem at the intersection of biology and philosophy of mind, and he spent three decades building the framework for addressing it. His central move, developed first with Francisco Varela and Eleanor Rosch in The Embodied Mind and extended in Mind in Life and Waking Dreaming Being, is to deny that the gap between biological organization and conscious experience is an explanatory gap requiring a bridge. It is instead a difference of descriptive level within a single continuous reality. Biological self-organization and conscious experience are the same process described from two different vantage points: the third-person perspective of the observer and the first-person perspective of the living system itself.

This move is both philosophically bold and scientifically precise. Thompson does not dissolve the question of consciousness by reducing it to biology. He dissolves the apparent gap between biology and consciousness by showing that the organizational features of biological life are already the organizational features of mind, and that the felt interior of biological life, the phenomenal quality of being a living system engaged with its world, is what consciousness is. Mind is in life, not because life produces mind as a byproduct but because life and mind are the same organizational process encountered from inside and outside simultaneously.

The closure framework independently arrives at the same insight from philosophy of mind rather than from biology. The felt interior of a closure regime's encounter with what it opens onto is what consciousness is. The closure does not produce consciousness as a byproduct of its organizational activity. The felt encounter with remainder is consciousness, at the level of organizational sophistication where such encounter becomes felt rather than merely processed. Thompson built from biology toward the phenomenological interior. The closure framework builds from phenomenology toward the biological structure. This paper shows where the two arrive at the same place.

2. Thompson's Four Claims

Thompson's philosophical program has four interconnected components developed across two decades of work.

2.1 Enaction: Cognition as Embodied Sensorimotor Activity

The enactive approach, which Thompson developed with Varela and Rosch and extended in Mind in Life, holds that cognition is not computation over internal representations but the dynamic sensorimotor activity of an embodied organism engaged with its environment. The organism does not passively receive sensory input and compute a response. It enacts a world through its active exploration of its environment: its perceptual systems guide its motor activity, and its motor activity shapes what its perceptual systems receive. Cognition is this circular dynamic, not the internal processing that occurs within it.

The key term is enaction: the organism enacts its world rather than representing a pre-given one. The world the organism inhabits is not the physical environment described by physics but the environment as constituted through the organism's sensorimotor engagement with it. Different organisms with different sensorimotor organizations enact different worlds from the same physical substrate. The bat's world, constituted through echolocation, is not the same world as the bird's world, constituted through visual and auditory organization. Neither is a representation of an objective world. Each is a world enacted through a specific form of sensorimotor closure.

2.2 Mind-Life Continuity: Self-Organization All the Way Through

Thompson's central philosophical thesis is that life and mind are continuous: the self-organizing properties of mind are an enriched version of the self-organizing properties of life. Life is already minded in the minimal sense that living systems constitute their own identity, maintain their organization against thermodynamic dissolution, and navigate their environments through effective sensorimotor activity. Mind is alive in the sense that all cognitive processes are biological processes, occurring in embodied organisms that are structured by the logic of life.

The continuity runs in both directions. There is no sharp boundary at which biological processes stop and mental processes begin. The simplest metabolism already involves something like perception: the distinction between nutrients and non-nutrients, between conditions that support the maintenance of autopoiesis and conditions that threaten it. The richest human consciousness is still a biological process, occurring in a nervous system that is structured by the requirements of biological self-maintenance. The self-organizing features of mind are an enriched version of the self-organizing features of life, and the enrichment is a matter of degree rather than kind.

2.3 Neurophenomenology: First-Person and Third-Person Data Are Mutually Constraining

Thompson and Varela developed neurophenomenology as a methodological program for the scientific study of consciousness. The central commitment is that first-person phenomenological reports and third-person neuroscientific data are not merely correlated with each other but mutually constraining: phenomenological findings should guide the design of neuroscientific experiments, and neuroscientific findings should inform and refine phenomenological description.

This is a methodological position with philosophical implications. It presupposes that conscious experience has a structure that can be described with the rigor and precision of phenomenological analysis, and that this structure is related to neural dynamics in a way that makes each perspective partially transparent to the other. The felt texture of experience and the neural dynamics that accompany it are not two independent phenomena that happen to be correlated. They are two perspectives on the same process, and the most complete understanding of that process requires both perspectives to be brought into mutual constraint.

2.4 The Self as Dynamic Process: Consciousness Across States

In Waking Dreaming Being, Thompson extends the mind-life continuity thesis into the full spectrum of conscious states: waking, dreaming, dreamless sleep, meditative states, and the boundary between consciousness and unconsciousness. His central claim in this work is that the self is not a fixed entity that remains constant across states but a dynamic process that reconfigures itself as the states change. In waking, the self-process organizes itself around a stable center of experience. In dreaming, it reconstitutes a dream-ego fully identified with the dream's perspective. In lucid dreaming, it achieves a meta-awareness of its own dreaming. In dreamless sleep, the self-process continues but without the content-rich organization of waking or dreaming consciousness.

