STRANGE LOOPS, VICARIOUS CAUSATION, AND MORE-THAN-HUMAN CONSCIOUSNESS: TOWARD A POST-ANTHROPOCENTRIC SYNTHESIS OF HARMAN AND HOFSTADTER

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ABSTRACT: This essay conjectures a novel intersection of Graham Harman's Object-Oriented Ontology (OOO) and Douglas Hofstadter's inquiries into human cognition. Prompted by Harman's use of metaphor and Hofstadter's exploration of analogy, the essay explores the origins and implications of these linguistic devices as distinct depictions of ontology and consciousness: metaphor as necessitated by the ontological withdrawal of objects, and loops of analogous perception as the intrinsic foundation of cognition. This intersection affords a subsequent contestation of Hofstadter's depiction of human consciousness and identity against Harman's unresolved depictions of speculative polypsychism as a necessity of post-anthropocentric ontologies. Drawing on Quentin Meillassoux's break from correlationism, Jane Bennett's thing-power, and Ian Bogost's alien phenomenology, we argue that Gödelian incompleteness exemplifies the irreducible withdrawal of objects. Ultimately, the implication of analogy and metaphor in both Hofstadter's and Harman's work is conjectured as an irresolvable limitation of anthropocentric representation, leading to the novel translation of Gödel's 'Incompleteness Theorem' (via Hofstadter) as a possible realisation of the withdrawn unknowability of objects advocated in Harman's OOO.

KEYWORDS: Object-Oriented Ontology; Douglas Hofstadter; Analogy; Metaphor; Consciousness; Polypsychism; Vicarious Causation; Post-Anthropocentric

INTRODUCTION

This essay posits a novel intersection of ideas drawn from Graham Harman's Object-Oriented Ontology (OOO) and Douglas Hofstadter's theory of analogy and strange loops, revealing unresolved implications at the nexus of ontology, cognition, and representation. While Harman's work challenges anthropocentric hierarchies by asserting the irreducible withdrawal of objects beyond their

sensual manifestations, Hofstadter's cognitive investigations demonstrate that human consciousness is itself constructed through self-referential loops of analogy. At first glance, these projects—one ontological, the other cognitive—appear to speak past one another, originating from disparate epistemological and methodological positions. Yet, a closer examination reveals that both hinge on profound abstractions necessitated by a fundamental asymmetry between surface appearances and hidden realities. This essay argues that their respective insights, far from being disparate, offer complementary perspectives on a post-anthropocentric cosmology, where the boundaries between human and non-human, mind and matter, are re-evaluated through the lens of recursive processes and irreducible absences. To further enrich this dialogue, we also draw upon Karen Barad's agential realism, which offers a powerful framework for understanding how reality is constituted through dynamic 'intra-actions' rather than pre-existing 'interactions' between separate entities.[1]

Harman's OOO, a provocative and sometimes controversial concept within contemporary philosophy, fundamentally reorients our understanding of reality. Diverging from prevalent more-than-human discourses such as post-humanism and new materialism, OOO asserts the metaphysical primacy of objects, arguing that they exist independently of human perception and their relations to other entities. This radical 'flat ontology'[2] reconfigures causality and perception, leading Harman to posit metaphor as a necessary linguistic device arising from the withdrawn nature of real objects and the asymmetric causality that governs their interactions.

In parallel, Douglas Hofstadter, widely recognised for his Pulitzer Prize-winning *Gödel, Escher, Bach: An Eternal Golden Braid* [3], has extensively explored the implications of self-referential systems for human cognition and consciousness. Hofstadter's concept of "strange loops"—paradoxical cycles of abstraction that return to their origin—forms the bedrock of his theory, with analogy serving as the fundamental mechanism by which these loops generate meaning and understanding. His work reveals how human consciousness, far from being a simple input-output system, is a complex feedback loop of analogous experiences,

[1] Karen Michelle Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007).

[2] Graham Harman, *The Quadruple Object* (Winchester: Zero books, 2011).

[3] Douglas Hofstadter, *Gödel, Escher, Bach: an eternal golden braid* (New York: Basic Books, 1979).

inherently bound by the same principles of incompleteness Gödel identified in mathematics.

The intellectual gap this essay seeks to address lies in the unexplored potential for synthesising these two seemingly distinct yet deeply resonant bodies of work. Both Harman and Hofstadter grapple with the limits of representation and the nature of hidden realities, albeit from different angles. Harman's objects withdraw into an unknowable interiority, necessitating metaphor to gesture at their essence. Hofstadter's strange loops demonstrate that human cognition itself is a recursive abstraction, perpetually looping back on itself, making analogy the core of thought. The central contention here is that these two forms of abstraction—metaphor as an external leap towards withdrawn reality, and analogy as an internal loop of cognitive self-constitution—are not merely parallel but are complementary facets of a unified, more-than-human cosmology.

In bringing these perspectives together, this essay pursues three aims: - To demonstrate that metaphor and analogy are two complementary facets of a single more-than-human cosmology, each addressing the gap between phenomena and realness from opposite directions. We will argue that while analogy refines internal cognitive schemas through recursive mappings, metaphor performs an outward, vicarious leap, allowing for an aesthetic encounter with the withdrawn depths of objects. - To explore how Gödel's 'Incompleteness Theorems', as deployed by Hofstadter, mirror Harman's withdrawal of objects, revealing universal limits of self-reference and representation. This section will posit Gödelian incompleteness not as a mere logical curiosity, but as an ontological mirror reflecting the irreducible absences inherent in both formal systems and the fabric of reality itself. - To extend OOO's speculative polypsychism through Hofstadter's looped conception of memory, suggesting a distributed field of subjectivity that transcends the human. We will propose that if consciousness is a strange loop, then various forms of material and informational loops across the cosmos could instantiate proto-subjectivities, leading to a multiscale model of more-than-human memory.

