THE MODAL DISCIPLINE OF UNDERLYING PROPERTIES:

a critical–propositional analysis of Daniel Avilés Hurtado's *Underlying Properties Hypothesis* (UPH) in confrontation with the Theory of Objectivity

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Scientific article in Chicago author–date style, written by sections, based on a critical–propositional analysis of *Underlying Properties Hypothesis (UPH): Regularities Expressed Across Multiple Levels of Complexity*, articulated with the foundational bibliography of the Theory of Objectivity, its recent bibliography, and the bibliography of support and dialogue with the Theory of Objectivity.

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Contents

1. Introduction

The search for universal principles operating across multiple levels of reality has long occupied both philosophical and scientific reflection. From classical natural philosophy to modern programs of unification, the recurrent question has been whether the diversity of phenomena conceals a more fundamental order. Within this horizon, Daniel Avilés Hurtado's *Underlying Properties Hypothesis (UPH): Regularities Expressed Across Multiple Levels of Complexity* presents a bold proposal: there exist universal organizational principles more fundamental than physics itself, constituting an ontological "source code" of the universe, whose expressions range from quantum reality to human organizations AvilesHurtado2026UPH.

The relevance of this hypothesis lies in the fact that it does not remain at the level of loose analogy. It does not merely claim that certain patterns recur across domains. Rather, it advances a stronger ontological proposal: similar manifestations across different levels of complexity reflect the action of the same underlying principles. In this sense, the UPH moves beyond descriptive interdisciplinarity and seeks a unifying metaphysical reach.

This ambition makes the UPH especially suitable for confrontation with the Theory of Objectivity (TO). In its foundational formulation, the Theory of Objectivity presents itself as a theory of the origin of the universe grounded in modal necessity, articulated through absolute truths that function as logically self-evident conditions for existence and intelligibility CabannasSilva2016,CabannasSilva2018. In its more recent developments, TO has also sought to strengthen its bridges to empirical contact, phenomenic articulation, and dialogue with contemporary physics CabannasSilva2025,CabannasSilva2026Empirical,CabannasSilva2026Modal.

The present article offers a critical–propositional reading of Hurtado's UPH in confrontation with the Theory of Objectivity. It is critical insofar as it examines the hypothesis in light of modal discipline, ontological rigor, and epistemic caution. It is propositional insofar as it seeks not merely to reject or defend the UPH, but to situate its legitimate insights within a more robust ontological framework. The central question is whether the UPH can truly function as a foundational ontology or whether

its real strength lies elsewhere: in providing a powerful phenomenology of persistence, recurrence, and re-expression in the already constituted universe.

The article is structured as follows. First, it presents the methodological problem and the Theory of Objectivity as the ontological horizon of comparison. It then reconstructs the conceptual architecture of the UPH, including its central claims and propositions P1–P7. After that, it examines the main compatibilities and points of tension between the UPH and the TO. Particular attention is given to the UPH's treatment of universal conservation, systemic stability, geometric universals, multilevel feeding, and informational recursion. Finally, the article rearticulates Hurtado's proposal through the TO concepts of phenomenic elements, Inductor Effects, the cosmogonic theorem, and the cosmological Eras of the Theory of Objectivity, concluding with a TO-style appendix.

2. Problem, hypothesis, and method

The central problem of this article can be stated as follows: does the *Underlying Properties Hypothesis* possess the philosophical and logical conditions necessary to be treated as a foundational ontology, or is its genuine contribution better understood as a structured phenomenology of recurrence across already constituted levels of complexity? This formulation is important because it avoids two unsatisfactory extremes. On the one hand, it avoids dismissing the UPH as vague metaphysical speculation, which would be unfair given its actual internal architecture. On the other hand, it avoids accepting the hypothesis as a final ontological foundation merely because of its explanatory elegance or transdisciplinary power.

The guiding hypothesis of this article is that the UPH constitutes a strong ontological heuristic and a rich trans-scalar phenomenology of structural persistence, but that it does not, in its present form, satisfy the modal requirements demanded by the Theory of Objectivity for any ultimate foundation. Therefore, it may be fruitfully received as a complementary theory of the derived universe, especially in its attempt to describe how properties, functions, and structural principles are re-expressed across levels of complexity, but not as a replacement for the modal ontology of TO.

Methodologically, this article adopts a critical–propositional approach. "Critical" here does not mean merely oppositional; it means that the claims of Hurtado's text are evaluated under the discipline of modal necessity, ontological coherence, and category distinction. "Propositional" means that, instead of treating the detected insufficiencies as reasons for outright dismissal, the analysis seeks to relocate the valid insights of the UPH within a more coherent ontological order.

The method unfolds through four operations. First, the internal structure of the UPH is reconstructed, with attention to its central statement, its bidirectional view of emergence, its formal propositions, and its empirical ambitions. Second, the UPH is compared with the absolute truths and modal discipline of the Theory of Objectivity. Third, the hypothesis is situated in relation to the foundational, recent, and supporting bibliography relevant to TO, including works in physics, systems theory, epistemology, and complexity. Fourth, the useful insights of the UPH are reinterpreted through TO categories such as phenomenic elements, Inductor Effects, the cosmogonic theorem, and the cosmological Eras.

