Reconstruction Classes and the Fine-Tuning Problem in a Timeless Euclidean Model

A. N. Smirnov

Abstract

In the present program, the fundamental level is specified by a four-dimensional Euclidean space $\mathbb{E}^4$ and a real field Φ satisfying the Laplace equation, whereas spacetime, events, causal structure, and effective fields are not postulated in advance but arise as reconstructed structures relative to the observer. In previous works within this framework, the special-relativistic, gravitational, and quantum layers of the effective description were reconstructed. In the present work, the previously introduced notion of a *reconstruction class* is substantially extended and becomes the central level of analysis; it is shown that the fine-tuning problem must be posed precisely at this level.

It is argued that the standard formulation of the fine-tuning problem, which relates it to small deviations of parameters within an already given Universe, is secondary in the present model. More fundamental is the question of which reconstruction classes admit a physically actualized world of the observer at all. Within this reconstructive formulation, a complete solution to the fine-tuning problem is proposed within the present model. The central basis of this solution is an ontological postulate according to which only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity. Accordingly, the anthropic principle acquires in this model not the status of an external methodological constraint, but the status of a consequence of the admissibility conditions and the physical actualization of the reconstructed world.

It is further shown that the observed parameters of our Universe should be understood not as external phenomenological assumptions, but as features identifying the reconstruction class within which our observational universe is realized. In this sense, the article does not merely reinterpret the fine-tuning problem, but establishes, within the model, a complete explanatory scheme whose further development is connected not to the search for the principle of solution itself, but to

its more detailed physical explication as applied to concrete structures of observed physics.

1 Introduction

The fine-tuning problem is traditionally formulated as the question of why the fundamental parameters of the observed Universe are compatible with the existence of an observer. In the timeless Euclidean model considered here, such a formulation cannot be regarded as fundamental, since the observed world is not taken as given in advance but must be reconstructed. It will therefore be shown below why the fine-tuning problem must be shifted from the level of the parameters of a ready-made world to the level of reconstruction classes, and in what sense a complete solution to it is proposed within this formulation and within the present model.

1.1 The Fine-Tuning Problem and Standard Ways of Formulating It

The fine-tuning problem is usually formulated as the question of why the fundamental parameters of the observed Universe—the values of constants, initial conditions, and relations among characteristic scales—turn out to be compatible with the existence of complex stable structures and, ultimately, of an observer. In such a formulation, an essential assumption is that small changes in these parameters could lead to a physical picture in which such structures do not arise.

A common feature of standard formulations is that spacetime, causal structure, events, effective fields, and the observer itself are already taken as given elements of the physical scene. The question is therefore posed only as to why a special set of parameters permitting the existence of an observer is realized *within* an already existing world.

Within the present model, such a formulation is secondary. If spacetime, events, and effective fields are not fundamental, but arise only as reconstructed structures relative to the observer, then the question of special parameter values cannot be primary. One must first understand under what conditions the observed world arises at all, that is, the world within which such parameters acquire physical meaning.

1.2 A Shift in Formulation: From Parameter Tuning to the Admissibility of Reconstruction

In the present program, the fundamental level contains no pre-given spacetime, events, causal structure, or effective fields. The basic setup includes only a four-dimensional Euclidean space $\mathbb{E}^4$ and a real field Φ satisfying the Laplace equation, whereas the observed physical scene arises only at the level of reconstruction relative to the observer. As was shown in previous works, the special-relativistic, gravitational, and quantum layers of the effective description have already been reconstructed within this program [1, 2, 3]. This means that the framework considered here is not merely an abstract philosophical scheme, but already possesses nontrivial physical content.

From this there follows the basic shift in formulation. If the observed world is not given in advance, then the fine-tuning problem can no longer be understood primarily as the question of why the parameters of some ready-made Universe take special values. More fundamental is the question of which reconstruction classes admit a physically actualized world of the observer at all.

To describe this level, the previously introduced notion of a *reconstruction class* is refined and substantially extended in the present work. It is understood not as a particular representation of the fundamental field, but as a more general structure that determines the type of the observed world relative to an admissible observational regime. It is precisely the reconstruction class, rather than a particular set of numerical parameters, that becomes the main object of analysis here. In this sense, it is a more fundamental notion than an individual observational universe, which appears only as an observationally defined realization within a more general reconstructive structure.

This is also the principal difference between the proposed approach and more standard ways of discussing fine-tuning [4, 5, 6]. In the usual formulation, the issue concerns special parameter values within an already given Universe, while in anthropic reasoning it concerns selection within a multiplicity of already assumed worlds differing in their parameters or laws. In the present work, the question is posed differently: neither a ready-made global Universe nor a multiplicity of such universes is assumed as a set of fundamentally given objects from the outset. More fundamental is the level of reconstruction classes, and the fine-tuning problem pertains to which of them admit a physically actualized world of the observer at all.

1.3 Aim, Status of the Result, and Structure of the Work

The aim of the present work is to fix the level at which the fine-tuning problem must be posed within the timeless Euclidean model under consideration. It is argued that this level is not that of individual parameters within a presupposed Universe, but that of *reconstruction classes*, which determine admissible types of the observed world.

Thus, the present work does not introduce a new physical layer of the effective description alongside the special-relativistic, gravitational, and quantum layers reconstructed in previous papers [1, 2, 3], but raises the analysis to a more fundamental level: to the question of which reconstruction classes admit a physically actualized world of the observer at all, and how the phenomenon of fine-tuning itself should be understood at that level.

In this sense, the work proposes a complete solution to the fine-tuning problem in the reconstructive formulation adopted within the model. The central basis of this solution is an ontological postulate according to which only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity. The present article proceeds on the assumption that this postulate should not be understood as a temporary substitute for a still undeveloped theory of the observer: the further development of such a theory may, at best, refine the structural and operational conditions for the existence of an observer of the corresponding type, but cannot eliminate the necessity of the postulate itself.

The status of the result obtained must be understood precisely. The completeness of the solution pertains to the explanatory scheme itself: within the present model, the fine-tuning problem receives a completed ontological-reconstructive resolution. At the same time, this does not amount to a completed classification of all possible reconstruction classes, nor to a complete parameterization of all admissible worlds, but rather to the fixing of the principle on the basis of which such classifications and parameterizations must subsequently be constructed.

