

LOGICAL MATRIX, MATHEMATICAL ESSENCE, AND THE MODAL DISCIPLINE OF OBJECTIVITY:

a critical–propositional analysis of Hugang Cui in
confrontation with the Theory of Objectivity

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ABSTRACT

This article presents a critical–propositional analysis of Hugang Cui’s text, *Space-time Substantivalism XXI: The Completeness of Logic and the Incompleteness of Mathematics — The Logical Matrix is the Sole Truth of the Universe*, published on Zenodo in 2026. Its purpose is to examine the thesis according to which the incompleteness of mathematics, semantics, computation, physics, social theory, and epistemology would demonstrate not the failure of reason, but rather the higher completeness of logic as a Logical Matrix. Cui’s article is confronted with the Theory of Objectivity, especially with its First Absolute Truth, according to which Nothingness is a Primitive and Eternal Mathematical Essence. The analysis argues that Cui’s critique is relevant, but depends on a restrictive identification between mathematics and incomplete formal systems. It proposes that, within TO, ordinary mathematics must be understood as a primitive ontological structure of determination, distinction, boundary, and possibility, and not as a merely formal mathematics subject to Gödelian incompleteness. The article also articulates Cui’s Logical Matrix with TO’s logical tracks, phenomenic elements, Inducer Effects, cosmogonic theorem, cosmological Eras, and the notion of transcendent substance as knowledge or information produced in atomic relations, equivalent to atomic radiations. It concludes that Cui’s text has a high degree of dialogue with TO, but does not replace its modal–cosmogonic architecture, since it remains concentrated on a logical metaontology without sufficiently developing the phenomenology of elements, informational–radiative production, and cosmological genesis through Eras.

Keywords: Theory of Objectivity; Logical Matrix; Hugang Cui; mathematical essence; incompleteness; Gödel; logical tracks; transcendent substance; cosmology; modal ontology.

1. Introduction

Hugang Cui’s article, published in 2026 under the title *Spacetime Substantivalism XXI: The Completeness of Logic and the Incompleteness of Mathematics — The Logical Matrix is the Sole Truth of the Universe*, constitutes a singular contribution to the contemporary debate on the foundations of logic, mathematics, physics, and cosmology. Its central thesis is ambitious: the incompleteness of the various domains of knowledge would not prove an ultimate limitation of logic, but precisely its sovereignty. For Cui, logic, understood as the Logical Matrix, is not one system among others; it is the meta-framework within which all particular systems appear, operate, and reveal their own limits (Cui 2026).

The interest of this article for the Theory of Objectivity is direct. Cui not only mentions TO, but also carries out a critical audit of its foundational proposition: the statement that Nothingness is a Primitive and Eternal Mathematical Essence. According to Cui, this formulation would have reached a point of extreme proximity to the essence of the universe, but would still remain bound to mathematics. Since mathematics is incomplete, Cui argues, it could not occupy the place of first principle. That place should belong to the Logical Matrix, understood as prior, undeniable, unprecedable, more comprehensive than all concrete systems, and capable of defining the boundaries of every impossibility (Cui 2026).

The present analysis seeks to examine this confrontation with propositional rigor. It is neither a simple rejection of Cui’s critique nor a passive acceptance of his thesis. Rather, it aims to understand to what extent the Logical Matrix dialogues with TO’s logical tracks, to what extent the critique of mathematical essence requires conceptual refinement, and to what extent TO can respond to Cui without abandoning the modal necessity of its axioms.

The Theory of Objectivity, according to its foundational bibliography, presents itself as a third theory of the origin of the universe, alternative both to the Big Bang and to Creationism, structured around absolute truths of a logical, ontological, and cosmogonic character (Cabannas and Silva 2016; Cabannas and Silva 2018). These truths do not operate as contingent hypotheses, but as propositions of modal necessity. In other words, their force does not arise only from empirical observation, but from the impossibility of denying their structure without falling into ontological contradiction.

In this sense, Cui’s critique must be evaluated from a decisive distinction: TO speaks of primitive mathematical essence, not of a derived formal mathematical system. Gödel’s incompleteness applies to sufficiently expressive, consistent, and recursively axiomatizable formal systems; it does not automatically affect the ontological notion of

a primitive structure of determination, distinction, relation, and possibility. Therefore, Cui's critique is relevant, but would only be conclusive if TO reduced its originary mathematical essence to modern formal mathematics.