Such a method also honors a broader scientific-philosophical ethos: theories should be examined in their strongest form before being criticized. In that sense, the present article aligns with a respectful mode of debate in which ontological systems are not caricatured, but rigorously tested against one another.

3. The Theory of Objectivity as ontological and modal horizon

The Theory of Objectivity offers the ontological horizon within which the UPH can be evaluated with appropriate rigor. In its foundational texts, TO is presented as a third theory of the origin of the universe, alternative to both the Big Bang Theory and Creationism CabannasSilva2016,CabannasSilva2018. What distinguishes TO is not merely its cosmological ambition, but its starting point: the universe must be grounded not in already-given physical observations alone, but in modal conditions that make the very existence of a universe intelligible.

This modal foundation is articulated through the Seven Absolute Truths. These truths are not empirical generalizations. They are presented as logically self-evident

conditions without which the universe cannot be coherently conceived. Among them, several are particularly relevant for the confrontation with the UPH: the thesis that Nothingness is a primitive and eternal mathematical essence; the requirement that distinct elements imply boundaries; the affirmation that every element is composed of prior elements; the thesis that full existence depends on observation by at least two others; and the claim that there is no existential universe without a substance transcendent to its quantum.

This last point is especially decisive. In the interpretive framework established by the user, the transcendent element is to be understood as knowledge or information produced in atomic relations and equivalent to atomic radiations. This means that TO is not merely a structural ontology, nor simply an information ontology. It is a modal ontology in which existence itself requires transcendence beyond purely internal quantum arrangements.

Recent TO works have extended this framework in three directions. First, they seek a disciplined bridge between modal axioms and empirical contact, without collapsing ontology into empiricism CabannasSilva2026Empirical. Second, they develop the notion of a phenomenic table and a more precise articulation of phenomenic elements as modes of manifestation CabannasSilva2026Modal. Third, they engage critically with contemporary physical themes such as gravity, vacuum properties, convergence zones, and cosmic origin CabannasSilva2026Gravity,CabannasSilva2026Vacuum,CabannasSilva2026BigBang.

Thus, TO is not merely a speculative background. It is a living ontological program with explicit modal commitments and increasing concern for scientific articulation. This makes it especially suitable for evaluating a proposal like the UPH, which likewise aspires to move from interdisciplinary pattern recognition toward an ontological reading of reality.

4. The conceptual architecture of the UPH

Daniel Avilés Hurtado's text presents a more disciplined architecture than many transdisciplinary proposals of comparable scope. Its core claim is clear: there are universal organizational principles more fundamental than physical laws, constituting

an ontological source code of reality, from which physics is only the first observable manifestation AvilesHurtado2026UPH. This source code is said to be expressed coherently across multiple levels of complexity, from quantum scales to social organization.

One of the strengths of the text lies in its bidirectional reading of emergence. Standard emergence theory tends to focus on what appears as novelty at higher levels. Hurtado adds a descending reading: what is fundamental persists and is re-expressed in transformed ways across those same levels. Thus, emergence and persistence are not enemies. Novelty does not cancel prior principles; it modulates them.

The hypothesis is also organized through a hierarchy of levels. Level 0 corresponds to the universal source code. Level 1 corresponds to fundamental physics. Higher levels include condensed matter, chemistry, biology, psychology, and social-organizational structures. This hierarchy is intended not only as taxonomy but as an ontological map of where certain properties emerge and where they later reappear as deeper structuring principles.

The UPH further gains internal coherence through seven propositions, P1–P7. These propositions formalize the existence of level 0, the epistemic role of physics, the significance of emergence as a boundary marker, the difference between intra-level and inter-level transitions, the bold unification between emergence and underlying properties, the relative proximity of mathematical formulation near the level of first emergence, and the open problem of identifying appropriate formal languages for each layer of complexity.

Finally, the text attempts to move beyond conceptual declaration by providing case studies and convergent evidence. It offers a Universal Conservation Principle, a Systemic Stability Principle, recurring geometric patterns, multilevel feeding, informational recursion, and a brief research program with limitations and falsifiability criteria. This makes the hypothesis serious enough to deserve careful ontological examination.

5. Fundamental compatibilities between the UPH and the Theory of Objectivity

There are genuine compatibilities between the UPH and the Theory of Objectivity, and any honest analysis should recognize them. The first compatibility lies in the rejection of a radically fragmented universe. Both Hurtado and TO oppose the idea that reality is nothing more than a collection of disconnected compartments. In Hurtado, this appears as the persistence of universal principles across levels of complexity. In TO, it appears as the modal requirement that reality must be understood through distinction, composition, relational observability, and transcendence.

A second major compatibility concerns composition. The Sixth Absolute Truth of TO states that every element is composed of prior elements. This aligns well with the UPH's insistence that what emerges at one level is not detached from what came before. Instead, the higher level reorganizes, transforms, and re-expresses prior principles. This affinity should not be underestimated: both systems reject absolute novelty understood as emergence from pure ontological emptiness.