The structure of the work is as follows. Section 2 briefly fixes the fundamental setup of the model and the results of previous works on which the present study relies. In Section 3, the notion of a reconstruction class is refined and extended, and its more fundamental status as compared with the level of an individual observational universe is justified. Section 4 establishes the distinction between operational reconstruction and the physical actualization of the world. In Section 5, the central ontological postulate concerning an observer with inner subjective presence is introduced, and its status within the present work is discussed. In Section 6, the fine-tuning problem is reformulated as a problem of reconstructive selection. In Section 7, the new status of the anthropic principle as a consequence of the admissibility and physical actualization of the reconstructed world is analyzed. In Section 8, the status of observed parameters as features identifying the corresponding reconstruction class is discussed. Finally, Sections 9 and 10 consider the limitations of the proposed approach and its broader conceptual implications.

In the context of the overall program, the present article represents the next step relative to the three previous reconstructive works. In the first of them, the special-relativistic layer was identified, and it was shown for the first time that the fundamental setup admits a multiplicity of admissible reconstructions; in the second, the gravitational layer was reconstructed, thereby strengthening the role of admissibility conditions; in the third, the quantum layer was identified, showing that the quantum core itself arises only in special admissible regimes of reconstruction. Thus, the present work naturally continues this line at a more general level: it considers no longer individual reconstructed physical layers, but reconstruction classes themselves as the bearers of the fine-tuning problem, the anthropic principle, and the status of observed parameters.

2 Fundamental Setup and Results on Which the Present Article Relies

The solution to the fine-tuning problem proposed in the present work builds on results already obtained earlier, in which the observed physical scene was understood not as fundamentally given, but as arising at the level of reconstruction relative to the observer. It is therefore necessary briefly to fix the fundamental setup of the model, the previously reconstructed physical layers, and the line of development in which the previously introduced notion of a *reconstruction class* gradually acquires a more general and more fundamental status.

2.1 The Fundamental Level of the Model

The fundamental level of the model under consideration is specified by a minimal timeless setup. The underlying mathematical scene is taken to be a four-dimensional Euclidean space $\mathbb{E}^4$, on which a real scalar field Φ is defined and satisfies the Laplace equation

$$\Delta_{\mathbb{E}^4}\Phi = 0. \quad (1)$$

No other fundamental objects are introduced at this level.

What is essential is that this setup contains no fundamental time as an independent parameter of evolution, no primordial causal structure, no pre-given Lorentzian geometry, and no ready-made set of effective physical fields. In other words, at the fundamental level neither events, in the usual physical sense, nor their causal order, nor spacetime as an already existing scene of the observed world are assumed. All these structures must arise only at the level of reconstruction.

The minimality of the initial setup is of principled importance. It means that everything that in standard physics is usually treated as part of a ready-made world must, within the present program, be not postulated but reconstructed.

2.2 Previously Established Layers of Reconstruction

Previous works showed that the principal layers of the observed physical description can be reconstructed from the minimal fundamental setup described above [1, 2, 3]. The point was not to introduce new fundamental entities, but to single out such regimes in which stable and coherent structures arise relative to the observer and admit interpretation in the terms of observed physics.

First of all, a special-relativistic layer was reconstructed, in which eventhood, causal structure, inertial frames of reference, and a universal upper bound on causal connections $v_{\max}$ arise [1]. What is essential is that, already at this level, it was shown that the fundamental setup does not fix a unique observed world, but admits a multiplicity of admissible reconstructions. It was in this context that the notion of a *reconstruction class* was first introduced, although its fuller interpretation as the level at which integral types of the observed world should be distinguished is developed only in the present work.

A gravitational layer was then identified, in which effective geometric structure arises as a condition for coherent causal reconstruction in a more general regime [2]. This result strengthened the conclusion that a physically relevant world is not determined by an arbitrary reconstruction of the fundamental field, but requires the satisfaction of additional admissibility conditions that already go beyond purely local description.

Finally, a quantum layer of the effective description was constructed, in which the quantum core arises in a special admissible regime of reconstruction [3]. Here too, the question of the reconstruction class arose, although it had not yet become the central object of analysis: the discussion concerned the special conditions under which the emergence of the quantum layer is possible at all, as well as the fact that certain essential elements of the effective description, including admissible free sectors and a normalization of the $\hbar$-type, naturally acquire a class-dependent status. Accordingly, already at the level of the quantum layer it becomes clear that such questions as quantum measurement, the emergence of a quasi-classical observational structure, and the selection of a preferred basis for the effective description must be considered in connection with the more general question of which reconstruction classes admit a physically actualized observational universe at all.

Thus, the previous results show not only that the present program already possesses nontrivial physical-mathematical content, but also that the notion of a reconstruction class is not an external addition to the present work. It had already been introduced earlier and was used in part in previous papers; however, it is precisely in the present work that it becomes the main object of analysis. This is what makes the next step natural: if individual physical layers arise not arbitrarily, but only in certain regimes of reconstruction, then one must pass to the more general question of which *reconstruction classes* admit their joint existence as elements of one physically relevant and physically actualized world.

2.3 Why the Problem of Reconstruction Classes Arises Naturally

It follows from the previously obtained results that the fundamental setup does not by itself automatically single out a unique observed world. The minimal scheme defined at the level of $\mathbb{E}^4$ and the harmonic field Φ contains in advance neither spacetime nor events, nor causal structure, nor effective physical fields. Consequently, there is always a nontrivial level of reconstruction between the fundamental structure and the observed world.

At the same time, previous works have shown that such reconstruction is neither arbitrary nor unique. The special-relativistic, gravitational, and quantum layers arise only in certain regimes, which means that not every conceivable reconstruction of the fundamental field is physically equivalent to every other. This is already sufficient to see that it is not enough to speak only of particular representations or local regimes; a more general level of analysis is required, at which integral types of the observed world can be distinguished.

It is precisely here that it becomes clear why the previously introduced notion of a *reconstruction class* must be made the central object of analysis. It is needed in order to pass from the question of which individual physical layers can be reconstructed to the question of which more general structures admit their joint existence as elements of one observed world at all. Thus, the notion of a reconstruction class is not added to the program from outside and is not introduced anew in the present work; rather, it acquires here its more general and more fundamental meaning.

In this sense, the present article takes the next step relative to the previous works. If the main question earlier was which physical layers can be reconstructed, it is now shifted to the more fundamental one: which *reconstruction classes* admit a physically relevant and physically actualized world at all.

3 Reconstruction Classes

The foregoing discussion shows that between the fundamental level of the model and the observed world there lies a more general level of reconstructive structure, which is not exhausted either by the field configuration Φ itself or by any individual local regime of its description. It is precisely this level that is refined and analyzed in the present work through the previously introduced notion of a *reconstruction class*. In this section, it will first be shown why this notion must be made the central object of analysis; a working definition will then be given, after which the questions of the equivalence of reconstruction classes and their relation to the observed region and to the notion of a universe will be distinguished.

