Beyond Physics and Metaphysics

Epistemics and the Differentiation of Reality into Subjective, Intersubjective, and Functional-Empirical Physics

Abstract

The classical distinction between physics and metaphysics is increasingly inadequate for describing contemporary epistemic practice with precision. While empirical physics often implicitly functions as the sole standard of the real, subjective experience and social order are either reduced or relegated to a vague residual category of the metaphysical. This paper proposes an alternative epistemic ordering.

Beginning from Epistemics as a prior framework of clarification, reality is understood not as a unified domain of objects, but as an arrangement of distinct orders and spaces of validity that, under certain conditions, can be described as different physicses of stability: as a subjective physics of experience, an intersubjective physics of social order, and a functional-empirical physics of effective constraints. These physicses do not designate new ontologies, but rather a local explication of real modes of stability from the standpoint of resilience, resistance, and boundary signals.

Central here is the distinction between validity and stability; truth ascriptions appear, if the concept is used at all, only in a secondary and functionally relieved form. Only within such an order of validity can it be determined whether a claim remains stable under relevant stresses. Friction is understood here as an epistemically readable boundary signal of limited viability. The focus thus shifts from the question of whether something is real as such to the question of under what conditions of validity and within what limits of stress claims about reality can be meaningfully assessed.

Keywords

Epistemics, relative reality, subjective physics, intersubjective physics, functional-empirical physics, friction, stability, critique of metaphysics, epistemology, differentiation of reality

Stefan Rapp
Independent Researcher

Last revised: 20 April 2026

https://orcid.org/0009-0004-0847-9164

https://doi.org/10.5281/zenodo.18317965

Epistemics Project: https://www.epistemics.de

© 2026 Stefan Rapp — Licensed under CC BY-NC-ND 4.0

Table of Contents

1. Why a New Division of Reality Is Necessary....3
2. Epistemics as the Meta-Framework of Reality....6
3. The Three Physicses of Reality....8
3.1 Subjective Physics: Regularities of Experience....9
3.2 Intersubjective Physics: Regularities of Social Order....10
3.3 Functional-Empirical Physics: Regularities of Functional Effectiveness....11
3.4 Criteria of Distinction....12
4. Friction as a Boundary Signal within the Physicses....13
4.1 Friction Is Necessary, Not Contingent....13
4.2 Physics-Specific Forms of Friction....14
4.3 The Epistemic Readability of Friction....15
4.4 Friction and Model-Dependence....15
4.5 Friction as a Limitation of Arbitrariness....16
4.6 Conflicts between Physicses and Epistemic Coordination....16
5. Metaphysics: Functional Redistribution Instead of Ontological Replacement....17
5.1 Boundary Clarification without Ultimate Grounding....17
5.2 Unity through Structure Rather than Being....17
5.3 Order without Ontologization....18
5.4 What Deliberately Remains Open....18
5.5 The Philosophical Gain of Functional Redistribution....18
6. Differentiating Reality, Relieving Metaphysics....19
Conceptual Canon of This Paper....21
References....24

1. Why a New Division of Reality Is Necessary

For centuries, reality has been ordered through the distinction between physics and metaphysics. Physics thereby claims the realm of the measurable, the law-governed, and the objective, whereas metaphysics is supposed to address those questions that lie beyond empirical accessibility, such as meaning, being, consciousness, or ultimate grounding. Although this division of labor was historically plausible, it is increasingly inadequate for contemporary epistemic practice (Carnap 1950; Putnam 1981).

The problem is not that the questions associated with metaphysics have disappeared. On the contrary, questions concerning consciousness, meaning, social order, or subjective experience remain central. At the same time, classical metaphysics has lost persuasive force as a scientific frame of reference. It is too closely tied to speculative ontological posits, and its methodological criteria are too unclear. This creates a gap: central forms of real effectiveness are evidently effective, yet are often only insufficiently ordered in scientific terms (Rorty 1979; Floridi 2011).

At the same time, it has become evident that empirical physics, too, does not simply appear in modern epistemic practice as the mere description of natural-law relations. It operates with models, probabilities, system boundaries, and observer-dependent modes of access. Nevertheless, it is often treated implicitly as the sole standard of what may count as real at all. Subjective experience and social order then appear either as mere epiphenomena or as subordinate constructions lacking any lawfulness of their own (van Fraassen 1980; Giere 2006; Parker 2020).

This opposition produces a systematic distortion. Either reality is reduced to what is empirically measurable, or non-empirical reality is outsourced to a metaphysical residual domain that eludes scientific clarification. Neither does justice to the actual structure of our epistemic practice.

The approach pursued here should therefore be understood neither as a mere rehabilitation of non-empirical reality nor as a general pluralism. It differs both from classical oppositions between naturalism and metaphysics and from a merely perspectival multiplication of approaches. Its point of departure lies instead in the epistemic reconstruction of different modes of reality as different orders of validity, stabilization, and stress. The decisive question is not merely which perspective on reality is adopted, but under what conditions claims become sustainable, how their limits become visible, and how different orders can remain distinguishable without ontological unification (James 1907; Rescher 1977; Giere 2006).

In everyday life, science, and social practice, we routinely operate with different forms of relation to reality. Some states of affairs count as real because they are directly experienced. Others count as real because they are socially recognized, institutionally stabilized, or normatively secured. Still others count as real because they are measurable, replicable, or technically effective. These differences cannot be adequately captured if reality is understood only as a unified domain of objects or as a mere gradation between physics and metaphysics (Searle 1995; Goldman 1999; Lackey 2008).

This paper does not introduce a new overall architecture of Epistemics. It develops a local, system-internal elaboration of the question of how different modes of reality can be described from the standpoint of validity, stability, stress, and friction. The proposed framework does not replace the general core of Epistemics, but sharpens a stronger conceptual reading for a specific problem field.