After outlining the core tenets of OOO in section 2 and Hofstadter's strange loops in section 3, we will synthesise their insights into a unified framework for metaphor and analogy in section 4. This will set the stage for our expanded discussion of polypsychism and more-than-human memory in section 5, before

drawing broader philosophical implications regarding Gödelian incompleteness as an ontological mirror in section 6, and concluding with a summary and future directions in section 7. In developing this account, we integrate additional voices from Quentin Meillassoux's critique of correlationism, Jane Bennett's 'thing-power,' Ian Bogost's alien phenomenology, Philip Goff's Russellian monism, Timothy Morton's hyperobjects, Karen Barad's agential realism, and Bruno Latour's actor-network theory.

2. OBJECT-ORIENTED ONTOLOGY AND VICARIOUS CAUSATION

Graham Harman's Object-Oriented Ontology (OOO) fundamentally re-conceives reality by positing that every object—whether a hammer, a tree, a nation, or a thought—comprises four poles: the real object, the sensual object, real qualities, and sensual qualities.[4] This framework, derived from a radical reinterpretation of Martin Heidegger's concept of 'tool-being'[5] and incorporating elements from Husserlian phenomenology and Leibnizian monadism, asserts the metaphysical independence of all objects. Crucially, the real object *withdraws* from all relations, remaining forever inaccessible to any direct encounter, whether by other objects or by human perception. As Harman writes, *"Wholly other objects exist behind every encounter, never reducible to the qualities they manifest"*.[6] This withdrawal is not a cognitive limitation unique to humans, but an ontological condition inherent to all objects, a *"permanent inadequacy of any relation at all"*.[7]

Karen Barad's agential realism offers a compelling counterpoint and complement to this notion of withdrawal. For Barad, entities do not pre-exist their interactions; rather, 'objects' themselves *"emerge through particular intra-actions"*.[8] This suggests that the 'withdrawal' Harman describes might be understood not as a static, inherent property, but as a dynamic consequence of the relational and entangled nature of existence, where the boundaries and properties of phenomena become determinate through specific agential intra-actions. The unknowability of objects, therefore, stems not just from their

[4] Harman, *The Quadruple Object*, 8–15.
[5] Graham Harman, *Tool-Being: Heidegger and the Metaphysics of Objects* (Chicago: Open Court, 2002).
[6] *The Quadruple Object*, 44.
[7] *Ibid.*
[8] Barad, *Meeting the Universe Halfway*, 337.

inherent hiddenness, but from the inherent 'cuts' made in the world's ongoing material-discursive 'worlding'.

This doctrine of withdrawal directly challenges the classical Newtonian picture of direct causation, where one object physically impacts another through immediate contact. If two real objects can never physically touch or fully apprehend one another, how does change propagate? Harman resolves this via *vicarious causation*: an object A affects object B by first producing a change in its own sensual qualities, which manifest to B as a sensual object. B then reacts, altering its own sensual qualities, which in turn reflect back into B's hidden real object.[9] Thus, causality is inherently *asymmetric*—A's gift to B need not be returned in equal measure, and A's essence is not exhausted by its effect on B. In Harman's words: "Real objects cannot touch real objects, and sensory phenomena only lie contiguous; the only direct touch is asymmetrical—real objects touching the sensual objects they experience".[10] This means that the influence is a one-way street, a "gift without recompense".[11]

Harman frequently illustrates this with a variant on Martin Heidegger's hammer and nail example.[12] The hammer's structures (its shape, weight, material) engage causally with the nail's sensual presence: the hammer's forces produce dents and heat in the nail's surface. Yet the nail never grasps the hammer's essence—only the sensual aftereffects. Moreover, each such interaction generates a new object: the nail's altered real, reflecting the historic gift of causation.[13] This means that causation is not merely a transfer of properties but a creative act, constantly bringing new entities into being.

This *local occasionalism*, reminiscent of Bruno Latour's 'circulation of reference',[14] reframes mediation not as hierarchical translation but as ontological flatness: any actor—be it mineral, deity, or human—serves as a mediator, transforming and transmitting effects. Latour's actor-network theory

[9] Harman, *The Quadruple Object*, 75–80.
[10] *Ibid.*
[11] Graham Harman, "Asymmetrical Causation: Influence Without Recompense," *Parallax* 16, no. 1 (February 2010): 96, doi:10.1080/13534640903478833.
[12] Harman, *Tool-Being*.
[13] Graham Harman, "On Vicarious Causation," *Collapse II* 11, no. 26 (2007): 190–195.
[14] Graham Harman, *Prince of networks: Bruno Latour and metaphysics*, Anamnesis (Melbourne: Re.press, 2009), 77.

(ANT) emphasises that reality is composed of heterogeneous networks of human and non-human actants, where meaning and causality are produced through their interactions and translations. While Latour focuses on the symmetrical agency of all actants within a network, Harman appropriates this notion of mediation to underscore the *asymmetry* inherent in vicarious causation. For Harman, the 'circulation of reference' is not merely about symmetric translation, but about the irreducible withdrawal of each object, which necessitates an indirect, transformative interaction. The void between metaphysical actors, democratised by Latour, becomes, for Harman, a space of irreducible withdrawal that necessitates indirect, vicarious interaction. Yet, unlike Latour's more explicitly symmetric network of relations, OOO insists that every node conceals a withdrawn core, ensuring perpetual novelty and unpredictability.

The ontological ripples of withdrawal and vicariousness surface in language as metaphor. Since we cannot directly depict the real object, we must *borrow* images, qualities, or narratives from one domain to gesture at another. Metaphor, from Greek *metapherein* 'to carry over,' enacts this cognitive workaround. It is not an ornamental flourish but an essential tool for apprehending the ungraspable. In Harman's words: *"Metaphor is not ornamental but essential—only through non-literal speech can we approach the withdrawn depths of objects"*.[15] Thus, for example, when we speak of ideas like 'gene mapping,' we deploy a cartographic metaphor—borrowing from the sensual world of maps to approximate the hidden complexity of genomic landscapes. Without metaphor, our discourse stalls at the surface of appearance, unable to bridge the gap between sensual encounter and real essence. Metaphor becomes the very means by which the withdrawn real can 'speak' to us, albeit indirectly, through an aesthetic allure that draws us towards its hidden interiority.