3.1 Motivation for the Notion of a Reconstruction Class

The need to invoke the notion of a reconstruction class arises from the very logic of the present program. If the fundamental level of the model contains only the Euclidean space $\mathbb{E}^4$ and the harmonic real field Φ, then the observed world cannot simply be identified either with the fundamental field configuration as such or with an arbitrary way of its mathematical description. Between the fundamental structure and observed physical reality there necessarily lies a level of reconstruction, at which eventhood, causal coherence, effective fields, and an observational regime arise.

At the same time, previous results show that this level is neither trivial nor unique. The special-relativistic, gravitational, and quantum layers arise only in certain admissible regimes; hence not every reconstruction of the fundamental field is physically relevant, and not every reconstruction is equivalent to every other. This is already sufficient to see that it is not enough to speak merely of "decompositions," "representations," or "descriptions" of the field, since such terms naturally refer to different ways of writing one and the same structure.

A stronger notion is therefore required, one referring not to the form of representation but to the type of reconstructed world. The previously introduced notion of a *reconstruction class* is used precisely to fix this level; in the present work it acquires a broader interpretation. It makes it possible to pass from the analysis of particular local regimes to the analysis of integral types of world admissible within the present fundamental scheme.

3.2 Definition of a Reconstruction Class

For the purposes of the present work, a working definition of a reconstruction class is required. Since the article neither constructs a complete classification of all possible reconstructions nor presupposes an already completed theory of the observer, this definition should be understood as structural rather than exhaustively formalized.

By a *reconstruction class* in the present work we shall mean a class of operationally consistent reconstructions of the fundamental field that determines a certain type of observed physical structure relative to an admissible observational regime. In other words, the issue is not an individual local act of reconstruction and not a particular mathematical description of the field Φ, but a more general scheme within which eventhood, causal coherence, effective physical layers, and an observed world of the corresponding type arise.

It is essential that, in the present article, the notion of a reconstruction class is used in a more general sense than in previous works. Here it refers to a level more general than that of the individual observational universe of a particular observer. Thus, a reconstruction class determines not one "universe" as a globally fixed object, but a more fundamental reconstructive structure within which different observationally defined worlds may arise.

3.3 Equivalence and Nonequivalence of Reconstruction Classes

The introduction of the notion of a reconstruction class requires one to distinguish two types of differences. On the one hand, there may be different mathematical representations of one and the same reconstructed physical structure. Such differences may be associated with the choice of basis, parameterization, local descriptive language, or some other form of notation that does not alter the physically significant content. On the other hand, there may be cases in which the difference between reconstructions affects the very type of the observed world and therefore cannot be reduced to a purely formal redescription.

In the working sense, two reconstruction classes should be regarded as *equivalent* if the characteristics that determine the type of the observed physical structure are preserved between them. Such characteristics include, at a minimum, eventhood, causal structure, physically significant relations among reconstructed objects, and the very type of the observed world arising relative to an admissible observational regime. If these elements are preserved, then the difference pertains only to the form of representation and does not require the introduction of different reconstruction classes.

Conversely, if, in passing from one reconstruction to another, the very structure of eventhood, causal coherence, or the observed world changes, then such a difference can no longer be regarded as purely formal. In that case, one must speak of *nonequivalent* reconstruction classes. Thus, equivalence is determined by the preservation of observed content rather than by the formal identity of the mathematical description.

3.4 Reconstruction Class, Observed Region, and the Notion of a Universe

After introducing a working definition of a reconstruction class, it is necessary explicitly to distinguish several levels that must not be identified. First of all, a reconstruction class determines the general type of an admissible world, that is, the reconstructive structure within which eventhood, causal coherence, effective physical layers, and an observational regime of the corresponding type may arise. However, it does not yet follow from this that a reconstruction class can be directly identified with one universe in the ordinary sense of the word.

For a fixed observer within a given reconstruction class, a narrower level is naturally distinguished, corresponding to the operationally accessible world of that observer. If Ω_0 denotes the body region of the observer, on the basis of whose data the causal network is constructed, then Ω denotes the region within which a stable reconstruction of eventhood and causal structure is preserved. It is Ω, in this sense, that determines the observational universe of that observer: everything lying outside Ω does not belong to that observer's observed world and cannot generate within it observably reconstructed causal connections.

At the same time, the region Ω and the reconstruction class belong to different levels of description and therefore must not be identified. The region Ω determines the observational universe of a given observer, whereas the reconstruction class determines the more general reconstructive structure within which such a universe is realized. Thus, one and the same fundamental scheme determines not a single globally fixed universe, but a more general reconstruction class within which different observationally defined worlds are possible.

It is essential that the relation between a reconstruction class and an observational universe is not trivial. If observers belong to one and the same reconstruction class and are sufficiently close to one another, then their observational universes should coincide up to small boundary effects, since in that case causal reconstruction is carried out, in substance, within one and the same region Ω. However, at sufficiently large distances such an equivalence should no longer be regarded as automatic. As was noted in the article on general relativity, the model may lead to the necessity of a coarse-graining of the reconstructed structure as the distance between observers grows. If this is so, then at sufficiently large separations observers may no longer reconstruct one another as elements of one and the same observed world. A more detailed analysis of this mechanism lies beyond the scope of the present work.

It is for this reason that the notion of a *universe* within the present model turns out to be derivative and observer-dependent. If this term is to be used at all, it is natural to understand by a universe not the entire reconstruction class, but the region Ω, that is, the observational world determined through the causal reconstruction accessible to a given observer and originating from the observer's body region Ω_0.

For the purposes of the present article, this distinction is fundamental. The principal object of analysis remains precisely the reconstruction class as the more fundamental structure. The universe, by contrast, is understood here as an observationally defined realization within a given reconstruction class.

4 Operational Reconstruction and Physical Actualization

After clarifying the status of the reconstruction class, it is necessary to draw one further fundamental distinction—that between *operational reconstruction* and *physical actualization*. The former pertains to the emergence, relative to the observer, of a stable and coherent physically interpretable structure of the world. The latter pertains to a stronger question: under what conditions such a structure becomes a world of observed experience. It is precisely this distinction that leads to the central role of the observer in the subsequent discussion.

4.1 Operational Reconstruction

By *operational reconstruction* in the present work we shall mean such a level of reconstruction at which, relative to the observer, there arises a stable and coherent scheme of the observed world that admits a physical description. What is at issue is not an arbitrary mathematical interpretation of the fundamental field, but a regime in which reconstructed distinctions are organized into eventhood, causal structure, and effective physical layers that preserve operational meaning for the given observational regime.

