

Metaphysical Fundamentality: Annotated bibliography

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Annotated bibliography on metaphysical fundamentality

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History of metaphysical fundamentality and grounding

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Bibliography

1. Amijee, Fatema. 2021. "Something from Nothing: Why Some Negative Existentials are Fundamental." In *Non-Being: New Essays on the Metaphysics of Nonexistence*, edited by Bernstein, Sara and Goldschmidt, Tyron, 50-68. Oxford: Oxford University Press.
"I proceed as follows. In section 1, I discuss motivations and arguments for the view—a view that I ultimately reject—according to which there can be no negative existentials at the fundamental level. In section 2, I show that there is good reason to include a totality fact in the explanans for any contingent negative existential.

- But totality facts are themselves contingent negative existentials, which makes it difficult to see how we might be able to avoid positing at least some negative existentials at the fundamental level. As part of my argument for the claim that some negative existentials are fundamental, in section 3 I argue against candidate alternative accounts for eliminating the tension between the claim that no negative existential is fundamental and the claim that every negative existential is partially explained by a negative existential. Finally, in section 4, I show that the arguments for not positing negative facts—and specifically totality facts—at the fundamental level are inadequate. This completes my case for the view that totality facts are fundamental." (pp. 52-53)
2. Babic, Joshua, and Cocco, Lorenzo. 2020. "A note on Dasgupta's Generalism." *Philosophical Studies* no. 177:2153–2162.
Abstract: "Dasgupta (*Philos Stud Int J Philos Anal Tradit* 145(1):35–67, 2009) has argued that material individuals, such as particles and laptops, are metaphysically objectionable and must be eliminated from our fundamental theories of the world. He proposes to eliminate them by redescribing all the fundamental facts of the world in a variant of predicate functor logic. We study the status, on this theory, of a putative fact particularly recalcitrant to a formulation within predicate functor logic: his own claim that there are no fundamental or primitive material individuals. We consider three regimentations of the denial of primitive individuals and show that—under some plausible hypotheses about fundamental truths and the fundamentality operator—they cannot be consistently translated in predicate functor logic by Dasgupta's usual strategy. We conclude by discussing two approaches to salvage Generalism, in the absence of such a translation."
References
Dasgupta, S. (2009). Individuals: An essay in revisionary metaphysics. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 145(1), 35–67.
 3. Bacon, Andrew. 2019. "Substitution Structures." *Journal of Philosophical Logic* no. 48:1017-1075.
"An increasing amount of twenty-first century metaphysics is couched in explicitly hyperintensional terms: concepts such as grounding, fundamentality and metaphysical priority can draw distinctions between necessarily equivalent propositions and properties.(1) While hyperintensionality in the philosophy of language is often taken to be merely a feature of our representations of the world, a prerequisite of hyperintensional metaphysics is that reality itself be hyperintensional. At the metaphysical level, propositions, properties, operators, and other elements of the type hierarchy, must be at least more fine-grained than functions from possible worlds to extensions. In this paper I develop, in the setting of type theory, a general framework for reasoning about the granularity of propositions and properties."
(1) 1See Nolan [27] for a helpful overview of this trend.
References
[27] Nolan, D. (2014). Hyperintensional metaphysics. *Philosophical Studies*, 171(1), 149–160.
 4. ———. 2020. "Logical Combinatorialism." *Philosophical Review* no. 129:537-589.
Abstract: "In explaining the notion of a fundamental property or relation, metaphysicians will often draw an analogy with languages. The fundamental properties and relations stand to reality as the primitive predicates and relations stand to a language: the smallest set of vocabulary God would need in order to write the 'book of the world'. In this paper I attempt to make good on this metaphor. In order to do this I introduce a modality that, put informally, stands to propositions as logical truth stands to sentences. The resulting theory, formulated in higher-order logic, also vindicates the Humean idea that fundamental properties and relations are freely recombinable and a variant of the structural idea that propositions can be decomposed into their fundamental constituents via logical operations. Indeed, it is

- seen that, although these ideas are seemingly distinct, they are not independent, and fall out of a natural and general theory about the granularity of reality."
5. Bader, Ralf M. 2020. "Fundamentality and Non-Symmetric Relations." In *The Foundation of Reality: Fundamentality, Space, and Time*, edited by Glick, David, Darby, George and Marmodoro, Anna, 15-45. Oxford: Oxford University Press. "The first part of this chapter argues that there are no non-symmetric relations at the fundamental level (Sections 1.2 and 1.2). The second part identifies different ways in which asymmetry and order can be introduced into a world that only contains symmetric but no non-symmetric fundamental relations (Section 1.4). The third part develops an account of derivative relations and puts forward identity criteria that establish that derivative non-symmetric relations do not have distinct converses. Instead of a plurality of relations, there are only different ways of picking out the same relation (Section 1.5). The final part provides an account of how generative operations can induce order and argues for a reconceptualisation of grounding as an operation rather than as a relation (Section 1-6)." (p. 16)
 6. Barker, Jonathan. 2022. "Against Purity." *Ergo: An Open Access Journal of Philosophy* :1-43.
Not yet published, preprint available at PhilArchive.
Abstract: "A fundamental fact is "pure" just in case it contains no grounded entity —ex. entities like Tokyo, President Biden, the River Nile, {Socrates}, and so on— among its constituents. Purity is the thesis that every fundamental fact is pure. Purity is popular among defenders of ground. Indeed, an entire corner of the grounding literature is devoted to one of Purity's implication that every grounding fact has a ground. Nevertheless, I argue that Purity is false. I argue that if every grounding fact has a ground, then at least one fundamental fact has a grounded constituent. Thus, if Purity is true, then it is false. Purity's falsity therefore follows via reductio. Moreover, in seeing why Purity is false, we will also be uncovering a powerful reason to think that at least some grounding facts are fundamental rather than grounded. I close by arguing that the facts about what grounds composition's occurrence are particularly good candidates for fundamental grounding facts."
 7. Barnes, Elizabeth. 2012. "Emergence and Fundamentality." *Mind* no. 121:873-901.
Abstract: "In this paper, I argue for a new way of characterizing ontological emergence.
I appeal to recent discussions in meta-ontology regarding fundamentality and dependence, and show how emergence can be simply and straightforwardly characterized using these notions. I then argue that many of the standard problems for emergence do not apply to this account: given a clearly specified meta-ontological background, emergence becomes much easier to explicate. If my arguments are successful, they show both a helpful way of thinking about emergence and the potential utility of discussions in meta-ontology when applied to first-order metaphysics."
 8. ———. 2014. "Fundamental Indeterminacy." *Analytic Philosophy* no. 55:339–362.
"In what follows, I will argue that a defender of indeterminacy needs to show that indeterminacy can be fundamental, but that her standard arguments, even if they work, only establish derivative indeterminacy (§1). I then move on to the case for fundamental indeterminacy, first giving a brief explanation of different ways we might characterize the idea that there is fundamental indeterminacy (§2) and then examining arguments for indeterminacy which (unlike standard arguments) if successful can establish fundamental indeterminacy (§3). I argue that the best strategy for motivating fundamental indeterminacy is to focus on its ability to increase theoretical expressiveness." (pp. 339-340)
 9. Barnes, Eric. 1994. "Explaining Brute Facts." *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* no. 1:61-68.

Abstract: "I aim to show that one way of testing the mettle of a theory of scientific explanation is to inquire what that theory entails about the status of brute facts. Here I consider the nature of brute facts, and survey several contemporary accounts of explanation vis a vis this subject (the Friedman-Kitcher theory of explanatory unification, Humphreys' causal theory of explanation, and Lipton's notion of 'explanatory loveliness'). One problem with these accounts is that they seem to entail that brute facts represent a gap in scientific understanding. I argue that brute facts are non-mysterious and indeed are even explainable by the lights of Salmon's ontic conception of explanation (which I endorse here). The plausibility of various models of explanation, I suggest, depends to some extent on the tendency of their proponents to focus on certain examples of explananda - I ponder brute facts qua explananda here as a way of helping us to recognize this dependency."

References

Friedman, M. (1974), "Explanation and Scientific Understanding", *Journal of Philosophy* 71: 5–19.

Humphreys, P. (1989), *The Chances of Explanation: Causal Explanations in the Social, Medical, and Physical Sciences*. Princeton: Princeton University Press.

Kitcher, P. (1981), "Explanatory Unification", *Philosophy of Science* 48: 507–531.

Kitcher, P. (1989), "Explanatory Unification and the Causal Structure of the World", in Kitcher, P. and Salmon, W.C., (eds.) *Minnesota Studies in the Philosophy of Science*, Vol. 13, *Scientific Explanation*, Minneapolis: University of Minnesota Press, pp. 410–505.

Lipton, P. (1991) *Inference to the Best Explanation*. London and New York: Routledge.

10. Baron, Sam, and Le Bihan, Baptiste. 2022. "Composing Spacetime." *Journal of Philosophy* no. 119:33-54.
Abstract: "According to a number of approaches in theoretical physics, spacetime does not exist fundamentally. Rather, spacetime exists by depending on another, more fundamental, non-spatiotemporal structure. A prevalent opinion in the literature is that this dependence should not be analyzed in terms of composition. We should not say, that is, that spacetime depends on an ontology of non-spatiotemporal entities in virtue of having them as parts. But is that really right? On the contrary, we argue that a mereological approach to dependent spacetime is not only viable, but promises to enhance our understanding of the physical situation."
11. Baron, Sam, and Tallant, Jonathan. 2016. "Monism: The Islands of Plurality." *Philosophy and Phenomenological Research* no. 93:583-606.
Abstract: "Priority monism (hereafter, 'monism') is the view that there exists one fundamental entity—the world—and that all other objects that exist (a set of objects typically taken to include tables, chairs, and the whole menagerie of everyday items) are merely derivative.
Jonathan Schaffer has defended monism in its current guise, across a range of papers.
Each paper looks to add something to the monistic picture of the world. In this paper we argue that monism—as Schaffer describes it—is false. To do so we develop an 'island universe' argument against Schaffer's monistic theory."
12. Baysan, Umut. 2015. "Realization Relations in Metaphysics." *Minds and Machines* no. 25:247-260.
Abstract: " "Realization" is a technical term that is used by metaphysicians, philosophers of mind, and philosophers of science to denote some dependence relation that is thought to obtain between higher-level properties and lower-level properties. It is said that mental properties are realized by physical properties; functional and computational properties are realized by first-order properties that occupy certain causal/functional roles; dispositional properties are realized by categorical properties; so on and so forth.
Given this wide usage of the term "realization", it would be right to think that there might be different dependence relations that this term denotes in different cases.

- Any relation that is aptly picked out by this term can be taken to be a realization relation. The aim of this state-of-the-field article is to introduce the central questions about the concept of realization, and provide formulations of a number of realization relations. In doing so, I identify some theoretical roles realization relations should play, and discuss some theories of realization in relation to these theoretical roles."
13. Bennett, Karen. 2017. *Making Things Up*. New York: Oxford University Press. Contents: 1. Introduction 1; 2. Building I: Breaking Ground 6; 3. Building II: Characterizing the Class 30; 4. Causing 67; 5. Absolute Fundamentality 102; 6. Relative Fundamentality 137; 7. Building Building? 187; 8. In Defense of the Nonfundamental 214; Appendix: Objections to the Second Grade of Causal Involvement 239; References 247; Name Index 257; Subject Index 259-260. "In Chapters 5 and 6, I investigate the nature of fundamentality. In Chapter 5, I distinguish three different notions of absolute fundamentality in the contemporary literature, and argue that the primary notion is that of being unbuilt. In Chapter 6, I argue that relative fundamentality—relations like *being more fundamental than* and *being just as fundamental as*—must also be understood in terms of building. I further claim that this fact goes a long way towards demystifying fundamentality talk. Indeed, that is one of the central claims of the book: there is nothing more to relative fundamentality than the obtaining of certain patterns of building. Along the way, I investigate various related questions, such as whether anything is absolutely fundamental at all, and whether everything is comparable with respect to relative fundamentality." (p. 3)
 14. ———. 2019. "Précis of *Making Things Up* ." *Philosophy and Phenomenological Research* no. 98:478-481. "The goal of *Making Things Up* is to get clearer about what building relations are, how they are related to each other, and how they are related to fundamentality and causation. More generally, the goal is to articulate a detailed picture of a structured world. Soon, I will sketch the book chapter by chapter. But I want to start by flagging three core commitments that color the project in a variety of ways, and by frontloading what I suppose are the two biggest claims in the book. The first core commitment is agnosticism about whether there is a single most fundamental building relation. Throughout the book, I instead talk in terms of a plurality of building relations, and intend talk of 'building' in the singular as shorthand for quantificational or generic claims. The second core commitment is agnosticism about metaphysical foundationalism: agnosticism, that is, about the claim that the world has a bottom level, that all chains of building terminate in something fundamental. The third core commitment is what I hereby call 'content neutrality', though I do not use that label in the book. I do not intend to assert substantive claims about what in fact builds what, or what is in fact fundamental, if anything is. My goal is instead to sketch a kind of framework view that can be shared by people who disagree with me, and with each other, about particular building claims." (p. 478)
 15. Benocci, Matteo. 2017. "Priority Monism and Essentiality of Fundamentality: A Reply to Steinberg." *Philosophical Studies* no. 174:1983-1990. Abstract: "Steinberg has recently proposed an argument against Schaffer's priority monism. The argument assumes the principle of Necessity of Monism, which states that if priority monism is true, then it is necessarily true. In this paper, I argue that Steinberg's objection can be eluded by giving up Necessity of Monism for an alternative principle, that I call Essentiality of Fundamentality, and that such a principle is to be preferred to Necessity of Monism on other grounds as well." References Steinberg, A. (2015). Priority monism and part/whole dependence. *Philosophical Studies*, 172, 2025–2031.
 16. Berker, Selim. 2019. "The Explanatory Ambitions of Moral Principles." *Noûs* no. 53:504-536.

Abstract: "Moral properties are explained by other properties. And moral principles tell us about moral properties. How are these two ideas related? In particular, is the truth of a given moral principle part of what explains why a given action has a given moral property? I argue "No." If moral principles are merely concerned with the extension of moral properties across all possible worlds, then they cannot be partial explainers of facts about the instantiation of those properties, since in general necessitation does not suffice for explanation. And if moral principles are themselves about what explains the moral properties under their purview, then by their own lights they are not needed in order to explain those moral properties' instantiation—unless, that is, the principles exhibit an objectionable form of metaphysical circularity. So moral principles cannot explain why individual actions have moral properties. Nor, I also argue, can they explain why certain other factors explain why those actions have the moral properties that they do, or in some other way govern or mediate such first-order explanations of particular moral facts. When it comes to the explanation of an individual action's specific moral features, moral principles are explanatorily idle."