This article is structured into sections that examine: Cui's central thesis; the relation between the Logical Matrix and logical tracks; compatibilities with TO's axioms; tensions between logic and mathematics as first foundation; the relation with phenomenic elements and Inducer Effects; the role of transcendent substance as knowledge or information equivalent to atomic radiations; and the articulation with the foundational, recent, and dialogical bibliography of TO. At the end, an evaluative score is presented regarding the degree of dialogue between the analyzed article and the Theory of Objectivity.

2. The Analyzed Article and Its Central Thesis

Cui's article begins from an interpretive inversion. Since the twentieth century, the great results of limitation, such as Gödel's incompleteness theorems, Tarski's undefinability of truth, Turing's halting problem, Heisenberg's uncertainty, Arrow's impossibility, and Hume's problem of induction, have frequently been understood as demonstrations of the limitation of reason, language, mathematics, or science. Cui proposes the opposite: such incompletenesses would demonstrate that logic occupies a superior position, since it is through logic that such limits are discovered and recognized (Cui 2026).

The thesis may be summarized in four propositions. First, all concrete systems are incomplete or limited. Mathematics does not prove its own consistency; language does not fully define its own truth; computation does not universally decide the halting problem; physics encounters limits of measurement; social systems do not perfectly aggregate individual preferences; and epistemology does not fully justify induction.

Second, these limits are discovered through logical arguments. Thus, logic would not be trapped within the incompleteness of the systems it examines. It operates as the instance that recognizes incompleteness.

Third, this external position of logic indicates that logic is greater than concrete systems. Cui calls this superior structure the Logical Matrix.

Fourth, mathematics is merely the partial exposition of the tracks arranged by the Logical Matrix. Therefore, mathematics cannot be the first principle of the universe.

The conclusion is ontologically strong: only the Logical Matrix would be the sole truth of the universe. Mathematics would return to the condition of representation; logic would occupy the status of foundation.

This argument has evident philosophical strength. It recognizes that any discourse

on limits already presupposes a norm of intelligibility. When one states that a system is incomplete, one is not outside all rationality; one is using a rationality capable of diagnosing the boundary of the system. At this point, Cui approaches a transcendental tradition: that which makes possible the critique of systems cannot be reduced to one of the systems criticized.

Nevertheless, the article also assumes a controversial extension. Cui moves from the observation that formal and scientific systems have limits to the conclusion that logic is complete in an absolute sense. This passage requires examination. Is the logic used to diagnose limits necessarily complete? Or does it merely function as a metalanguage in relation to specific systems? TO may accept the necessity of logic without accepting that it replaces the primitive mathematical essence of Nothingness.

3. Hugang Cui’s Logical Matrix

The Logical Matrix is presented by Cui as meta-track, matrix, sovereign, definer of possibilities and impossibilities, and *full-dimensional* structure. The term “dimensional” is not used in a spatial sense, but in the sense of the exhaustiveness of logical possibilities. The Logical Matrix includes both the tracks already laid down and the dynamic logic behind the very act of laying down tracks (Cui 2026).

This formulation contains three important elements for dialogue with TO.

The first is the notion of anteriority. For Cui, nothing can precede logic, because anything that is defined, thought, or denied already requires identity, distinction, attribution, and inference. Nothingness, a creator, mathematics, or any originary entity could only be named under logical conditions. This is the thesis of the unprecedability of logic.

The second is the notion of undeniability. To deny logic would require formulating a proposition, organizing an inference, and claiming validity. Therefore, the denial of logic would use logic and would self-destruct.

The third is the notion of completeness. Cui does not understand completeness as the capacity to prove all propositions internal to all systems. He understands completeness as the capacity to define impossibilities, that is, to establish boundaries for particular systems.

These three elements dialogue with TO because the axioms of the Theory of Objectivity also possess a structure of necessity. They are not mere empirical generalizations, but formulations that claim to resist denial. The statement that two distinct elements require at least one boundary line between them, for instance, does not depend on an isolated experiment; it follows from the very condition of distinction. Likewise, the state-

ment that every element is composed of elements prior to it operates as an ontological principle of composition.

However, Cui’s Logical Matrix tends to present itself as a static absolute foundation. TO, on the other hand, transforms foundation into a cosmogonic process. It does not merely affirm a first principle; it describes the passage from Nothingness to elements, from elements to relations, from relations to observation, from observation to composition, and from composition to transcendent substance.