It is precisely at this level that those structures become possible which in previous works were described as the special-relativistic, gravitational, and quantum layers of the effective world. Thus, operational reconstruction defines the first substantively significant level at which the world becomes *physically describable*: one can speak of events, causal relations, and observed structures as reconstructed elements of the world accessible relative to a given observer.

However, this is still insufficient for passing to the stronger claim of physical actualization. Operational reconstruction secures the physical describability of the world, but by itself does not yet answer the question under what conditions this world is a world of observed experience.

4.2 Why the Operational Level Is Not Sufficient

Operational reconstruction fixes the coherence of distinctions, their stable organization, and the possibility of their physical interpretation. But it does not yet follow from this that the reconstructed structure is a world *for* the observer, rather than merely a system of coherent relations. In other words, the operational level answers the question of how a world may be stably reconstructed, but does not explain why such a reconstruction should be regarded as a physically given world.

It is precisely here that the limitation of a purely functional approach becomes apparent. One may admit the existence of stable registers, coherent transitions between states, and a reconstructed causal structure without thereby passing to the assertion that there is a subjective center to which this world is given as observed. Consequently, operational coherence does not yet eliminate the gap between a reconstructed physical structure and its actualization as a world of observed experience.

Therefore, the transition from operational reconstruction to physical actualization requires an additional principle not reducible merely to the stability of registers, causal coherence, or the presence of effective physical layers.

4.3 Physical Actualization

By *physical actualization* in the present work we shall mean such a level at which the reconstructed world is not merely an operationally coherent physical structure, but a world of observed experience. Accordingly, physical actualization designates a stronger condition than the mere possibility of stably reconstructing events, causal connections, and effective physical layers. It pertains not to the describability of the world as such, but to its givenness to the observer.

Within the present work, it is argued that such a transition cannot be derived from operational coherence alone. It requires an additional ontological principle concerning the very status of the observer. This principle will be formulated in the next section and will specify the condition under which an operationally coherent structure may be regarded as a physically actualized world.

Consequently, the distinction between operational reconstruction and physical actualization defines one of the central axes of the entire article. It shows that even full operational coherence is still not a sufficient condition for the emergence of the observed world.

5 The Observer with Inner Subjective Presence

The preceding section established the distinction between *operational reconstruction* and *physical actualization*. If the former pertains to the emergence of a stable and physically interpretable structure of the world, the latter requires an answer to the question under what condition such a structure becomes a world of observed experience. This shifts the question of the observer from an external methodological context into an internal question of the model itself.

Accordingly, the present section considers not the observer as an element of an already given physical scene, but the observer as a condition for the physical actualization of the world. It will first be shown why a purely functional understanding of the observer is insufficient; then the central ontological postulate of the article will be formulated; and finally its status within the overall logic of the proposed scheme will be clarified.

5.1 Why a Purely Functional Observer Is Insufficient

A purely functional understanding of the observer allows one to speak of stable registers, memory, the processing of distinctions, and the coordination of states. This is sufficient for describing the conditions under which an operationally coherent reconstruction of the world may arise. However, it is still insufficient for explaining physical actualization.

The reason is that functional organization describes only the structure of processing, registration, and coordination of distinctions. By itself, it does not yet answer the question under what condition such a structure is a world *for* the observer, rather than merely a system of reconstructed relations. In other words, a functional description may specify a physically interpretable organization of the world, but it still does not provide grounds for regarding it as a world of observed experience.

Within the present model, this is of principled importance. Since space-time, events, and effective physical structures are not assumed to exist in advance, but arise only at the level of reconstruction, the observer cannot be understood solely as a functional node for the processing of distinctions within an already given world. It is necessary to specify under what condition the observer functions as a subjective center relative to which the reconstructed structure acquires the status of an observed world at all.

Consequently, a purely functional observer may be a necessary condition for operational reconstruction, but is not a sufficient condition for the physical actualization of the world. It is precisely this that requires the introduction of a stronger ontological principle.

5.2 Inner Subjective Presence as the Central Ontological Postulate

The following central ontological postulate is adopted in the present work.

Postulate 5.1 (On Inner Subjective Presence)**.** The physical actualization of the world requires an observer with inner subjective presence and the capacity for self-reflexivity. In other words, only such a reconstruction class can be physically actualized as admits not merely a functional bearer of registers and operations on distinctions, but a subjective observer for whom the reconstructed world is given as that observer's own observed world.

The meaning of Postulate 5.1 is that the transition from operationally coherent reconstruction to a physically actualized world does not close without the introduction of a subjective center of observation. Stable registers, memory, causal coherence, and effective physical layers do not yet by themselves define a world of observed experience as such. For this, an observer possessing inner subjective presence is required, and, in a stronger formulation, the capacity for self-reflexivity.

It should, however, be stated explicitly that the postulate introduced here does not require the assumption that there is only one possible form of subjectivity. If observers with other forms of inner subjective presence are possible, this does not eliminate the principle itself, according to which the physical actualization of the world requires a subjective observer. In the present work, the analysis is deliberately restricted to observers of the type known to science, for whom one can meaningfully discuss stable registers, memory, and the preservation of an observational regime. The appearance, within a more general theory of the observer, of other forms of subjectivity would require a corresponding extension of the conditions of selection and of the classification of physically actualizable reconstruction classes, but would not invalidate the central postulate; it would merely refine the domain of its concrete realizations.

Thus, this postulate provides not an external philosophical supplement to an already given physical scheme, but its internal ontological foundation. It is precisely this postulate that determines the criterion for the transition from a physically describable world to a physically actualized one. In this sense, Postulate 5.1 becomes the central element of the solution to the fine-tuning problem proposed in the article.

5.3 The Status of This Postulate in the Present Work

The postulate introduced above is not derived from the already constructed physical part of the program. Previous results make it possible to reconstruct the special-relativistic, gravitational, and quantum layers of the observed world, and also to single out the level of operational coherence; yet by themselves they do not eliminate the gap between a physically describable reconstruction and a physically actualized world of observed experience. It is precisely this gap that is fixed by the postulate under consideration.

At the same time, the postulate should not be understood as a temporary surrogate for a not yet completed full theory of the observer. Even if such a theory were substantially developed, it could, at best, refine the structural and operational conditions for the existence of an observer of the relevant type—the stability of registers, the coherence of reconstruction, the preservation of the observational regime, and other admissibility conditions. Yet it still would not follow from this that inner subjective presence and self-reflexivity can be fully reduced to the totality of such conditions.