17. Bernstein, Sara. 2014. "Two Problems for Proportionality about Omissions." *Dialectica* no. 68:429-441.
 "Theories of causation grounded in counterfactual dependence face the *problem of profligate omissions*: numerous irrelevant omissions count as causes of an outcome. A recent purported solution to this problem is *proportionality*, which selects one omission among many candidates as the cause of an outcome. This paper argues that proportionality cannot solve the problem of profligate omissions for two reasons. First: the determinate/determinable relationship that holds between properties like aqua and blue does not hold between negative properties like *not aqua* and *not blue*. Negative properties are those at stake in omissive causation. Second: proportionality misconstrues the nature of the problem to be solved."
18. ———. 2021. "Could a Middle Level Be the Most Fundamental?" *Philosophical Studies* no. 178:1065-1078.
 Abstract: "Debates over what is fundamental assume that what is most fundamental must be either a "top" level (roughly, the biggest or highest-level thing), or a "bottom" level (roughly, the smallest or lowest-level things). Here I sketch an alternative to top-ism and bottom-ism, the view that a middle level could be the most fundamental, and argue for its plausibility. I then suggest that this view satisfies the desiderata of asymmetry, irreflexivity, transitivity, and well-foundedness of fundamentality, that the view has explanatory power on par with that of top-ism and bottom-ism, and that it has a unique connection to the Principle of Sufficient Reason."
19. Bertrand, Michael. 2017. "Fundamental Ontological Structure: An Argument Against Pluralism." *Philosophical Studies* no. 174:1277-1297.
 Abstract: "In recent years, a hierarchical view of reality has become extremely influential. In order to understand the world as a whole, on this view, we need to understand the nature of the fundamental constituents of the world. We also need to understand the relations that build the world up from these fundamental constituents.
Building pluralism is the view that there are at least two equally fundamental relations that together build the world. It has been widely, though tacitly, assumed in a variety of important metaphysical debates. However, my primary aim in this paper is to argue that this has been a mistake. I will show that serious problems concerning the relationship between building and fundamentality afflict pluralism and are likely fatal to it. I claim that, for better or worse, our best hope is building singularism, the view that there is a single most fundamental building relation. I conclude by examining the advantage that singularist accounts enjoy over their pluralist rivals."
20. Bliss, Ricki. 2019. "What Work the Fundamental?" *Erkenntnis* no. 84:359-379.

- Abstract: "Although it is very often taken for granted that there is something fundamental, the literature appears to have developed with little to no careful consideration of what exactly it is that the fundamentalia are supposed to do. If we are to have a good reason to believe that there is something fundamental, we need not only to know what exactly it is that the fundamentalia are invoked for, but why it is that nothing else is available for the task to hand. A good argument in defense of fundamentality, then, will contain an assumption that stipulates an explanatory target; along with a second, crucial, assumption that tells us that no dependent entity is available to do the work that needs to be done. In this paper, I explore both of these assumptions."
21. ———. 2020. "Fundamentality." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 336-347. New York: Routledge.
 "The notion of fundamentality has, in more recent times, come not only to be associated with the thought that there is something ultimate, basic or at the bottom, but also with the thought that some things are nearer or further from or equidistant with that bottom. Thus, we have at our disposal, in fact, not only a notion of absolute fundamentality but also one of relative fundamentality. This chapter is focused largely upon absolute fundamentality. Although the notion of relative fundamentality is an important one, it is commonly thought to be captured by the asymmetry, transitivity and irreflexivity of the grounding relation to which it is intimately related. Although, as we will see, this supposition is questionable, our discussion of relative fundamentality will be relegated to a cursory and brief portion of the chapter—§1. More extensive discussions of relative fundamentality can be found in Saenz [Chapter 25], Tahko [Chapter 27] and Thompson [Chapter 17] in this volume. In §2, I move onto a discussion of absolute fundamentality proper. In §2.1, I consider the common ways in which the notion has been captured, and in §2.2, the ways in which it has been characterised. In §3, I present what the most common arguments in defence of the view are. And in §4, I offer a brief discussion of whether we need grounding in order to cash out accounts of fundamentality." (p. 337)
22. Bliss, Ricki, and Priest, Graham, eds. 2018. *Reality and its Structure: Essays in Fundamentality*. Oxford: Oxford University Press.
 Contents: List of Contributors VII; 0. Ricki Bliss and Graham Priest: The Geography of Fundamentality: An Overview;
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 14. Nathan Wildman: On Shaky Ground? Exploring the Contingent Fundamentality Thesis 275; 15. Filippo Casati: Heidegger's *Grund*: (Para-)Foundationalism 291; Index of Names 313; General Index 316-324.
23. ———. 2018. "The Geography of Fundamentality." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki and Priest, Graham, 1-33. New York: Oxford University Press.
 "The kind of view, or cluster of views, that appear to dominate the contemporary

analytic debate can be thought of broadly as, or as species of, metaphysical foundationalism.

As will become clearer in due course, there are, in fact, a variety of ways in which one can be a metaphysical foundationalist; with different species of foundationalism involving different core commitments. Although this list is by no means exhaustive, we assume the following to be amongst the core commitments of metaphysical foundationalism as commonly endorsed in the contemporary literature.

1. The hierarchy thesis: Reality is hierarchically structured by metaphysical dependence relations that are anti-symmetric, transitive, and anti-reflexive.
2. The fundamentality thesis: There is some thing(s) which is fundamental.
3. The contingency thesis: Whatever is fundamental is merely contingently existent.
4. The consistency thesis: The dependence structure has consistent structural properties.

Strictly speaking, in order to be considered a species of foundationalism, a view needs only commit to the the fundamentality thesis: 2., then, is both necessary and sufficient for a view to count as a kind of foundationalism. For proponents of what we can think of as the standard view, however, all four theses are necessary, with no one of them being sufficient.(3)

(3) The idea that the world is ontologically ‘flat’, with everything being fundamental—a rejection of 1—has been described by Bennett 2011 as ‘crazy pants’, for example. Just as many philosophers baulk at the suggestion that the fundamentalia are necessary beings.

References

- Bennett, K. (2011), ‘By our Bootstraps’, *Philosophical Papers*, vol. 25, pp. 27–41.
24. Borghini, Andrea, and Lando, Giorgio. 2016. "Mereological Monism and Humean Supervenience." *Synthese* no. 197:4745-4765.
 Abstract: "According to Lewis, mereology is the general and exhaustive theory of ontological composition (mereological monism), and every contingent feature of the world supervenes upon some fundamental properties instantiated by minimal entities (Humean supervenience). A profound analogy can be drawn between these two basic contentions of his metaphysics, namely that both can be intended as a denial of emergentism. In this essay, we study the relationships between Humean supervenience and two philosophical spin-offs of mereological monism: the possibility of gunk and the thesis of composition as identity. In a gunky scenario, there are no atoms and, thus, some criteria alternative to mereological atomicity must be introduced in order to identify the bearers of fundamental properties; this introduction creates a precedent, which renders the restriction of the additional criteria to gunky scenarios arbitrary. On the other hand, composition as identity either extends the principle of indiscernibility of identicals to composition or is forced to replace indiscernibility with a surrogate; both alternatives lead to the postulation of a symmetric kind of supervenience which, in contrast to Humean supervenience, does not countenance a privileged level. Both gunk and composition as identity, thus, display a tension with Humean supervenience."
25. Brenner, Andrew. 2022. "Metaphysical Foundationalism and Theoretical Unification." *Erkenntnis* :1-21.
 First online 21 July 2021.
 Abstract: "Some facts ground other facts. Some fact is fundamental iff there are no other facts which partially or fully ground that fact. According to metaphysical foundationalism, every non-fundamental fact is fully grounded by some fundamental fact(s).
 In this paper I examine and defend some neglected considerations which might be made in favor of metaphysical foundationalism. Building off of work by Ross Cameron, I suggest that foundationalist theories are more unified than, and so in one important respect simpler than, non-foundationalist theories, insofar as foundationalist theories allow us to derive all non-fundamental facts from some fundamental fact(s). Non-foundationalist theories can enjoy a similar sort of theoretical unification only by taking on objectionable metaphysical laws."

26. Brown, Christopher. 2017. "Minds Within Minds: An Infinite Descent of Mentality in a Physical World." *Erkenntnis* no. 82:1339-1350.
 Abstract: "Physicalism is frequently understood as the thesis that everything depends upon a fundamental physical level. This standard formulation of physicalism has a rarely noted and arguably unacceptable consequence—it makes physicalism come out false in worlds which have no fundamental level, for instance worlds containing things which can infinitely decompose into smaller and smaller parts. If physicalism is false, it should not be for this reason. Thus far, there is only one proposed solution to this problem, and it comes from the so-called *via negativa* account of physicalism. *Via negativa* physicalism identifies the physical with the non-mental, such that if everything in the world ultimately depends only on nonmental things, then physicalism is true. To deal with the possibility of worlds without a fundamental level, this account says that physicalism is false in worlds with either a fundamental mental level or an infinite descent of mental levels. Here I argue that there could be a world with an infinite descent of all-mental levels, yet in which physicalism might plausibly be true—thus contradicting the sufficient-for-false condition meant to save physicalism from the threat of infinitely decomposable worlds. This leaves the need for a new dependence-based account of physicalism."
27. ————. 2021. "Fundamental Mentality in a Physical World." *Synthese* no. 199:2841-2860.
 Correction in *Synthese*, 199, 2021, p. 2861.
 Abstract: "Regardless of whatever else physicalism requires, nearly all philosophers agree that physicalism cannot be true in a world which contains fundamental mentality. I challenge this widely held attitude, and describe a world which is plausibly all-physical, yet which may contain fundamental mentality. This is a world in which priority monism is true—which is the view that the whole of the cosmos is fundamental, with dependence relations directed from the whole to the parts—and which contains only a single mental system, like a brain or computer. Because some properties of the whole are fundamental under priority monism, it follows that that the mental properties of a cosmos-encompassing brain or computer system may be fundamental in a priority monist world. Yet such a world need not contain anything physically unacceptable: the mental properties of the cosmos-encompassing brain or computer can be characterized in a physicalism-friendly functionalist or identity-theoretic way. Thus, as I see it, physicalism need not be false in such a world. This constitutes a challenge to those who hold the view that physicalism is inconsistent with the existence of fundamental mentality."
28. Brown, Joshua D. K. 2016. "Natural Objects." *Journal of the American Philosophical Association* no. 2:254-271.
 Abstract: "This paper introduces a framework for thinking about ontological questions—in particular, the Special Composition Question—and shows how the framework might help support something like an account of restricted composition. The framework takes the form of an account of natural objects, in analogy with David Lewis's account of natural properties. Objects, like properties, come in various metaphysical grades, from the fundamental, fully objective, perfectly natural objects to the nomologically otiose, maximally gerrymandered, perfectly non-natural objects. The perfectly natural objects, I argue, are the mereological simples, and (roughly) a collection composes an object of degree-*n* naturalness if and only if its members are arranged *F*-wise, for some property *F* that appears in the degree-*n* natural laws. Arbitrary composites turn out to be perfectly non-natural objects and are metaphysical bystanders. Ordinary composite objects fall in between. Some—e.g., atoms—are very (though not perfectly) natural; others—e.g., tables—are highly non-natural."
29. Brown, Robin, and Ladyman, James. 2009. "Physicalism, Supervenience and the Fundamental Level." *Philosophical Quarterly* no. 59:20-38.

Abstract: "We provide a formulation of physicalism, and show that this is to be favoured over alternative formulations. Much of the literature on physicalism assumes without argument that there is a fundamental level to reality, and we show that a consideration of the levels problem and its implications for physicalism tells in favour of the form of physicalism proposed here. Its key elements are, first, that the empirical and substantive part of physicalism amounts to a prediction that physics will not posit new entities solely for the purpose of accounting for mental phenomena, nor new entities with essentially mental characteristics such as propositional attitudes or intentions; secondly, that physicalism can safely make do with no more than a weak global formulation of supervenience."

30. Brzozowski, Jacek. 2008. "On Locating Composite Objects." *Oxford Studies in Metaphysics* no. 4:193-222.
 "Composite objects (at least some of them, in our world) are located in space-time. The question I will pose is the following: does the location of a composite object derive from the location of its proper parts, or not? I will argue that either way, there are unappealing consequences. We face a dilemma. Either:
 1. If the location of composite objects is derived from their proper parts, we must deny the possibility of spatio-temporal gunk objects: composite objects each of whose parts is itself composite, or,
 2. If the location of composite objects is not derived from their proper parts, we must posit brute metaphysical necessities connecting the location of composite objects with the locations of their proper parts." (p. 193, a note omitted)
31. ———. 2016. "Monism and Gunk." In *Reality Making*, edited by Jago, Mark, 57-74. Oxford: Oxford University Press.
 "One of the main arguments put forward in favour of monism is that it can accommodate the possibility of gunk worlds—worlds where each part divides into further parts without end—while the view of their pluralist opponents cannot. It's argued that as gunk worlds are possible, and that as a pluralist metaphysics does not allow for the possibility of such worlds while a monist metaphysics does, monism has an important advantage over pluralism.(4)
 While I do think that the possibility of gunkworlds (if they are indeed possible) is a problem for the pluralist, I aim to show that the possibility of gunk worlds is similarly problematic for the monist.
 (...)
 I conclude that the argument from the possibility of gunk does not offer the monist the clear cut advantage over the pluralist that one may have originally thought it had." (pp. 57-58)
 (4) The argument from the possibility of gunk is put forward by Schaffer (2007, 2010).
 References
 Schaffer, J. (2007). 'From Nihilism to Monism'. *Australasian Journal of Philosophy*, 85(2), 175-91.
 Schaffer, J. (2010). 'Monism: The Priority of the Whole'. *Philosophical Review*, 119(1), 31-76.
32. Builes, David. 2019. "Pluralism and the Problem of Purity." *Analysis* no. 79:394-402.
 "Does everything exist in the same way as everything else? *Monists about being* (or 'Monists' for short) say 'yes', and *Pluralists about being* (or 'Pluralists' for short) say 'no'.
 (...)
 Trenton Merricks (forthcoming) presents a dilemma against Pluralism. He argues that both horns of the dilemma are unacceptable, and so Pluralism must be false. The purpose of this paper is two-fold. First, I will argue that one particular horn of Merricks's dilemma is unproblematic for the contemporary version of Pluralism defended by Turner (2010) and McDaniel (2009, 2010, 2017), and so Merricks's argument against Pluralism, as stated, is unsound. However, my second task is to

provide a new dilemma against Pluralism, which, when combined with Merricks's arguments, constitutes a powerful new challenge to every form of Pluralism." (p. 394)

References

McDaniel, K. 2009. Ways of being. In *Metametaphysics: New Essays on the Foundations of Ontology*, eds. D.J. Chalmers, D. Manley and R. Wasserman, 290–319. Oxford: Oxford University Press.

McDaniel, K. 2010. A return to the analogy of being. *Philosophy and Phenomenological Research* 81: 688–717.

McDaniel, K. 2017. *The Fragmentation of Being*. Oxford: Oxford University Press.