Thompson uses this spectrum to challenge both strong no-self views, which deny any genuine selfhood, and strong self views, which posit a fixed unchanging self behind experience. The self is real but not fixed: it is a dynamic ongoing process of self-organization that maintains identity through continuous change, exactly as autopoietic systems maintain their identity through the continuous replacement of their material components. The self is the pattern that persists across the changing content of experience, not the content itself.

3. What Thompson Needs

Thompson's philosophical program is among the most comprehensive and carefully developed in contemporary philosophy of mind. It integrates biology, phenomenology, cognitive science, and contemplative tradition with a rigor that few other accounts match. His account of mind-life continuity is philosophically defensible, empirically grounded, and methodologically sophisticated.

There are two questions Thompson's framework raises without fully answering. The first is structural: why does biological self-organization become conscious at some levels of organizational complexity and not others? Thompson argues for continuity and enrichment but does not identify the structural threshold at which biological organization becomes felt organization. His account describes the continuum without marking the point at which something it is like to be a living system first becomes a relevant description.

The second is the relationship between the organizational structure of consciousness and the bare fact of conscious presence. Thompson is committed to neurophenomenology as a methodology for studying the relationship between phenomenal experience and neural dynamics. But the methodology presupposes that there is something to study: that there is genuine first-person experience, not merely the appearance of it. Thompson treats this as a given, which is

philosophically appropriate, but he does not provide an account of what conscious presence is that would explain why the self-organizing features of mind feel like something from the inside.

The closure framework addresses both questions. The structural threshold at which biological organization becomes felt organization is the level at which a cognitive closure regime becomes sophisticated enough to encounter its own remainder as something: the point identified in the Jablonka paper as the emergence of unlimited associative learning, the level at which processing becomes experiencing. And the bare fact of conscious presence is what the CC-C framework calls C: the primitive that is not derived from any organizational structure but that is the condition under which organizational structures are experienced rather than merely processed. Thompson has described the organizational structure of consciousness with extraordinary precision. The closure framework names the primitive that makes that structure felt.

4. Two Concepts That Complete Thompson's Project

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

4.1 Closure Regime: What Enaction Is Structurally

A closure regime is a system that stabilizes some content by drawing distinctions, establishing identity criteria, and maintaining lawful relationships among its elements. It constitutes facts within its scope and generates remainder at its boundary.

Thompson's enacting organism is a closure regime in this precise sense. The organism's sensorimotor organization draws distinctions: between nutrients and non-nutrients, between threats and affordances, between figure and ground in perceptual experience. It establishes identity criteria: the criteria that determine when a given feature of the environment is relevant to the organism's continued autopoiesis and when it is not. And it maintains lawful relationships among its elements: the sensorimotor contingencies that govern the organism's active exploration of its environment.

Remainder is the world that exceeds the organism's enactive closure: the features of the physical environment that the organism's sensorimotor organization does not constitute as relevant to its engagement with the world. The bat's echolocation closure generates remainder in the color domain: the bat's enactive world has no colors. The human visual closure generates remainder in the ultrasonic domain: the human's enactive world has no echolocation. Each closure constitutes a specific enacted world and generates remainder at its boundary. The enacted world is grammar-relative: it is what the organism's sensorimotor closure constitutes, not what the physical environment contains independently of any organism's engagement with it.

4.2 C and c: The Primitive Thompson Approaches But Does Not Name

The CC-C framework distinguishes C, bare conscious presence, from c, consciousness with content. C is the primitive fact that there is something it is like: the felt interior of any conscious encounter with the world, prior to any particular content. c is consciousness as organized by the

closure: the content-rich experience that the closure's identity criteria and lawful relationships produce from the encounter with what the closure opens onto.

Thompson's neurophenomenology studies c: the structured content of conscious experience as described in first-person phenomenological reports and correlated with third-person neural dynamics. His methodology is designed for this: phenomenological description provides the structure of experiential content, and neuroscientific measurement provides the neural dynamics correlated with that structure. The methodology is rigorous and important.

What neurophenomenology cannot study directly is C: the bare fact that experience occurs at all, the primitive that makes the phenomenological description possible. Thompson acknowledges this. He treats the reality of first-person experience as a given of his methodology and does not attempt to derive it from the neural or biological structure. The closure framework honors this acknowledgment by treating C as a primitive: not derivable from any organizational structure, but the condition under which organizational structures are experienced. Thompson's methodology studies the c side of consciousness with great precision. The closure framework names what makes c possible: C, the felt interior of being a closure regime that encounters what it opens onto.