At the general level, the issue initially concerns different orders and spaces of validity. They differ in that claims within them can be meaningfully assessed under different conditions, require different forms of stabilization, and fail at different boundaries. At a stronger interpretive level, certain such orders can be described as physicses. The term “physics” is not used here merely as the name of a scientific domain of objects, but as a designation for orders in which stability cannot be suspended arbitrarily, in which resistance occurs, and in which limits of stress become readable as boundary signals (Simon 1962; Hacking 1983).

When what follows speaks of subjective, intersubjective, and functional-empirical physics, this introduces neither new ontologies nor competing worldviews. What is meant is a local explication of different modes of reality from the standpoint of their respective constraints of stability, resistances, and forms of friction. Talk of “physicses” thus condenses a more general difference among orders and spaces of validity rather than replacing it.

To sustain these differences, it must first be clarified within which order a claim can meaningfully be assessed at all. This question concerns validity. Only within clarified validity can one investigate whether a claim remains stable under relevant stresses. In this context, truth ascriptions, if they are meaningful at all, are meaningful only secondarily, not as a prior ontological correspondence conception of truth, but as a derived statement about whether a valid claim withstands stress (Putnam 1981; Rapp 2025a).

The limits of such stability do not necessarily appear as permanent disturbance, but they do appear as a structurally unavoidable possibility. Whenever stability is claimed under finite conditions, it may encounter limits of stress. In this paper, friction initially designates the epistemically readable boundary signal of such limited viability. It is neither an ontological principle in its own right nor merely a contingent loss through resistance, but makes visible where models, orders, or claims about reality encounter their limits of stress (Taleb 2012; Rapp 2026c).

The clarification of these conditions is undertaken by Epistemics as a prior framework of clarification. It is not itself another physics, nor an additional domain of reality. Its task is to clarify the conditions under which different orders become distinguishable, assessable, and limited in scope. In this sense, Epistemics does not stand opposite the physicses described below as a competing instance, but functions as their framework of clarification.

The aim of this paper is not to design a new metaphysics, to develop a comprehensive theory of truth, or to present a complete overall classification of all forms of reality. Rather, it seeks to sharpen a particular ordering problem epistemically: How can different modes of reality be distinguished in such a way that their respective conditions of validity, forms of stability, and boundary signals become visible without ontologically unifying them or reducing them to a single matrix of assessment?

The framework proposed here is connected to the theory of relative reality. That theory understands reality not as a binary ontological predicate, but as a graded and domain-specific status along the lines of experiential immediacy, intersubjective stability, and functional effectiveness. Accordingly, talk of subjective, intersubjective, and functional-empirical physics does not introduce a new doctrine of reality, but explicates differences already present from the standpoint of stability, stress, and friction. The aim is not to redefine the concept of reality, but to make visible how different modes of reality appear in epistemic practice as different spaces of stress and stability (Rapp 2025b).

The present paper thus understands itself as a local, system-internal elaboration of an RRT-compatible model of order. It shifts the focus from the question of whether something is real as such to the question of within which order, under which conditions of validity, and within which limits of stress a claim about reality can be meaningfully assessed. Only on this basis can it subsequently be determined which forms of stability arise, which boundary experiences become readable as friction, and how different modes of reality can be coordinated epistemically.

2. Epistemics as the Meta-Framework of Reality

Before different modes of reality can be described as different physicses of stability, it must be clarified under what conditions claims can meaningfully be made, assessed, and limited at all. This clarification is not itself a contribution to a further physics, but concerns the conditions of knowing. The framework required for this is referred to below as Epistemics (Rapp 2026b).

Epistemics is not an instance of practical ultimate decision. It establishes neither political, ethical, nor existential priorities, but clarifies decision situations, conflicts, ranges, and limits. It does not replace practice, but makes visible what different claims rely on, where they are viable, and where their scope ends (Goldman 1999; Lackey 2008).

In this determination, Epistemics differs both from classical epistemology and from ontology. It does not ask primarily about the conditions of justification for individual knowledge claims, nor about what is in the ultimate sense. Its focus lies instead on the analysis of models, validity, stabilization, friction, and revision under finite conditions. The point of departure thus shifts from the question of being or of the truth of individual statements to the question of the conditions under which orders become viable, assessable, and limited at all (Carnap 1950; Rorty 1979; Floridi 2011).

Within the framework of Epistemics, the issue is not knowledge as a mere stock of individual contents, but models under finite conditions. Knowledge does not operate directly on reality, but through selective, simplifying, and robust orders of access. Models reduce complexity, structure relevance, and make it possible in the first place for observations, descriptions, and claims to appear in assessable form. This model-bound character is not a deficit, but a basic condition of finite knowledge (Hacking 1983; Giere 2006; Parker 2020; Rapp 2025a).

For the problem pursued here, the question of validity is decisive above all. Before it can be investigated whether a claim remains stable, becomes frictional, or must be revised, it must be clarified within what context it is meaningfully assessable at all. In this sense, validity does not yet designate truth, nor stability, but rather the prior order of assessability. It clarifies within which order a claim can be formulated in such a way that stress, viability, and boundary determination can be meaningfully analyzed (van Fraassen 1980; Rapp 2025a).

Only within clarified validity does the question of stability arise. Stability here designates the resilience of a claim, model, or order under the relevant demands in each case. It is therefore not a general property of statements, but a relational determination within a specific context of assessment. Within this framework, truth ascriptions remain secondary and functionally relieved; the task of Epistemics is not to provide a theory of truth, but to clarify validity, stabilization, and limitation in such a way that categorical confusions are avoided (Putnam 1981; Rapp 2025a).

In this paper, Epistemics thus combines four basic functions. First, it clarifies validity, that is, the conditions of meaningful assessability. Second, it describes stabilization, that is, the way in which models and orders become viable under finite conditions. Third, it makes friction visible as a readable boundary signal by which limits of stress, overextensions, or conflicts become recognizable. Fourth, it opens the space for revision when it becomes apparent that a model, order, or claim does not remain viable under relevant demands (Kuhn 1962; Oreskes, Shrader-Frechette, and Belitz 1994; Rapp 2025a; Rapp 2026c).