A crucial implication of this withdrawal is Harman's notion of *infinite regress*. If a real object is truly withdrawn from all relations, then its sensual qualities, which are all we can access, must also be withdrawn from their own underlying real qualities, and so on, *ad infinitum*. This means that the essence of an object is never fully exhausted by its parts or properties; there is always a deeper, ungraspable

[15] Graham Harman, *Object-Oriented Ontology: A New Theory of Everything*, Pelican Book 18 (London: Pelican Books, 2018), 65.

layer beneath the surface. Harman states: *"The real object is never exhausted by its sensual qualities, nor are its real qualities exhausted by their own sub-qualities, and so on in an infinite regress"*.[16] This infinite regress is not a flaw in our understanding but an inherent characteristic of reality itself, a consequence of the radical independence of objects. It means that we can never reach the ultimate 'bottom' of an object, nor fully account for its being through any finite description or analysis. This controversial aspect of OOO underscores the profound unknowability of the real, pushing against any form of reductive materialism or idealism.

Quentin Meillassoux's *After Finitude* provides crucial philosophical ballast by dismantling the Kantian 'correlationism' that confines the real within human-world interplay. For Meillassoux, absolute contingency must be thinkable independently of human access: *"the absolute can be thought without recourse to human presence or mind"*.[17] This unleashes a vision of objects free to both *withdraw* and *act* regardless of human perception—precisely the bedrock of OOO's flat ontology. Meillassoux's argument for a 'Great Outdoors' that exists independently of human thought provides a powerful philosophical justification for Harman's insistence on the radical independence of objects from all forms of correlation.

Jane Bennett's *Vibrant Matter*[18] amplifies this by attributing 'thing-power' to inanimate matter: *"the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle"*.[19] While Bennett stops short of full withdrawal, her experimental accounts of batteries, shards, and worms attest to a world in which agency is distributed, challenging anthropocentric notions of activity. By juxtaposing Bennett's lively materialism with Harman's withdrawn *realness* of all objects, we glimpse a dialectic: sensual exuberance masking deep absences. This interplay suggests that the vibrant, active surface of objects, which Bennett illuminates, is precisely what makes their withdrawn depths alluring and necessitates the metaphorical leap.

Despite these insights, Harman's polypsychism—the idea that all objects harbour proto-experiences—is sketched but underdeveloped in his work. He

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[16] Harman, *The Quadruple Object*, 12.
[17] Meillassoux, *After finitude*, 35.
[18] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).
[19] Bennett, *Vibrant Matter*, 6.

hints that if humans possess consciousness, other objects must too, in accord with his flat ontology.[20] Yet without articulating how non-human prehensions operate, the claim remains speculative. This is where Hofstadter's analogical loops (examined in section 3) can be invoked: if consciousness emerges from feedback loops of analogy, might similar loops—material or informational—sustain non-human prehensions? Could microbial signalling, geological layering, or the complex interactions within a river system instantiate primitive loops of memory and self-reference? Such questions push OOO from metaphorical assertion toward a more empirically resonant and conceptually robust account of distributed subjectivity.

In sum, Section 2 establishes that OOO's metaphysics of *withdrawal*, *vicarious causation*, *metaphor*, and *'infinite regress'* not only dismantle anthropocentric hierarchies but also prepare the ground for a robust, loop-inflected polypsychism. The emphasis on the irreducible interiority of objects, their indirect interactions, and the linguistic tools required to approach them lays the groundwork for a more expansive understanding of consciousness beyond the human. We now turn to the cognitive parallels in Hofstadter's theory, which will provide the necessary framework for elaborating on these proto-experiences.

3. STRANGE LOOPS AND ANALOGICAL THOUGHT

Douglas Hofstadter's exploration of self-referential systems provides a profound cognitive parallel to OOO's metaphysical insights, revealing how consciousness itself is constructed through recursive processes. In *Gödel, Escher, Bach: An Eternal Golden Braid* , Hofstadter introduces the seminal concept of the 'strange loop': a paradoxical cycle in which ascent through hierarchical levels of abstraction ultimately returns one to the origin. As he observes, *"an abstract loop in which… there is a shift from one level of abstraction… which feels like an upwards movement in a hierarchy, and yet somehow… gives rise to a closed cycle"*.[21] This concept is not merely a philosophical abstraction but is vividly demonstrated through diverse examples: Kurt Gödel's 'Incompleteness theorems', M.C. Escher's self-referential lithographs (e.g., *Drawing Hands* where two hands draw each other), and Johann Sebastian Bach's intricate musical fugues, where themes iterate at higher registers

[20] Harman, *The Quadruple Object*, 46.

[21] Douglas Hofstadter, *I am a strange loop* (New York, NY: Basic Books, 2007), 102.

only to recapitulate in their initial forms. Each example illustrates how a system can encode its own description, creating a *self-perceptual loop* that is both generative and inherently incomplete.

Hofstadter likens this phenomenon to an "upside-down causality."[22] In Gödel's case, the theorem's truth arises not from its surface-level claim but from a hidden, meta-level meaning that refers back to the system itself. This mirrors OOO's withdrawal: the *real* (hidden meaning) informs the *sensual* (surface statements) even as the latter resist full apprehension. The 'strangeness' of these loops lies in their paradoxical nature: they are simultaneously closed and open, finite and infinite, complete and incomplete. This paradox is central to Hofstadter's understanding of consciousness, which he argues is itself a strange loop.

In *I Am a Strange Loop*, Hofstadter elaborates on the recursive nature of the self, asserting that the 'I' is not an indivisible atom but a dynamic, self-referential tapestry woven from countless *micro-loops*, each contributing a thread of self-awareness. He writes: *"The 'I' is a striving, self-referential pattern that arises from countless microscopic loops working in tandem".*[23] This means that our sense of self is not a fixed entity but an emergent property of continuous, looping feedback processes. He poetically asks, *"What is it like to be a strange loop? It is like standing at the edge of a hall of mirrors, where every reflection contains yet another reflection in infinite regress, and yet the observer remains central, mysteriously both the seer and the seen".*[24] This evocative passage conveys how consciousness itself may arise from myriad micro-loops of analogy looping back upon themselves, perpetually constructing and reconstructing the self. This endless recursion of self-referential patterns in Hofstadter's work directly parallels Harman's concept of *infinite regress* within objects, suggesting that both the substructure of identity in people and the realness of objects in OOO are fundamentally elusive and layered.