Merricks, T. forthcoming. The only way to be. *Noûs*, [53, 2019, 593-612]

Turner, J. 2010. Ontological pluralism. *Journal of Philosophy* 107: 5–34.

33. Callender, Craig. 2001. Why Be a Fundamentalist: Reply to Schaffer. Unpublished, available at PhilSci Archive.
Abstract: "This is my commentary on Jonathan Schaffer's paper "Evidence for Fundamentality?"; both the paper and comments were presented at the Pacific APA, San Francisco, March 2001. Schaffer argues against the view that there is an ultimate fundamental level to the world. Seeing that quarks and leptons may have an infinite hierarchy of constituents, he claims, empowers and dignifies the whole of nature (15). Like Kant he holds that there are as good reasons for believing matter infinitely divisible as composed of fundamental simples. I'm afraid that Schaffer's provocative arguments have not convinced me. In the paper, I criticize the idea that fundamentalism 'weakens' and 'denigrates' the whole of nature and try to show that an infinite hierarchy can not do the work Schaffer needs it to. I then argue that we should not in fact be agnostic between the two rival hypotheses."
34. Cameron, Ross P. 2008. "Turtles All the Way Down: Regress, Priority and Fundamentality in Metaphysics." *The Philosophical Quarterly* no. 58:1-14.
Abstract: "I address an intuition commonly endorsed by metaphysicians, that there must be a fundamental layer of reality, i.e., that chains of ontological dependence must terminate: there cannot be turtles all the way down. I discuss applications of this intuition with reference to Bradley's regress, composition, realism about the mental and the cosmological argument. I discuss some arguments for the intuition, but argue that they are unconvincing. I conclude by making some suggestions for how the intuition should be argued for, and discussing the ramifications of giving the justification I think best."
35. ———. 2010. "From Humean Truthmaker Theory to Priority Monism." *Noûs* no. 44:178-198.
"The Humean is a resister of mysterious brute necessity; when there is necessity, she claims, we must be able to give an explanation of the necessity.
(...)
Connections have been drawn between truthmaker theory and priority monism. Jonathan Schaffer—who has been largely responsible for the recent resurgence of interest in priority monism—has argued that one of the benefits of priority monism is that it allows for a neat and parsimonious theory of truthmakers which solves the problem of negative facts.(3) That gives us one way of arguing from truthmaker theory to priority monism: priority monism affords an advantageous theory of truthmaking, so the truthmaker theorist has good reason to be a priority monist. In this paper I intend to offer a different argument from truthmaker theory to priority monism: the truthmaker theorist has to be a priority monist, provided she doesn't want to be committed to objectionable necessary connections between distinct contingent existents." (p. 178)
(3) Jonathan Schaffer, 'The Least Discerning and Most Promiscuous Truthmaker', forthcoming in *The Philosophical Quarterly* [60, 2010, 307-324]
36. ———. 2012. "Composition as Identity Doesn't Settle the Special Composition Question." *Philosophy and Phenomenological Research* no. 84:531-554.

- Abstract: "Orthodoxy says that the thesis that composition is identity (CAI) entails universalism: the claim that any collection of entities has a sum. If this is true it counts in favour of CAI, since a thesis about the nature of composition that settles the otherwise intractable special composition question (SCQ) is desirable. But I argue that it is false: CAI is compatible with the many forms of restricted composition, and SCQ is no easier to answer given CAI than otherwise. Furthermore, in seeing why this is the case we reveal an objection to CAI: that it allows for the facts concerning what there is to be settled whilst leaving open the question about what is identical to what."
37. ———. 2019. "Comments on Karen Bennett's *Making Things Up* ." *Philosophy and Phenomenological Research* no. 98:482-488.
 "Karen Bennett's original and intriguing book *Making Things Up* is about building relations: relations by which you get some things from others. Relations such as composition, where you get a whole from some parts; set formation, where you get a set from some members; grounding, where you get a derivative fact from a more fundamental one; realization, where you get a higher-level state from a lower-level one; etc.
 Philosophers like the smallest toolbox possible, so it's tempting to try to reduce some building relations to others. David Lewis, e.g., attempts to reduce class-formation to composition: the class of Xs is simply the mereological sum of all of X's subclasses.(2) We might hope, indeed, that there is ultimately only one building relation, to which all others can be reduced. Bennett thinks not. She is a building pluralist.(3) I'm going to tackle her case for this, and argue that monism remains a contender." (p. 482)
 (2) Lewis (1991).
 (3) More carefully, she prefers building pluralism because she takes her arguments to show not that monism is false but rather that we shouldn't gamble on it being true (p24). I will argue that the arguments don't even make the case for preferring pluralism.
 References
 Lewis, David, (1991), *Parts of Classes* , Oxford: Blackwell
38. Chen, Gang. 2009. "Hierarchy, form, and." *Frontiers of Philosophy in China* no. 4:437-453.
 Abstract: "Scientific progress in the 20th century has shown that the structure the world is hierarchical. A philosophical analysis of the hierarchy will obvious significance for metaphysics and philosophy in general. Jonathan Schaffer's paper, "Is There a Fundamental Level?", provides a systematic of the works in the field, the difficulties for various versions of fundamentalism, and the prospect for the third option, i.e., to treat each level as ontologically equal. The purpose of this paper is to provide an argument for the third option. The author will apply Aristotle's theory of matter and form to the discussion of the hierarchy and develop a theory of form realism, which will grant every level with "full citizenship in the republic of being." It constitutes an argument against ontological and epistemological reductionism. A non-reductive theory of causation is also developed against the fundamental theory of causation."
39. Correia, Fabrice. 2021. "The Logic of Relative Fundamentality." *Synthese* no. 198:1279-1301.
 Abstract: "I introduce a proof system for the logic of relative fundamentality, as well as a natural semantics with respect to which the system is both sound and complete.
 I then "modalise" the logic, and finally I discuss the properties of grounding given a suggested account of this notion in terms of necessity and relative fundamentality."
40. ———. 2021. "A Kind Route from Grounding to Fundamentality." *Synthese* no. 199:8299-8315.
 Abstract: "I offer an account of fundamentality for facts in terms of metaphysical grounding."

- The account does justice to the idea that whether a fact is absolutely fundamental, and whether a fact is more fundamental than, or as fundamental as, another fact, are a matter of where in a grounding-induced hierarchy of kinds of facts these facts appear."
41. ———. 2021. "Fundamentality from Grounding Trees." *Synthese* no. 199:5965-5994.
Abstract: "I provide and defend two natural accounts of (both relative and absolute) fundamentality for facts that do justice to the idea that the "degree of fundamentality" enjoyed by a fact is a matter of how far, from a ground-theoretic perspective, the fact is from the ungrounded facts."
 42. Cowling, Sam. 2014. "Instantiation as Location." *Philosophical Studies* no. 167:667-682.
Abstract: "Abstract Many familiar forms of property realism identify properties with *sui generis* ontological categories like universals or tropes and posit a fundamental *instantiation* relation that unifies objects with their properties. In this paper, I develop and defend locationism, which identifies properties with locations and holds that the occupation relation that unifies objects with their locations also unifies objects with their properties. Along with the theoretical parsimony that locationism enjoys, I argue that locationism resolves a puzzle for actualists regarding the ontological status of uninstantiated properties. I also note some promising applications of the locationist framework to the metaphysics of quantities and possible worlds."
 43. Crowther, Karen. 2019. "When Do We Stop Digging? Conditions on a Fundamental Theory of Physics." In *What is Fundamental?*, edited by Aguirre, Anthony, Foster, Brendan and Merali, Zeeya, 123-133. Cham (Switzerland): Springer.
Abstract: "In seeking an answer to the question of what it means for a theory to be fundamental, it is enlightening to ask why the current best theories of physics are not generally believed to be fundamental. This reveals a set of conditions that a theory of physics must satisfy in order to be considered fundamental. Physics aspires to describe ever deeper levels of reality, which may be without end. Ultimately, at any stage we may not be able to tell whether we've reached rock bottom, or even if there is a base level—nevertheless, I draft a checklist to help us identify when to stop digging, in the case where we may have reached a candidate for a final theory. Given that the list is—according to (current) mainstream belief in high-energy physics—complete, and each criterion well-motivated, I argue that a physical theory that satisfies all the criteria can be assumed to be fundamental in the absence of evidence to the contrary."
 44. Cuffaro, Michael E., and Hartmann, Stephan. 2021. "The Open System View." 1-61. Preprint available at <https://arxiv.org/abs/2112.11095>
Abstract: "There is a deeply entrenched view in philosophy and physics, the closed systems view, according to which isolated systems are conceived of as fundamental. On this view, when a system is under the influence of its environment this is described in terms of a coupling between it and a separate system which taken together are isolated. We argue against this view, and in favor of the alternative open systems view, for which systems interacting with their environment are conceived of as fundamental, and the environment's influence is represented via the dynamical equations that govern the system's evolution. Taking quantum theories of closed and open systems as our case study, and considering three alternative notions of fundamentality: (i) ontic fundamentality, (ii) epistemic fundamentality, and (iii) explanatory fundamentality, we argue that the open systems view is fundamental, and that this has important implications for the philosophy of physics, the philosophy of science, and for metaphysics."
 45. Dasgupta, Shamik. 2009. "Individuals: An Eessay in Revisionary Metaphysics." *Philosophical Studies* no. 145:35-67.

- Abstract: "We naturally think of the material world as being populated by a large number of *individuals*. These are things, such as my laptop and the particles that compose it, that we describe as being propertied and related in various ways when we describe the material world around us. In this paper I argue that, fundamentally speaking at least, there are no such things as material individuals. I then propose and defend an individual-less view of the material world I call "generalism"."
46. ———. 2013. "Absolutism vs Comparativism about Quantity." *Oxford Studies in Metaphysics* no. 8:105-148.
 "In this paper I discuss a question that arises for all quantities but which is best illustrated by the case of mass. The property of having mass is a determinate that appears to have two kinds of determinates. On the one hand, we naturally think that something with mass has a determinate intrinsic property, a property it has independently of its relationships with other material bodies. But we also think that things with mass stand in various determinate mass relationships with one another, such as x being more massive than y or x being twice as massive as y. My question is: of the intrinsic masses and the mass relationships, which are fundamental?" (p. 105)
 (...)
 "Conclusion: The question of absolutism vs comparativism has received relatively little discussion, and I consider this a significant lacuna in our understanding of what the natural world fundamentally consists in. In this paper, I have tried to clarify what the issue amounts to and describe where I see the major battle lines as lying. I believe that comparativism is probably the correct view for mass, but if I have not convinced you of that I hope to have shown that the issue is important and that there is interesting further work to do in the area." (pp. 145-146)
47. De Rizzo, Julio. 2019. "How (not) to Argue Against Brute Fundamentalism." *Dialectica* no. 73:395-410.
 Abstract: "This paper is a response to McKenzie (2017). I argue that the case she presents is not a genuine counterexample to the thesis she labels *Brute Fundamentalism*. My response consists of two main points. First, that the support she presents for considering her case a *metaphysical* explanation is misguided. Second, that there are principled reasons for doubting that partial explanations in Hempel's sense, of which her case is an instance, are genuinely explanatory in the first place.
 Thus McKenzie's attack on Brute Fundamentalism fails."
 References
 McKenzie, K. 2017, "Against Brute Fundamentalism", *Dialectica*, 71, 2, pp. 231–261.
48. Dorr, Cian. 2013. "Reading 'Writing the Book of the World'." *Philosophy and Phenomenological Research* no. 87:717-724.
 "Analytic philosophy is suspicious of jargon words unless introduced by explicit definitions or for purposes of disambiguation. But this healthy suspicion must not be allowed to degenerate into a knee-jerk refusal to admit any conceptual innovations. The heart of *Writing the Book of the World* [by Ted Sider] is an extended plea for the intelligibility, and importance, of a certain technical use of 'structural' (a close cousin of Lewis's technical use of 'natural'). In this central aim, the book is in my view almost entirely successful. Setting aside certain exotic constructions involving 'S' (the formal counterpart of 'structural') which even Sider recognises as straining intelligibility 'to the breaking point' (p. 257), I am convinced that 'structural' is not only intelligible, but a fruitful addition to the philosopher's idiolect, which allows us to raise questions that are interesting both intrinsically and for their bearing on other topics." (p. 717)
49. ———. 2016. "To Be F Is To Be G." *Philosophical Perspectives* no. 30:39-134.
 "I am interested in a certain way of understanding claims of the form 'To be F is to be G', which I take to have played a central role in philosophy from its inception. Here are some examples where the target reading is natural:

- (1) a. To be a vixen is to be a female fox.
- b. To be square is to be rectangular and equilateral.
- c. To be just is to be such that each part of one's soul does its own proper work.
- d. To be a human being is to be a rational animal.
- e. To be a hydrogen atom is to be an atom whose nucleus contains exactly one proton.

As (1c) and (1d) illustrate, questions whose answers can be given in the form 'To be F is to be G' have been of central interest to philosophers since the beginning. (1e) illustrates that we cannot always tell whether to be F is to be G using "armchair" methods: sometimes, we need to do experiments. But not always, as witness (1b)."

50. Dorr, Cian, and Hawthorne, John. 2013. "Naturalness." *Oxford Studies in Metaphysics* no. 8:3-77.
 "In the wake of David Lewis's seminal paper 'New Work for a Theory of Universals' (Lewis 1983b), a certain use of the word 'natural' has become widespread in metaphysics and beyond. In this usage, properties can be classified as more or less natural, with perfectly natural properties as a limiting case. For example, Lewis would claim that being *negatively charged* is much more natural than being either *negatively charged or part of a spoon*, and may even be perfectly natural." (p. 3, a note omitted)
 (...)
 "Our aim in this paper is not to take sides in the debate between naturalness enthusiasts and naturalness sceptics, but to bring some structure to the terrain, replacing displays of contrasting nebulous attitudes with a range of relatively precise and independently debatable questions."
 References
 Lewis, David (1983b) 'New Work for a Theory of Universals', *Australasian Journal of Philosophy* 61: 343–77. Reprinted in Lewis 1999: 8–55.
 ——— (1999) *Papers in Metaphysics and Epistemology*. Cambridge: Cambridge University Press.
51. Duncan, Michael, Miller, Kristie, and Norton, James. 2021. "Ditching Dependence and Determination: Or, How to Wear the Crazy Trousers." *Synthese* no. 198:395-418.
 Abstract: "This paper defends Flatland—the view that there exist neither determination nor dependence relations, and that everything is therefore fundamental—from the objection from explanatory inefficacy. According to that objection, Flatland is unattractive because it is unable to explain either the appearance as of there being determination relations, or the appearance as of there being dependence relations. We show how the Flatlander can meet the first challenge by offering four strategies—reducing, eliminating, untangling and omnizing—which, jointly, explain the appearance as of determination relations where no such relations obtain. Since, plausibly, dependence relations just are asymmetric determination relations, we argue that once we come mistakenly to believe that there exist determination relations, the existence of other asymmetries (conceptual and temporal) explains why it appears that there are dependence relations.""
52. ———. 2022. "Ontology without Hierarchy." In *The Question of Ontology: The Contemporary Debate*, edited by Cumpa, Javier. New York: Oxford University Press.
 Not yet published; preprint available at PhilPapers.org
 Abstract: "It has recently become popular to suggest that questions of ontology ought to be settled by determining, first, which fundamental things exist, and second, which derivative things depend on, or are grounded by, those fundamental things. This methodology typically leads to a hierarchical view of ontology according to which there are chains of entities, each dependent on the next, all the way down to a fundamental base. In this paper we defend an alternative ontological picture according to which there is no ontological hierarchy. Such a picture appears

counterintuitive (at least to many), in part because in the absence of a hierarchical structure to our world, there would be no structure apt to back metaphysical explanations. There are two reasons to suppose this is so. First, there would be no structure apt to back metaphysical explanations because there would be a fatal mismatch between the formal features of metaphysical explanation, on the one hand, and the structure of the world, on the other hand. Second, in the absence of an ontological hierarchy there would be no structure apt to back metaphysical explanations because the only connections that would obtain between relevant facts are mere correlational connections. But mere correlations are not the right kinds of relations to back metaphysical explanations: explanation requires something more. This paper aims to show that neither of these is a good reason to prefer a hierarchical view of ontology."