In this context, friction is neither an autonomous principle of effectiveness nor a mere case of disturbance. It initially designates the epistemically readable boundary signal at which it becomes visible that models, orders, or claims of validity are coming under pressure. Its function here is not yet to explain a comprehensive dynamics of selection or transformation, but to make limitations readable. Only on this basis can it later be determined more precisely what role friction plays within different physicses (Taleb 2012; Rapp 2026c).

It is precisely this self-limitation that is decisive for the present paper. Epistemics provides neither an ultimate grounding of reality nor an ontology of the real. It does not answer the question of why reality or knowledge exists at all. Rather, it clarifies the conditions under which models, orders, and claims about reality can meaningfully be distinguished, assessed, and limited under finite conditions. This limitation is not a deficiency, but the prerequisite for analyzing different modes of reality without premature reduction or hidden hierarchization (Rorty 1979; Giere 2006; Rapp 2025a).

Against this background, the talk introduced below of subjective, intersubjective, and functional-empirical physics can be situated more precisely. It does not designate an independent refounding of the framework of Epistemics, but a local elaboration within this framework of clarification. Only because validity, stabilization, friction, and limitation are clarified epistemically can different modes of reality, in a next step, be described as different spaces of stability and stress.

3. The Three Physicses of Reality

On the basis of Epistemics as a framework of clarification, reality can no longer be adequately described as a unified domain of objects. Different modes of reality follow different conditions of assessability, stabilization, and limitation. At this more general level, the issue initially concerns different orders and spaces of validity. The present paper further introduces a stronger local reading: certain such orders can be described as physicses insofar as non-arbitrarily suspendable constraints of stability, resistances, and characteristic boundary signals occur within them (Giere 2006; Rapp 2025b).

The term “physics” is therefore used here not in a disciplinary sense, but in a structural-theoretical one. It designates neither an ontological domain of objects nor simply a domain in the general sense. What is meant instead is a condensed description of those orders in which stability is produced, maintained, and driven to its limits under relevant stresses. Physics, in this extended sense, is spoken of only where real resilience, resistance, and friction stand analytically at the center. The term is thus not intended to appropriate the scientific concept of physics, but to mark a family of orders in which non-arbitrarily suspendable limits of stress become epistemically relevant (Hacking 1983; Simon 1962).

The subjective, intersubjective, and functional-empirical physics distinguished below therefore introduce no new ontologies. Nor do they designate competing worldviews or complete classes of objects. What is meant instead are three locally distinguished ways of analyzing real orders of stability and stress. Talk of “physicses” therefore replaces neither the more general logic of domains nor that of validity within the framework of Epistemics, but condenses it for this problem field.

The difference among these three physicses arises not primarily from different objects, but from different forms of validity, stabilization, resilience, and boundary formation. In each of these physicses, one may ask under what conditions a claim is meaningfully assessable, what sustains stability, which stresses are relevant, and at which boundary signals overextension or failure become visible. It is precisely these differences that make it possible to speak of different physicses of reality without claiming a new overall articulation of Epistemics.

3.1 Subjective Physics: Regularities of Experience

Subjective physics describes those structural conditions under which experience remains stable, connectable, and resilient under finite conditions. These include, for example, limited attention, temporal ordering capacity, decidability, emotional resilience, and minimal coherence of meaning. These conditions are not arbitrarily available. They impose real limits on experience and, under stress, generate characteristic forms of resistance (Wittgenstein 1953; James 1907).

What is important here is that subjective physics is not to be understood as the psychology of individual contents. It describes neither individual dispositions nor the totality of a subject's inner states. What is meant instead is the analysis of the structural conditions under which experience remains sustainable at all or reaches limits of stress. Subjective physics therefore concerns not the variety of what is experienced, but the regularities under which experience as such can gain or lose stability.

In this physics, friction appears, for example, as overload, inner tension, exhaustion, inability to decide, or loss of meaning. Such phenomena are not mere contents of experience, but boundary signals that the conditions of stable experience are coming under pressure. In this sense, subjective physics designates a real order of stress, even if its boundary signals cannot simply be externalized or instrumentally measured (Rapp 2026c).

Subjective reality is therefore not merely private in a trivial sense, nor epistemically irrelevant. It possesses real effectiveness because its conditions of stability cannot be suspended arbitrarily. Where these conditions are exceeded, characteristic forms of friction appear. Subjective physics thus designates not a metaphysics of an inner world, but a locally determinable order of finite resilience in the domain of experience.

3.2 Intersubjective Physics: Regularities of Social Order

Alongside the subjective order of stress, there exists a second form of real stability that is neither individual nor natural-scientific in the narrow sense: social order. Law, money, roles, institutions, responsibility, authority, or status are not merely contingent agreements, but resilient social realities with their own persistence and their own boundary forms. For that reason, they can be described, in the sense used here, as intersubjective physics (Searle 1995; Luhmann 1984).

The concept of intersubjective physics used here, however, is not equivalent to a classical social ontology. The primary issue is not the question of the ontological status of social facts, but rather how social orders gain stability, respond under stress, and become readable through characteristic boundary signals. The analytical emphasis thus lies not on the being of social facts, but on the conditions of their resilient effectiveness, their logic of reproduction, and their susceptibility to friction (Searle 1995; Goldman 1999; Fricker 2007).

What is decisive is that intersubjective stability must not be confused with mere convention or voluntariness. Social orders generate real constraints because they structure expectations, spaces of action, sanctions, and forms of coordination. They continue to operate even when individual actors subjectively deny them or withdraw their consent. It is precisely here that it becomes visible that social order is not merely a collection of shared opinions, but an autonomous order of stress and effectiveness.

Its stability rests, for example, on recognition, coherence of expectations, legitimacy, institutional reproduction, and resilient connectivity among actors. Where these conditions erode, characteristic boundary signals appear: loss of trust, norm violation, failures of coordination, exclusion, disintegration, or crises of legitimation. Such phenomena are not merely moral or political evaluations, but indications that intersubjective physics is reaching limits of stress (Luhmann 1984; Fricker 2007; Lackey 2008).