A third compatibility concerns boundaries. Proposition P3 of the UPH claims that emergent properties mark transitions between levels of complexity and thus indicate real ontological boundaries. This converges strongly with the Fourth Absolute Truth of TO, according to which distinct elements require at least one boundary line between them. The UPH is therefore at its strongest whenever it refuses a naïve continuous flattening of reality.

There is also a methodological compatibility. The UPH explicitly seeks testability, recognizes incomplete formalization, and differentiates between what is proposed, observed, and inferred. TO, especially in its recent works, also emphasizes the need to build operational bridges without confusing modal axioms with empirical results CabannasSilva2026Empirical,CabannasSilva2026Modal.

Finally, the UPH's concern with informational patterns, recursive organization, and multilevel coherence also resonates partially with the user's interpretation of the transcendent element in TO as informational-radiative in character. This does not erase the differences between the two frameworks, but it does establish a promising terrain of

dialogue.

6. The modal insufficiency of the UPH: the problem of foundation

Despite these compatibilities, the decisive divergence between the UPH and the Theory of Objectivity concerns the problem of foundation. For TO, a true ontological foundation must not merely be explanatory, suggestive, or unifying. It must be necessary. That is the essence of modal discipline. A principle is not foundational because it explains many things; it is foundational because reality cannot be coherently thought without it.

This is where the UPH's level 0 becomes problematic. Hurtado claims that there exists a universal source code more fundamental than physics. Yet the necessity of this level is not demonstrated in the modal sense required by TO. Instead, the argument proceeds from recurrence, correspondence, and structural similarity toward an inferred deeper source. But recurrence does not automatically entail ontological necessity. Structural resonance across domains may justify a powerful heuristic; it does not by itself demonstrate an ultimate ground.

There is also a conceptual weakness in the language of "source code." The metaphor is evocative, but it remains underspecified. Is level 0 a mathematical structure, an informational substrate, an organizational grammar, or a metaphysical substance? The text leaves this open. The ambiguity may be fruitful as a heuristic, but it weakens the claim to ultimate ontological status.

More importantly, the UPH does not incorporate a requirement equivalent to TO's Seventh Absolute Truth: there is no existential universe without a substance transcendent to its quantum. In TO, reality is not exhausted by internal structural regularities. The universe requires a transcendent dimension. If transcendence is interpreted as knowledge or information produced in relations and equivalent to radiative processes, then the problem is not only structural coherence but existential completion.

Therefore, level 0 in the UPH may well be philosophically plausible and heuristically fertile, but it does not yet achieve the status of a modal ground. It remains a

strong organizing hypothesis rather than a demonstrated ontological necessity.

7. The bidirectional reading of emergence and the paradox of novelty

One of the most philosophically productive aspects of Hurtado's text is its attempt to resolve the apparent paradox between emergence and persistence. Standard emergence emphasizes novelty: liquidity, consciousness, autopoiesis, and social coherence are all taken as genuinely new at higher levels. Hurtado does not deny novelty, but adds a complementary reading: prior principles persist in transformed ways and become the foundation of subsequent levels.

This culminates in proposition P5, which suggests that emergent properties from below and underlying properties from above are two perspectives on the same transition. What appears new from one standpoint is the re-expression of a deeper principle from another. The idea is conceptually elegant and avoids two common errors: strict reductionism and absolute rupture.

In dialogue with TO, this is one of the most promising points of the UPH. The Theory of Objectivity can reinterpret such transitions through the notion that what is phenomenically visible at one level may become inductively foundational at another. What was once surface may indeed become substrate. In this sense, Hurtado offers a valuable vocabulary for thinking about how novelty and continuity can coexist.

Yet the limitation is again modal. Persistence across levels does not suffice to explain full existence. TO requires not only the re-expression of structure, but also conditions of relational observability and transcendence. The UPH's treatment of emergence is powerful for describing the already-complexified universe, but it remains weaker when confronted with the more radical question: why is there an intelligible universe at all, rather than only structured recurrence?

Thus, the UPH's bidirectional emergence model should be seen as a major phenomenological contribution, but not yet as a replacement for the TO's deeper modal architecture.

8. Detailed examination of propositions P1–P7

The propositions P1–P7 form the formal backbone of the UPH and deserve careful examination.

P1 states that there exists a universal source code at level 0, constituting the most fundamental ontological substrate of reality. This proposition has strong philosophical ambition, but weak modal demonstration. It names a problem more effectively than it solves it.

P2 states that fundamental physics is our closest epistemic guide to level 0. This is relatively compatible with TO's recent emphasis on empirical bridges. Physics may indeed function as the nearest observable expression of deeper order without being identical with the absolute ground CabannasSilva2026Empirical.

P3 states that emergent properties mark transitions between levels of complexity and indicate ontological boundaries. This is highly compatible with TO's modal insistence on distinction and boundary. P4, which differentiates intra-level quantitative transitions from inter-level qualitative transitions, strengthens the same intuition and gives it useful structure.

P5 is the boldest proposition. It claims that emergent properties at level x are manifestations of underlying principles operating at level $x + 1$ and above. This is elegant, but difficult. It may successfully reinterpret many cases, but the universal validity of the move remains insufficiently established. There is a risk that novelty will be reabsorbed too easily into prior structure without fully accounting for what is genuinely new.