53. Eddon, Maya. 2013. "Fundamental Properties of Fundamental Properties." *Oxford Studies in Metaphysics* no. 8:78-104.
 "Two grams mass and 3 coulombs charge are examples of *quantitative properties*. Such properties have certain structural features that other sorts of properties lack. How should we account for the distinctive structure of quantity? The answer to this question will depend, in large part, on one's other metaphysical commitments. In this paper I focus on the metaphysical framework offered by David Lewis."
 (...)
 "This paper proceeds as follows. In sections 2 and 3, I lay out some background assumptions, and sketch some of the structural features of quantity. In section 4, I assess several accounts of quantity, and argue that the one best suited to a Lewisian framework posits perfectly natural second-order relations. In section 5, I address worries that an account of the structural features of quantity, in terms of the perfectly natural, is not required. If such an account is not provided, I argue, then many accounts that make use of perfectly natural properties and relations are untenable. In section 6, I use the results of the previous sections to argue that the perfectly natural properties and relations do not comprise a minimal supervenience base." (pp. 78-79)
54. ———. 2017. "Parthood and Naturalness." *Philosophical Studies* no. 174:3163-3180.
 Abstract: "Is *part of* a perfectly natural, or fundamental, relation? Philosophers have been hesitant to take a stand on this issue. One reason for this hesitancy is the worry that, if parthood is perfectly natural, then the perfectly natural properties and relations are not suitably "independent" of one another. (Roughly, the perfectly natural properties are not suitably independent if there are necessary connections among them.) In this paper, I argue that parthood is a perfectly natural relation. In so doing, I argue that this "independence" worry is unfounded. I conclude by noting some consequences of the naturalness of parthood."
55. Fahrbach, Ludwig. 2005. "Understanding Brute Facts." *Synthese* no. 145:449-466.
 Abstract: "Brute facts are facts that have no explanation. If we come to know that a fact is brute, we obviously don't get an explanation of that fact. Nevertheless, we do make some sort of epistemic gain. In this essay, I give an account of that epistemic gain, and suggest that the idea of brute facts allows us to distinguish between the notion of explanation and the notion of understanding.
 I also discuss Eric Barnes' (1994) attack on Friedman's (1974) version of the unification theory of explanation. The unification theory asserts that scientific understanding results from minimizing the number of brute facts that we have to accept in our view of the world. Barnes claims that the unification theory cannot do justice to the notion of being a brute fact, because it implies that brute facts are gaps in our understanding of the world. I defend Friedman's theory against Barnes' critique."
 References
 Barnes, E.: 1994, 'Explaining Brute Facts', *Proceedings of the Philosophy of Science Association* 199, Vol. 1, pp. 61–68.

- Friedman, M.: 1974, 'Explanation and Scientific Understanding', *Journal of Philosophy* 71, 5–19.
56. Fine, Kit. 2013. "Fundamental Truth and Fundamental Terms." *Philosophy and Phenomenological Research* no. 87:725-732.
 Comments on Siders' 'Writing the Book of the World' [New York: Oxford University Press, 2011.]
 "Ted Sider's 'Writing the Book of the World' is a bold and ambitious work, offering original and provocative answers to a wide range of questions within metaphysics and meta-metaphysics. The book is focused on the topic of fundamentality—of what is fundamental and of what it is to be fundamental and, although Sider is largely concerned to develop his own positive views on the topic, he does devote a couple of sections (§§8.1-2) to my views, as laid out in the paper, 'The Question of Realism'. (1) I hope I may therefore be forgiven for devoting my attention to some of the more critical points that he makes in these sections." (p. 725)
 (1) *Imprint*, vol. 1, no. 1, 2001, reprinted in '*Individuals, Essence and Identity: Themes of Analytic Philosophy*' (ed. A. Bottani, M Carrara, P. Giaretta), Dordrecht: Kluwer 2002, 3-41.
57. Fiocco, M. Oreste. 2019. "What Is a Thing?" *Metaphilosophy* no. 50:649-669.
 Abstract: "Thing" in the titular question of this paper should be construed as having the utmost generality. In the relevant sense, a *thing* just is an *entity*, an *existent*, a *being*. The present task is to say what a thing *of any category* is. This task is the primary one of any comprehensive and systematic metaphysics. Indeed, an answer provides the means for resolving perennial disputes concerning the *integrity* of the structure in reality—whether some of the relations among things are *necessary* merely given those *relata* themselves—and the *intricacy* of this structure—whether some things are more or less *fundamental* than others. After considering some reasons for thinking the generality of the titular question makes it unanswerable, the paper propounds the methodology, *original inquiry*, required to answer it. The key to this methodology is adopting a singular perspective; confronting the world as merely the *impetus to inquiry*, one can attain an account of what a thing must be. *Radical ontology* is a systematic metaphysics—broadly Aristotelian, essentialist, and nonhierarchical—that develops the consequences of this account. With it, it is possible to move past stalemate in metaphysics by revealing the grounds of a principled choice between seemingly incommensurable worldviews."
58. ———. 2019. "Each Thing Is Fundamental: Against Hylomorphism and Hierarchical Structure." *American Philosophical Quarterly* no. 56:289-301.
 Abstract: "Each thing is fundamental. Not only is no thing any more or less *real* than any other, but no thing is *prior* to another in any robust ontological sense. Thus, no thing can explain the very existence of another, nor account for how another is what it is. This surprising conclusion is reached by undermining two important positions in contemporary metaphysics: *hylomorphism* and *hierarchical views* employing so-called building relations, such as *grounding*. The paper has three main parts.
 First, it is observed that hylomorphism is alleged by its proponents to solve various philosophical problems. However, it is demonstrated, in light of a compelling account of explanation, that these problems are actually demands to explain what cannot be but inexplicable. Second, it is shown how the argument against hylomorphism illuminates an account of the *essence* of a thing, thereby providing insight into what it is to exist. This indicates what a thing, in the most general sense, must be and a correlative account of the structure in reality. Third, it is argued that this account of *structure* is incompatible not only with hylomorphism, but also with any hierarchical view of reality. Although hylomorphism and the latter views are quite different, representing distinct philosophical traditions, it is maintained that they share untenable accounts of structure and fundamentality and so should be rejected on the same grounds."

59. Fisher, A. R. J. 2016. "Truthmaking and Fundamentality." *Pacific Philosophical Quarterly* no. 97:448-473.
Abstract: "I apply the notion of truthmaking to the topic of fundamentality by articulating a truthmaker theory of fundamentality according to which some truths are truth-grounded in certain entities while the ones that don't stand in a metaphysical-semantic relation to the truths that do. I motivate this view by critically discussing two problems with Ross Cameron's truthmaker theory of fundamentality. I then defend this view against Theodore Sider's objection that the truthmaking approach to fundamentality violates the *purity constraint*. Truthmaker theorists can have a trouble-free theory of fundamentality."
60. Frugé, Christopher. 2021. "Joints and Basic Ways." *Inquiry: An Interdisciplinary Journal of Philosophy*.
First online 4 March 2021.
Abstract: "Metaphysicians often distinguish between *joints* and *basic ways*. Joints are the unified and joint-carving properties that trace the structure of the world. They are theorized under the ideology of *structural*, *perfectly natural*, or *sparse* properties. Basic ways are the ultimate and independent properties that give rise to all others. They are theorized under the ideology of *grounding*, where the ungrounded properties are the basic ways. While these notions are often seen as rivals, I argue that we need both, because the *joints* and the *basic ways* crosscut. For the sake being exhaustive and ecumenical, I distinguish between *natural* and *normative* sorts of joints and basic ways. I argue that, for either sort, *if* there is such a sort of joint and basic way, then there are joints that are not basic ways and there are basic ways that are not joints."
61. Funkhauser, Eric. 2022. "The Natural, the Fundamental, and the Perfectly Similar: Unraveling a Metaphysical Braid." *Metaphilosophy* no. 53:85-99.
Abstract: "Some of our most prominent metaphysicians have argued for a notion of naturalness that combines the roles of joint-carving, fundamentality, and perfect similarity. This paper argues that it is a mistake to think that there are select properties fulfilling all these roles. Toward this end, epistemologically tractable diagnostic markers for naturalness are presented. From these it follows that there can be perfect naturalness and similarity at nonfundamental levels; and the fundamental need not be perfectly natural or yield perfect similarities. Metaphysicians of naturalness are encouraged to attend to insights from metaphysical property theory and the interdisciplinary study of patterns and complexity, both of which support these conclusions. Distinct metaphysical projects are distinguished."
62. Gang, Chen. 2009. "Hierarchy, Form, and Reality." *Frontiers of Philosophy in China* no. 4:437-453.
Abstract: "Scientific progress in the 20th century has shown that the structure the world is hierarchical. A philosophical analysis of the hierarchy will obvious significance for metaphysics and philosophy in general. Jonathan Schaffer's paper, "Is There a Fundamental Level?", provides a systematic of the works in the field, the difficulties for various versions of fundamentalism, and the prospect for the third option, i.e., to treat each level as ontologically equal. The purpose of this paper is to provide an argument for the third option. The author will apply Aristotle's theory of matter and form to the discussion of the hierarchy and develop a theory of form realism, which will grant every level with "full citizenship in the republic of being." It constitutes an argument against ontological and epistemological reductionism. A non-reductive theory of causation is also developed against the fundamental theory of causation"
63. Giannotti, Joaquim. 2021. "Fundamental Yet Grounded." *Theoria* no. 87:578-599.
Abstract: "Grounding is claimed to offer a promising characterization of the fundamental as that which is ungrounded. Detractors of this view argue that there can be fundamental and yet mutually grounded entities. Such a possibility undermines the definition of the fundamental as the ungrounded. I aim to show,

however, that the possibility of fundamental mutually grounded entities does not force us to renounce the prospects of characterizing fundamentality in terms of grounding.

To accomplish this aim, I defend a grounding-based view that accommodates fundamental mutually grounded entities straightforwardly. My definition of fundamentality is similar to, but importantly different from, one that Karen Bennett discusses. I conclude by resisting two objections raised by Jessica Wilson against the Bennettian framework that also target the proposed view."

64. ———. 2021. "The Fundamentality of Fundamental Powers." *Acta Analytica* no. 36:589-613.
 Abstract: "Dispositional essentialism is the view that all or many fundamental properties are essentially dispositional, or *powers*. The literature on the dispositional essence of powers is abundant. In contrast, the question of how to understand the fundamentality of fundamental powers has received scarce interest. Therefore, the fundamentality of powers stands in need of clarification. There are four main conceptions of the fundamental, namely as that which is (i) *metaphysically independent*; or (ii) *belonging to a minimally complete basis*; or (iii) *perfectly natural*; or (iv) *metaphysically primitive*. Here, I present and discuss each of these approaches from the viewpoint of dispositional essentialism. I show that (i) is incompatible with the metaphysics of powers and (ii)–(iv) have more drawbacks than merits. Therefore, my conclusion is that the dispositional essentialist should seek an alternative. Although I offer no positive account, I pave the way to more fruitful views by identifying the shortcoming of these unpromising options."
65. Giberman, Daniel. 2015. "A Topological Theory of Fundamental Concrete Particulars." *Philosophical Studies* no. 172:2679-2704.
 Abstract: "Fundamental concrete particulars are needed to explain facts about nonfundamental concrete particulars. However, the former can only play this explanatory role if they are properly discernible from the latter. Extant theories of how to discern fundamental concreta primarily concern mereological structure. Those according to which fundamental concreta can bear, but not be, proper parts are motivated by the possibilities that all concreta bear proper parts (mereological "gunk") and that some properties of wholes are not fixed by the properties of their proper parts ("emergence").
 In response, theorists who hold that the fundamental concrete particulars can be proper parts may appeal to the possibility that every concrete particular is a proper part—that there is no mereologically maximal whole world (mereological "junk"), as well as to the intuition that fundamental concreta are qualitatively homogeneous "blocks" from which non-fundamental concreta are built. After motivating the plausibility of gunk and junk, the present essay proposes a constraint on fundamental concrete particulars based on topology instead of mereology: the fundamental concrete particulars must be appropriately connected. This constraint has the unique advantage of consistency with each of gunk, emergence, junk, and the building block intuition."
66. Glazier, Martin. 2016. "Laws and the Completeness of the Fundamental." In *Reality Making*, edited by Jago, Mark, 11-37. Oxford: Oxford University Press.
 "Any explanation of one fact in terms of another will appeal to some sort of connection between the two. In a causal explanation, the connection might be a causal mechanism or law. But not all explanations are causal, and neither are all explanatory connections.
 (...)
 I call these general noncausal explanatory connections laws of metaphysics.(1) In this chapter I argue that some of these laws are to be found in the world at its most fundamental level, forming a bridge between fundamental reality and everything else. It is only by admitting fundamental laws, I suggest, that we can do justice to the explanatory relationship between what is fundamental and what is not. And

once these laws are admitted, we are able to provide a nice resolution of the puzzle of why there are any nonfundamental facts in the first place." (p. 11)

(1) The notion of a law of metaphysics has also been discussed by Sider (2011, § 12.4) and Wilsch (2015).

References

Sider, T. (2011). *Writing the Book of the World*. Oxford: Oxford University Press.

Wilsch, T. (2015). 'The nomological account of ground'. *Philosophical Studies*, 172, 2015, pp. 3293-3312.