Intersubjective physics is thus reducible neither to individual psychology nor to functional-empirical processes in the narrower sense. Although it is intertwined with both, its stability follows a logic of its own. Its constraints cannot readily be described in terms of natural law, but they are nonetheless real, persistent, and associated with costs. For precisely this reason, it is analytically meaningful to treat social order not merely as a community of interpretation, but as a specific order of stability and stress.

3.3 Functional-Empirical Physics: Regularities of Functional Effectiveness

Functional-empirical physics describes those forms of real effectiveness in which stability appears as resilient resistance to intervention, neglect, or reinterpretation. Its hallmark is not measurability as such, but the fact that certain structures, processes, or conditions cannot be suspended arbitrarily under relevant demands. Where functional-empirical physics is present, reality enforces resistance (Hacking 1983; Oreskes, Shrader-Frechette, and Belitz 1994).

Empirical physics in the narrower natural-scientific sense constitutes a paradigmatic special case within this broader category. It is distinguished by the fact that its stabilities are measurable, reproducible, and mathematically formalizable to a particularly high degree. From this, however, no ontological priority follows over subjective or intersubjective physics. The special status of empirical physics in the narrower sense is to be understood epistemically: in many contexts, its claims are especially well assessable intersubjectively and especially well usable technically (van Fraassen 1980; Oreskes, Shrader-Frechette, and Belitz 1994; Parker 2020).

A claim or phenomenon is functional-empirical, then, not because it can be described scientifically, but because resilient effectiveness under resistance is evident within it. This includes, for example, energy requirements, scarcity of resources, capacity limits, technical dependencies, material fatigue, time costs, or systemic constraints. Such structures remain effective not because they are recognized, but because under stress they impose real limits (Simon 1962; Hacking 1983).

For precisely this reason, it is meaningful to construe functional-empirical physics more broadly than the narrow concept of natural-scientific physics. Empirical physics in the narrower sense remains a paradigmatic and especially robust special case, but not the only domain in which functional effectiveness under resistance occurs. The broader category makes it possible to analyze technical, infrastructural, or resource-based constraints as well, without artificially narrowing their reality-character to the more restricted concept of nature. The limits of functional-empirical physics become visible where resilient effectiveness can indeed be described precisely, but where it does not yet follow from this how subjective structures of meaning or social orders are stabilized. It is precisely this limit that is epistemically important. It shows that high assessability and technical usability do not constitute a universal measure of all reality, but a specific strength within a particular type of order of stress.

3.4 Criteria of Distinction

The distinction among the three physicses thus rests not on different classes of objects, but on different forms of validity, stabilization, resilience, and boundary signals. Subjective physics is relevant where claims must be assessed in relation to the structural conditions of stable experience. Intersubjective physics is relevant where social order, recognition, institutional persistence, and coordination are decisive. Functional-empirical physics is relevant where resilient effectiveness under resistance, resource commitment, or technical limitation stands at the center.

In practice, these physicses are often intertwined. A social system may be functional-empirically effective while at the same time subjectively or intersubjectively unstable. Conversely, subjective or intersubjective stabilities may be maintained even though they generate high functional-empirical costs. The physicses are therefore not separate worlds, but different ways of analyzing the same or overlapping phenomena. What is decisive is therefore not only what kind of phenomenon is present, but within which order a claim can meaningfully be assessed at all. The question of validity remains logically prior to the distinction among the physicses. Only once it has been clarified which physics is relevant to a claim can stability, stress, and friction be adequately determined. Many apparent conflicts arise not from contradictory findings, but from the fact that claims are assessed within an unsuitable physics (Giere 2006; Rapp 2025a).

The function of this chapter is therefore not to provide a complete classification of all forms of reality. Rather, it is meant to provide a local framework of order within which different modes of reality become visible as different orders of stability and stress. On this basis, the next step is to investigate how their limits emerge in the form of physics-specific frictions.

4. Friction as a Boundary Signal within the Physicses

Once different modes of reality have been determined as different orders of stability and stress, the question arises as to how their boundaries become epistemically visible. This visibility is not presuppositionless. Before friction can be analyzed, it must be clarified within which order a claim is meaningfully assessed at all. Only on the basis of such an assignment of validity can one investigate whether and how stability encounters limits under relevant stresses.

In this context, friction designates no principle of effectiveness in its own right, no additional ontology, and no universal world mechanism. Rather, what is meant is an epistemically readable boundary signal of limited viability. Friction indicates that a claim, model, or order, within a clarified validity-physics, is reaching limits of stress under relevant demands. It is therefore neither merely a disturbance nor already a comprehensive theory of real dynamics, but initially a diagnostic concept (Taleb 2012; Rapp 2026c).

Friction is therefore not simply equivalent to failure. It does not necessarily mark the end of an order, but makes visible where resilience must be assessed, exceeded, or reorganized. It is precisely here that its epistemic function lies. It does not show what reality is “in itself,” but where, under finite conditions, limitations become readable.

4.1 Friction Is Necessary, Not Contingent

In all three physicses, stability can be maintained only within limited bounds of viability. Friction is therefore not necessary as a permanent condition, but it is a structurally unavoidable possibility as soon as stability is claimed under finite conditions. Where claims are to be resilient, they can encounter limits under relevant demands (Simon 1962; Taleb 2012; Rapp 2026c).

This determination is important because it avoids two misunderstandings. First, friction is not merely a contingent loss through resistance that could disappear completely under better design. Second, however, it is also not an omnipresent defect that fundamentally destroys every order. Rather, it designates the possibility that stability becomes assessable under stress and thereby also limitable.

Local reduction of friction remains possible in all physicses. Technical optimization, institutional stabilization, or subjective routinization can shift limits of stress and reduce certain tensions. Such reductions, however, do not alter the basic function of friction as a boundary signal. They show only that orders can reorganize their viability to a certain degree without abolishing the finitude of their resilience.

4.2 Physics-Specific Forms of Friction

Although friction appears as a boundary signal in all physicses, it takes different forms in each case because the underlying logics of stability also differ.