The Logical Matrix is, therefore, a strong category of foundation. But, for TO, foundation is not exhausted by logic as a sovereign instance. It must manifest itself in a cosmogonic architecture, in phenomonic elements, in fields, in boundaries, in auras, in Inducer Effects, and in informational–radiative production.

4. The Theory of Objectivity and the Modal Necessity of Its Axioms

The Theory of Objectivity is organized around seven absolute truths:

1. Nothingness is a Primitive and Eternal Mathematical Essence.
2. Every element has a magnetic field, or aura, that makes it unique.
3. Infinity represents the necessary non-element for the logical definition of the universe.
4. Two distinct elements require at least one boundary line between them.
5. An element exists fully only if observed by at least two others.
6. Every element is composed of elements prior to it.
7. There is no existential universe without a substance transcendent to its quantum.

These truths must be read as modal propositions. Modal necessity means that such propositions are not merely empirical observations, but structural conditions without which the existence, distinction, and intelligibility of the universe would become impossible. TO, in this sense, does not begin from descriptive physics, but from an ontology of the necessary (Cabannas and Silva 2016; Cabannas and Silva 2018).

Cui’s critique mainly affects the First Truth. However, in order to evaluate the strength of this critique, it is necessary to remember that TO’s axioms are not independent of one another. The mathematical essence of Nothingness is articulated with infinity

as non-element, boundary as condition of distinction, observation as condition of full existence, composition as genealogy of elements, and transcendent substance as information produced in atomic relations.

Thus, even if one accepts that logic has formal priority in the act of naming Nothingness, this does not mean that primitive mathematical essence is annulled. TO does not simply state that Nothingness is a formula; it states that Nothingness is primitive and eternal mathematical essence. The word “mathematical” here must be understood as originary orderability, possibility of determination, relational structure, and condition of composition of the real.

The modal necessity of TO does not depend on turning mathematics into a closed system. On the contrary: TO may incorporate the incompleteness of formal systems as confirmation that the universe cannot be reduced to human mathematical models. This strengthens, rather than weakens, the distinction between formal mathematics and ontological mathematical essence.

5. Mathematics, Logic, and First Foundation: The Core Controversy

The most delicate point in the confrontation between Cui and TO is the question: is the first foundation of the universe logical or mathematical?

Cui answers: logical. TO answers: Nothingness is primitive and eternal mathematical essence.

At first glance, the two answers appear incompatible. Yet the incompatibility depends on the definition of mathematics and logic.

If mathematics is understood only as a formal system, with axioms, rules of inference, arithmetic, and symbolization, then Cui’s critique is strong. Sufficiently powerful formal systems may be incomplete, as Gödel demonstrated. In that case, mathematics could not ground itself (Gödel 1931). Tarski also showed that the truth of a sufficiently rich language requires a metalanguage (Tarski 1936), and Turing demonstrated the impossibility of a universal algorithm for deciding the halting problem (Turing 1936). From these results, Cui concludes that mathematics is smaller than logic.

But TO does not need to accept this restrictive definition. Primitive mathematical essence is not historically constituted academic mathematics; it is the ontological condition of structuring the real. It is prior to human formalization. It designates the possibility that there may be distinction, number, boundary, proportion, relation, composition, and order. In this sense, the mathematics of TO is an ontology of determinability.

If logic is the law of validity and non-contradiction, and originary mathematics is the structure of determinability, then logic and mathematics are not rivals. They are different faces of foundation. Logic says that something cannot be and not be under the same aspect; originary mathematics allows something to be distinguishable, relatable, and composable. Without logic there is no validity; without originary mathematics there is no structure.

Cui's critique is useful because it compels TO to refine its language. TO must clarify that Nothingness as primitive mathematical essence is not a formal mathematical entity, nor an arithmetic theory, nor an axiomatic system in the technical sense. It is an ontological essence of ordering prior to physical manifestation. Thus, the incompleteness of formal mathematics does not invalidate the First Truth; it only prevents it from being interpreted formalistically.

6. Nothingness as Primitive and Eternal Mathematical Essence

The First Truth of TO states: Nothingness is a Primitive and Eternal Mathematical Essence. This proposition is one of the boldest statements of the Theory of Objectivity. It does not identify Nothingness with absolute absence, emptiness without property, or banal nonexistence. On the contrary, Nothingness is presented as essence, not as mere negation. It is mathematical because it contains the originary possibility of ordering; it is primitive because it does not derive from a prior element; it is eternal because it is not subordinated to physical time.