Moreover, the present work allows that self-reflexivity may belong to the phenomena of strong emergence. If so, then a fully reductive derivation of this postulate may in principle be unavailable. In that case, no theory of structural conditions will replace the postulate itself, but will only be able to describe under what conditions, within the model, an observer is possible that possesses the subjective status required for the physical actualization of the world.

Consequently, the status of this postulate in the present work is permanent rather than provisional. It does not serve as a temporary support for a still unfinished part of the program, but fixes the ultimate condition without which the transition from operational reconstruction to a physically actualized world remains open.

6 The Fine-Tuning Problem as Reconstructive Selection

The distinction drawn above between the reconstruction class, operational reconstruction, and physical actualization now makes it possible to reformulate the fine-tuning problem within the framework of the present model. The issue is no longer that of special parameter values within a pre-given Universe, but rather that of which reconstruction classes admit a physically actualized world of the observer at all.

This section will show why the standard parametric formulation is here secondary, in what sense the problem must be shifted to the level of reconstruction classes, how the ontological postulate introduced above provides its solution, and why the observed parameters of our Universe must be understood as features identifying the corresponding reconstruction class.

This shift in formulation is also significant from the standpoint of quantum foundations. If, as was shown in [3], the quantum layer arises only in special admissible regimes of reconstruction, then such questions as quantum measurement, the emergence of a quasi-classical observational structure, and the selection of a preferred basis for the effective description should not be regarded as properties of a pre-given quantum world. They pertain to those reconstruction classes within which a physically actualized observational universe is possible at all. In this sense, the present article establishes a more general level at which those elements of quantum foundations reconstructed in the previous work acquire their context and conditions of admissibility.

6.1 The Standard Formulation of the Fine-Tuning Problem as Secondary

In its usual formulation, the fine-tuning problem concerns the special character of the values of fundamental constants, initial conditions, and scale relations that are compatible with the existence of an observer. It is assumed that small deviations in these parameters could lead to a physical picture in which no stable structures arise that are necessary for the formation of the observed world. Thus, the question is posed as that of why precisely such parameters are realized *within* some already given Universe.

Within the present model, however, such a formulation is not fundamental. It already presupposes the existence of a world within which parameters vary, and thus takes as given precisely what here itself requires explanation. Spacetime, causal structure, events, effective fields, and even the observational universe itself are not fundamental elements of ontology in the present program. Therefore, the question of special parameter values can be posed only after the corresponding physically relevant reconstruction class has been singled out.

Consequently, the standard parametric formulation retains meaning only as a secondary level of analysis. It may be applicable to an already identified observed world, but it does not express the deepest level of the problem itself.

6.2 The Reconstructive Formulation of the Fine-Tuning Problem

Within the present work, the fine-tuning problem is formulated differently from its standard parametric version. The issue is not why a certain special set of numerical values is realized within a pre-given world, but which reconstruction classes admit a physically actualized world of the observer at all. In other words, the question is shifted from the level of selecting parameters within a ready-made physical scene to a deeper level—the level of the conditions of possibility of the observed world itself.

Such a formulation naturally requires a transition to the notion of a reconstruction class. If spacetime, events, causal structure, and effective physical fields are not fundamentally given, then individual constants can no longer be the primary object of analysis. The primary question becomes which reconstruction classes admit eventhood, causal coherence, effective physical layers, and, ultimately, a physically actualized world of the observer at all. Thus, the fine-tuning problem pertains not primarily to a single global Universe, but to a more fundamental level—namely, to those reconstruction classes within which observationally defined worlds of the corresponding type are possible.

From this perspective, fine-tuning expresses not the special character of numbers as such, but the necessity of the realization of such a reconstruction class within which an observed world is possible at all. It is precisely in this reconstructive formulation that the problem must be solved.

6.3 The Ontological Solution to the Fine-Tuning Problem

Within the formulation adopted in the present work, a complete solution to the fine-tuning problem is proposed. The completeness of this solution pertains not to the enumeration of all possible numerical parameters and not to a complete technical classification of all reconstruction classes, but to the ontological-reconstructive scheme of explanation itself.

The ontological postulate introduced in the previous section now makes it possible to formulate the solution to the fine-tuning problem within the adopted framework. If only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity, then what becomes decisive is no longer the question of the rarity of admissible parameters within a pre-given world, but the question of which reconstruction classes satisfy this condition at all.

Thus, the fine-tuning problem acquires a different meaning. It is solved not statistically, not through the smallness of some region in parameter space, and not through an external adjustment of numerical values. What becomes decisive is the question of which reconstruction class can be physically actualized at all. If the observed world must be not merely a physically describable structure, but a physically given world for the observer, then the existence of such an observer becomes not an external addition to the physical scheme, but its internal condition.

Consequently, the fine-tuning problem is resolved here not as the question of why precisely such a global Universe exists, but as the question of why a physically actualized world of the observer is possible and why a reconstruction class is realized that admits such observational universes. The further technical explication of the space of reconstruction classes and their parameters remains an independent task, but this does not negate the completeness of the solution proposed here.

6.4 Observed Parameters as Identifying Our Reconstruction Class

An important methodological consequence follows from the ontological solution proposed above. The observed parameters of our Universe change their status. They should no longer be regarded as the primary form of the problem itself, nor should they be understood as external phenomenological assumptions appended to the theory in order to bring it into agreement with observed physics. Once the fine-tuning problem has been shifted to the level of reconstruction classes, such parameters appear as features by means of which precisely that reconstruction class can be identified within which our observed world is realized.

It is essential that what is at issue here is precisely the reconstruction class, and not "the universe in general" as a globally fixed object. Within the model, an individual observational universe is a derivative and observer-dependent level within a more general reconstruction class. Consequently, if observed physics is characterized by certain parameters, then these pertain above all to the reconstructive structure that makes possible our type of observed world.

This makes it possible to reinterpret the role of phenomenological data in the further development of the program. Some conditions that, outside the present framework, might appear as external phenomenological assumptions acquire a different status here: they must be understood as conditions by means of which, among the multiplicity of admissible reconstruction classes, precisely that class is singled out to which our observed world corresponds. Thus, phenomenology ceases to be an external source of fundamental postulates and becomes a means of localizing the observed reconstruction class.

It is precisely for this reason that the further analysis of parameters must concern no longer "unexplained constants" within a pre-given Universe, but the parameters of the reconstruction class as a more fundamental object. The next section is devoted precisely to this transition.