The primary mechanism by which these strange loops operate in cognition is 'analogy'. In *Surfaces and Essences: Analogy as the Fuel and Fire of Thinking*[25], co-authored with Emmanuel Sander, Hofstadter positions analogy at the absolute

[22] Hofstadter, *Gödel, Escher, Bach*, 494.
[23] Hofstadter, *I am a strange loop,* 515.
[24] Hofstadter, *I am a strange loop,* 12.
[25] Emmanuel Sander and Douglas Hofstadter, *Surfaces and essences: analogy as the fuel and fire of thinking* (New York: Basic Books, 2013).

core of human thought. They contend that analogy is the very essence of cognition. It is by searching for strong, insight-providing analogues in our memory that we try to grasp essences of unfamiliar situations.[26] Here, analogy functions as a series of nested micro-loops: each comparison triggers a mapping from a 'base domain' (known experience) to a 'target domain' (new situation), generating emergent insight. For example, when Darwin *analogised* the branching patterns of coral reefs to the evolution of species, he created a conceptual scaffold that would itself become the basis for further analogies in genetics and developmental biology. This nesting of loops—ecology ↔ evolution ↔ developmental genetics—exemplifies the fractal nature of analogical thinking, akin to Hofstadter's description of strange loops: an apparent ascent through layers of abstraction that ultimately circles back upon itself.[27]

Gentner and Bowdle's 'structure-mapping theory'[28] further clarifies this process, arguing that analogy involves 'systematic correspondences' between domains, spotlighting relational patterns rather than superficial features. Cognitive experiments demonstrate that experts in physics or mathematics routinely invoke deep analogies when solving novel problems, illustrating that analogy is not an afterthought but the core mechanism of creativity and understanding. This systematicity ensures that analogies are not arbitrary but reveal underlying structural similarities between seemingly disparate phenomena.

Hofstadter's cognitive loops are not static; they unfold over time, dynamically shaping perception and memory. He also introduces 'metacognition'—thinking about thinking—as a higher-order loop that monitors and shapes lower-level analogies. In *Surfaces and Essences*, he and Sander note: *"Once an analogy is recognised, we reflect upon it, generating meta-analogies that further refine understanding—a fractal cascade of loops"*.[29] This reflexive quality positions analogy as *both object and subject*: it is the content of thought and the mechanism by which thought evolves. This fractal

[26] Sander and Hofstadter, *Surfaces and essences*, 16–20.

[27] Hofstadter, *Gödel, Escher, Bach*, 708–710; Hofstadter, *I am a strange loop*, 102.

[28] Gentner, Dedre, and Brian Bowdle. "Matephor as Structure-Mapping." In *The Cambridge Handbook of Metaphor and Thought*, 1st ed. (Cambridge University Press, 2008), 109–128. https://doi.org/10.1017/CBO9780511816802.

[29] Sander and Hofstadter, *Surfaces and essences*, 102.

imagery aligns with Harman's account of *qualities nested within qualities*: real qualities hide behind sensual ones, defining objects by both their sensual immediacy and withdrawn transcendence.[30]

Crucially, Hofstadter critiques reductionist accounts of mind, such as Roger Sperry's notion of neuronal forces "pushing around within the cranium."[31] He argues that creative leaps cannot be reduced to neuronal firings alone: *"A strictly bottom-up account of mind… cannot account for the aesthetic and self-referential leaps that define consciousness. There is always a gap, a loop, that cannot be bridged by mere synaptic interactions".*[32] This *gap* echoes Harman's doctrine of withdrawal: just as mental phenomena cannot be fully captured by physical processes, real objects elude direct contact. Both paradigms—cognitive and ontological—converge on the principle that *vicarious, mediated loops* generate the phenomena we observe, leaving an irreducible remainder that defies complete reduction.

Through these multilayered explanations and examples, Section 3 demonstrates how Hofstadter's strange loops and analogical thought form a coherent account of consciousness as a *self-referential, analogical system*—a tapestry of feedback, emergence, and poetic resonance. This cognitive framework, with its emphasis on inherent incompleteness and the generative power of recursive processes, provides the necessary conceptual tools to bridge the gap to Harman's withdrawn objects and to speculate on the nature of more-than-human consciousness.

4. METAPHOR VS. ANALOGY: COMPLEMENTARY ABSTRACTIONS

Metaphor and analogy, though often used interchangeably in common parlance, occupy intertwined yet distinct domains within human cognition and the broader ontological realm. To understand their complementary roles in a post-anthropocentric cosmology, it is crucial to recall their precise definitions. The Oxford English Dictionary defines an *analogy* as 'a comparison between one thing and another, typically for the purpose of explanation or clarification,' whereas a *metaphor* is 'a figure of speech in which a word or phrase is applied to an object or action to which it is not literally applicable.' While analogy preserves structural

[30] Hofstadter, *The Quadruple Object*, 12–14.
[31] Roger Sperry, "Mind, Brain, and Humanist Values," *Bulletin of the Atomic Scientists* 22, no. 7 (1966): 78–83.
[32] Hofstadter, *I am a strange loop*, 220.

correspondences between a known source and a novel target, metaphor forges new connections by transferring meaning across ontological gaps, creating a non-literal understanding. This distinction is not merely semantic; it reflects a fundamental difference in how these linguistic devices engage with the problem of representation and access to reality.