Cui considers this proposition profound, but insufficient. For him, TO's Nothingness already presupposes logic. Without the law of identity, he argues, not even "Nothingness" could be defined. Therefore, Nothingness would be posterior to the Logical Matrix (Cui 2026).

TO's response may follow three paths.

First, one may admit that every enunciation of Nothingness requires logic. However, the logical requirement of enunciation does not mean that logic is ontologically prior to Nothingness. There is a difference between the discursive condition of formulation and the ontological condition of origin. When we speak of Nothingness, we use logic; but this does not prove that logic, as Matrix, exists before Nothingness as a separate ontological reality.

Second, TO may affirm that logicity is internal to primitive mathematical essence. In other words, Nothingness is not pre-logical in the sense of being absurd or contradictory;

it is the source of the very logical–mathematical possibility. Cui’s Logical Matrix would then be a partial description of the internal structure of Nothingness, not something prior to it.

Third, TO may reformulate the debate: the first foundation is not “formal mathematics” against “formal logic,” but the originary essence of objectivity. This essence has a mathematical, logical, modal, and relational dimension. The First Truth uses the term “mathematical” to indicate primitive orderability, but this orderability includes identity, difference, and relation.

Thus, TO’s Nothingness does not need to be replaced by the Logical Matrix. It may be defended as a broader foundation, within which matricial logic itself finds its ontological root.

7. Logical Tracks, Logical Matrix, and Cosmic Instantiation

The greatest compatibility between Cui and TO appears in the notion of tracks. Cui states that mathematics is the exposition of the tracks arranged by the Logical Matrix. Some tracks are actualized in the physical universe; others remain as non-instantiated capacities. Practice, or instantiation, would be the criterion that distinguishes actualized cosmic truth from empty possibility (Cui 2026).

In TO, logical tracks also occupy a central place. They appear as an intermediate structure between originary foundation and cosmic manifestation. Tracks are not mere symbols; they are paths of ordering and passage. They make it possible to think the transition between Nothingness, differentiation, fields, boundaries, and the constitution of elements.

The notion of instantiation in Cui may be propositionally incorporated into TO as a distinction between ontological possibility and phenomenic manifestation. Not everything that is possible in logical–mathematical terms becomes an element of the existential universe. For there to be an element, field, boundary, relation, observation, and composition are necessary. Thus, TO may reinterpret Cui’s tracks as structures of possibility that become real only when traversed by Inducer Effects and phenomenic relations.

The difference lies in the fact that Cui seems to conceive instantiation as a judgment of the Logical Matrix. TO, in turn, tends to conceive actualization as a cosmogonic process. Instead of a sovereign matrix that selects tracks, TO describes a dynamic in which elements emerge by modal necessity from Nothingness, passing through the cosmological Eras and producing transcendent substance.

Therefore, the category of track is a powerful conceptual bridge. But TO must expand it beyond logic: tracks are also relations of formation, paths of induction, channels of differentiation, and conditions of informational production.

8. Structural Compatibilities Between Cui and TO

Cui's article presents several compatibilities with the Theory of Objectivity.

The first compatibility is the refusal of pure empiricism. Cui does not accept that empirical physics is the ultimate foundation of reality. Neither does TO. Physical reality must be explained by conditions prior to physical manifestation itself. This position brings both closer to a fundamental ontology and distances them from purely descriptive models.

The second compatibility is the centrality of necessity. Cui speaks of logic as undeniable, unprecedable, and complete. TO speaks of absolute truths. In both cases, foundation is not optional. It imposes itself because its denial presupposes that which it attempts to deny.

The third compatibility is the valorization of boundary. Cui understands incompleteness as revealing the limits of systems. TO states that two distinct elements require at least one boundary line between them. Boundary, in both systems, is not a mere accident; it is a structural condition.

The fourth compatibility is the distinction between possibility and actuality. Cui distinguishes actual tracks and capacity tracks. TO can distinguish essence, possibility, phenomenic element, and transcendent substance. This allows for a profound dialogue on why certain possible structures manifest themselves while others remain virtualities.