In subjective physics, stability is sustained by the structural conditions of sustainable experience. Typical stresses here concern attention, decidability, emotional resilience, temporal ordering capacity, or coherence of meaning. Accordingly, friction becomes visible as overload, inner tension, exhaustion, decision paralysis, or loss of meaning. Such phenomena indicate that the conditions of stable experience are reaching their limits (James 1907; Wittgenstein 1953; Rapp 2026c).

In intersubjective physics, stability is sustained by social recognition, coordination, legitimacy, and institutional reproduction. Here, stresses concern such things as broken expectations, loss of trust, norm violations, or the erosion of shared orders. Accordingly, friction appears as conflict, disintegration, exclusion, failure of coordination, or crisis of legitimation. These phenomena indicate that social order is losing its resilient form, or can be maintained only at rising cost (Luhmann 1984; Fricker 2007; Lackey 2008).

In functional-empirical physics, stability is sustained by resilient effectiveness under resistance. Here, stresses concern such things as energy expenditure, material limits, scarcity of resources, capacity problems, time costs, or technical overload. Accordingly, friction appears as fatigue, delay, inefficiency, disturbance, overload, or physical limit. Here friction is especially quantifiable, but not thereby conceptually more fundamental than in the other physicses (Hacking 1983; Oreskes, Shrader-Frechette, and Belitz 1994; Parker 2020).

The comparison of these forms makes especially clear that friction does not designate a uniform phenomenon in the material sense. What makes these forms comparable is not identical causes, but their shared function: in every case, friction makes visible that stability within a particular order is reaching limits of stress.

4.3 The Epistemic Readability of Friction

Friction is epistemically readable because it indicates that a claim, model, or order is coming under pressure within its validity-physics. Its readability does not consist in directly pronouncing an ontological truth about reality, but in making visible limits of viability, cost development, and stabilization. Friction is therefore not merely a signal of limitation, but also an indication that stability under stress can be maintained only with growing effort, possibly rising disproportionately. Precisely in this way, it becomes visible which stresses are actually relevant for an order, what its core of stability depends on, and under what conditions revision, reorganization, or abandonment become more likely. What is important here is not to detach friction from the question of validity. The occurrence of a tension, resistance, or disturbance is not yet sufficient to determine its epistemic status. Only once it has been clarified within which physics a claim is to be meaningfully assessed at all can one say whether a particular appearance is to be read as relevant friction. Without this assignment of validity, the diagnosis remains categorically indeterminate. Friction thus makes visible not only difficulties, but also the structure of the costs under which stabilization operates.

Beyond its diagnostic function, friction also has a selective significance over time. Where different models, orders, or practices generate different cost profiles under repeated stress, some remain sustainable while others are transformed, abandoned, or displaced. In this sense, friction is not an ontological world mechanism, but it is an epistemically readable selection variable of finite stabilization. It does not explain reality as such, but makes visible why certain patterns of stabilization persist under stress while others reach their limits (Rapp 2026c).

4.4 Friction and Model-Dependence

Friction does not emerge independently of models. It becomes epistemically visible only where models, orders, or claims make a claim to stability at all. A given state may appear highly problematic within one model, while within another it counts as expected or viable. In this sense, friction is visible in a model-relative way (Giere 2006; van Fraassen 1980).

This does not imply, however, that friction is merely arbitrarily constructed. Models determine what is attended to, which stresses count as relevant, and where limits are diagnosed. But they do not arbitrarily produce the resistances at which they may fail. Friction is therefore neither purely objective in the sense of model-free givenness nor purely subjective in the sense of arbitrary attribution. It is epistemically mediated, but not arbitrarily available.

At precisely this point, the present approach distances itself both from naive objectivism and from mere relativism. Friction is not simply given independently of models, but neither is it merely a product of arbitrary attribution. Rather, it becomes visible in epistemically mediated form, namely where models make stress profiles readable and are simultaneously assessed against real limits of their viability. The approach therefore claims neither immediate access to pure reality nor the complete constructedness of all boundary experiences, but rather a model-mediated readability of resilient limitations (Giere 2006; Hacking 1983; Rapp 2025a).

It is precisely this mediation that explains why friction can be read differently across historical, cultural, or institutional contexts without thereby losing its structural relevance. What is decisive is not to avoid friction altogether, but to clarify which model makes which stress profiles visible, and under what conditions a recognized friction points to model limits, order limits, or an inappropriate assignment of validity.

4.5 Friction as a Limitation of Arbitrariness

Friction limits the expansion of claims because it makes visible that stability is neither cost-free nor indefinitely available. Where models, orders, or claims about reality reach limits under stress, it becomes apparent that not every assertion, every order, and every practice remains arbitrarily sustainable. Friction therefore functions not only negatively as a signal of disturbance, but positively as a condition for distinguishing viable from unviable patterns of stabilization in the first place.

In this sense, friction has an ordering function. It shows that stabilization requires effort, that stresses generate different cost profiles, and that order cannot be secured by mere stipulation. Precisely because friction makes readable where stabilization under load becomes costly, fragile, or in need of revision, it prevents claims of validity from collapsing into arbitrariness. Order is therefore not the condition without friction, but the condition in which friction is processed in such a way that stability remains sustainable under relevant stresses (Rapp 2026c; Taleb 2012).

This ordering function, however, must not be exaggerated. Friction does not provide a complete theory of order, nor a normative ultimate instance. It does not itself decide which order is to be preferred politically, ethically, or existentially. It merely makes visible that every order remains bound to conditions, that stabilization generates costs, and that under finite conditions not every form of order is equally viable.

4.6 Conflicts between Physicses and Epistemic Coordination

Because the different physicses each possess their own logics of stability and their own boundary forms, their claims may come into conflict in concrete situations. Such conflicts are not a sign of theoretical inconsistency, but a consequence of plural orders of limited viability. They should therefore neither be prematurely ontologically unified nor trivialized as mere misunderstandings.