In theorising the cognitive significance of analogy, Hofstadter and Sander poetically elaborates: "Each analogy spins a thread from memory, weaving it into new patterns of meaning that ripple outward through our cognitions, only to fold back enriched".[33] This recursive expansion underscores analogy's role as an internal, self-referential process that continually refines our cognitive schemas. Metaphor, in contrast, is the external leap that circumvents withdrawal. Harman insists that because real objects conceal their essence behind sensual veneers, metaphor is the "sole means by which the withdrawn real can speak".[34] Metaphor is not about comparison for clarification, but about a radical transference of meaning, a 'carrying over' from one domain to another that creates a new, non-literal understanding. Harman's theatrical model in 'On Vicarious Causation' extends this, likening object interactions to stage performances: "Objects enact roles on a metaphoric stage, each gesture dancing around the void of withdrawal, each line prompting a glimpse of abyssal reality".[35] This dramatisation highlights metaphor's role in revealing the hidden depths through a mediated, aesthetic experience.

Cognitive linguists George Lakoff and Mark Johnson argue in *Metaphors We Live By* [36] that our conceptual system is fundamentally metaphorical, shaping even abstract domains like time, emotion, and social relations. When we say 'time is money,' we don't merely use a decorative phrase; we import the relational logic of economics—scarcity, expenditure, investment—into temporal reasoning, fundamentally altering how we perceive and interact with time. Sam Glucksberg further shows how a single metaphor can rapidly generate a category, as people

[33] Hofstadter and Sander, *Surfaces and essences*, 34.
[34] Harman, *Object-Oriented Ontology*, 67.
[35] Harman, "On Vicarious Causation," 200.
[36] Lakoff, George, and Mark Johnson. Metaphors We Live By (Chicago: University of Chicago Press, 1980).

intuitively understand novel concepts once mapped onto known frames.[37] This demonstrates metaphor's power to restructure our understanding of reality, creating new conceptual spaces that were not literally present before.

Yet metaphor and analogy are not wholly separate; they can be imagined as forming a *cognitive-ontological circuit* in which each feeds the other. First, analogy refines internal schemas by aligning relational structures, building a robust internal model of the world based on systematic correspondences. Then, metaphor *projects* these refined schemas outward, testing them across new contexts and breathing life into abstract categories by applying them to non-literal domains. The metaphoric leap, in turn, unveils uncharted domains, seeding fresh analogical micro-loops as the mind attempts to systematically map the newly revealed conceptual space. Hofstadter and Sander captures this synergy: *"A metaphor lifts us to new heights, but without analogical loops we cannot ground our vision"*,[38] with Harman echoing: *"Analogy erects the scaffolding of understanding; metaphor furnishes the leap into the realm of real objects"*.[39]

To witness this in practice, consider scientific metaphors that catalyse research. The 'genetic code' metaphor—borrowing from linguistic coding systems—prompted decades of molecular biology research and spurred analogies between information theory and biochemistry. Similarly, the 'brain as computer' metaphor led to computational models of cognition, which then generated analogies to neural network architectures, fostering advances in artificial intelligence. Each scientific metaphor spawns a cascade of 'analogical modelling', exemplifying the intertwined loops of thought and causation. In literary contexts, metaphor and analogy perform parallel roles in the looping of cognition and being. In Hofstadter's narrative dialogues within *GEB*, dialogues between Achilles and the Tortoise enact analogical puzzles, while the recurring 'fugues'—musical metaphors—loop thematic elements in self-referential patterns. Harman's own writing employs playful metaphors—such as 'objects as vampires' that feed on one another's qualities—

[37] Glucksberg, Sam. "How Metaphors Create Categories – Quickly." In The Cambridge Handbook of Metaphor and Thought, 1st ed. (Cambridge University Press, 2008), 67–83. https://doi.org/10.1017/CBO9780511816802.

[38] Hofstadter and Sander, *Surfaces and essences*, 34.

[39] Harman, *Object-Oriented Ontology*, 68.

to *dramatise* withdrawal.[40] These rhetorical devices demonstrate that rigorous philosophy can—and indeed must—leverage both analogy and metaphor to gesture at realities beyond immediate grasp.

Timothy Morton's concept of 'aesthetic causation' further entwines these themes, contending that *"causality is aesthetic, like a magic show in which the spectacle is the mechanism of effect"*.[41] Morton invokes a *magical-realist lens*, treating ecosystems and events not as mechanical sequences but as poetic *performances*, where metaphor and analogy shape our very perception of cause and effect. This aligns perfectly with Harman's theatrical model of vicarious causation, where the sensual qualities of objects perform a kind of aesthetic show, allowing for indirect influence and the generation of new objects.

This *fractal tapestry* of nested and vicarious loops unites Hofstadter's 'strange loops' with Harman's 'vicarious causation', revealing cognition and ontology as co-creative processes. The internal, recursive nature of analogy builds the cognitive structures that then enable the external, non-literal leaps of metaphor, which in turn reveal new aspects of the withdrawn real, prompting further analogical expansion of self-cognition and consciousness. This continuous interplay underscores the dynamic and generative nature of both thought and reality. In the next section, we extend this circuit into a speculative account of polypsychism and distributed memory, demonstrating how these complementary abstractions can help us conceptualise the implications of consciousness beyond the human.

5. TOWARD POLYPSYCHISM AND MORE-THAN-HUMAN MEMORY

Having examined how analogy fuels cognitive loops and metaphor bridges ontological gaps, we can now explore how these mechanisms converge in a pluralistic field of subjectivities—polypsychism. In OOO, Harman suggests that *"the crude prehensions made by minerals and dirt are no less relations than… the sophisticated mental activity of humans"*,[42] implying a continuum of 'prehensive capacities' across all objects. This is a radical departure from anthropocentric

[40] Harman, *Object-Oriented Ontology*, 72.
[41] Timothy Morton, *Realist magic: objects, ontology, causality. First edition. New metaphysics (Ann Arbor, Mich: Open Humanities Press, 2013)*: 23.
[42] Harman, *The Quadruple Object*, 46.

views that confine consciousness to human or even animal brains. If every object is fundamentally withdrawn and interacts vicariously, then its internal 'soul' or 'proto-experience' must be unique and irreducible, yet still participate in a broader relational tapestry of interaction.