P6 states that mathematical formulations of UPH principles are easier to identify near the level where they first emerged. P7 adds that each level corresponds to a specific complexity structure and may require its own formal language. These two propositions display epistemic modesty and are among the strongest methodological elements of the text.

Overall, propositions P2, P3, P4, P6, and P7 can be integrated rather fruitfully into a TO-compatible framework. P1 and P5, however, remain the most problematic

from a modal point of view and would require deeper ontological justification before being accepted as foundational.

9. The Universal Conservation Principle

The first major case study proposed by the UPH is the Universal Conservation Principle. The claim is that in sufficiently closed systems certain fundamental quantities do not disappear, but are conserved through transformation. In physics, this is expressed in exact conservation laws of energy, momentum, and charge. In organizations, Hurtado suggests analogous tendencies regarding knowledge, competence, motivation, and tradition.

The strength of this example lies in its clear phenomenological plausibility. Organizations do often display persistence of aggregate capacities even when institutional structures change. Knowledge migrates, competencies are redistributed, traditions adapt, and symbolic capital survives reshaping. As a descriptive insight, this is significant.

Yet TO requires a strict distinction of domains. Physical conservation laws are exact, mathematically formalized, and belong to a specific regime of closed-system physics. Organizational persistence is statistical, adaptive, and historically mediated. The analogy is strong, but it cannot simply be treated as identity of law.

The most fruitful TO-compatible interpretation is therefore through Inductor Effects. What persists across levels is not the same quantity in the same formal sense, but a direction of structured permanence. The higher level re-expresses, in its own phenomenic regime, an orientation toward persistence and redistribution. This preserves the heuristic gain of Hurtado's example without collapsing categories.

Thus, the Universal Conservation Principle is valuable as evidence that structural continuity may be stronger than disciplinary fragmentation suggests. But it does not, by itself, prove the existence of a universal ontological source code.

10. Systemic stability and the rereading of the exclusion principle

The second major case study of the UPH compares Pauli's exclusion principle with the systemic need for role differentiation in organizations. The general principle proposed is that stable systems cannot sustain enduring occupational overlap among their components. In quantum physics, this is expressed rigorously by the impossibility of two identical fermions occupying the same quantum state. In organizations, it appears as role duplication, authority overlap, or responsibility diffusion producing conflict and paralysis.

This is one of the boldest examples in the text. Its merit lies in identifying a deep structural insight: stability often depends on differentiation. Systems whose elements cannot be adequately distinguished tend toward conflict or collapse. This aligns strongly with TO's insistence on the ontological relevance of boundaries.

Yet the difference between the two domains is too great to ignore. Pauli exclusion is a fundamental physical restriction rooted in the formal properties of fermionic states. Organizational overlap, by contrast, is contingent, gradual, and historically negotiable. The analogy is meaningful, but it is not literal identity.

In TO terms, the best way to preserve the gain of the comparison is to see both cases as phenomenically distinct expressions of a deeper non-collapse grammar. The physical law and the organizational pattern are not the same law. Rather, they may both reveal the necessity of distinction for stable coexistence. This is a strong philosophical insight, but it remains one step removed from a full universal ontology.

11. Universal geometric patterns: recurrent form, beauty, and statistical overreach

The UPH devotes considerable attention to recurring geometric patterns such as spirals, fractals, sinusoidal waves, branching structures, and Pareto-like distributions. Hurtado argues that their appearance across unrelated domains suggests a shared source code and that coincidence becomes statistically untenable when enough patterns are

considered together.

The intuitive force of this argument is undeniable. Nature and culture are full of recurrent forms. Fractals, branching geometries, spiral structures, and scaling laws are extensively documented across biological, physical, and social systems Mandelbrot1982,Bertalanffy1968. This makes the UPH's interest in geometric recurrence entirely reasonable.

However, the probabilistic reasoning offered by the text is methodologically fragile. The assigned probabilities appear partly arbitrary, and the assumption of independence among domains is highly questionable, since physical, energetic, and mathematical constraints may already explain much of the recurrence. Therefore, the conclusion that the coincidence hypothesis is mathematically untenable is too strong.

From a TO perspective, the appropriate conclusion is more modest and more rigorous: universal geometric patterns provide significant phenomenic evidence of convergent constraints and organizational economies, but they do not amount to proof of an ultimate source code. Repetition of form is evidence of deep regularity; it is not yet a demonstrated modal ground.

Thus, this section of the UPH is one of its most suggestive and one of its most overstated. Its real value lies in opening a field of structured comparison, not in closing the ontological question.

12. Multilevel feeding as a functional case study

Among the examples offered by Hurtado, the multilevel feeding function is one of the most philosophically productive. The claim is that the function of "feeding the system," understood as securing and distributing resources necessary for organizational maintenance, remains invariant in principle while changing radically in material expression across levels. Molecular uptake, vascular distribution, ecological food chains, and societal energy systems are treated as manifestations of the same underlying functional logic.