The epistemic handling of such conflicts begins with the assignment of validity. First, it must be clarified within which physics each respective claim can meaningfully be assessed at all. This is followed by the question of what form of stability is relevant within that physics and by what boundary signals or frictions it becomes visible. Only then can trade-offs be made visible, that is, those situations in which stability in one physics can be maintained only at the cost of another.

The function of Epistemics here is not to decide these conflicts in practice. It replaces neither political prioritization nor ethical weighing nor existential commitment. Its task is to make the decision situation explicit, to disclose its presuppositions, and to keep the respective profiles of stress and friction articulable (Goldman 1999; Lackey 2008; Rapp 2025a).

It is precisely here that the difference between epistemic coordination and practical decision lies. Epistemics makes conflicts between physicses readable; it does not decide them in place of practice. On this basis, it also becomes understandable why classical metaphysics was historically expected again and again to assume functions of boundary clarification, unification, and interpretation of order. The next chapter must therefore examine how these functions can be epistemically redistributed under the conditions developed here.

5. Metaphysics: Functional Redistribution Instead of Ontological Replacement

The analysis thus far suggests that many problems traditionally assigned to metaphysics have not disappeared, but must be reordered. Classical metaphysics was supposed to clarify what is real, how different regions of reality are connected, and where the limits of knowledge lie. Yet it is precisely at these points that it has come under increasing pressure within modern scientific discourse. Ontological ultimate claims, speculative assumptions of unity, and unclear jurisdictional boundaries have weakened its epistemic sustainability (Carnap 1950; Rorty 1979; Putnam 1981).

The framework developed here therefore does not aim simply to replace metaphysics with a new ontological system. Instead, it seeks to redistribute certain classical functions of metaphysics epistemically. This concerns above all boundary clarification, the description of order, and a limited form of structural unification. Other questions, especially normative, existential, or ultimate why-questions, are not thereby resolved, but are consciously kept outside the scope of this paper.

5.1 Boundary Clarification without Ultimate Grounding

A central function of metaphysics consisted in addressing the limits of knowledge and reality. In the framework proposed here, this function is reanchored not ontologically but epistemically. Epistemics clarifies under what conditions claims are meaningfully assessable, how their validity is determined, and at which points their viability is limited. Friction thereby functions as a readable boundary signal of such limitation, not as a metaphysical abyss and not as an indication of a hidden being behind the orders (Carnap 1950; Floridi 2011; Rapp 2026c).

What is decisive is that this boundary clarification dispenses with ultimate groundings. The paper does not answer the question of why reality or knowledge exists at all. It merely clarifies under what conditions statements about different modes of reality can be meaningfully formulated, assessed, and limited. It is precisely this self-limitation that prevents epistemic boundaries from being reinterpreted as ontological deficiencies.

5.2 Unity through Structure Rather than Being

Metaphysics traditionally often sought a unity of reality, understood as a common substance, ultimate principle, or general order of being. The framework developed here does not replace this search with an alternative ontology, but with a weaker, structural form of unity. What is meant is not a unity of being, but the comparability of different orders from the standpoint of validity, stabilization, limitation, and friction (Putnam 1981; Goodman 1978).

Subjective, intersubjective, and functional-empirical physics do not form an ontologically unified world-structure. They are, however, mutually relatable insofar as in all cases one can ask within which order claims are valid, what sustains stability, and by what signs limits of stress become visible. Unity here therefore arises not through reduction to a common essence, but through the structural comparability of different orders of stability and boundaries.

This form of unity remains deliberately limited. It establishes no metaphysical overall order, but only an epistemic connection within which different modes of reality can be coordinated and distinguished from one another.

5.3 Order without Ontologization

Another classical concern of metaphysics was the explanation of order. Why does reality not appear as mere chaos, but as articulated and resilient structure? In the framework proposed here, order is not understood as a metaphysical ground of the world, but as the result of stabilized orders under finite conditions (Simon 1962; Luhmann 1984).

In this sense, order is neither absolute nor arbitrary. It arises where claims, models, or practices gain stability within certain contexts of validity and remain viable under stress. Friction makes visible that this order is not presuppositionless, but remains bound to conditions. It is precisely thereby that order can be explained without ontologically absolutizing it, and criticized without dissolving it into mere arbitrariness.

The difference from ontologization is decisive here. The fact that order is stabilized and practically effective does not yet justify its reinterpretation as a general or ultimate claim about reality. The paper therefore does not explain why order exists “in itself,” but how different orders become resilient under conditions of validity, stabilization, and friction (Rapp 2026e).

5.4 What Deliberately Remains Open

Not all questions traditionally assigned to metaphysics are addressed by this framework. Existential questions of meaning, normative commitments, and ultimate why-questions deliberately remain open. They can be derived neither from Epistemics nor from the physicses distinguished here without exceeding the jurisdictional boundaries of this paper.

This openness is not a deficiency, but part of the methodological limitation. The paper claims neither to solve the question of the meaning of the whole nor to derive normative orders from analyses of stability. Nor does it attempt to provide ultimate grounds of reality, consciousness, or being. Its claim is narrower: it aims to make visible how different modes of reality can be epistemically distinguished and described in terms of their viability.

5.5 The Philosophical Gain of Functional Redistribution

The gain of this shift lies not in a new ultimate grounding, but in greater conceptual precision. Subjective experience, social order, and functional-empirical effectiveness can be taken seriously without being reduced to a single matrix of assessment or pushed into a vague metaphysical residual category.

This framework is philosophically productive above all because it separates boundary work, the description of order, and the coordination of different claims more clearly from one another. It does not replace metaphysics with a new total system, but redistributes certain classical functions in a more methodologically controlled way. What is thereby gained is less depth in the speculative sense than greater clarity regarding which questions can be meaningfully addressed in which context, and where conceptual overextensions begin (Carnap 1950; Giere 2006; Rapp 2025a).

6. Differentiating Reality, Relieving Metaphysics

This paper began from the observation that the classical distinction between physics and metaphysics has often become too coarse for describing contemporary epistemic practice. It forces one either to narrow reality to what is empirically measurable or to relegate non-empirical forms of effectiveness to a vague metaphysical residual domain. Both obscure the fact that different modes of reality are valid under different conditions, remain stable in different ways, and reach limits in different ways (Carnap 1950; Putnam 1981; Giere 2006).