The fifth compatibility is the openness to a non-conventional cosmology. Cui discusses the singularity as a point of mathematical failure and actualization of the Logical Matrix. TO questions the sufficiency of the Big Bang as an ultimate explanation and proposes a cosmogony structured in Eras. Both recognize that the origin of the universe requires more than mathematical extrapolation from physical models.

The sixth compatibility is the relation with incompleteness. TO may welcome formal incompleteness as a sign that no closed system exhausts reality. This reading approaches Cui's critique of mathematics' pretension to self-sufficiency.

9. Points of Tension Between the Logical Matrix and the Theory of Objectivity

Despite the compatibilities, there are profound tensions.

The first tension is the replacement of Nothingness by the Logical Matrix. Cui understands that TO's Nothingness is not originary, but already presupposes logic. TO may respond that this critique confuses the logical condition of enunciation with the ontological condition of origin. Nothingness, as primitive mathematical essence, is not an object defined within a system; it is the foundation of the very field of definition.

The second tension is the reduction of mathematics to formal incompleteness. Cui uses Gödel to conclude that TO's mathematical essence is incomplete. However, the First Truth of TO does not refer to an arithmetical formal system, but to an ontological essence. Gödel's incompleteness cannot be applied without mediation to an originary metaphysical category.

The third tension is the abstract character of the Logical Matrix. Cui affirms the sovereignty of logic, but does not sufficiently develop a theory of elements, fields, aura, atomic relations, and transcendent substance. TO is more phenomenological and cosmogonic.

The fourth tension is the absence of a theory of observation similar to TO's Fifth Truth. For TO, an element exists fully only if observed by at least two others. Cui speaks of practical instantiation, but does not formulate a relational ontology of observation.

The fifth tension is the question of transcendent substance. In TO, there is no existential universe without a substance transcendent to its quantum. This substance corresponds to knowledge or information produced in atomic relations, equivalent to atomic radiations. Cui, by contrast, concentrates transcendence in the Logical Matrix. TO requires a transcendence that also manifests physically as informational production.

These tensions do not prevent dialogue. On the contrary, they make the dialogue richer. Cui pressures TO to clarify its notion of originary mathematics; TO pressures Cui to leave logical metaontology and face the phenomenic constitution of the universe.

10. Phenomenic Elements, Inducer Effects, and Transcendent Substance

TO distinguishes itself from many abstract ontologies because it does not limit itself to discussing foundation. It seeks to explain how foundation manifests itself in phenomenic

elements. A phenomenic element is not an isolated unit. It has field, boundary, relation, observation, composition, and the capacity to produce information.

Cui offers a matrix of possibility, but not a phenomenology of the element. His theory indicates that systems operate on tracks and that instantiation separates actualized cosmic truth from empty tracks. However, this formulation does not fully explain how an element becomes unique, how its field is structured, how its boundary is established, and how its full existence depends on relational observation.

TO's Inducer Effects enter precisely at this point. They may be understood as modes through which the modal necessity of the axioms acts in the passage from foundation to manifestation. If boundary is necessary, there is an inducer effect of delimitation. If every element has an aura, there is an inducer effect of singularization. If full existence depends on observation, there is an inducer effect of relation. If every element is composed of prior elements, there is an inducer effect of genealogy. If there is no universe without transcendent substance to the quantum, there is an inducer effect of information.

Transcendent substance, in TO, is especially important. It must not be confused with an external soul or with a metaphysical abstraction disconnected from the physical universe. It is the knowledge or information produced in atomic relations, equivalent to atomic radiations. This conception gives TO a bridge between ontology, physics, and information.

Cui speaks of logic as sovereign, but TO may add: the sovereignty of order is not complete without informational production. Reality is not only organized; it informs. And this information is not accidental. It is transcendent to the quantum because it exceeds the mere physical quantity of the element, but emerges from real atomic relations.

This point is one of TO's greatest contributions to the debate with Cui. The Logical Matrix may explain intelligibility. TO also intends to explain the informational radiativity of what exists.

11. TO's Cosmogonic Theorem Before Cui's Logical Ontology

TO's cosmogonic theorem may be presented, in general terms, as the necessary passage from Nothingness to the structuring of the existential universe through differentiations, boundaries, relations, observations, compositions, and the production of transcendent substance. This theorem is not merely a narrative; it is an attempt at an ontological derivation of the universe from the Seven Absolute Truths.