This is a strong example because it moves beyond visual pattern comparison and focuses on organizational function. A common direction remains while the substrate is

transformed almost beyond recognition. This allows a more precise notion of continuity than mere similarity.

The Theory of Objectivity can assimilate this example very fruitfully. The functional continuity described by Hurtado can be read as a phenomenic persistence under altered material conditions. What survives is not the same mechanism, but a structural requirement for maintaining organized existence. In TO terms, this may be interpreted as an Inductor Effect: prior levels constrain and orient the form of maintenance at later levels.

The importance of this example lies in the fact that it shows how higher complexity does not erase foundational organizational directions. Instead, it reconfigures them. This makes the feeding case one of the clearest illustrations of how the UPH can meaningfully contribute to a TO-compatible understanding of derived structural persistence.

13. Informational recursion and the problem of the whole in the parts

Another major strength of the UPH is its attention to informational recursion. Hurtado cites holograms, genomic encoding, and distributed organizations as cases in which information about the whole is carried locally by the parts. The suggestion is that this reflects a deeper underlying principle: information about total structure can be recursively encoded across scales.

Philosophically, this is a powerful intuition. It provides a way to think unity and multiplicity together. Systems are not merely sums of detached parts; the parts bear traces, codes, or signatures of systemic totality. Such a view has obvious relevance for theories of organization, complexity, and information.

This theme is particularly significant when confronted with the Theory of Objectivity. Under the user's interpretive directive, the transcendent element in TO is understood as knowledge or information produced in atomic relations and equivalent to atomic radiations. Under this interpretation, the UPH's focus on informational recursion approaches a highly fertile zone of dialogue with TO.

Yet again, the difference lies in ontological depth. In the UPH, information functions mainly as a recursive organizational property. In TO, the transcendence of information is not merely functional; it belongs to the very condition of existential intelligibility. Therefore, the UPH can contribute a phenomenology of informational persistence, but TO requires that this be elevated into a deeper ontology of relation and transcendence.

14. UPH, autopoiesis, and the relational tradition

The intellectual lineage assumed by the UPH is revealing and important. By invoking Maturana and Varela, Bateson, Atlan, Margulis, and systems theory, Hurtado places his hypothesis within a relational tradition that opposes simplistic atomism and disciplinary fragmentation. This gives the text considerable philosophical dignity.

Maturana and Varela's theory of autopoiesis shifted attention from components to the relational organization that preserves living systems MaturanaVarela1980. Bateson emphasized the "pattern that connects" across biological and cognitive domains Bateson1979. Atlan identified noise not merely as disruption but as a source of organization Atlan1979. Margulis highlighted symbiosis and cooperation as evolutionary drivers Margulis1981. All of these themes support the plausibility of a theory like the UPH.

The Theory of Objectivity can engage this tradition positively, since it too resists a flat atomistic ontology. Yet TO also requires a more radical move. Relational organization, however important, is not enough if it is not integrated into modal necessity and transcendence. The relational tradition is thus a powerful ally in criticizing fragmentation, but not by itself a sufficient ontology of cosmic origin.

The UPH inherits both the strength and the limitation of this lineage. It gains phenomenological richness and transdisciplinary sensibility. But when it attempts to transform that heritage into a final source ontology, its modal resources prove insufficient.

15. UPH and the phenomenic elements of TO

The notion of phenomenic elements is crucial for understanding how the UPH may be critically integrated into the Theory of Objectivity. In TO, phenomenic elements are not mere appearances in the subjective sense. They are objective modes of manifestation through which ontological order becomes visible, discernible, and structured.

Under this lens, the UPH may be read as a theory of multilevel phenomenic persistence. When Hurtado identifies underlying properties recurring across levels, he is often describing not the final essence of reality, but recurrent modes of manifestation. That is already a substantial contribution. It offers TO a vocabulary for describing how certain forms, functions, and structures reappear under changing conditions.

This reinterpretation is advantageous because it preserves the legitimate descriptive force of the UPH while avoiding an overextension of its ontological claim. It also enriches TO itself by providing a more articulated language for recurrence and modulation within the derived universe.

Thus, rather than treating the UPH as a rival foundational ontology, TO may incorporate it as a theory of phenomenic re-expression. This does not diminish Hurtado's insight. It situates it more precisely.

16. UPH and Inductor Effects

The concept of Inductor Effects is perhaps the most productive bridge between the UPH and the Theory of Objectivity. If Hurtado claims that principles persist and re-express themselves across levels, TO can reinterpret this as induction rather than literal identity. Higher levels are not copies of lower ones, but neither are they wholly detached from them. They are shaped, constrained, and oriented by prior structures.

This concept avoids two symmetrical errors. It avoids reductionism, because novelty remains real. It avoids absolute emergent rupture, because novelty arises under inherited constraints. In this sense, Inductor Effects provide a disciplined conceptual framework in which the UPH's strongest intuitions can be preserved.

The Universal Conservation Principle, systemic stability, multilevel feeding, and

informational recursion all become intelligible in this way. They are not literal repetitions of one law in all domains, but phenomenically distinct expressions of enduring inductive grammars. This reinterpretation significantly strengthens the philosophical value of the UPH while keeping it within the bounds of ontological rigor.