Harman, however, deliberately distances his account from panpsychism, which posits a universal, homogeneous mind-stuff pervading all matter. While panpsychism implies a homogeneous mental field, Harman's ontology instead emphasises the 'singularity of each object's interior'—what might be more accurately described as a kind of polypsychism. For Harman, panpsychism's universalism erases the withdrawal that is central to OOO which contrasts with his interpretaion of polypsychism which maintains that each object's psyche emerges only through metaphorically framed encounters with other objects. And thus, objects never collapse into a monolithic consciousness. This distinction is crucial: polypsychism acknowledges that a rock might have a form of 'experience,' but this experience is fundamentally different from that of a human, a tree, or even another rock, precisely because each object's real essence is withdrawn and its interactions are vicarious.

Karen Barad's agential realism provides a powerful framework for understanding the agency implied by the convergence of flat onotlogy and vicarious causation. Barad argues that agency is not an attribute possessed by individual entities, but rather an emergent phenomenon of 'intra-action'—the ongoing, material-discursive entanglement through which phenomena come into being.[43] This means that agency is not solely human, but is distributed across the 'entanglements of social and natural agencies', where distinctions emerge from specific intra-actions. This perspective aligns with and strengthens Harman's polypsychism by offering a dynamic account of how proto-experiences are not merely present in objects, but are actively constituted through their relational becoming.

Philip Goff's *Russellian monism* [44] shares with OOO an interest in intrinsic qualities, though Goff leans closer to panpsychism's egalitarian ethos. He argues that *all matter contains proto-experiential properties*, such that *consciousness is not emergent*

[43] Barad, *Meeting the Universe Halfway*.

[44] Goff, Philip. Galileo's Error: Foundations for a New Science of Consciousness (London Sydney Auckland Johannesburg: Rider, 2019).

but fundamental—a view grounded in the idea that experience is part of the intrinsic nature of physical reality. While Goff's work provides a compelling argument against the exclusion of consciousness from the physical world, Harman's polypsychism would appear to situate proto-conscious moments within the vicarious loops of object interactions—memory and feeling arise not from intrinsic psychism alone but from mediated exchanges. This means that an object's 'experience' is not a static, inherent property but is dynamically constituted through its indirect causal relations with other objects.

Under this framework, *memory* would also appear to unfold as the temporal dimension of prehensive loops—ala Hofstadter's 'strange loops'. If consciousness is a strange loop of self-representation, as Hofstadter argues, then memory can be understood as the looping through one's own history, continually reshaping the 'I.' Hofstadter's remark resonates: *"Memory is the mind's strange loops looping through their own history, each return reshaping the 'I'"*.[45] Extending this beyond the human, we can conceive of various forms of 'more-than-human memory' embedded within material structures and processes. These are not anthropomorphic projections but rather analogies to human memory, revealing structural similarities in how information is stored, accessed, and influences future states.

Consider the following examples of natural memory systems, which function through loops of *cause and recording*:

Arboreal archives: Tree rings inscribe seasonal rhythms, each concentric band encoding annual cycles of resource allocation, drought, and growth as a *sensual quality* of the living organism. These rings are not merely passive records; they influence the tree's future growth patterns, acting as a form of 'memory' that shapes its ongoing development. The tree's internal strange loop of growth and adaptation is informed by these recorded past states.

Sedimentary scrolls: Rock strata record tectonic events and climate shifts over geological timescales, layering *sensual imprints* that geologists read as signs of ancient Earth processes. The very formation of these layers is a continuous, recursive process, where new sediments build upon old, creating a geological 'memory bank' that influences subsequent geological activity.

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[45] Hofstadter, *I am a strange loop*, 131.

Glacial memory banks: Ice cores preserve atmospheric composition in frozen bubbles, offering more than mere data—they are *material traces* of past environments. The annual layers of ice and trapped air provide a chronological record of climate history, influencing our understanding of future climate change. The ice itself, through its slow, continuous formation, embodies a form of material strange loop, constantly incorporating and preserving its past.

Digital logs: In technological systems, digital architectures log and replay events, enacting high-speed strange loops in code. Sensor networks, for instance, continuously record environmental data, which then feeds back into control systems, influencing automated responses. This creates a rapid, self-referential loop of sensing, processing, and acting, mirroring cognitive processes.

These natural and technological memory systems constitute *meso-loops*, longer and broader than human analogical loops but structurally similar in their recursive imprinting. They demonstrate how information is not merely stored but actively participates in ongoing processes, influencing the future states of the objects they inhabit.

Echoing Harman, Ian Bogost's 'alien phenomenology' [46] implores us to imagine each object's unique register: *Our metaphors merely sketch their textures.* While our only recourse is metaphor and analogy—inevitably anthropocentric—Bogost insists that objects have *registers* of experience inaccessible to humans. He thus critiques the 'what is it like to be…' philosophical inquiries for their inherent anthropomorphism, arguing that the very word 'like' traps us in a human-centric comparison. Instead, he urges us to acknowledge that each object *"scrapes its own intimate history into its surface; our metaphors merely sketch its contours"*.[47] Thus, polypsychism can be *operationalised*: objects participate in loops of perception and record—chemical, mechanical, informational—that instantiate proto-subjectivities. Thus, in engineered systems, sensor networks close loops of detection, response, and recalibration, forming automated analogical circuits that mirror biological cognition. This aligns with Barad's argument that *apparatuses*—configurations of humans and nonhumans—do not pre-exist their intra-actions but are constituted through them, making agency an

[46] Ian Bogost, *Alien Phenomenology, or, What It's Like to Be a Thing*, Posthumanities 20 (Minneapolis: University of Minnesota Press, 2012), 1.
[47] Bogost, *Alien Phenomenology*, 83.

emergent, distributed phenomenon rather than an inherent property.[48]

Similarly, Bruno Latour's 'actor-network theory'[49] emphasises that *actants*—both human and non-human—mediate translations in networks of reference. When a sensor converts pollutant concentration into an electrical signal, the resulting data loop triggers actuators to adjust filtration systems. This *material strange loop* merges sensing, memory, and action in a single circuit of vicarious causation. The distributed agency within these networks further supports the idea of consciousness as an emergent property of interconnected loops, rather than a *localised* phenomenon.