In contrast, a local framework of order was proposed. At the more general level, the issue concerns different orders of validity and stabilization. On a stronger, paper-internal reading, such orders can be described as subjective, intersubjective, and functional-empirical physicses, insofar as they exhibit non-arbitrarily suspendable resistances, limits of stress, and characteristic forms of friction. These physicses designate neither new ontologies nor an alternative basic architecture of Epistemics. They serve to sharpen locally the question of how different modes of reality can be distinguished epistemically under conditions of finite viability (Rapp 2025b; Rapp 2026a).

The precondition for this differentiation is Epistemics as a framework of clarification. It does not stand alongside the physicses as a world of its own, but clarifies within which order claims can be meaningfully assessed at all, how stabilization is to be described, and by what signs limitation becomes readable. Validity is logically prior here. Only within clarified validity can stability, stress, and friction be meaningfully determined (van Fraassen 1980; Rapp 2025a).

In this context, friction was determined neither as a defect nor as a universal world mechanism, but as an epistemically readable boundary signal of limited viability. It makes visible where claims, models, or orders reach limits under relevant stresses. Precisely thereby, it makes it possible to compare different modes of reality without reducing them to a single form of assessability (Taleb 2012; Rapp 2026c).

Against this background, the status of metaphysics was also redetermined. The paper does not replace metaphysics with a new ontological system. Rather, it redistributes some of its classical functions, especially boundary clarification, limited structural unification, and the description of order. Other questions, such as normative, existential, or ultimate why-questions, deliberately remain open and are not brought within the jurisdiction of this framework (Carnap 1950; Rorty 1979).

Scientifically, then, this paper claims not to provide an ontological total design, but a locally deployable epistemic apparatus of analysis. Its contribution consists in rendering different modes of reality distinguishable not through a common ground of being, but through their respective conditions of validity, forms of stability, profiles of stress, and boundary signals. This is also where its difference from purely metaphysical, purely naturalistic, or merely pluralistic models lies: it reconstructs real orders of effectiveness functionally without ontologically unifying them or reducing them to a single form of assessability (Giere 2006; Floridi 2011; Rapp 2025a).

The yield of this perspective lies not in a complete theory of all forms of reality, but in a more precise distinction among different orders of validity, stability, and stress. The paper therefore understands itself not as a new overall architecture of Epistemics, but as a local, system-internal elaboration of a problem of differentiating reality. It is precisely here that its strength lies: it makes explicit under what conditions different claims about reality can be meaningfully assessed, coordinated, and limited in their scope.

Conceptual Canon of This Paper

The following conceptual canon serves to stabilize central meanings within this text. It is employed where the argumentation of this paper requires an explicit conceptual reference basis. It makes no claim to completeness or final systematicity. Terms not listed here either do not belong to the functional core of this paper or are addressed within the framework of the basic canon of Epistemics or in separate works.

The conceptual canon is to be understood as the explicitly stabilized reference basis of this paper. It forms the point of departure for the conceptual work of this text, but is not to be understood as a formally obligatory structure of every Epistemics paper. Changes, refinements, or extensions of the canon are possible in principle, but must be explicitly identified, locally delimited, and justified. Implicit shifts of meaning, silent extensions, or retroactive reinterpretations are excluded.

With the following terms, this paper does not introduce a new basic architecture of Epistemics. The paper-specific extensions serve exclusively the local explication of a particular problem field, namely the analysis of different modes of reality from the standpoint of validity, stability, stress, and friction. They do not alter the basic canon of Epistemics and replace neither its general core concepts nor the more general domain logic of the overall project.

Adoption of the Basic Canon of Epistemics

This paper adopts the conceptual canon defined in the foundational paper of Epistemics as its unchanged reference basis. The terms introduced there are used without reinterpretation and without implicit shifts in their functional meaning. This paper introduces no divergent definitions of the adopted canonical terms.

Adoption of Friction- and Ontologization-Specific Canon Extensions

Insofar as this paper uses terms from the papers Friction: Boundary Signal of Finite Load-Bearing Capacity in Subjective, Intersubjective, and Functional-Empirical Stability Spaces and Ontologization as an Epistemic Basic Operation, those terms are used exclusively in the sense defined there. This paper introduces no modifications or refinements of those extension canons.

Canonical Deviations or Modifications

This paper introduces no deviations from, modifications of, or refinements to the basic canon of Epistemics. All adopted canonical terms are used strictly in the sense of the foundational paper.

Paper-Specific Canon Extensions

Physics (in the extended sense)
Short definition: Condensed description of an order-context in which non-arbitrarily suspendable constraints of stability, resistances, and characteristic boundary signals occur.
Function: Serves the stronger explication of those orders in which resilience, friction, and limited load-bearing capacity stand analytically at the center.
Delimitation: Not an ontological domain of objects; not a mere synonym for domain; not natural-scientific physics in the narrower sense.

Physics of reality
Short definition: A local form of analysis of a mode of reality from the standpoint of validity, stabilization, resilience, and friction.
Function: Makes it possible to describe subjective, intersubjective, and functional-empirical modes of reality as different orders of stability and stress.
Delimitation: Not a new kind of reality; not a competing ontology; not a complete overall articulation of Epistemics.

Subjective physics
Short definition: Physics of reality in which the structural conditions of stable experience under finite conditions stand at the center.
Function: Describes under what conditions experience becomes resilient, connectable, or susceptible to friction.
Delimitation: Not a psychology of individual contents; not a mere inner perspective; not empirical measurement physics.

Intersubjective physics
Short definition: Physics of reality in which social order is stabilized through recognition, coordination, legitimacy, and institutional persistence.
Function: Permits the analysis of social effectiveness as a real order of stability and stress with its own boundary signals.
Delimitation: Not mere convention; not a purely opinion-based community; not law-governed natural physics.