17. UPH and the cosmogonic theorem of TO

The confrontation between the UPH and the cosmogonic theorem of TO reveals one of the clearest limits of Hurtado's proposal. The cosmogonic theorem of TO aims to explain the genesis of the universe from modal conditions: Nothingness, distinction, boundary, relational observation, composition, and transcendence. It is a theory of origin in the strongest sense.

The UPH is not. Even when it posits a level 0, it does not reconstruct the transition from primitive Nothingness to existential universe. Rather, it begins with a world in which levels of complexity are already identifiable and asks how regularities persist across them. Its problem is therefore not primordial origin, but the continuity of structure within an already articulated cosmos.

For this reason, the UPH is best treated as a theory of intracosmic intelligibility rather than a full cosmogonic ontology. It helps explain how coherence survives and reappears after the universe has already achieved differentiated manifestation. It does not replace the modal work of explaining why there is a universe at all.

18. UPH and the cosmological Eras of the Theory of Objectivity

Mapping the UPH onto the cosmological Eras of TO helps specify its proper domain of relevance. In the Antagonistic Era, where primordial tensions precede stabilized complexity, the UPH has limited applicability. Its own framework presupposes identifiable levels of manifestation, which are not yet present in that primordial phase.

In the Era of Logical Tracks, however, the hypothesis begins to acquire partial relevance. If this Era is understood as the emergence of minimally stabilized paths of organization, then the idea of principles persisting across development becomes more

meaningful. In the Era of Logical Currents of Tertiary Plasma and in the Centrifugal Era, the UPH becomes significantly more useful, since these are phases in which patterns, structures, and differentiated organizations become increasingly evident.

In the Era of Units of Intelligence, the relevance of the UPH reaches its maximum. At that point, recurrent properties are not only manifest; they are also recognized, named, theorized, and retransmitted by intelligence itself. The UPH is therefore especially apt as a description of universes that have already entered advanced stages of phenomenic complexity and reflexive organization.

This again supports the central thesis of the present article: the UPH is not primarily a theory of origin, but a theory of the structural re-expression of an already constituted universe.

19. Supporting bibliography and broader dialogue

The supporting bibliography helps place the UPH in a broader intellectual context. Heisenberg's reflections on the conceptual transformation imposed by modern physics show that reality cannot be naively equated with immediate intuition Heisenberg1958. Einstein and Penrose exemplify the persistent search for structural intelligibility in the universe Einstein1920,Penrose2004. Bohm's notion of implicate order is perhaps one of the closest classical analogues to Hurtado's sensibility, since it too suggests that apparent multiplicity may reflect deeper underlying organization Bohm1980.

Prigogine and Stengers contribute an ontology of order emerging far from equilibrium, which supports the plausibility of patterned self-organization without reducing it to simplistic determinism PrigogineStengers1984. Kuhn, meanwhile, reminds us that theoretical innovation should be judged by how it reorganizes problems and intelligibility, not merely by how closely it resembles established models Kuhn1962.

Mandelbrot, Bertalanffy, Maturana, Varela, Bateson, Atlan, and Margulis all strengthen the legitimacy of searching for recurrent principles across scales. Yet none of these authors, either individually or collectively, suffices to establish the modal necessity of a universal source code. Their work makes the UPH thinkable and perhaps promising. It does not make it foundational by itself.

This broader dialogue reinforces the core conclusion of the article: the UPH belongs to a serious intellectual family of relational, systemic, and structural thought, but it still requires stronger modal grounding if it is to claim the status of final ontology.

20. General discussion: between strong ontology and transdisciplinary heuristic

At this point, a general judgment becomes possible. The UPH is more than a collection of analogies. It is a serious transdisciplinary hypothesis with formal propositions, test cases, an explicit research program, and a declared awareness of its own limitations. Its ambition is real, and its internal coherence is significant.

Its greatest merit lies in its insistence that the real cannot be adequately understood through isolated levels alone. Properties do not merely vanish as complexity increases. They persist, mutate, and reappear. This intuition is philosophically powerful and phenomenologically fruitful. A second merit lies in Hurtado's effort to ground this intuition through concrete examples rather than leaving it at the level of abstract metaphysics. A third merit lies in his attempt to unify emergence and continuity without dissolving one into the other.

Its greatest weakness, however, appears exactly where its ambition becomes greatest: the move from phenomenological recurrence to ultimate ontological foundation. The UPH's level 0 remains underdetermined. Its source-code metaphor remains powerful but conceptually open. Its strongest examples establish structural resonance more clearly than modal necessity. And its omission of a principle equivalent to TO's transcendence beyond the quantum remains decisive.

The fairest conclusion, then, is that the UPH should be received as a strong transdisciplinary heuristic and a rich phenomenology of structural persistence, but not yet as a final ontology. It is most convincing when it describes how order re-expresses itself across the already constituted universe. It is least convincing when it claims to have established the absolute ground of that universe.