67. Glick, David, Darby, George, and Marmodoro, Anna, eds. 2020. *The Foundation of Reality: Fundamentality, Space, and Time*. Oxford: Oxford University Press. Contents: List of Figures VII, List of Contributors IX; David Glick: Introduction 1; Section 1. The Metaphysics of Fundamentality
1. Ralf M. Bader: Fundamentality and Non-Symmetric Relations 15; Alastair Wilson: Classifying Dependencies 46; 3. Matteo Morganti: Ontic Structuralism and Fundamentality 69; 4. J. E. Wolff: Fundamental and Derived Quantities 87; 5. Nora Berenstain: Privileged-Perspective Realism in the Quantum Multiverse 102; Section 2. Quantum Mechanics and Fundamentality
6. Michael Esfeld: Super-Humeanism: The Canberra Plan for Physics 115; 7. Jenann Ismael: What Entanglement Might Be Telling Us: Space, Quantum Mechanics, and Bohm's Fish Tank 139; 8. Alyssa Ney: Wave Function Realism in a Relativistic Setting 154; 9. David Glick and George Darby: In Defense of the Metaphysics of Entanglement 169; Section 3. Spacetime Theories and Fundamentality
10. Richard Healey: On the Independent Emergence of Space-time 183; 11. Elena Castellani and Sebastian De Haro: Duality, Fundamentality, and Emergence 195; 12. Tomasz Bigaj: Radical Structural Essentialism for the Spacetime Substantivalist 217; 13. Christian Wüthrich: When the Actual World Is Not Even Possible 233; Bibliography 255; Index 269-273.
68. Goff, Philip. 2016. "Fundamentality and the Mind-Body Problem." *Erkenntnis* no. 81:881-898.
Abstract: "In the recent metaphysics literature, a number of philosophers have independently endeavoured to marry sparse ontology to abundant truth. The aim is to keep ontological commitments minimal, whilst allowing true sentences to quantify over a vastly greater range of entities than those which they are ontologically committed to. For example, an ontological commitment only to concrete, microscopic simples might be conjoined with a commitment to truths such as 'There are twenty people working in this building' and 'There are prime numbers greater than 5.' I argue that a significant challenge to this project comes from the philosophy of mind. As Theodore Sider has pointed out, anti-physicalism is consistent with a sparse ontology. However, I will try to show that the premises of the standard anti-physicalist arguments can be used to form an argument to the conclusion that sentences which quantify over subjects of experience ontologically commit us to subjects of experience. Truths about consciousness cannot be bought more cheaply than their superficial grammar suggests."
69. ———. 2017. *Consciousness and Fundamental Reality*. New York: Oxford University Press.
Chapter 2.2 *The Nature of Fundamentality*, pp. 41-63.
"Now we have a grip on what physicality is, we turn to the question of what it would be for *fundamental reality* to be entirely physical. This calls for an account of *fundamentality*, of what it is for certain facts to entirely constitute fundamental reality. There has recently been a return to a very traditional understanding of fundamentality in terms of a distinctively metaphysical notion of *in rem* explanation, or "grounding" as it has become known. In what follows I will explain how I understand grounding, outline a conception of physicalism defined in terms of grounding, and then defend it against alternative accounts of fundamentality." (pp. 41-42)

70. Goldwater, Jonah. 2018. "Physicalism and the Sortalist Conception of Objects." *Synthese* no. 195:5497-5519.
 Abstract: "Many hold an Aristotelian metaphysic of objects: fundamentally, objects fall under sortals and have persistence conditions befitting their sort. Though sometimes offered as a theory of material objects, I argue this view is in fact incompatible with physicalism. Call a 'sortal' a kind of object, a 'sortal identity' a particular's nature specified in sortal terms, and 'sortal properties' properties that are determined by an object's sortal identity, such as its persistence conditions. From here the argument runs as follows. Something is physical only if it is physically fundamental or is determined by what is physically fundamental (P1), but sortal identities and properties are neither physically fundamental (P2) nor determined by the physically fundamental (P3). I defend each premise in turn. P1 falls out of the standard conception of physicalism. Rejecting P2 is tantamount to positing Aristotelian substantial forms and formal causes—which are themselves incompatible with physicalism. I defend P3 by showing that extant solutions to "the grounding problem"—the problem of showing how (nonfundamental) sortal properties are determined by (nonsortal) physical properties—are either physicalistically unacceptable, or else physicalistically acceptable but opposed to the sortalist metaphysic."
71. Gorman, Michael M. 2014. "Essentiality as Foundationality." In *Neo-Aristotelian Perspectives in Metaphysics*, edited by Novotny, Daniel D. and Novák, Lukáš 119-137. New York: Routledge.
 "In this essay, I propose a way of thinking about essence and accident that stands in the Aristotelian-scholastic tradition. At the core of my proposal will be the claim that a thing's accidental features are those of its features that are supported by other features it has, while its essential features are those that are foundational, that is, not supported by any other features it has.
 First, I discuss an important basic question for the philosophy of essence, a question that needs to be answered before rival theories of essence can be adjudicated. Second, I look at the received view in a bit more detail. Third, I look at some recently proposed alternatives. Fourth, I present my own view of essence. Fifth, I raise and respond to an objection." (p. 119, anote omitted)
72. Hakkarainen, Jani. 2022. "The Fundamentality and Non-Fundamentality of Ontological Categories." In *E. J. Lowe and Ontology*, edited by Szatkowski, Mirosław, 123-142. New York: Routledge.
 "As Bliss and Priest (2018) and Tahko (2018) document, there is a rapidly growing literature on metaphysical fundamentality and nonfundamentality or derivativeness. This literature focuses almost exclusively on the fundamentality and non-fundamentality or derivativeness of entities: which entities are fundamental, which, in turn, are non-fundamental or derivative from the fundamental entities and what does derivation mean? The concern here is then no less than the ground of existence - if there is any. Therefore, this debate is a natural offspring of the literature on grounding and I propose that we call the fundamentality of entities "ontological fundamentality" (accordingly for their non-fundamentality or derivativeness). The fundamentality and non-fundamentality of ontological categories ("categories", for short) is practically ignored by the theorists of ontological fundamentality, which is a deficit." (p. 123)
 (...)
 "My problem in the present chapter is to consider what this fundamentality is. Elaborating on what Lowe says, my proposed solution is that categorial fundamentality is having membership fully determined by a fundamental formal ontological relation or relations jointly in an order, whereas categorial non-fundamentality is having membership at least partly determined by a non-fundamental formal ontological relation in an order. Fundamentality of formal ontological relations is their simplicity and their non-fundamentality is their derivativeness in the senses specified below. In what follows, I will also tell what determination in the membership determination of categories means." (p. 124)

References

- Bliss, R. and Priest, G. (eds.) (2018), *Reality and its Structure: Essays in Fundamentality*, Oxford: Oxford University Press.
- Tahko, T. E. (2018), 'Fundamentality', *The Stanford Encyclopedia of Philosophy* (Fall 2018 Edition), Available online: <https://plato.stanford.edu/archives/fall2018/entries/fundamentality/>, retrieved 30/8/2019.
73. Heil, John. 2003. "Levels of Reality." *Ratio* no. 16:205-221.
Abstract: "Philosophers and non-philosophers have been attracted to the idea that the world incorporates levels of being: higher-level items – ordinary objects, artifacts, human beings – depend on, but are not in any sense reducible to, items at lower levels. I argue that the motivation for levels stems from an implicit acceptance of a Picture Theory of language according to which we can ‘read off’ features of the world from ways we describe the world. Abandonment of the Picture Theory opens the way to a ‘no levels’ conception of reality, a conception that honors anti-reductionist sentiments and preserves the status of the special sciences without the ontological baggage."
74. ———. 2021. "Truthmaking and Fundamentality." *Synthese* no. 198:849-860.
Abstract: "Consider the idea that some entities are more fundamental than others, some entities ‘ground’ other, less fundamental, entities. What is it for something to be more fundamental than another, or for something to ‘ground’ something else? This paper urges the rejection of conceptions of grounding and fundamentality according to which reality has a hierarchical structure in which higher-level entities are taken to be distinct from but metaphysically dependent on more fundamental lower-level entities. Truthmaking is offered as an apt replacement for at least some of the many applications of grounding."
75. Heller, Mark. 2008. "The Donkey Problem." *Philosophical Studies* no. 140:83-101.
Abstract: "The Donkey Problem (as I am calling it) concerns the relationship between more and less fundamental ontologies. I will claim that the moral to draw from the Donkey Problem is that the less fundamental objects are merely conventional.
This conventionalism has consequences for the 3D/4D debate. Fourdimensionalism is motivated by a desire to avoid coinciding objects, but once we accept that the non-fundamental ontology is conventional there is no longer any reason to reject coincidence. I therefore encourage 4Dists to become even more radical—embrace the Donkey Problem’s conventionalism and deflate the debate between 3Dists and 4Dists."
76. Hildebrand, Tyler. 2016. "Natural Properties, Necessary Connections, and the Problem of Induction." *Philosophy and Phenomenological Research* no. 96:668-689.
Abstract: "The necessitarian solution to the problem of induction involves two claims: first, that necessary connections are justified by an inference to the best explanation; second, that the best theory of necessary connections entails the timeless uniformity of nature. In this paper, I defend the second claim. My arguments are based on considerations from the metaphysics of laws, properties, and fundamentality."
77. Hofweber, Thomas. 2009. "Ambitious, Yet Modest, Metaphysics." In *Metametaphysics: New Essays on the Foundations of Ontology*, edited by Chalmers, David, Manley, David and Wasserman, Ryan, 260-289. New York: Oxford University Press.
"I have enough doubts about the glorious history of philosophy to not take Aristotle’s word for ‘priority’ to be a clear enough notion on which metaphysics can be based. In a sense, of course, priority is a clear notion. There are many things that are prior or more fundamental than other ones, but they are so in many senses of these words. What is disputed and controversial is whether there is a special metaphysical sense of priority or fundamentality."

- This I deny.(7)" (p. 271)
 (7) In conversation, as well as in [Schaffer, [*On What Grounds What*] this volume, p. 375], the *Euthyphro* contrast is often mentioned as a clear case of metaphysical priority: is something good because the Gods love it, or do the Gods love it because it is good. But this is not at all clear. There are two counterfactual dependencies here which are not metaphysical priority: if the Gods loved something else then that would be good, vs. if something else were good then the Gods would love that. And there are causal readings of the contrast (which are not a case of metaphysical priority), and so on. Metaphysical priority is supposed to be another sense of priority, distinct from counterfactual and causal ones. When undergraduates get the contrast it is not at all clear that this gives them the notion of metaphysical priority, as Schaffer holds.
78. ———. 2016. *Ontology and the Ambitions of Metaphysics* . New York: Oxford University Press.
 Chapter 13: *Esoteric and Egalitarian Metaphysics* , § 13.4.2 *Fundamentality and Explanation* , pp. 328-330.
 "Do we have a substantial, egalitarian, notion of priority available? As it turns out, there is good reason to think that we do. In the following we will have a critical look at some of the best arguments that we have such a notion available. We will start with one widely used notion in the present neo-Aristotelian context: fundamentality. After that we will consider various considerations which suggest that we have an egalitarian notion of ground that goes beyond the uncontroversial cases."
79. Hüttemann, Andreas. 2021. *A Minimal Metaphysics for Scientific Practice* . Cambridge: Cambridge University Press.
 Chapter 6: *Reduction and Physical Foundationalism* , pp. 159-185.
 "Conclusion: Foundationalism is not implied by what classical mechanics and quantum mechanics have to say about the part-whole relation.(8) Not even those cases in classical and quantum mechanics that are most favourable to the foundationalist – namely, cases of part-whole explanation of the dynamics of compound systems – commit us to the claim that the behaviour of the compound is ontologically posterior to the behaviour of the parts (and some further facts about how the parts interact and how they are related). The reductive practices we have discussed in Chapter 5 [*Reductive practices*] do not commit us to Foundationalism." (p. 185)
 (8) McKenzie comes to a similar conclusion: ‘it seems that the layered structure that (those who identify as) metaphysicians are primarily concerned with is a structure that is oriented in some sense “orthogonally” from that relating the ontologies of the different sciences’ (McKenzie 2019, 56). See also McKenzie (2011).
 References
 McKenzie, K. (2011). Arguing against Fundamentality. *Studies in the History and Philosophy of Modern Physics*, 42, 244–55.
 McKenzie, K. (2019). Fundamentality. In S. Gibb, R. Hendry and T. Lancaster, eds., *The Routledge Handbook of Emergence* . London: Routledge, pp. 54–64.
80. Inman, Ross D. 2018. *Substance and the Fundamentality of the Familiar: A Neo-Aristotelian Mereology* . New York: Routledge.
 Chapter 2: *Grounding and Essence* , pp. 53-74.
 "In the previous chapter, I outlined and argued for a version of serious essentialism that glossed the notion of essence in non-modal terms and is captured by real definition.
 (...)
 I now want to turn to the topic of metaphysical grounding or dependence, yet another pillar upon which I will rely in developing the notion of fundamental mereology in the sequel.
 The present chapter will proceed as follows. In §2.1 I introduce the notion of metaphysical grounding as a robust form of (non-causal) metaphysical dependence

as well as several general background assumptions about grounding that I draw from in the sequel. I explicate a host of axioms and operative assumptions about the formal and structural features of a species of grounding, viz. ontological dependence, that is ubiquitous in the context of mereological metaphysics. I make no claim to originality nor to have argued for my preferred understanding of metaphysical grounding.

(...)

In § 2.2 I take a closer look at the diverse family of ontological dependence relations. I employ the serious-essentialist framework developed in the previous chapter to specify a species of grounding that employs a non-modal view of essence and that is well suited to generate relations of metaphysical priority and posteriority."

81. Jenkins, C. S. 2013. "Explanation and Fundamentality." In *Varieties of Dependence: Ontological Dependence, Grounding, Supervenience, Response-Dependence*, edited by Hoeltje, Miguel, Schnieder, Benjamin and Steinberg, Alex, 211-241. Munich: Philosophia Verlag.

"Setting aside some no-doubt-important differences, for current purposes I shall take it that metaphysical fundamentality is generally supposed to amount to something *reasonably similar* regardless of the ontological category of that to which it is being attributed. My purpose in this paper is to explore the question: what are metaphysicians doing when they describe something as 'metaphysically fundamental'?"

There is influential recent work in metaphysics arguing about whether there exists anything fundamental (see e.g. Markosian 2005, Cameron 2008). The fundamentality or otherwise of particular things is also a rich source of metaphysical debate (see e.g. Schaffer 2010). And this work taps into a venerable tradition plausibly dating back at least to Aristotle." (p. 212)

References

Cameron, R. 2008: 'Turtles All The Way Down: Regress, Priority and Fundamentality'. *Philosophica! Quarterly* 58, pp. 1-14.

Markosian, N. 2005: 'Against Ontological Fundamentalism'. *Facta Philosophica* 7, pp. 69-83.

Schaffer, J. 2010. 'Monism: The Priority of the Whole'. *The Philosophical Review* 19, pp. 31-76.