Cui does not offer an equivalent cosmogonic theorem. He offers a thesis of founda-

tion: the Logical Matrix is prior and superior to all systems. When discussing singularity, he suggests that the failure of mathematics indicates a return to the matrix and a switching of the main track. But this remains a metaontological explanation, not a detailed description of cosmic genesis.

TO may recognize the importance of this thesis, but must add that logical foundation alone does not explain the formation of the universe. It is necessary to explain how one passes from possibility to existence, from indistinction to boundary, from boundary to field, from field to element, from element to observation, from observation to composition, from composition to information, and from information to intelligence.

In this sense, TO is more dynamic. It does not merely ask “what is the foundation?” but “how does the foundation become universe?” Cui’s article answers the first question strongly; TO seeks to answer both.

TO’s cosmogonic theorem may therefore reinterpret the Logical Matrix as a dimension of the stage of logical tracks, but not as the totality of cosmogony. The Logical Matrix would correspond to the structure of necessity of the tracks; the mathematical essence of Nothingness would correspond to the ontological source of orderability; the Inducer Effects would correspond to the mechanisms of passage; and the cosmological Eras would correspond to the phases of manifestation.

12. TO’s Cosmological Eras as an Expansion of Cui’s Model

The Theory of Objectivity works with cosmological Eras that seek to order the process of universal genesis. Although the terminology may vary according to TO’s internal development, the following stand out: the Antagonistic Era, the Era of Logical Tracks, the Era of Logical Currents of Tertiary Plasma, the Centrifugal Era, and the Era of Units of Intelligence.

The Antagonistic Era corresponds to the originary domain of Nothingness and the Antagonistic Tempus. In dialogue with Cui, one could say that this Era is the field in which there is still no full cosmic instantiation. However, TO does not reduce it to an abstract Logical Matrix. It understands it as the originary tension of primitive mathematical essence.

The Era of Logical Tracks is the point of greatest compatibility with Cui. Here, structuring through tracks may be compared to the tracks arranged by the Logical Matrix. However, in TO, tracks are not merely formal possibilities; they are cosmogonic paths of formation.

The Era of Logical Currents of Tertiary Plasma already goes beyond Cui's level of abstraction. It involves currents, plasma, material structuring, and transition toward denser forms of manifestation. Cui does not offer an equivalent physics.

The Centrifugal Era involves expansion, differentiation, extrusion, separation, and cosmic organization. Cui mentions singularity and track switching, but does not develop a theory of centrifugation. TO has here a more cosmological horizon.

The Era of Units of Intelligence articulates memory, thought, relation, observation, and knowledge. This Era is decisive for TO because it shows that the universe does not culminate only in structure, but in the production of intelligence. Transcendent substance as atomic information/radiation finds here one of its strongest expressions.

Thus, TO's Eras expand Cui's thesis. The Logical Matrix may be useful for thinking the plane of necessity, but TO offers a broader cosmogonic sequence capable of integrating foundation, formation, matter, radiation, information, and intelligence.

13. Mathematical Incompleteness and the Gödelian Reading of TO

Cui's critique depends strongly on Gödel. The argument is that, if mathematics is incomplete, a mathematical essence cannot be the ultimate foundation. This reading, however, requires caution.

Gödel's theorems apply to sufficiently expressive, consistent, and recursively axiomatizable formal systems that contain arithmetic. They demonstrate that such systems cannot prove all internal arithmetical truths and cannot prove their own consistency under certain conditions (Gödel 1931). This is an extraordinary technical result, but it does not automatically authorize the conclusion that every mathematical ontology is impossible as foundation.

Penrose, for example, discusses extensively the relation between mathematics, reality, and mind, showing that the problem of mathematical truth goes beyond simple formalization (Penrose 2004). Bohm, in turn, proposes an implicate order that cannot be reduced to fragmentary descriptions (Bohm 1980). Prigogine and Stengers emphasize that nature requires a new relation between order, chaos, and irreversibility, also beyond closed formalisms (Prigogine and Stengers 1984).

TO may dialogue with these authors in order to affirm that primitive mathematical essence is closer to an ontological structure of order than to a formal system. Formal incompleteness shows that no human mathematical language exhausts the real. This is compatible with TO, since TO also does not reduce the universe to closed models.

In fact, incompleteness may reinforce the Seventh Truth: there is no existential universe without a substance transcendent to its quantum. If every formal system encounters limits, then the real contains a dimension that exceeds any quantitative closure. In TO, this dimension is not simply mystery; it is information, knowledge, and radiation produced in atomic relations.