The relationship between C and c in the closure framework maps onto Thompson's distinction between the minimal self and the narrative self, between the prereflective self-awareness that underlies all experience and the content-rich self-concept that the organism constructs through its history of engagement with the world. Thompson's minimal self is closer to C: the basic fact of being a subject of experience, prior to any particular content. His narrative self is closer to c: the organized content of self-experience, constituted through the closure's identity criteria and the organism's history of structural coupling.

5. Four Claims, One Structure

The vocabulary correspondence between Thompson's enactivism and the closure framework is rich and layered, spanning biology, phenomenology, and philosophy of mind. What Thompson calls enaction, the constituting of a world through sensorimotor activity, the closure framework calls the activity of a closure regime: the constituting of facts from what the closure opens onto through the organism's organized engagement with its environment. What Thompson calls the enacted world, the world as constituted through sensorimotor closure, the framework calls grammar-relative knowledge: the facts that the closure's identity criteria and lawful relationships constitute from the world. What Thompson calls the mind-life continuity, the fact that the self-organizing features of mind are an enriched version of those of life, the framework calls the nested closure hierarchy: the biological and cognitive closures as levels in a single organizational system. And what Thompson calls neurophenomenology, the methodological program for studying the relationship between first-person experience and third-person neural dynamics, the framework calls the study of the relationship between C and c.

5.1 Enaction Is Closure Activity

Thompson's enacting organism and the closure framework's closure regime are the same organizational reality described with different philosophical tools. The enacting organism constitutes its world through sensorimotor activity: the patterns of action and perception that the organism's organization makes possible. The closure regime constitutes facts through its distinctions and identity criteria: the organizational structure that determines what counts as relevant to the closure's continued existence.

The enactive constitution of the world is grammar-relative in the closure framework's sense. The bat enacts a world through echolocation closure. The human enacts a world through visual and auditory closure. The bacterium enacts a world through chemosensory closure. Each enacted world is real: the facts it constitutes are genuine facts about the organism's encounter with its environment. Each enacted world is also partial: the closure generates remainder, the features of the environment that the organism's sensorimotor organization does not constitute as relevant. The enacted world is not a representation of the physical environment. It is the portion of the physical environment that the organism's closure constitutes as its world, surrounded by what the closure leaves as remainder.

5.2 Mind-Life Continuity Is Nested Closure

Thompson's mind-life continuity thesis, that the self-organizing features of mind are an enriched version of those of life, maps precisely onto the closure framework's account of nested closure regimes. The biological closure, autopoiesis, is the foundational level. The sensorimotor closure, enaction, is a higher-level closure that uses the outputs of biological closure as its elements and constitutes the enacted world from them. The cognitive closure, the full organizational structure of conscious experience, is a higher-level still: it uses the outputs of sensorimotor closure as its elements and constitutes the organized content of experience from them.

The enrichment that Thompson describes, the increasing organizational sophistication from minimal autopoiesis to full conscious experience, is the deepening of closure: each level of enrichment is a new closure regime that takes the remainder of the level below it as its resource and constitutes a richer, more complex world from it. The continuity is real: biological self-organization and conscious experience are the same organizational process at different levels of closure depth. And the enrichment is also real: conscious experience at the cognitive level constitutes a world that the biological level alone cannot constitute.

5.3 Neurophenomenology Is the Study of C and c

Thompson's neurophenomenological methodology uses first-person phenomenological reports and third-person neuroscientific data as mutually constraining. In closure framework terms, this is the methodology for studying the relationship between c, the organizational content of conscious experience, and its neural correlates. The phenomenological report describes the structure of c: the organized content of experience as the first-person perspective encounters it. The neuroscientific measurement describes the neural dynamics that implement and correlate with that structure.

The neurophenomenological program is rigorous and important as a methodology for studying c. What it cannot directly address is C: the bare fact of conscious presence that makes phenomenological reporting possible. Thompson's neurophenomenology takes C as a given, which is methodologically appropriate. The closure framework's account of C as a primitive explains why neurophenomenology must take it as a given: C is not derivable from c because C is the condition under which c is experienced rather than merely processed. The methodology studies what can be studied. The primitive accounts for what the methodology must presuppose.

5.4 The Self as Process Is Closure Identity

Thompson's account of the self as a dynamic process that maintains identity through continuous change, rather than a fixed entity that persists unchanged across states, is the closure framework's account of closure identity: the pattern of organizational structure that persists across continuous change in the closure's material components and content. The self is real but not fixed: it is what Maturana called the organization that life must change to preserve. Thompson extends this to the full spectrum of conscious states and shows how self-identity is maintained through waking, dreaming, and dreamless sleep by the same logic that biological identity is maintained through the continuous replacement of cellular components.