7 The Anthropic Principle as a Consequence of the Admissibility of Reconstruction

The foregoing discussion makes it possible to clarify the status of the anthropic principle within the present model. It should not be introduced here as an external constraint on an already given world, since the observed physical scene is not fundamentally given. On the contrary, the anthropic principle must be understood as a consequence of the already introduced condition of physical actualization, pertaining to the admissibility of reconstruction classes themselves.

Thus, the question is no longer why the observer finds itself in some preexisting Universe, but rather which reconstruction classes admit a physically actualized world of the observer at all. It is in this sense that, in the present work, the anthropic principle acquires a deeper formulation than in standard anthropic reasoning.

7.1 A Strong Formulation within the Model

A strong anthropic formulation within the present model follows from Postulate 5.1. Since only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity, the anthropic principle here takes the form of a selection condition on the space of admissible reconstruction classes.

In other words, within the present scheme the anthropic principle does not introduce a new independent postulate, but expresses a consequence of the already adopted condition of the physical actualization of the world. If a given reconstruction class does not admit an observer of the indicated type, it may remain a formally or even operationally admissible structure, but it cannot be regarded as a physically actualized world of observed experience.

Thus, the anthropic principle ceases to be merely a methodological reminder of the compatibility of the world with the observer. It functions as a selectional consequence of the ontological structure of the admissibility of the reconstructed world and pertains primarily to reconstruction classes rather than to global universes as pre-given objects.

7.2 Difference from Standard Anthropic Reasoning

The anthropic formulation proposed in the present work differs fundamentally from standard interpretations. In the classical literature, the anthropic principle is usually formulated either as a constraint on what can be observed within an already given world, or as a selection rule in the space of possible worlds [7, 4, 5, 8]. In ordinary anthropic reasoning, one assumes some multiplicity of already given worlds or universes differing in their parameters, laws, or initial conditions, and an observer can arise only in a limited subset of such worlds. There the anthropic principle functions as a rule of selection *within* a previously accepted multiplicity of physically given worlds.

In the model considered here, the initial situation is different. Spacetime, events, causal structure, and effective fields are not regarded as fundamentally given, but arise only at the level of reconstruction relative to the observer. Therefore, the anthropic principle cannot be formulated as an external criterion of selection among already existing global universes. The more fundamental objects are reconstruction classes, within which observationally defined worlds may arise at all.

From this, three principal differences follow. First, the anthropic principle here pertains not to a choice within a ready-made set of worlds, but to the selection of the very conditions of possibility of the observed world. Second, the observer is regarded not as one of the objects within an already existing Universe, but as an internal condition of the physical actualization of the world. Third, the central role is played not by variations of parameters within a ready-made Universe, but by the question of which reconstruction classes admit a physically actualized world of the observer at all.

Finally, standard anthropic reasoning usually presupposes a sufficiently rigid notion of the universe as a global object. In the present model, the situation is different: the universe appears as a derivative and observer-dependent notion, and one and the same reconstruction class may, in general, admit different observational universes. Therefore, the anthropic principle must pertain precisely to reconstruction classes as the more fundamental bearers of an admissible world.

Thus, in the present work, the anthropic principle appears not as an external methodological supplement, but as a consequence of the already introduced condition of physical actualization applied to the space of admissible reconstruction classes.

8 Parameters of Reconstruction Classes

If the fine-tuning problem is to be considered at the level of reconstruction classes, then it is necessary to introduce a language of parameters that makes it possible to distinguish such classes, to describe their admissibility, and to identify the class within which our observational universe is realized. Without this, the notion of a reconstruction class would remain too general for further analysis.

At the same time, in the present work parameters pertain not to "the Universe in general" as a pre-given global object, but to the reconstruction class itself as the more fundamental level. Observational universes appear here as derivative realizations within the corresponding class. At the present stage, observed parameters primarily play the role of features by means of which, among the multiplicity of admissible reconstruction classes, precisely the class corresponding to our observational universe is singled out.

The following subsections examine what may count as a parameter of a reconstruction class, what the status is of phenomenologically identifiable parameters, under what conditions a parameterization is compatible, and in what sense parameters should be derivable from the model.

8.1 What May Count as a Parameter of a Reconstruction Class

For the further analysis, it is necessary to clarify what exactly is meant in the present work by a parameter of a reconstruction class. Since a reconstruction class is a more fundamental object than the individual observational universe of a particular observer, parameters must pertain primarily to this more general level. In other words, a parameter of a reconstruction class is such a characteristic as is essential not for describing an individual local region of an observational universe as such, but for specifying or distinguishing the very type of reconstructive structure within which such observational universes may arise.

As a first approximation, it is convenient to divide the parameters of a reconstruction class into two types. The first type consists of *structural parameters*, i.e., characteristics associated with the general scheme of reconstruction and with admissibility conditions common to the type of worlds under consideration. These include those parameters that determine the very possibility of operational coherence, the physical actualization of the world, an admissible observational regime, and other basic conditions without which the corresponding reconstruction class could not be realized as physically relevant.

The second type consists of *parameters of a specific reconstruction class*. These distinguish one reconstruction class from another and make it possible to identify the class to which our observational universe corresponds. This category includes such characteristics as do not merely express general admissibility conditions, but localize a particular class within the multiplicity of admissible classes.

This division has a working character. At the present stage, some parameters may be introduced as independent only insofar as this is necessary for the description and distinction of reconstruction classes. If it is later found that some parameters can be expressed in terms of others, then they should be excluded from the set of independent parameters.

It should also be noted that, in a more general perspective, different types of observers might require different sets of conditions and, accordingly, different parameterizations of reconstruction classes. However, such a generalization is not considered in the present work. Here the analysis is restricted to observers of the type known to science, that is, observers possessing stable long-term registers, memory, and the capacity to maintain an observational regime. The question of a possible more general scheme of parameterization remains a subject for further research.

8.2 Phenomenologically Identifiable Parameters

At the present stage of the development of the program, not all parameters characterizing an observational universe can be derived directly from the fundamental setup in explicit form. However, it does not follow from this that such parameters should be regarded as external phenomenological postulates. In the logic of the present work, their status is different: they appear as *phenomenologically identifiable parameters* of a reconstruction class.

If the fine-tuning problem is shifted to the level of reconstruction classes, then observed parameters too must be interpreted as features that make it possible to single out the reconstruction class within which our observational universe is realized. Consequently, phenomenological data pertain not to "the Universe in general" as a globally fixed object, but to the more fundamental level of reconstructive structure within which the observational universe arises as a particular realization.