Functional-empirical physics
Short definition: Physics of reality in which resilient effectiveness under resistance, resource commitment, and functional limitations stands at the center.
Function: Describes those orders in which real limits remain effective independently of subjective consent or social recognition.
Delimitation: No ontological priority over subjective or intersubjective physics; not restricted to natural-scientific physics in the narrower sense.

Empirical physics (in the narrower sense)
Short definition: A special case of functional-empirical physics, characterized by high measurability, reproducibility, and mathematical formalizability.
Function: Marks the especially robust subdomain of functional-empirical assessability.
Delimitation: Not a universal standard of all reality; not the total form of all effectiveness.

Validity-physics
Short definition: The particular physics of reality within which a claim can be meaningfully formulated and assessed.
Function: Operationalizes the prior question of validity within the context of this paper.
Delimitation: No statement about the importance, priority, or truth of a claim.

Physics-specific stability test
Short definition: The bundle of relevant forms of stress by which it is assessed whether a claim or an order remains viable within a particular physics.
Function: Clarifies that stability can be determined only within clarified validity and only relative to physics-specific stress profiles.
Delimitation: Not a universal criterion of truth; not an identical matrix of assessment across physicses.

Physics coordination
Short definition: The epistemic explication of conflicts between different physicses through assignment of validity, stability testing, and trade-off marking.
Function: Permits the analysis of plural claims about reality without prematurely ontologically unifying them or deciding them practically.
Delimitation: Not an instance of truth; not a political, ethical, or existential ultimate decision.

Canonical Status and Scope of Application

The paper-specific terms introduced in this paper constitute an explicit canonical extension of the framework of Epistemics. They are stabilized for the scope of application of this paper and may be used as reference terms in subsequent works, provided that their use is explicitly identified as such.

No silent extension, reinterpretation, or retroactive modification of the basic canon of Epistemics takes place. The core canon remains unchanged in meaning, function, and delimitation.

The terms introduced here make no claim to an independent reorganization of the overall project. They serve a local, system-internal explication of the differentiation of reality addressed in this paper and are to be read accordingly in this limited sense.

Any future deviation from, refinement of, or further extension of the canon is subject to the meta-rule of canonical development established in the foundational paper of Epistemics. It must be explicitly identified, locally delimited, and justified. Implicit shifts of meaning or informal extensions of the canon are excluded.

References

Carnap, Rudolf. 1950. “Empiricism, Semantics, and Ontology.” Revue Internationale de Philosophie 4 (11): 20–40.

Floridi, Luciano. 2011. The Philosophy of Information. Oxford: Oxford University Press.

Fricker, Miranda. 2007. Epistemic Injustice: Power and the Ethics of Knowing. Oxford: Oxford University Press.

Giere, Ronald N. 2006. Scientific Perspectivism. Chicago: University of Chicago Press.

Goldman, Alvin I. 1999. Knowledge in a Social World. Oxford: Oxford University Press.

Goodman, Nelson. 1978. Ways of Worldmaking. Indianapolis: Hackett.

Hacking, Ian. 1983. Representing and Intervening. Cambridge: Cambridge University Press.

James, William. 1907. Pragmatism: A New Name for Some Old Ways of Thinking. New York: Longmans, Green, and Co.

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

Lackey, Jennifer. 2008. Learning from Words: Testimony as a Source of Knowledge. Oxford: Oxford University Press.

Luhmann, Niklas. 1984. Soziale Systeme. Frankfurt am Main: Suhrkamp.

Oreskes, Naomi, Kristin Shrader-Frechette, and Kenneth Belitz. 1994. “Verification, Validation, and Confirmation of Numerical Models in the Earth Sciences.” Science 263 (5147): 641–646.

Parker, Wendy S. 2020. Modeling and Evidence. Cambridge: Cambridge University Press.

Putnam, Hilary. 1981. Reason, Truth and History. Cambridge: Cambridge University Press.

Rapp, Stefan. 2025a. Contextual and Global Falsification of Scientific Models: An Integrated Theory of Epistemic Validity. Zenodo. https://doi.org/10.5281/zenodo.17714966.

Rapp, Stefan. 2025b. Relative Reality Theory: Degrees of Reality, Validity, and Stability in Fragmented Knowledge Environments. Zenodo. https://doi.org/10.5281/zenodo.18000510.

Rapp, Stefan. 2026a. Domains, Boundaries, and Transition Functions: On the Domain-Relative Validity, Migration, and Coupling of Models under Finite Conditions. Zenodo. https://doi.org/10.5281/zenodo.19542526.

Rapp, Stefan. 2026b. Epistemics: Model Management Under Finite Conditions. Zenodo. https://doi.org/10.5281/zenodo.18441326.

Rapp, Stefan. 2026c. Friction: Boundary Signal of Finite Load-Bearing Capacity in Subjective, Intersubjective, and Functional-Empirical Stability Spaces. Zenodo. https://doi.org/10.5281/zenodo.18434699.

Rapp, Stefan. 2026d. Beyond Physics and Metaphysics: Epistemics and the Differentiation of Reality into Subjective, Intersubjective, and Functional-Empirical Physics. Zenodo. https://doi.org/10.5281/zenodo.18317965.

Rapp, Stefan. 2026e. Ontologization as an Epistemic Basic Operation: Functional Stabilization, Intersubjectivity, and Malfunction. Zenodo. https://doi.org/10.5281/zenodo.18346602.

Rescher, Nicholas. 1977. Methodological Pragmatism. Oxford: Blackwell.

Rorty, Richard. 1979. Philosophy and the Mirror of Nature. Princeton: Princeton University Press.

Searle, John R. 1995. The Construction of Social Reality. New York: Free Press.

Simon, Herbert A. 1962. “The Architecture of Complexity.” Proceedings of the American Philosophical Society 106 (6): 467–482.

Taleb, Nassim Nicholas. 2012. Antifragile: Things That Gain from Disorder. New York: Random House.

van Fraassen, Bas C. 1980. The Scientific Image. Oxford: Clarendon Press.

Wittgenstein, Ludwig. 1953. Philosophical Investigations. Oxford: Blackwell.