82. Jenkins Ichikawa, Jonathan, and Jenkins, C. S. I. 2017. "On Putting Knowledge 'First'." In *Knowledge First: Approaches in Epistemology and Mind*, edited by Carter, Joseph Adam, Gordon, Emma C. and Jarvis, Benjamin, 113-131. Oxford: Oxford University Press.

"Introduction: There is a New Idea in epistemology. It goes by the name of 'knowledge first,' and it is particularly associated with Timothy Williamson's book *Knowledge and Its Limits* (Williamson [Oxford University Press] 2000). In slogan form, to put knowledge first is to treat knowledge as basic or fundamental, and to explain other states—belief, justification, maybe even content itself—in terms of knowledge, instead of vice versa. The idea has proven enormously interesting, and equally controversial. But foundational questions about its actual content remain relatively unexplored. We think that a wide variety of views travel under the banner of 'knowledge first' (and that the slogan doesn't help much with differentiating them). Furthermore, it is far from straightforward to draw connections between certain of these views; they are more independent than they are often assumed to be.

(1)

Our project here is exploratory and clarificatory. We mean to tease apart various 'knowledge first' claims, and explore what connections they do or do not have with one another. Section 3 provides a taxonomy, and Section 4 explores connections. The result, we hope, will be a clearer understanding of just what the Knowledge-First theses are. Section 5 concludes with some brief suggestions as to how we think the various theses might be evaluated.

- Section 2 begins with a brief summary of the historical context in which the knowledge-first programme arose. It provides insights into what exactly the programme is by disentangling elements of the tradition to which it is a reaction" (p. 113)
- (1) The authors contributed to this chapter equally; they are listed alphabetically.
83. Jones, Nicholas K. 2022. "Against Representational Levels." *Philosophical Studies* no. 36:1-20.
To be published in volume 36 of *Philosophical Studies*, preprint available PhilArchive.
Abstract: "Some views articulate reality's hierarchical structure using relations from the fundamental to representations of reality. Other views instead use relations from the fundamental to constituents of non-representational reality. This paper argues against the first kind of view."
84. Khalidi, Muhammad Ali. 2011. "The Pitfalls of Microphysical Realism." *Philosophy of Science* no. 78:1156-1164.
Abstract: "Microphysical realism is the position that the only real entities and properties are found at the most fundamental level of nature. In this article, I challenge microphysical realism concerning properties and natural kinds. One argument for microphysical realism about entities, the "nothing-but argument," does not apply to properties and kinds. Another argument, the "causal exclusion argument," cannot be sustained in light of modern physics. Moreover, this argument leads to an objection against microphysical realism, based on the "illusoriness of macroproperties." Another objection is based on the possibility that there is no fundamental level but a "bottomless pit."
85. Kirilyuk, Andrei P. 2018. Objective Fundamental Reality Structure by the Unreduced Complexity Development. 1-7.
Paper submitted to the 2017-2018 FQXi Essay Contest, 19 January 2018.
Abstract: "We explain why exactly the simplified abstract scheme of reality within the standard science paradigm cannot provide the consistent picture of "truly fundamental" reality and how the unreduced, causally complete description of the latter is regained within the extended, provably complete solution to arbitrary interaction problem and the ensuing concept of universal dynamic complexity. We emphasize the practical importance of this extension for both particular problem solution and further, now basically unlimited fundamental science development (otherwise dangerously stagnating within its traditional paradigm)."
86. Kleinknecht, Reinhard. 1998. "Comments on U. Meixner's Lecture "Actual Existence, Identity and Ontological Priority"." *Erkenntnis* no. 48:227-231.
"The questions treated by Uwe Meixner (hereafter referred to as M) in his lecture are of fundamental importance as far as ontology is concerned.
He assumes the old distinction between epistemological and ontological priority. This distinction is intuitively justified. However, when it comes to the question as to what exactly is meant by that, philosophers are divided on their views. M deals exclusively with *ontological* priority. But since what is being dealt with here is priority in *ordine essendi*, one ought really to refer to "ontic" priority instead of "ontological". Having said that I will however adopt the terms used by M." (p. 227)
References
Uwe Meixner. Actual Existence, Identity and Ontological Priority. *Erkenntnis* (48), 1998, 209-226.
87. Kleinschmidt, Shieva. 2015. "Fundamentality and Time-Travel." *Thought: A Journal of Philosophy* no. 4:46-51.
Abstract: "The relation of being more fundamental than, as well as the Finean notion of partial grounding, are widely taken to be irreflexive, transitive, and asymmetric. However, certain time-travel cases that have been used to raise worries about the irreflexivity, transitivity, and asymmetry of proper part of can also be used to argue that more fundamental than and partially grounds do not have these formal

- properties. I present this worry and discuss several responses to it, with the aim of showing that the problem is harder to address when applied to fundamentality and partial grounding than it was when merely applied to proper parthood."
88. Korman, Daniel Z. 2015. "Fundamental Quantification and the Language of the Ontology Room." *Noûs* no. 49:298-321.
Abstract: "Nihilism is the thesis that no composite objects exist. Some ontologists have advocated abandoning *nihilism* in favor of *deep nihilism*, the thesis that composites do not exist_O, where to exist_O is to be in the domain of the most fundamental quantifier. By shifting from an existential to an existentialO thesis, the deep nihilist seems to secure all the benefits of a composite-free ontology without running afoul of ordinary belief in the existence of composites. I argue that, while there are well known reasons for accepting nihilism, there appears to be no reason at all to accept deep nihilism. In particular, deep nihilism draws no support either from the usual arguments for nihilism or from considerations of parsimony."
89. Korman, Daniel Z., and Carmichael, Chad. 2018. "Composition." In *Oxford Handbooks Online*, 1-40. Oxford: Oxford University Press.
Abstract: "This article is intended as an introduction to the central questions about composition and a highly selective overview of various answers to those questions. §1 reviews some formal features of parthood that are important for understanding the nature of composition. §2 examines the special composition question: which pluralities of objects together compose something? §§3–4 examines the argument from vagueness for unrestricted composition. §5 addresses questions concerning the uniqueness of composition, coincident objects, hylomorphism, and the so-called grounding problem. §6 concerns the question of which composites existfundamentally."
90. Koslicki, Kathrin. 2015. "Questions of Ontology." In *Ontology After Carnap*, edited by Blatti, Stephan and Lapointe, Sandra, 220-241. Oxford: Oxford University Press.
"In what follows, I will argue that some of the most interesting and important debates which properly belong to the study of being, whether we call it "metaphysics" or "ontology", do not concern existential questions at all; rather, such disputes may in some cases focus on non-existential disagreements over questions of fundamentality.
Fundamentality can be construed in either a relative or an absolute way. Relative fundamentality is a comparative notion and one that comes in degrees: it allows us to assess an entity's status as fundamental (non-derivative) or non-fundamental (derivative) relative to that of another. When we encounter a pair of entities, such that one is allegedly more or less fundamental or derivative than the other, we should not immediately assume that we are also dealing with a phenomenon that can be correctly described as absolutely fundamental. For example, one might take moral facts to be less fundamental than mental facts, without taking either realm to be fundamental absolutely. Thus, we should take care, in what follows, to separate questions of relative fundamentality from those which concern absolute fundamentality." (p. 223)
91. Kovacs, David Mark. 2020. "What is Priority Monism?" *Philosophical Studies* no. 178:2873-2893.
Abstract: "In a series of papers, Jonathan Schaffer defended priority monism, the thesis that the cosmos is the only fundamental material object, on which all other objects depend. A primitive notion of dependence plays a crucial role in Schaffer's arguments for priority monism. The goal of this paper is to scrutinize this notion and also to shed new light on what is at stake in the debate. I present three familiar arguments for priority monism and point out that each relies on a connecting principle that ties dependence to other metaphysical relations. I then argue for two desiderata: the relation between dependence and other metaphysical relations needs to be strong enough to establish that other metaphysical relations are relevant to the direction of dependence but not so strong as to leave no room for revisionary

- versions of priority monism. I propose a particular way of meeting these desiderata, according to which the target notion of dependence is graded rather than all-or-nothing. One upshot is that we should be less preoccupied with priority monism itself and should instead focus on specific aspects of a broader monistic worldview."
92. Kreines, James. 2018. "Fundamentality without Metaphysical Monism: Response to Critics of *Reason in the World* ." *Bulletin of the Hegel Society of Great Britain* no. 39:138-156.
Abstract: "This article is a reply to comments by Franz Knappik and Robert Stern on my book, *Reason in the World: Hegel's Metaphysics and its Philosophical Appeal* . Issues addressed include the systematicity of Hegel's philosophy, the prioritizing of metaphysical over epistemological questions in his arguments, Hegel's response to Kant's Antinomy of Pure Reason, and my conclusion that there are senses in which Hegel's own position is both ambitiously metaphysical and also monist, but that the monism present there is epistemological, and the ambitious metaphysics is non-monist."
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Knappik, F. (2016), 'And Yet He is a Monist: Comments on James Kreines', *Reason in the World, Hegel Bulletin* . [pp. 121-137]
Kreines, J. (2015), *Reason in the World: Hegel's Metaphysics and its Philosophical Appeal* . Oxford: OUP.
Stern, R. (2016), 'Kreines on the Problem of Metaphysics in Kant and Hegel', *Hegel Bulletin* . [pp. 106-120]
93. Kriegel, Uriah. 2015. "Existence, Fundamentality, and the Scope of Ontology." *Argumenta* no. 1:97-108.
Abstract: "A traditional conception of ontology takes existence to be its proprietary subject matter—ontology is the study of what exists (§ 1). Recently, Jonathan Schaffer has argued that ontology is better thought of rather as the study of what is basic or fundamental in reality (§ 2). My goal here is twofold. First, I want to argue that while Schaffer's characterization is quite plausible for some ontological questions, for others it is not (§ 3). More importantly, I want to offer a unified characterization of ontology that covers both existence and fundamentality questions (§§ 4-5)."
References
Schaffer, J. 2009, "On What Grounds What", in Chalmers D.J., D. Manley, and R. Wasserman (eds.), *Metametaphysics* , Oxford and New York: Oxford University Press.
94. Kutach, Douglas. 2016. "Ontology: an Empirical Fundamentalist Approach." In *Metaphysics in Contemporary Physics* , edited by Wüthrich, Christian and Bigaj, Tomasz, 55-80. Leiden: Brill Rodopi.
Abstract: "I apply the philosophical program Empirical Fundamentalism to the topic of ontology. My advice is to represent reality using two related components: a model of fundamental reality and a model of what we can observe in principle called an 'empirical surrogate'.
The empirical surrogate need not be fundamental but can abstract away from fundamental reality while reducing to fundamental reality. Our ideal guess at ontology is a model of fundamental reality that (1) is a reduction base for the appropriate empirical surrogate, (2) posits no conspiratorial structure, and (3) has no redundant structure. I contrast my approach to alternatives that appeal to beables or primitive ontology."
95. Le Bihan, Baptiste. 2018. "Space Emergence in Contemporary Physics: Why We Do Not Need Fundamentality, Layers of Reality and Emergence." *Disputatio* no. 10:71-95.
Abstract: " 'Space does not exist fundamentally: it emerges from a more fundamental non-spatial structure.'

This intriguing claim appears in various research programs in contemporary physics. Philosophers of physics tend to believe that this claim entails either that spacetime does not exist, or that it is derivatively real. In this article, I introduce and defend a third metaphysical interpretation of the claim: reductionism about space. I argue that, as a result, there is no need to subscribe to fundamentality, layers of reality and emergence in order to analyse the constitution of space by non-spatial entities. It follows that space constitution, if borne out, does not provide empirical evidence in favour of a stratified, Aristotelian in spirit, metaphysics. The view will be described in relation to two particular research programs in contemporary physics: wave function realism and loop quantum gravity.

96. Leuenberger, Stephan. 2020. "The Fundamental: Ungrounded or All-Grounding?" *Philosophical Studies* no. 177:2647-2669.
 Abstract: "Fundamentality plays a pivotal role in discussions of ontology, supervenience, and possibility, and other key topics in metaphysics. However, there are two different ways of characterising the fundamental: as that which is not grounded, and as that which is the ground of everything else. I show that whether these two characterisations pick out the same property turns on a principle—which I call “Dichotomy”—that is of independent interest in the theory of ground: that everything is either fully grounded or not even partially grounded. I then argue that Dichotomy fails: some facts have partial grounds that cannot be complemented to a full ground. Rejecting Dichotomy opens the door to recognising a bifurcation in our notion of fundamentality. I sketch some of the far-reaching metaphysical consequences this might have, with reference to big-picture views such as Humeanism.
 Since Dichotomy is entailed by the standard account of partial ground, according to which partial grounds are subpluralities of full grounds, a non-standard account is needed. In a technical “Appendix”, I show that truthmaker semantics furnishes such an account, and identify a semantic condition that corresponds to Dichotomy."
97. Lipman, Martin A. 2018. "Against Fundamentality-Based Metaphysics." *Noûs* no. 52:587-610.
 Abstract: "Metaphysical views typically draw some distinction between reality and appearance, endorsing realism about some subject matters and antirealism about others.
 There are different conceptions of how best to construe antirealist theories. A simple view has it that we are antirealists about a subject matter when we believe that this subject matter fails to obtain. This paper discusses an alternative view, which I will call the fundamentality-based conception of antirealism. We are antirealists in this sense when we think that the relevant matter fails to be constitutive of fundamental reality. The following discussion will not rely on any particular understanding of fundamental reality, covering conceptions based on grounding, naturalness and truthmaking, to name three salient ones. This paper argues that there are serious issues with fundamentality-based metaphysics. It will be argued that: (1) the fundamentality-based approach shapes and restricts our realist and antirealist views in unsatisfying ways, (2) that it is unable to handle the conflicting facts that lie across the envisaged ‘layers’ of the metaphysically structured world, and (3) that the methodological reasons for adopting the fundamentality-based approach fail. The paper will conclude with a diagnosis of the discussed issues, identifying a common source."
98. List, Christian. 2019. "Levels: Descriptive, Explanatory, and Ontological." *Noûs* no. 53:852-883.
 Abstract: "Scientists and philosophers frequently speak about levels of description, levels of explanation, and ontological levels. In this paper, I propose a unified framework for modelling levels. I give a general definition of a *system of levels* and show that it can accommodate descriptive, explanatory, and ontological notions of levels. I further illustrate the usefulness of this framework by applying it to some salient philosophical questions: (1) Is there a linear hierarchy of levels, with a