It is precisely in this sense that phenomenological identification does not contradict the internal logic of the model. Its function is not to introduce new fundamental entities, but to localize, within the multiplicity of admissible reconstruction classes, precisely the class to which our observed physics corresponds. This is of principled importance for the further development of the program: more concrete properties of observed physics should be understood no longer as external phenomenology, but as conditions for the identification of our reconstruction class.

8.3 Conditions of Parameter Compatibility

If parameters are regarded as characteristics of a reconstruction class, it is not enough simply to list them as independent features. In order for such a set genuinely to specify or identify a reconstruction class, the corresponding parameters must be *compatible*. In other words, they must not contradict one another and must admit joint attribution to one and the same reconstruction class.

This requirement applies both to structural parameters and to the parameters of a specific reconstruction class. Structural parameters cannot impose such admissibility conditions as mutually exclude one another. Likewise, the parameters of a specific class cannot identify an observational universe by means of a set of features that cannot be understood as a joint characterization of one and the same reconstructive structure. Therefore, compatibility means not only the logical non-contradictoriness of individual conditions, but also their belonging to one and the same integral scheme of an observational universe.

In this sense, a working condition of compatibility may be formulated as follows: a set of parameters is admissible when there exists at least one reconstruction class with which this set of parameters is compatible, that is, within which an observational universe characterized by this set of parameters is possible. Symbolically, this may be written as

$$\exists \mathcal{K} \, : \, \mathcal{K} \models \mathcal{P}, \tag{2}$$

where $\mathcal{P}$ denotes the set of parameters under consideration, and $\mathcal{K} \models \mathcal{P}$ means that the parameter set $\mathcal{P}$ can serve as a joint characterization of an observational universe belonging to the reconstruction class $\mathcal{K}$. If no such class exists, then the corresponding set of parameters cannot be regarded as an admissible characterization of a world, but remains merely a formal combination of features without physical meaning within the present scheme.

At the present stage, there is no need to require that all such compatibilities already be reduced to an explicit computational criterion. A weaker but still principled thesis is sufficient: a set of parameters is acceptable only when it can be understood as a joint characterization of a physically relevant reconstruction class.

8.4 Derivability of Parameters and Phenomenological Identification of the Class

It is necessary to distinguish strictly between two questions: *the in-principle derivability* of the parameters of a reconstruction class and their *phenomenological identification*. In the logic of the present work, it is assumed that the parameters of a reconstruction class should not be regarded as external data appended to the model independently of its internal structure. In the limit, they should be determined by the model itself after the imposition of admissibility conditions, as well as of the conditions necessary for the existence of the observer.

In principle, the full space of reconstruction classes and their parameters should be determined by the model itself. If the complete configuration of the fundamental field were known, and if the conditions of an admissible observer, operational reconstruction, and physical actualization were specified in a completed form, then their comparison would make it possible to single out all admissible reconstruction classes and the corresponding parameters.

Here, however, an important clarification must be made. In the strictest sense, what should be derivable from the model are first of all *operationally admissible* reconstruction classes, that is, such reconstructive structures as are compatible with the fundamental field configuration, the conditions of stable causal reconstruction, and an admissible observational regime. The stronger question of which of these classes are *physically actualizable* already depends on the condition associated with the observer's inner subjective presence. If the corresponding conditions of physical actualization are in the future partially formalized within a more developed theory of the observer, they will be able to be incorporated into this procedure of selection. If, however, self-reflexivity truly belongs to the phenomena of strong emergence, then the full formalization of this level may prove unattainable in principle. In that case, the model still determines the space of operationally admissible reconstruction classes, whereas their full selection by the condition of physical actualization may remain only partially formalizable.

However, in-principle derivability does not imply the practical attainability of such a derivation in full. Even if parameters should follow from the fundamental setup, the construction of all admissible reconstruction classes, the description of their parameters, and the establishment of relations among them may prove to be an extremely difficult or practically unattainable task.

This is precisely why phenomenological identification retains an independent methodological function within the program. It pertains to the current level of analysis, at which the observed properties of physics are used to single out the reconstruction class within which our observational universe is realized. Consequently, phenomenology here does not cancel the theoretical derivability of parameters, but temporarily replaces it at the level of practical identification.

9 Limitations of the Present Approach

The solution to the fine-tuning problem proposed in the present work is complete within the reconstructive-ontological formulation set out above. However, this does not mean that the entire subsequent theoretical and formal development of the corresponding scheme has thereby already been completed. It is therefore necessary to indicate explicitly in what sense the present result should be regarded as complete, and in what sense the further development of the program remains an open task.

The limitations of the present approach pertain not to the principle of the solution itself, but to the boundaries of its further explication, formalization, and application to more concrete structures of observed physics. The following subsections will therefore consider the limits of the reduction of the central ontological postulate and the boundaries of the present formalization of the result.

9.1 The Ontological Postulate and the Limits of Its Reduction

The central postulate of the present work is that the physical actualization of the world requires an observer with inner subjective presence and the capacity for self-reflexivity. The limitation of the present approach is related not to the possibility of formulating this postulate formally, but to the question of the limits of its reduction to purely structural conditions.

Even if substantial progress is made in the future in describing the structural and operational conditions for the existence of an observer, it still does not follow that inner subjective presence and self-reflexivity will be fully reduced to the totality of such conditions. A theory of the observer may clarify under what conditions an observer of the relevant type is possible, but it is not obliged to explain why such a structure is accompanied by subjective presence.

The present work allows that self-reflexivity may belong to the phenomena of strong emergence. If so, then a full reductive derivation of the central postulate may in principle not exist. In that case, the ontological postulate retains not a temporary but a permanent character, and marks the boundary beyond which further reduction may prove either partial or altogether impossible.

9.2 The Completeness of the Result and the Limits of Its Formalization

The present work proposes a complete solution to the fine-tuning problem in its reconstructive-ontological formulation. The completeness of this solution pertains to the explanatory scheme itself: it establishes the level at which the problem must be posed, the object that serves as its bearer, and the criterion of its resolution.

However, the completeness of the explanatory scheme is not identical to the completeness of its subsequent formalization. The limitations of the present approach pertain not to the substance of the solution, but to the degree of its technical explication. In particular, the article does not develop a complete theory of all possible observers within the model, does not construct a complete list of all admissible reconstruction classes, and does not propose a general algorithm for their explicit enumeration. Moreover, although the parameters of reconstruction classes should in principle follow from the model itself and from its admissibility conditions, their complete derivation in general form has likewise not been carried out.