The self-process in Waking Dreaming Being is a closure regime that reconfigures its identity criteria across states while maintaining a thread of organizational continuity. In lucid dreaming, the closure achieves meta-awareness of its own activity: the dreaming closure becomes aware of itself as dreaming, which is the closure taking its own organizational activity as the subject of its attention. This is the highest-order form of closure that Thompson identifies: a closure that can observe its own closure. The closure framework names this as the organizational structure that makes the search for M possible: the cognitive closure sophisticated enough to become aware of its own remainder, to feel the gap between what it constitutes and what exceeds it, and to pursue that gap as the object of its inquiry.

6. What the Encounter Produces

The encounter between Thompson's enactive philosophy of mind and the closure framework is the deepest meeting in the series because it is where the biological and phenomenological sides of the framework's suite come together.

The series has built from the biological side through Noble, Friston, Maturana, Deacon, and Jablonka: each establishing, from a different empirical or theoretical direction, that living systems are nested closure regimes that maintain their identity through structural coupling with what they open onto. The series has also built from the phenomenological and cognitive side through Lawson, Boroditsky, Kaptchuk, and Crum: each establishing that cognitive and linguistic closures constitute facts, shape experience, and reach into biology. Thompson is the thinker who has been building the bridge between these two sides for three decades.

His mind-life continuity thesis is the philosophical claim that the series has been demonstrating empirically from multiple directions: that life and mind are the same organizational process at different levels of closure depth. His enactivism is the biological and cognitive science

account of how closure regimes constitute their worlds through sensorimotor engagement. His neurophenomenology is the methodological program for studying the relationship between the organizational structure of experience and its biological implementation. And his account of the self as a dynamic process is the phenomenological complement to Maturana's biological account of what it means to maintain organizational identity through continuous change.

What the closure framework provides Thompson is the primitive that his methodology cannot derive but must presuppose: C, the bare fact of conscious presence that makes phenomenological description possible. What Thompson provides the closure framework is the most rigorous account available of how that presence is structured across the full range of biological and experiential complexity: from the minimal self-awareness of autopoiesis to the meta-awareness of lucid dreaming to the contemplative encounter with awareness itself. The framework names the primitive. Thompson maps the territory.

7. The Grammar of Experience

Where there is life there is mind. This is Thompson's thesis and it is correct. Not because mind is a byproduct of life or an epiphenomenon of biological complexity, but because life and mind are the same organizational process described from two different vantage points. From the outside, the living system is a self-organizing closure that maintains its identity through structural coupling with its environment. From the inside, the living system is a subject of experience that encounters a world it did not choose and cannot fully model.

Evan Thompson spent three decades building the framework for holding both vantage points simultaneously: the biology and the phenomenology, the third-person dynamics of neural activity and the first-person texture of conscious experience, the organizational structure of autopoiesis and the felt interior of living. His enactivism, neurophenomenology, and account of the self as a dynamic process across states are the most comprehensive philosophical synthesis available of what it means to be a minded living thing.

The closure framework provides the structural account that Thompson's synthesis points toward but does not fully articulate. The organizational features of life are closure regimes. The enrichment from biological to cognitive closure is the deepening of organizational depth: more sophisticated closures constituting richer worlds from what they open onto. The felt interior of being a living system, the something it is like, is C: the primitive conscious presence that is the condition under which organizational activity is experienced rather than merely processed. The territory Thompson maps is the territory the closure framework names structurally. Neither is complete without the other.

Thompson built upward from Maturana's biology through Varela's enactivism to the phenomenological interior of biological life. The closure framework built from the phenomenological interior of consciousness toward the biological structure that makes it possible. Both paths end at the same place: where organized biological life first becomes something it is like to be. The grammar of experience is the grammar of that encounter: between the finite closure of a living system and the inexhaustible world it opens onto, felt from inside.

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Author's Note

This paper is the twelfth in a series engaging thinkers whose work converges with the closure framework developed in Consciousness, Closure, and the Cosmos. Evan Thompson is Professor of Philosophy at the University of British Columbia and Fellow of the Royal Society of Canada. He is one of the most important contemporary philosophers of mind working at the intersection of biology, phenomenology, and cognitive science. His work with Francisco Varela introduced enactivism to cognitive science and his subsequent books have developed the philosophical and empirical foundations of the enactive approach with increasing depth and breadth. This paper occupies a specific structural position in the series: it is the paper that bridges the biological and phenomenological sides of the series, connecting the Maturana paper on autopoietic foundations to the broader suite of papers on cognitive and experiential closure. Thompson is the thinker who has been building this bridge for three decades. The closure framework names what he

has been building toward: the structural account of why biological self-organization is experienced from the inside, and what that felt interior is at the level of first principles. The author welcomes engagement from Thompson directly and from philosophers of mind, cognitive scientists, and neurophenomenologists who find the convergence between enactivism and the closure framework either illuminating or contestable.