21. Conclusion

The critical–propositional analysis of Daniel Avilés Hurtado's *Underlying Properties Hypothesis* allows for a balanced conclusion. The UPH is intellectually serious, conceptually fertile, and significantly more disciplined than many broad transdisciplinary proposals. Its central achievement is to insist that recurrence, persistence, and transformed continuity must be taken seriously as features of reality across levels of complexity.

In confrontation with the Theory of Objectivity, the UPH reveals important compatibilities: composition, boundary, structural persistence, informational recursion, and the possibility of inductive continuity between levels. Yet it also reveals decisive insufficiencies: it does not demonstrate the modal necessity of its level 0; its source-code metaphor remains ontologically underdefined; it tends at times to treat structural isomorphism as if it were strong ontological identity; and it does not explicitly incorporate transcendence beyond the quantum.

For these reasons, the position defended here is that the UPH should be welcomed as a complementary theory of the derived universe. It offers TO a valuable language for describing phenomenic recurrence and Inductor Effects within complexified reality. But it does not replace the cosmogonic theorem or the modal discipline of the Seven Absolute Truths.

The lasting merit of Hurtado's proposal is to perceive persistence under transformation. The lasting merit of TO is to explain why such persistence is possible at all. A respectful and rigorous dialogue between the two is therefore not only possible but fruitful: the UPH as a phenomenology of re-expression, and the Theory of Objectivity as a deeper ontology of origin, necessity, and transcendence.

Appendix in TO style

A. Synthetic Objectivist Reformulation

In the light of the Theory of Objectivity, the hypothesis of underlying properties may be reformulated as follows: the recurrences observed across levels of complexity do not, by themselves, constitute proof of an absolute foundation; rather, they are phenomenic marks of coherences derived from a deeper ontological grammar. The universe does not repeat forms merely by accident, but neither is repetition alone sufficient to ground ontology. Recurrence is a sign; modal necessity is foundation.

B. Condensed Modal Thesis

No hypothesis concerning universal principles reaches the status of final ontology unless it demonstrates why such principles must exist. Therefore, the UPH can acquire full metaphysical legitimacy only if its underlying properties are reinscribed within the framework of the Seven Absolute Truths, especially prior composition, the necessity of boundaries, and transcendence beyond the quantum.

C. Rereading the UPH examples

Universal conservation must be reread as induced relational persistence rather than as simple identity between physical law and social dynamics. Systemic stability must be understood as a phenomenic demand for non-collapse between distinct elements. Universal geometric patterns should be treated as signs of formal convergence, not as sufficient proof of a source code. Informational recursion approaches the transcendent element only when information is understood as relationally produced knowledge and radiative expression.

D. Final statement in TO style

The universe is not intelligible because forms repeat; forms repeat because the modal genesis of the universe imposes coherences that, as they pass through the Eras

of constitution, reappear as phenomenic traces of objectivity. Thus, the merit of the UPH lies in recognizing persistence. The merit of TO lies in explaining the possibility of that persistence.

References

[Aspect 1982] Aspect, Alain. 1982. *Experimental Tests of Bell's Inequalities*. Paris: related scientific publications and reports.

[Atlan 1979] Atlan, Henri. 1979. *Entre le cristal et la fumée: essai sur l'organisation du vivant*. Paris: Éditions du Seuil.

[Avilés Hurtado 2026a] Avilés Hurtado, Daniel. 2026a. *Underlying Properties Hypothesis (UPH): Regularities Expressed Across Multiple Levels of Complexity*. Zenodo. https://doi.org/10.5281/zenodo.19076276.

[Avilés Hurtado 2026b] Avilés Hurtado, Daniel. 2026b. *Gradient Indeterminacy: Geometric Foundation of Quantum Mechanics*. Zenodo. https://doi.org/10.5281/zenodo.18120277.

[Avilés Hurtado 2026c] Avilés Hurtado, Daniel. 2026c. *Deriving Spin and Orbital Stability from Geometric Principles: A Proposal*. Zenodo. https://doi.org/10.5281/zenodo.18144711.

[Avilés Hurtado 2026d] Avilés Hurtado, Daniel. 2026d. *The Multilevel Recursive Authentication (MRA) Framework: Rethinking Autoimmunity as a Failure of Systemic Trust*. Zenodo. https://doi.org/10.5281/zenodo.18167835.

[Avilés Hurtado 2026e] Avilés Hurtado, Daniel. 2026e. *Deriving Pauli: How Partiwave Geometry Generates the Structure of Reality*. Zenodo. https://doi.org/10.5281/zenodo.18186550.

[Avilés Hurtado 2026f] Avilés Hurtado, Daniel. 2026f. *The Drain Vortex Principle: Indeterminacy Collapse as Universal Generator of Structure*. Zenodo. https://doi.org/10.5281/zenodo.18343385.

[Avilés Hurtado 2026g] Avilés Hurtado, Daniel. 2026g. *Coherence Vortices: Critical Transitions as Indeterminacy Collapse in Complex Systems*. Zenodo. https://doi.org/10.5281/zenodo.18913943.

[Bateson 1979] Bateson, Gregory. 1979. *Mind and Nature: A Necessary Unity*. New York: Dutton.