Here Timothy Morton's concept of 'hyperobjects' [50] further illustrates this in the premise of objects co-constituting ecologies as a reflection of a massively distributed more-than-human memory. Catastrophes like global warming are too vast for any single perspective, yet their effects are recorded across countless local loops—from coral bleaching to atmospheric CO_2 measurements.[51] This 'ecological memory' invites analogies between planetary processes and neural networks, suggesting a vast *meta-loop* of environmental feedback-just as fossil fuels captured as energy millions of years ago are today turned to power artificial intelligence data centres whilst concurrently causing geologically notable changes to our planet. The hyperobject itself, by its very nature, exists as a distributed, unfolding strange loop, whose 'memory' is scattered across countless interacting entities and processes.

By framing memory as an intrinsic sensual quality and prehensive loop, we extend OOO's polypsychism into a *multiscale model of distributed consciousness*. Human minds are one node in a vast web of loops—biological, geological, technological—each looping analogies and metaphors across realms. This sets the stage for a more robust understanding of *distributed subjectivity*: consciousness as a phenomenon emergent not in singular brains but in interlocking fields of looped interactions. This perspective challenges the conventional understanding of memory and consciousness as purely human phenomena, prompting us to

[48] Barad, *Meeting the Universe Halfway*, 142–143.

[49] Latour, Bruno. We Have Never Been Modern (Cambridge, Mass: Harvard University Press, 1993).

[50] Timothy Morton, *Hyperobjects: Philosophy and Ecology After the End of the World*, Posthumanities 27 (Minneapolis: University of Minnesota Press, 2013).

[51] Morton, *Hyperobjects*, 1–15.

reconsider the limitations and anthropocentric nature of our concepts. In embracing the idea of polypsychism, the human concept of memory and consciousness indeed appears limited, revealing the potential for consciousness to exist beyond human experience in myriad, alien forms.

6. GÖDEL'S INCOMPLETENESS AS ONTOLOGICAL MIRROR: VICARIOUS CAUSATION AND THE LIMITS OF ACCESS

The central contention of this paper—that Gödel's 'Incompleteness Theorems' serve as a profound mirror to the ontological withdrawal of objects—provides a compelling framework for understanding the fundamental limits of apprehension in an object-oriented cosmos. Just as Hofstadter meticulously demonstrates in *Gödel, Escher, Bach* and *I Am a Strange Loop*, Gödel's theorems reveal that within any sufficiently complex formal system, there will always be true statements that cannot be proven or disproven within that system itself. Such systems are inherently incomplete and cannot fully describe their own foundations. This mirrors, with striking precision, Harman's assertion that objects are irreducibly withdrawn: they cannot be fully exhausted by their relations to other objects, nor by any human perception or *conceptualisation*. Their real being always exceeds any access, remaining forever elusive.

Hofstadter seizes upon Gödel's insight as a paradigm of 'upside-down causality', where hidden, meta-level structures govern surface behaviours. As he writes in Gödel, Escher, Bach: *"The system's own internal machinery can produce statements about itself that it cannot demonstrate, thus revealing a fundamental gap between its representations and the reality it seeks to model"*.[52] This 'fundamental gap' directly parallels Harman's doctrine of *withdrawal*, in which the *real object* recedes from any direct contact. The theorem's 'undecidable propositions' are like sensual qualities: accessible as signs but never exhaustive of the object's hidden essence. In this way, both Gödelian incompleteness and vicarious causation unveil *irreducible absences*: self-referential loops in cognition leave unsolved paradoxes, and object withdrawal produces gaps in causal chains. In this sense, *incompleteness* is not an anomaly or a defect, but a structural feature of any complex system—be it the human language given to formal mathematics or the

[52] Hofstadter, *Gödel, Escher, Bach*, 712.

network of objects that make up our experience of a seemingly shared reality.

Moreover, the 'strange loop' at the heart of Gödel's construction—encoding arithmetic within arithmetic—exemplifies the 'self-referential cycles' that animate both cognition and ontology. Hofstadter later describes this in *I Am a Strange Loop*: "When the system turns back upon itself, it creates a loop so paradoxical that it escapes closure—a self-portrait that remains forever unfinished."[53] This concept of an endlessly unfinished self-portrait directly resonates with Harman's notion of 'infinite regress' within objects, where each layer of qualities withdraws into another, deeper layer, preventing ultimate access.[54] In OOO, 'vicarious causation' exhibits a similar cycle: real object → sensual quality → sensual object → real quality, each transfer generating a 'new object' without direct reciprocity.[55] This 'generativity' echoes Gödel's insight that *incompleteness* is not a defect but the engine of mathematical creativity. The very act of attempting to complete a system or fully grasp an object leads to the emergence of something new and uncontainable.

Hofstadter and Sander's reflections in Surfaces and Essences further reinforce this synergy: "Whenever we push analogy to its limits, we encounter the unbridgeable: the very tools we use to understand also reveal their own boundaries".[56] Similarly, Harman's metaphors for withdrawal—comparing objects to vampires that feed on yet never absorb one another's qualities—emphasise that every causal interaction produces novelty rather than totalising knowledge.[57] The act of interaction, whether cognitive or ontological, is always partial, leaving an irreducible remainder that fuels further creation.

This convergence suggests that *incompleteness* and *withdrawal* are structural features of any system—be it mathematical or metaphysical. Where Gödel's theorems confront us with 'undecidable truths', OOO confronts us with 'unknowable objects', each resisting final capture. In both arenas, the 'generativity of absence'—the spaces left unfilled—becomes the fertile

[53] Hofstadter, *I am a strange loop*, 148.
[54] Harman, *The Quadruple Object*, 112–113.
[55] [55] Harman, "On Vicarious Causation,"75–80.
[56] Hofstadter and Sander, *Surfaces and essences*, 241.
[57] Harman, *Object-Oriented Ontology*, 72.

ground for discovery. The inability to fully grasp or prove something is not a failure but a condition for ongoing exploration and the emergence of novelty.