- fundamental level at the bottom? And what does the answer to this question imply for physicalism, the thesis that everything supervenes on the physical? (2) Are there emergent properties? (3) Are higher-level descriptions reducible to lower-level ones? (4) Can the relationship between normative and non-normative domains be viewed as one involving levels? Although I use the terminology of “levels”, the proposed framework can also represent “scales”, “domains”, or “subject matters”, where these are not linearly but only partially ordered by relations of supervenience or inclusion."
99. Loew, Christian. 2018. "Fundamentality and Time's Arrow." *Philosophy of Science* no. 85:483-500.
Abstract: "The distribution of matter in our universe is strikingly time asymmetric. Most famously, the Second Law of Thermodynamics says that entropy tends to increase toward the future but not toward the past. But what explains this time-asymmetric distribution of matter? In this paper, I explore the idea that time itself has a direction by drawing from recent work on grounding and metaphysical fundamentality. I will argue that positing such a direction of time, in addition to time-asymmetric boundary conditions (such as the so-called “past hypothesis”), enables a better explanation of the thermodynamic asymmetry than is available otherwise."
100. Loss, Roberto. 2021. "There Are No Fundamental Facts." *Analysis* no. 81:32-39.
"Introduction: Many facts appear to depend on, and thus to be grounded in, other facts: the fact that it is true that the Earth's climate is warming is grounded in the fact that the Earth's climate is indeed warming; the fact that { Socrates } exists is grounded in the fact that Socrates exists; the fact that the flag of the European Union is blue is grounded in the fact that it is reflex-blue etc.
Are there fundamental facts – namely, facts that are not grounded in other facts? In this paper I will present an argument showing that certain assumptions concerning the notion of metaphysical grounding entail that no fact is fundamental. In §2 I will briefly present the argument. In §3 I will attempt to defend its main assumptions and compare it with a similar argument recently proposed by Mark Jago. In §4 I will consider two possible objections. I will then conclude that the argument presented in this paper seems to provide at least some minimal support to the idea that (possibly excluding a restricted set of ‘special’ facts) there are indeed no fundamental facts." (p. 32 a note omitted)
References
Jago, M. 2020. A short argument for truthmaker maximalism. *Analysis* 80: 40–44.
101. Markosian, Ned. 2005. "Against Ontological Fundamentalism." *Facta Philosophica* no. 7:69-83.
"In Section 2 I will formulate and explain the relevant thesis – Ontological Fundamentalism – together with several related theses that are involved in the popular line of reasoning for it. In Section 3 I will spell out the popular line of reasoning for Ontological Fundamentalism, and show that no one should be convinced by it. Finally, in Section 4, I will consider the independent question of whether Ontological Fundamentalism is true, and I will argue that it is not." (pp. 69-70)
102. Mathers, David. 2019. "Against Sider on Fundamentality." *Erkenntnis* no. 84:823-838.
Abstract: "Sider's *Writing the Book of the World* gives an account of fundamentality in terms of his central ideological notion ‘structure’. Here I first argue against Sider's claim that to be fundamental to a degree is to be structural to a degree. I argue there's a pair of properties, P1 and P2, such that P1 is the more fundamental, but Sider is committed to counting P2 as the more structural. I then argue that if relative structure and relative fundamentality can come apart in this way, then Sider is likely also wrong to identify being absolutely structural with being absolutely fundamental."
References

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103. McDaniel, Kris. 2009. "Ways of Being." In *Metametaphysics: New Essays on the Foundations of Ontology*, edited by Chalmers, David, Manley, David and Wasserman, Ryan, 290-319. New York: Oxford University Press.
- "In what follows, I develop a meta-ontological theory based on the work of Martin Heidegger circa *Being and Time*.
- (...)
- Most contemporary analytic metaphysicians believe that the idea that different kinds of beings can enjoy different ways of being is metaphysically bankrupt, and probably even meaningless.(5) They are mistaken. In section 3, I discuss the doctrine that there are ways of being, and show how we can understand this doctrine in terms of the meta-ontological framework defended by Theodore Sider. I then contrast Sider's views on existence with the Heideggerian position developed here. In section 4, I compare and contrast this Heideggerian meta-ontological position with quantifier variance, a view inspired by Carnap (1956) and recently defended by Eli Hirsch (2002a).
- In section 5, I abstract away from the particulars of Heidegger's theory and provide a general account for understanding what is for things to exist in different ways. I conclude with a brief discussion of how accepting that there are different ways of being might impact ontological disputes, such as the dispute between nominalists and realists over mathematical entities and the dispute between actualists and possibilists over mere possibilia.(6)"
- (5) See Quine (1960: 242). Van Inwagen (2001) is a prominent neo-Quinean.
- (6) In what follows, I do not distinguish between "existence" and "being" and "what there is."
- On the view to be articulated, everything that there is exists or has being, but existing things can exist in different ways or enjoy different modes of being. Any distinction lost by this terminological convenience can be recaptured in the framework defended in section 5.
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- Hirsch, Eli. 2002a. "Quantifier Variance and Realism", *Philosophical Issues* 12:51–73.
- Quine, W. V. O. 1960. *Word and Object*, John Wiley and Sons, and MIT Press.
- van Inwagen, Peter. 2001. "Meta-Ontology", in *Ontology, Identity, and Modality: Essays in Metaphysics*, Cambridge University Press, 13–31.
104. ———. 2013. "Degrees of Being." *Philosophers' Imprint* no. 13:1-18.
- "The view I mean to defend is the view rejected in the following passage:
A thing cannot be more or less real than another which is also real. It has been said that reality does admit of degrees. But this can ... be traced to one of two confusions.... Sometimes reality has been confused with power ... [but] a thing which asserts more power is not more real than one that asserts less. Sometimes ... the possibility of degrees of reality is based on the possibility of degrees of truth. ... If, for example, it should be truer to say that the universe was an organism than that it was an aggregate, then it is supposed that we may say that an organic universe is more real than an aggregate-universe.
But this is a mistake. [McTaggart 1927: 4–5]
- I grant that it would be a mistake to confuse power with reality and a mistake to accept degrees of truth. So let's not make these mistakes.
- On the view that I am considering, being is not to be conflated with some other feature that comes in degrees. Being itself comes in degrees: to be simpliciter is to be to some degree or other, just as to have mass simpliciter is to have some determinate amount of mass. And just as not everything has the same amount of mass, not everything that is exists to the same degree." (p. 3)
- References

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105. ———. 2017. "Normative Accounts of Fundamentality." *Philosophical Issues* no. 27:167-183.
 "In McDaniel (forthcoming: chapter 6), I noted that in contemporary discussions of fundamentality, normative and evaluative proclamations abound. I also discussed antecedents to these proclamations in the history of western philosophy. Given the prevalence of normative or evaluative locutions in discussions of fundamentality, it is worth considering normative or evaluative accounts. Even if these accounts ultimately fail, exploring them will help us get clearer on whether there is any sort of normativity governing fundamentality. Moreover, as suggested earlier, a successful normative account of joint carving would radically reorient meta-ethics and metaphysics, and this fact itself provides a reason to give them serious thought." (p. 169)
 References
 McDaniel, Kris. Forthcoming [2017]. *The Fragmentation of Being* , Oxford University Press.
106. McKenzie, Kerry. 2011. "Arguing Against Fundamentality." *Studies in History and Philosophy of Science Part A* no. 42:244-255.
 Abstract: "This paper aims to open up discussion on the relationship between fundamentality and naturalism, and in particular on the question of whether fundamentality may be denied on naturalistic grounds. A historico-inductive argument for an anti-fundamentalist conclusion, prominent within the contemporary metaphysical literature, is examined; finding it wanting, an alternative 'internal' strategy is proposed. By means of an example from the history of modern physics—namely S-matrix theory—it is demonstrated that (1) this strategy can generate similar (though not identical) anti-fundamentalist conclusions on more defensible naturalistic grounds, and(2) that fundamentality questions can be empirical questions. Some implications and limitations of the proposed approach are discussed."
107. ———. 2017. "Against Brute Fundamentalism." *Dialectica* no. 71:231-261.
 Abstract: "In metaphysics, the fundamental is standardly equated with that which has no explanation – with that which is, in other words, 'brute'. But this doctrine of brutalism is in tension with physicists' ambitions to not only describe but also explain why the fundamental is the way that it is. The tension would ease were science taken to be incapable of furnishing the sort of explanations that brutalists are concerned with, given that these are understood to be of a distinctively 'metaphysical sort'. But to assume this is to assume a sharp demarcation between physics and metaphysics that surely cannot be taken for granted. This paper sets out to examine the standing of brutalism from the perspective of contemporary fundamental physics, together with theories of explanation drawn both from the philosophy of science and metaphysics. Focusing on what fundamental kinds the world instantiates and how physicists go about determining them, I argue that a partial explanation, in Hempel's sense, may be given of this fundamental feature. Moreover, since this partial explanation issues, at least in part, from stipulations as to the essential nature of the kinds involved, I claim that it has as much right to be regarded as a metaphysical explanation as do grounding explanations. As such, my conclusion will be that the doctrine of brutalism can no longer be regarded as tenable: at least modulo certain plausible essentialist assumptions, it is no longer the case that no explanation can be given of the fundamental."
108. ———. 2017. "Relativities of Fundamentality." *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* no. 59:89-99.
 Abstract: "S-dualities have been held to have radical implications for our metaphysics of fundamentality. In particular, it has been claimed that they make the fundamentality status of a physical object theory-relative in an important new way.

But What physicists have had to say on the issue has not been clear or consistent, and in particular seems to be ambiguous between whether S-dualities demand an anti-realist interpretation of fundamentality talk or merely a revised realism. This paper is an attempt to bring some clarity to the matter. After showing that even antecedently familiar fundamentality claims are true only relative to a raft of metaphysical, physical, and mathematical assumptions, I argue that the relativity of fundamentality inherent in S-duality nevertheless represents something new, and that part of the reason for this is that it has both realist and anti-realist implications for fundamentality talk. I close by discussing the broader significance that S-dualities have for structuralist metaphysics and for fundamentality metaphysics more generally."

109. ———. 2019. "Fundamentality." In *The Routledge Handbook of Emergence*, edited by Gibb, Sophie, Hendry, Robin and Lancaster, Tom, 54-64. New York: Routledge.
- "The concept of metaphysical emergence is intimately tied up with our concept of fundamentality.
 (...)
 Fortunately, however, by now there exists an extensive literature on how to conceptualize fundamentality.
 For if anything characterizes the last decade in metaphysics, it is surely the explosion of interest metaphysicians have shown in precisely this question. Although the reasons for this foregrounding of fundamentality issues are not easy to determine, in the last few years a number of philosophers in the a priori tradition have gone as far as to claim that metaphysics just is the study of the fundamental and its relation to the non-fundamental – some even more restrictively that it is that of the fundamental alone.(1)
 (...)
 This brief chapter will have something to say about all of these questions, and the labour will be divided as follows. In Section 2, we will introduce some of the idioms pertaining to ontological priority that are intended to help us get a grip on the notion of fundamentality. In Section 3, we will discuss whether priority ought to be conceptualized in terms of some kind of determination relation or rather in a form ontological dependence – a matter over which there seems to be a surprising amount of confusion in the literature. In Section 4, we will consider some issues pertaining to the level of ‘grain’ at which relations of priority ought to be conceptualized. In Section 5, we will consider the issue of whether we should believe that anything fundamental exists at all." (pp. 54-55)
 (1) See e.g. Schaffer (2009), Dorr (2008), and Paul (2012) for statements of the former view; Sider (2011, p. 1) for a statement of the latter.
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 Schaffer, Jonathan (2009). ‘On What Grounds What’, in *Metametaphysics: New Essays on the Foundations of Ontology*, eds. David Manley, David J. Chalmers and Ryan Wasserman, pp. 347–383. Oxford: Oxford University Press.
 Sider, Theodore (2011). *Writing the Book of the World*. Oxford : Oxford University Press.
110. Mehta, Neil. 2017. "Can Grounding Characterize Fundamentality?" *Analysis* no. 77:74-79.
 Abstract: "It can seem incoherent to fully characterize fundamentality in terms of grounding, given that the fundamental is precisely that which cannot be fully characterized in terms of anything else. I argue that there is no such incoherence."

111. Meixner, Uwe. 1998. "Actual Existence, Identity and Ontological Priority." *Erkenntnis* no. 48:209-226.
Abstract: "The paper first distinguishes ontological priority from epistemological priority and unilateral ontic dependence. Then explications of ontological priority are offered in terms of the reducibility of the actual existence or identity of entities in one ontological category to the actual existence or identity of entities in another. These explications lead to incompatible orders of ontological priority for individuals, properties of individuals and states of affairs. Common to those orders is, however, that the primacy of the category of individuals is abandoned. This primacy is challenged in the paper also by epistemological arguments, and an onto-anthropological explanation is offered for the very common but false idea that individuals are ontological prior to all other kinds of entities. Finally ontological priority is discussed with respect to a fully specified system of ontological categories."
112. Miller, Elizabeth. 2014. "Schaffer on the Action of the Whole." *Proceedings of the Aristotelian Society* no. 114:365-370.
Abstract: "I argue that Schaffer's recent defence of Spinozan Monism—the thesis that the cosmos is the only substance, or the only fundamental and integrated thing—fails to establish that the universe is uniquely fundamental. In addition, Schaffer's own defence of his thesis offers the pluralist about fundamentality a model for responding to Schaffer's criticism of pluralism."
113. ———. 2020. "Two Notions of Holism." *Synthese* no. 197:4187-4206.
Abstract: "A simple argument proposes a direct link between realism about quantum mechanics and one kind of metaphysical holism: if elementary quantum theory is at least approximately true, then there are entangled systems with intrinsic whole states for which the intrinsic properties and spatiotemporal arrangements of salient subsystem parts do not suffice. Initially, the proposal is compelling: we can find variations on such reasoning throughout influential discussions of entanglement. Upon further consideration, though, this simple argument proves a bit too simple. To get such metaphysically robust consequences out, we need to put more than minimal realism in.
This paper offers a diagnosis: our simple argument seems so compelling thanks to an equivocation. The predictions of textbook quantum theory already resonate with familiar holistic slogans; for realists, then, any underlying reality, conforming to such predictions, also counts as holistic in some sense or other, if only by association.
Such associated holism, though, does not establish the sort of specific, robust supervenience failure claimed by our simple argument. While it may be natural to slide to this stronger conclusion, facilitating the slide is not minimal realism per se but an additional explanatory assumption about how and why reality behaves in accordance with our theory: roughly, quantum theory accurately captures patterns in the features and behaviors of physical reality because some underlying metaphysical structure constrains reality to exhibit these patterns. Along with the diagnosis comes a recommendation: we can and should understand one traditional disagreement about the metaphysics of entanglement as another manifestation of a familiar and more general conflict between reductive and non-reductive conceptions of metaphysical theorizing.
Such reframing makes clearer what resources reductionists have for resisting the simple argument's challenge from quantum holism. It also has an important moral for their opponents. Traditional focus on whole-part supervenience failure distracts from a root disagreement about metaphysical structure and its role in our theorizing. Non-reductionists fond of our simple argument would be better off tackling this root directly."
114. Morganti, Matteo. 2020. "Fundamentality in Metaphysics and the Philosophy of Physics. Part II: Physics." *Philosophy Compass* no. 15:1-10.
First online 29 August 2020.