It is therefore necessary to distinguish clearly between two levels. At the first level, the present study already provides a complete ontological-reconstructive solution to the fine-tuning problem. At the second level, the task of further formalizing this solution remains open, namely, the more detailed description of the space of reconstruction classes, their parameters, possible types of observers, and concrete physical realizations.

This is precisely the exact status of the present result: the article proposes a complete principled solution while at the same time fixing the limits of its current formalization. Accordingly, the further steps of the program should be understood not as the search for a different explanatory principle, but as its successive technical explication.

10 Discussion

The principal conceptual result of the present work is that the fine-tuning problem is shifted from the parametric level to the conditions of possibility of a physically actualized world. In the standard formulation, one considers small deviations of constants and scale relations within an already presupposed Universe. In the model considered here, such a formulation proves to be secondary, since the observed physical scene is not taken as fundamentally given. More fundamental is the question of which reconstruction classes admit a world of observed experience at all.

This determines the central explanatory principle of the article. Fine-tuning is resolved not through the statistical rarity of worlds, not through an external adjustment of parameters, and not through an appeal to a multiplicity of pre-given universes. What is decisive is the ontological postulate according to which only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity. Thus, the question of an admissible world becomes inseparable from the question of the possibility of such an observer.

In this sense, the notion of a reconstruction class acquires a system-forming role in the article. It is precisely at this level that the fundamental setup of the model, the previously reconstructed special-relativistic, gravitational, and quantum layers, the conditions of operational coherence, and the condition of physical actualization are brought together. The reconstruction class appears as a more general object than an individual observational universe, and for this very reason proves to be the proper bearer of the fine-tuning problem. Thus, the article takes the next step with respect to previous works: from the reconstruction of individual physical layers to the analysis of the level at which the admissible type of world itself becomes possible.

A further important conclusion is connected with this. Within the model, the reconstruction class is a more fundamental notion than the universe. The universe is not given here in advance as a single global object, but arises as a derivative observer-dependent world within a reconstruction class. Therefore, the fine-tuning problem should not be formulated as the question of why precisely such a global Universe exists. More precisely, one should ask why such a reconstruction class is realized within which observational universes of the corresponding type are possible.

This distinction directly changes the status of the observed parameters. After the reconstructive solution to the fine-tuning problem, they should no longer be understood as external phenomenological assumptions added to the theory in order to secure agreement with the data. Their more precise status is that they serve as features identifying precisely our reconstruction class among the multiplicity of admissible classes. This constitutes one of the key methodological results of the article: it provides a basis for interpreting, in subsequent works, more concrete structures of observed physics not as external phenomenology, but as characteristics of the corresponding reconstruction class.

The proposed scheme thereby also makes it possible to understand the anthropic principle in a new way. Here it appears not as an external constraint on an already given multiplicity of worlds, but as a consequence of the very structure of the admissibility of the reconstructed world. Since physical actualization requires an observer with inner subjective presence, the anthropic principle proves to be built into the ontological architecture of the model. This distinguishes the proposed approach from standard anthropic reasoning, in which the observer is usually conceived as one of the objects within an already given Universe.

In the present work, the postulate concerning an observer with inner subjective presence is adopted as a necessary condition for the physical actualization of the world. However, the more general question of its ultimate ontological status is deliberately not developed here in full. For the purposes of the present article, it is sufficient to fix that subjective presence is not reducible to the already constructed physical part of the model and cannot be replaced by a merely functional or operational description of the observer. A more detailed ontological interpretation of this postulate—in particular, the question whether subjectivity should be understood as an ultimate condition of an actualized world rather than as a derivative effect within an already given physical scene—lies beyond the scope of the present work and requires separate philosophical analysis.

At the same time, the present result should not be confused with a full technical development of all its consequences. The limitations of the article pertain not to the principle of the solution, but to the degree of its further formalization. The task remains open of providing a more detailed description of the space of admissible reconstruction classes, their parameters, possible types of observers, and concrete physical realizations. However, these questions belong already to the subsequent explication of the principle found, rather than to the search for a different explanatory basis.

Thus, the discussion leads to the following general conclusion. The present work fixes the level at which the fine-tuning problem receives its completed ontological-reconstructive solution. Fine-tuning pertains not to the special character of numbers within a ready-made world, but to the selection of those reconstruction classes within which a physically actualized world of the observer is possible. It is in this that the principal conceptual shift introduced by the present article consists.

11 Conclusion

The present work has shown that, within the timeless Euclidean model under consideration, the fine-tuning problem must be posed not at the level of special parameter values within a presupposed Universe, but at the level of reconstruction classes that admit a physically actualized world of the observer. Within this reconstructive formulation, a complete solution to the fine-tuning problem is proposed within the model.

To this end, the previously introduced notion of a reconstruction class has been refined, substantially extended, and made the principal object of analysis. It has been shown that it is precisely the reconstruction class, rather than the global Universe as a pre-given object, that is the proper bearer of the question of the admissibility of the world. Observational universes are thereby understood as observationally defined realizations within a more general reconstructive structure.

The central basis of the proposed solution is the ontological postulate according to which only such a reconstruction class can be physically actualized as admits an observer with inner subjective presence and the capacity for self-reflexivity. It is precisely this postulate that closes the transition from operationally coherent reconstruction to a world of observed experience, thereby providing the criterion of physical actualization. In this sense, the fine-tuning problem is solved not statistically and not through an external adjustment of parameters, but through the principle of the admissibility of a physically actualized reconstruction class.

On this basis, the status of the anthropic principle has also been clarified in the present work. Within the model under consideration, it does not appear as an external methodological addition to an already given multiplicity of worlds, but acquires the status of a consequence of the admissibility conditions and the physical actualization of the reconstructed world. Thus, the anthropic principle proves to be built into the ontological architecture of the model.

It has also been shown that the observed parameters of our physics should be understood not as external phenomenological assumptions, but as features identifying our reconstruction class. This gives the present article important methodological significance: it provides the basis for treating, in subsequent works, more concrete structures of observed physics no longer as external phenomenology, but as characteristics of the corresponding reconstruction class.

The completeness of the proposed solution pertains to the explanatory scheme itself, and not to an already completed full formalization of all its consequences. In particular, further development is required for a more detailed description of the space of reconstruction classes, their parameters, possible types of observers, and concrete physical realizations.

Thus, the principal result of the article is the following: within the model under consideration, the fine-tuning problem receives a completed ontological-reconstructive solution. The further steps of the program concern not the search for a different principle of solution, but its more detailed explication—namely, the refinement of the parameters of reconstruction classes, their connection with concrete structures of observed physics, and the subsequent application of this scheme to more specialized physical levels of description.

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