Therefore, Gödel does not need to be read against TO. He may be read as a warning against a formalistic interpretation of TO and as indirect support for the thesis that the universe exceeds its models.

14. The Foundational, Recent, and Dialogical Bibliography of TO

The foundational bibliography of TO presents the theory as an alternative to traditional explanations of the origin of the universe, especially the Big Bang and Creationism (Cabannas and Silva 2016; Cabannas and Silva 2018). The work *A Esfera Perfeita* expands the ontological and symbolic dimension of the theory, reinforcing the search for a form of structural perfection and originary foundation (Cabannas and Silva 2020).

The recent bibliography of TO deepens modal discipline, testability, operational bridges, and the relation with contemporary physics. In *Teoria da Objetividade: Fundamentos Lógicos, Ontológicos e Científicos para uma Nova Física e Cosmologia*, Cabannas and Silva develop the effort to present TO as a logical and scientific structure for a new cosmology (Cabannas and Silva 2025). In *From Modal Axioms to Empirical Contact*, TO seeks to establish bridges between modal axioms and empirical contact, incorporating a Gödelian discipline and the Law of Logical Minimum (Cabannas and Silva 2026a). In *Modal Ontology and Testability*, the relation between boundaries, convergence, phenomenical table, and contemporary physics is developed (Cabannas and Silva 2026b).

Recent works on gravity as an emergence of convergence zones, quantum field theory and the properties of the vacuum, and the modal discipline of cosmic origin expand TO toward dialogue with central themes of modern physics: gravity, vacuum, fields, Big Bang, and cosmological structures (Cabannas and Silva 2026c; Cabannas and Silva 2026d; Cabannas and Silva 2026e).

The supporting bibliography is also essential. Einstein provides the context of relativity and the space-time structure (Einstein 1920). Heisenberg introduces a philosophical understanding of quantum physics and the limits of measurement (Heisenberg 1958). Weinberg and Hawking provide modern readings of Big Bang cosmology (Weinberg 1993; Hawking 1988). Bohm offers the idea of implicate order, important for thinking

totality and ontological depth (Bohm 1980). Prigogine and Stengers help to think irreversibility and order from chaos (Prigogine and Stengers 1984). Kuhn allows TO to be understood as a proposal for paradigmatic change (Kuhn 1962). Penrose broadens the debate between mathematics and reality (Penrose 2004).

Aspect's observations on Bell inequalities, Planck data, LIGO/Virgo observations, and JWST results compose a field of indirect empirical dialogue. Cui's article, however, does not report its own empirical test that could confirm or corroborate TO. For this reason, no specific section on empirical testing reported by the analyzed article is created here.

15. Evaluative Score of Dialogue Between the Analyzed Article and TO

The position of Cui's article on a scale from zero to ten, regarding its dialogue with the Theory of Objectivity, is:

$$8.8 / 10$$

The score is high because the article dialogues directly with TO, recognizes its importance, examines its First Truth, and works with notions of tracks, foundation, incompleteness, logic, mathematics, and the origin of the universe. Few external texts offer such a direct interlocution with TO's conceptual architecture.

The score does not reach ten because Cui proposes a replacement of TO's mathematical foundation by the Logical Matrix, without sufficiently considering that TO's primitive mathematical essence is not reducible to incomplete formal systems. Furthermore, his article does not develop phenomenic elements, Inducer Effects, cosmological Eras, the aura of elements, relational observation, or transcendent substance as atomic information/radiation.

Thus, Cui's article is an interlocutor of very high relevance, but remains incomplete from TO's standpoint. It offers a logical metaontology; TO offers a broader modal-cosmogonic ontology.

16. Conclusion

Hugang Cui's article constitutes a theoretical provocation of great value for the Theory of Objectivity. Its thesis that the incompleteness of particular systems demon-

strates the completeness of logic approaches TO's modal discipline, especially in the idea that certain foundations are undeniable and prior to derived systems. The notion of Logical Matrix also dialogues intensely with TO's logical tracks, allowing for a fertile comparison between metastructure, possibility, and instantiation.

However, Cui's critique of TO's mathematical essence depends on a restrictive reading of mathematics. If mathematics is understood only as a formal system, the critique has force. But if primitive mathematical essence is understood as an originary ontological structure of orderability, determination, distinction, boundary, and relation, then the critique loses its destructive power and becomes an invitation to conceptual refinement.