[Bertalanffy 1968] von Bertalanffy, Ludwig. 1968. *General System Theory*. New York: George Braziller.

[Bohm 1980] Bohm, David. 1980. *Wholeness and the Implicate Order*. London: Routledge.

[Cabannas and Silva 2016] Cabannas, V., and Silva. 2016. *Teoria da Objetividade: terceira teoria de origem do universo, alternativa à Teoria do Big Bang e ao Criacionismo*. Zenodo. https://doi.org/10.5281/zenodo.17306198.

[Cabannas and Silva 2018] Cabannas, V., and Silva, D. 2018. *THEORY OF OBJECTIVITY: Third theory of the origin of the universe, alternative to the Big Bang Theory and Creationism*. Zenodo. https://doi.org/10.5281/zenodo.17012791.

[Cabannas and Silva 2020] Cabannas, V., and Silva, D. 2020. *A ESFERA PERFEITA (Comentário Número 9 à Teoria da Objetividade)*. Zenodo. https://doi.org/10.5281/zenodo.17013728.

[Cabannas and Silva 2025] Cabannas, V., and Silva, D. 2025. *Teoria da Objetividade: Fundamentos Lógicos, Ontológicos e Científicos para uma Nova Física e Cosmologia (Diálogo com as Inteligências Artificiais)*. Zenodo. https://doi.org/10.5281/zenodo.17295496.

[Cabannas and Silva 2026a] Cabannas, V., and Silva, D. 2026a. *From Modal Axioms to Empirical Contact: Gödelian Discipline, the Law of Logical Minimum, and Operational Bridges in the Theory of Objectivity (2.0)*. Zenodo. https://doi.org/10.5281/zenodo.18154295.

[Cabannas and Silva 2026b] Cabannas, V., and Silva, D. 2026b. *Modal Ontology and Testability: Boundaries, Convergence, and the Phenomenic Table of the Theory of Objectivity in Dialogue with Contemporary Physics and AI-Assisted Operational Bridges (1.0)*. Zenodo. https://doi.org/10.5281/zenodo.18257429.

[Cabannas and Silva 2026c] Cabannas, V., and Silva, D. 2026c. *Gravity as an Emergence of Convergence Zones: A Critical–Propositional Examination of Information Flux Theory in Light of the Theory of Objectivity (TO) (1.0)*. Zenodo. https://doi.org/10.5281/zenodo.18306977.

[Cabannas and Silva 2026d] Cabannas, V., and Silva, D. 2026d. *Quantum Field Theory and the Properties of the Vacuum: A Critical–Propositional Reading under the Modal Discipline of the Theory of Objectivity (TO) (1.0)*. Zenodo. https://doi.org/10.5281/zenodo.18370212.

[Cabannas and Silva 2026e] Cabannas, V., and Silva, D. 2026e. *THE MODAL DISCIPLINE OF COSMIC ORIGIN: a Critical–Propositional Analysis of the Big Bang Theory in Confrontation with the Theory of Objectivity (1.0)*. Zenodo. https://doi.org/10.5281/zenodo.19034270.

[Einstein 1920] Einstein, Albert. 1920. *Relativity: The Special and the General Theory*. London: Methuen.

[Hawking 1988] Hawking, Stephen. 1988. *A Brief History of Time*. New York: Bantam.

[Heisenberg 1958] Heisenberg, Werner. 1958. *Physics and Philosophy: The Revolution in Modern Science*. New York: Harper & Row.

[Kuhn 1962] Kuhn, Thomas S. 1962. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

[LIGO/Virgo 2016–present] LIGO/Virgo Collaboration. 2016–present. *Gravitational Wave Observations*. Reports and publications.

[Mandelbrot 1982] Mandelbrot, Benoît. 1982. *The Fractal Geometry of Nature*. New York: W. H. Freeman.

[Margulis 1981] Margulis, Lynn. 1981. *Symbiosis in Cell Evolution*. San Francisco: W. H. Freeman.

[Maturana and Varela 1980] Maturana, Humberto, and Francisco Varela. 1980. *Autopoiesis and Cognition: The Realization of the Living*. Dordrecht: D. Reidel.

[Pauli 1925] Pauli, Wolfgang. 1925. “Über den Zusammenhang des Abschlusses der Elektronengruppen im Atom mit der Komplexstruktur der Spektren.” *Zeitschrift für Physik* 31: 765–783.

[Pareto 1896] Pareto, Vilfredo. 1896. *Cours d’économie politique*. Lausanne: F. Rouge.

[Penrose 2004] Penrose, Roger. 2004. *The Road to Reality: A Complete Guide to the Laws of the Universe*. London: Jonathan Cape.

[PLANCK Collaboration 2018] PLANCK Collaboration. 2018. *CMB Anisotropies and Cosmological Parameters*. Final mission results and associated publications.

[Prigogine and Stengers 1984] Prigogine, Ilya, and Isabelle Stengers. 1984. *Order Out of Chaos: Man’s New Dialogue with Nature*. New York: Bantam.

[Weinberg 1993] Weinberg, Steven. 1993. *The First Three Minutes: A Modern View of the Origin of the Universe*. New York: Basic Books.