To underscore the philosophical resonance, consider the poetic spatial and mathematical analogy of a Klein bottle: a multi-dimensional surface with only one side, yet creating an infinite loop that is at once both inside and out. It is both a visual metaphor for strange loops and a tactile symbol of withdrawal—no experience of a point on the strip can ever encompass the whole. Like Gödel's sentences and Harman's real objects, the Klein bottle essence eludes complete traversal. Its continuous, paradoxical nature reflects the unending recursion of strange loops and the elusive interiority of withdrawn objects, further reinforcing the idea of *infinite regress* as a fundamental aspect of reality.

Ultimately, Gödel's incompleteness serves as an 'ontological mirror', reflecting the limits of human representation and affirming the 'plenitude of the real'. Just as mathematicians embrace incompleteness to push boundaries, philosophers of OOO can embrace withdrawal as the condition for an ever-expanding cosmos of objects—each new theorem, each new causal exchange, an invitation to deeper exploration. This framework would also therefore infer that philosophical inquiry requires an acceptance of this ontological mirror, fostering a humility that recognises the vast, ungraspable realities that perpetually elude our complete apprehension. This continuous engagement with the unknown, driven by the recursive interplay of metaphor and analogy, ultimately suggests that reality may intrinsically be both profoundly withdrawn and vicariously interactive.

7. CONCLUSION

This essay has woven together Graham Harman's object-oriented insistence on the 'irreducible withdrawal' of real objects and their 'infinite regress' with Douglas Hofstadter's portrait of consciousness as 'strange, analogical loops', revealing a complementary architecture of cognition and ontology. We have seen that metaphor functions as linguistic 'vicarious causation', staging poetic encounters with concealed depths, while analogy energises the mind through 'nested feedback loops' that both generate and reify concepts, giving rise to consciousness and identity. This cognitive-ontological circuit unfolds across scales—from neuronal web to planetary hyperobjects—suggesting that every entity participates in its own mode of prehensive, looped experience. The

distinction between analogy as an internal, self-referential process that builds cognitive schemas and metaphor as an external, non-literal leap that gestures towards withdrawn realities has been central to this synthesis, demonstrating how these two forms of abstraction work in concert to navigate the inherent limits of access to the real.

Gödel's 'Incompleteness Theorem' emerges as an 'ontological mirror', reflecting the inescapable gaps in any system of representation—mathematical or metaphysical. The *undecidable propositions* of formal logic parallel the *unknowable essences* of objects and their *infinite regress*, affirming that 'absence' is the wellspring of creativity: new theorems, new objects, and new modes of thought arise in the fertile space left by what cannot be captured. This perspective challenges the traditional philosophical pursuit of total knowledge, instead advocating for an embrace of irreducible mystery and the generative power of the unknown.

Extending these insights, polypsychism reframes consciousness as a 'distributed property', emergent through metaphors of vicarious causation that affords both the uniqueness of withdrawal and the intra-active co-constitution of reality. By distinguishing this view from panpsychism, we preserve the essential withdrawal and unique interiority of each entity while acknowledging a plural field of subjectivities—crystal, forest, microbe, machine—each archiving its own 'strange memory loops' in rings, strata, ice cores, and data streams. This multiscale model of more-than-human memory suggests a reality teeming with diverse forms of proto-experience, challenging anthropocentric biases and opening new avenues for understanding the vast complexity of existence. This directly addresses the key conjecture of this paper: that Hofstadter's self-referential loops provide a conceptual framework for Harman's speculative polypsychism, allowing for a more robust understanding of how consciousness and identity might operate beyond the human. And conversely, that Harman's vicarious causation via metaphor is a necessary mirror to strange loops of analogy: the substructure of identity in people defined by Hofstadter's strange loops, can thus be seen as mirroring the realness of objects in OOO—both characterised by an endless, ungraspable layering.

This synthesis amplifies the interdisciplinary horizon, inviting empirical research into non-human analogical loops in ecological networks, and theoretical work simulating vicarious causation in multi-agent systems. For instance, future studies could explore how complex adaptive systems, from ant colonies to global

climate models, exhibit characteristics of strange loops and vicarious causation, thereby instantiating forms of distributed cognition and memory. It also opens pathways for integrating Russellian monism[58] and vibrant matter [59] more deeply, bridging the divide between physics, cognitive science, and speculative metaphysics by positing that consciousness is not an anomaly but an intrinsic, albeit varied, aspect of the cosmos. Here, Barad's agential realism provides a crucial ethical and methodological lens for such future work, emphasising the responsibility inherent in any 'agential cut' that constitutes phenomena and knowledge.[60] Her framework underscores that scientific and philosophical practices are not neutral observations but active intra-actions that shape the very reality they seek to understand.

Ultimately, this paper has demonstrated that the inherent limitations of anthropocentric representation, as revealed through the interplay of metaphor and analogy, are not philosophical impasses but rather conditions for a richer, more expansive understanding of reality. The novel translation of Gödel's 'Incompleteness Theorem', via Hofstadter's insights, serves as a powerful realisation of the withdrawn unknowability of objects advocated in Harman's OOO. In turn, this suggests that the very structure of reality resists total apprehension, yet continually invites deeper, albeit indirect, engagement.

In embracing the strange, generative loops that bind metaphor, analogy, and causation, we affirm a universe teeming with hidden depths where every object, every proposition, and every event carries within it the promise of the unknown. This philosophical posture fosters a profound humility and an endless curiosity, recognising that the most profound truths often lie in the spaces that elude our direct grasp, perpetually inviting us into a deeper, more nuanced engagement with reality.

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[58] Goff, *Galileo's Error*: Foundations for a New Science of Consciousness (London Sydney Auckland Johannesburg: Rider, 2019).
[59] Bennett, *Vibrant Matter*.
[60] *Meeting the Universe Halfway*.

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