TO may respond to Cui by affirming that its originary mathematics includes logicity, but is not reduced to formal logic. Nothingness is not an object defined within the Logical Matrix; it is the primitive essence that allows logic, mathematics, boundary, element, and relation to have ontological meaning. The Logical Matrix may be understood as a dimension of logical tracks, not as a replacement for the foundation.

The greatest limit of Cui's article is that it does not develop a concrete cosmogony. It presents the sovereignty of logic, but does not sufficiently explain how phenomonic elements arise, how fields and boundaries are established, how observation constitutes full existence, how elements compose themselves, and how transcendent substance emerges in atomic relations as knowledge or information equivalent to atomic radiations.

TO, in turn, has the advantage of integrating foundation, process, element, relation, information, and intelligence. Its architecture is not merely logical, nor merely mathematical, nor merely physical. It is a modal ontology of objectivity, a cosmogony of manifestation, and a theory of the informational production of the universe.

Therefore, Cui's article should be received as a high-level contribution to the scientific-philosophical debate. It does not overcome TO, but challenges it to explain with greater precision the difference between formal mathematics and primitive mathematical essence. In doing so, it strengthens TO itself, because it compels the theory to show that its First Truth is not vulnerable to formal incompleteness, but grounded in a deeper ontological necessity.

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A. Appendix in TO Style

A.1. Critical–Propositional Formulation in the Language of the Theory of Objectivity

A.1. Principle of the Distinction Between Formal Mathematics and Mathematical Essence

In the Theory of Objectivity, primitive mathematical essence must not be confused with a derived formal system. Formal mathematics is language, method, calculation, and representation. Primitive mathematical essence is the ontological condition of determination.

Proposition TO-A1: The incompleteness of formal mathematical systems does not eliminate primitive mathematical essence; it only demonstrates that no derived formalization exhausts the originary structure of the real.

A.2. Principle of the Internal Logicality of Nothingness

Cui’s critique presupposes that logic precedes Nothingness. TO may respond that logicality does not precede Nothingness as a separate entity, but is contained within the primitive mathematical essence of Nothingness.

Proposition TO-A2: Nothingness, as Primitive and Eternal Mathematical Essence, is not the absence of logic, but the originary source of logicality, distinction, boundary, and possibility.

A.3. Principle of Tracks as Cosmogonic Passage

Cui’s Logical Matrix may be reinterpreted as a metastructural dimension of TO’s logical tracks. However, TO’s tracks are not merely formal; they are cosmogonic pathways.

Proposition TO-A3: Every logical track is simultaneously a structure of possibility, a path of differentiation, and a condition of phenomenic manifestation.

A.4. Principle of Boundary as the Signature of Incompleteness

The incompleteness of systems, in Cui, may be reread by TO as a manifestation of the necessity of boundary. Every system has a boundary because no concrete element or system contains the totality of the real.

Proposition TO-A4: Formal incompleteness is an epistemological expression of the Fourth Absolute Truth: two distinct elements require at least one boundary line between them.

A.5. Principle of Informational Transcendent Substance

The Logical Matrix explains intelligibility, but it is not sufficient to explain the existential universe. In TO, full existence requires substance transcendent to the quantum, identified as knowledge or information produced in atomic relations and equivalent to atomic radiations.

Proposition TO-A5: There is no existential universe by logic alone; there is an existential universe when the relation between elements produces information transcendent to the quantum.

A.6. Principle of TO's Cosmogonic Superiority

The Logical Matrix offers an ontology of foundation; TO offers an ontology of foundation and genesis.

Proposition TO-A6: The Theory of Objectivity does not limit itself to declaring the condition of the real; it describes the modal passage from Nothingness to element, from element to relation, from relation to observation, from observation to information, and from information to intelligence.

A.7. Final Synthesis in TO Style

Nothingness is not dead emptiness.

Nothingness is primitive mathematical essence.

Primitive mathematical essence contains logicity.

Logicity lays down tracks.

Tracks require boundaries.

Boundaries allow elements.

Elements require fields.

Fields produce relations.

Relations require observation.

Full observation requires composition.

Atomic composition produces information.

Information, as atomic radiation, becomes substance transcendent to the quantum.

Therefore, the Logical Matrix does not overcome the Theory of Objectivity; it may be integrated as a partial expression of TO's own logical tracks.