- Abstract: "This is the second part of an overview article on fundamentality in metaphysics and the philosophy of physics. Here, the notion of fundamentality is looked at from the viewpoint of the philosophical analysis of physics and physical theories. The questions are considered (1) whether physics can be regarded as fundamental with respect to other sciences, and in what sense; (2) what the label 'fundamental physics' should exactly be taken to mean; (3) on what grounds a particular physical theory should be considered fundamental; (4) what should be regarded as fundamental according to particular theories of physics; and (5) what indications come from contemporary physics concerning the fundamental structure of reality."
115. ———. 2020. "Fundamentality in Metaphysics and the Philosophy of Physics. Part I: Metaphysics." *Philosophy Compass* no. 15:1-14. First online 15 July 2020. Abstract: "This is the first part of a two-tier overview article on fundamentality in metaphysics and the philosophy of physics. It provides an introduction to the notion of fundamentality in metaphysics, as well as to several related concepts. The key issues in the contemporary debate on the topic are summarized, making systematic reference to the most relevant literature. In particular, various ways in which the fundamental entities and the fundamental structure of reality may be conceived are illustrated and discussed. A final brief section looks at the methodological issue of naturalism, paving the way for the survey of fundamentality in the philosophy of physics which is carried out in the second part."
116. ———. 2020. "Ontic Structuralism and Fundamentality." In *The Foundation of Reality: Fundamentality, Space, and Time*, edited by Glick, David, Darby, George and Marmodoro, Anna, 69-86. Oxford: Oxford University Press. "Ontic structural realism (OSR) is the view that (1) in spite of the discontinuities that characterise the historical development of science we can be realist about something, i.e., the concrete counterpart of certain theoretical structures that remain preserved across theory-change; and (2) such structure is all there is in the actual world, at least at the fundamental level." (p. 69) "The structure of the chapter is as follows: in Section 3.2 I will concisely introduce the key notions employed in extant discussions of metaphysical fundamentality that will play a role here, and in Section 3.3 I will do the same with OSR, identifying with more precision the two fundamentality-related questions that arise in connection to it. In Section 3.4 I will present and discuss the various ontologies that can be and, partly, have been associated with OSR—with special attention to the quantum domain and the nature of space-time—bearing in mind the two different questions of fundamentality. In Section 3.5 I will critically assess these ontologies based on the indications coming from both a priori metaphysical reflection and current science. In particular, I will point out potential difficulties for structuralism as a metaphysical thesis. In Section 3.6 I will conclude by briefly presenting an alternative view, which arguably preserves the essential insights of structuralism while at the same time offering a different take on fundamentality." (p 70, a note omitted)
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Ladyman, J. (1998). 'What is Structural Realism?', *Studies in the History and Philosophy of Science Part A* 29, 409-424.
117. O'Leary-Hawthorne, John, and Cortens, Andrew. 1995. "Towards Ontological Nihilism." *Philosophical Studies* no. 79:143-165. "In this paper, we wish to motivate a radical cluster of metaphysical pictures that have tempted philosophers from a variety of traditions. These pictures share one important theme - they refuse to accord countable entities any place in the fundamental scheme of things. Put another way, they all suggest that the concept of an object has no place in a perspicuous characterization of reality. Such pictures suffer from a number of fairly obvious *prima facie* difficulties. They seem to fly in

- the face of common sense. They seem to suggest that just about everything we say is false. They seem to gesture at a noumenal reality that human language is unable to describe. And so on. Our aim is to meet such difficulties head on and, by doing so, vindicate this sort of radical picture as one that deserves to be taken seriously. This paper is organised into four sections. In section one, we examine various forms of this radical metaphysic and discuss their historical precedents, both in this century and in previous ones. In section two, we consider how the most radical of these metaphysical pictures - what we call 'ontological nihilism' - might be fleshed out into a rich, articulate, theory. In section three, we consider what the proponent of such a picture should say concerning the truth or falsity of ordinary discourse. In section four, we consider what the motivations for this apparently perverse metaphysic might be." (p. 143)
118. Oberle, Thomas. 2022. "Metaphysical Foundationalism: Consensus and Controversy." *American Philosophical Quarterly* no. 59:97-110.
Abstract: "There has been an explosion of interest in the metaphysics of fundamentality in recent decades. The consensus view, called metaphysical foundationalism, maintains that there is something absolutely fundamental in reality upon which everything else depends. However, a number of thinkers have challenged the arguments in favor of foundationalism and have proposed competing non-foundationalist ontologies. This paper provides a systematic and critical introduction to metaphysical foundationalism in the current literature and argues that its relation to ontological dependence and substance should be qualified in important ways."
119. Paolini Paoletti, Michele. 2021. "A Brighter Shade of Categoricalism." *Axiomathes* :1-30.
First online 10 July 2021.
Abstract: "Categoricalism is a doctrine about properties according to which the dispositional aspects of properties are not essential to them. In opposition to categoricalism, dispositionalism holds that the dispositional aspects of properties are essential to them. In this article, I shall construct a new version of categoricalism that should be favoured over the other existing versions: Semi-Necessitarian Categoricalism. In Section 2 I shall elaborate on the distinction between categoricalism and dispositionalism and single out different 'shades' of both doctrines. I shall also illustrate the main advantages and problems that characterize categoricalism. In Section 3 I shall introduce Necessitarian Categoricalism – as it has been recently developed by Alexander Kelly and Deborah Smith, among others. Even if Necessitarian Categoricalism solves the aforementioned problems of categoricalism, it also loses its main advantages. In Section 4 I shall refine this version of Necessitarian Categoricalism, thus developing Semi-Necessitarian Categoricalism. In Section 5 I shall face some objections. Finally, in Section 6, I shall briefly draw some conclusions and compare my account with other accounts."
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Kelly, A. J. (2009). *Properties and Powers*. PhD Dissertation (University of Warwick)
_____. (2013). "Ramseyan Humility, scepticism and grasp". *Philosophical Studies* , 164: 705-726
Smith, D. (2016). "Quid Quidditism Est?". *Erkenntnis* , 81: 237-257
120. Paseau, Alexander. 2010. "Defining Ultimate Ontological Basis and the Fundamental Layer." *The Philosophical Quarterly* no. 60:169-179.
Abstract: "I explain why Ross Cameron's definition of ultimate ontological basis is incorrect, and propose a different definition in terms of ontological dependence, as well as a definition of reality's fundamental layer. These new definitions cover the conceptual possibility that self-dependent entities exist. They also apply to different conceptions of the relation of ontological dependence."

121. Paul, L. A. 2012. "Building the World from Its Fundamental Constituents." *Philosophical Studies* no. 158:221-256.
 "In this paper, I argue that a popular way of modeling the fundamental constituents, structure and composition of the world, the *spatiotemporalist* approach to the world, has taken a wrong turn. Spatiotemporalist approaches to fundamental structure take the fundamental nature of the world to be spatiotemporal: they take the category of *spatiotemporal* to be fundamental. These approaches tend to start with questions about whether and how spatiotemporal parts and spatiotemporal composition interact, and try to build the entire physical world using spatiotemporal mereology. Supersubstantivalism, the view that everything physical reduces to spatiotemporal regions, is spatiotemporalism taken to an extreme." (p. 222)
122. ———. 2013. "Categorical Priority and Categorical Collapse." *Proceedings of the Aristotelian Society* no. Supplementary Volume 87:89-113.
 Abstract: "I explore some of the ways that assumptions about the nature of substance shape metaphysical debates about the structure of Reality. Assumptions about the priority of substance play a role in an argument for monism, are embedded in certain pluralist metaphysical treatments of laws of nature, and are central to discussions of substantivalism and relationalism. I will then argue that we should reject such assumptions and collapse the categorical distinction between substance and property."
 "A central project of contemporary metaphysics is to understand the nature of the world as a whole. The traditional way to approach this project is to develop an account of the metaphysically basic kinds, that is, of the *fundamental ontological categories* of the world. But in addition to giving an account of what the fundamental ontological categories are, we need to give an account of how they and their members ground the overall structure of the world." (p. 89)
123. Pearson, Olley. 2018. "Emergence, Dependence, and Fundamentality." *Erkenntnis* no. 83:391-402.
 Abstract: "In a recent paper Barnes proposes to characterize ontological emergence by identifying the emergent entities with those entities which are both fundamental and dependent. Barnes offers characterizations of the notions of fundamentality and dependence, but is cautious about committing to the specifics of these notions. This paper argues that Barnes's characterization of emergence is problematic in several ways. Firstly, emergence is a relation, and merely delimiting relata of this relation tells us little about it. Secondly, the group of entities delimited as dependent and fundamental do not appear to be the group of emergent entities. Rather, some entities appear to be dependent and fundamental and not emergent, whilst other entities appear to be emergent and not dependent and fundamental. The moral drawn is that in order to provide a characterization of emergence one must go beyond what Barnes says explicitly. It is also shown that a potentially fruitful way of doing this would be to further specify the notion of dependence at issue revealing it to be asymmetric and perhaps merely nomological."
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 Barnes, E. (2012). Emergence and fundamentality. *Mind*, 121(484), 873–901.
124. Pickel, Bryan. 2017. "Naming, Saying, and Structure." *Noûs* no. 51:594-616.
 Abstract: "It is commonplace for philosophers to distinguish mere truths from truths that perspicuously represent the world's structure. According to a popular view, the perspicuous truths are supposed to be metaphysically revelatory and to play an important role in the accounts of law-hood, confirmation, and linguistic interpretation.
 Yet, there is no consensus about how to characterize this distinction. I examine strategies developed by Lewis and by Sider in his *Writing the Book of the World* which purport to explain this distinction in terms of vocabulary: the truths that represent the world perspicuously have better, joint-carving vocabulary. I argue that the distinction between a perspicuous and mere truth concerns both the vocabulary of the sentence and its grammar. I then show that the collective

- motivations for distinguishing perspicuous from mere truths do not allow Lewis and Sider to properly impose constraints on grammar."
125. Plate, Jan. 2016. "Logically Simple Properties and Relations." *Philosophers' Imprint* no. 16:1-40.
 "Introduction: Metaphysicians generally agree that not all predicates are created equal. In the *Parmenides*, young Socrates affirms that there are Forms of the beautiful, the just, and the good, but denies that there is a Form of hair or of mud. In classical Indian metaphysics, Udayana's followers distinguished 'real' universals (*jāti*) from those that are merely 'constructed' (*upādhi*). (1) And in recent Western philosophy, Goodman (1955) has distinguished projectible from non-projectible predicates, Armstrong (1978) predicates that correspond to universals from those that don't, Shoemaker (1980) genuine from 'mere Cambridge' properties, and David Lewis (1983; 1986) perfectly natural attributes from those that are less than perfectly natural. (2) It is easy to notice that in each of these distinctions, one of the two respective classes of predicates (or universals, etc.) is in some way privileged. The distinction that this paper is concerned with also fits into this roster. I shall try to give an account of it, and offer the beginnings of an argument for the view that it would make for a viable substitute for Lewis's distinction between the perfectly and the less-than-perfectly natural attributes."
 (1) 1. Bartley (2001, 543).
 (2) For the sake of brevity, the term 'attribute' is here (following Carnap [1942]) used interchangeably with 'property or relation', practically regardless of context. So I shall speak of 'Lewis's concept of a perfectly natural attribute', irrespective of the fact that (i) Lewis himself tends not to use the word 'attribute', and (ii) the conception of attributes operative in this paper is markedly different from Lewis's.
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 Carnap, R. (1942). *Introduction to Semantics*. Cambridge, MA: Harvard University Press.
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 Shoemaker, S. (1980). Causality and Properties. In P. van Inwagen (ed.), *Time and Cause* (pp. 109–35). Dordrecht: Reidel.
126. Raven, Michael J. 2009. *Ontology, From a Fundamentalist Point of View*. PhD thesis, New York University, 2009, available at Academia.edu.
 Abstract: "Ontology's attempt to uncover what is real can seem alternately profound, obscure, and empty. My aim is to clarify this project. I present and argue against the orthodox view that what is real is what there is. My proposed alternative is that what is real is what is fundamental. I develop this old idea in new ways, showing how it can resist standard difficulties, reshape some live ontological debates, and guide us towards a clearer understanding of whether ontology is as profound as it seems or as obscure or empty as skeptics allege."
127. ———. 2015. "Fundamentality without Foundations." *Philosophy and Phenomenological Research* no. 93:607-626.
 Abstract: "A commonly held view is that a central aim of metaphysics is to give a fundamental account of reality which refers only to the fundamental entities. But a puzzle arises. It is at least a working hypothesis for those pursuing the aim that, first, there must be fundamental entities. But, second, it also seems possible that the world has no foundation, with each entity depending on others. These two claims are inconsistent with the widely held third claim that the fundamental just is the

- foundational. It is tempting to resolve the puzzle by rejecting the first or second claim, perhaps because it is obscure how the third claim might plausibly be challenged. But I develop a new analysis of fundamentality which challenges the third claim by allowing for an entity to be fundamental without being foundational. The analysis, roughly, is that an entity is fundamental (or ineliminable, as I call it) just in case not all facts about it are grounded in facts about other entities. The possibility of fundamentality without foundations not only provides for a novel resolution to the puzzle, but has applications to some live debates: for example, it undermines Jonathan Schaffer's modal argument for priority monism."
128. Rayo, Agustin. 2015. "Essence Without Fundamentality." *Theoria: An International Journal for Theory, History and Foundations of Science* no. 30:349-363.
 "In *Modality and Explanatory Reasoning*, Boris Kment argues that a single notion of essence can be used to play two different theoretical roles. He thinks there is an important connection between essence and metaphysical necessity, on the one hand, and between essence and metaphysical explanation, on the other.
 It seems to me that there is a price to be paid for using a single notion of essence to play both of these roles. For the project of giving metaphysical explanations requires a notion of essence that distinguishes between truths that are more or less "fundamental", in a metaphysical sense. So the result of using that same notion of essence in an account of metaphysical necessity is that one ends up with a conception of metaphysical necessity that is tied up with distinctions of metaphysical fundamentality.
 The main objective of this paper is to develop a notion of essence which steers clear of the notion of metaphysical fundamentality, and to suggest that it is well-suited to elucidate the notion of metaphysical necessity. I will also argue that the relevant notion of essence can be used to resolve a tension implicit in a famous argument of Kit Fine's for the conclusion that the notion of essence cannot be adequately captured by the notion of metaphysical necessity."
 References
 Kment, B. 2014. *Modality and Explanatory Reasoning*, OUP, Oxford.
129. Schaffer, Jonathan. 2003. "Is There a Fundamental Level?" *Noûs* no. 37:498-517.
 "Talk about "the fundamental level of reality" pervades contemporary metaphysics. The fundamentalist starts with (a) a hierarchical picture of nature as stratified into *levels*, adds (b) an assumption that there is a bottom level which is *fundamental*, and winds up, often enough, with (c) an ontological attitude according to which the entities of the fundamental level are *primarily* real, while any remaining contingent entities are at best derivative, if real at all.
 (...)
 I find the hierarchical picture of nature in (a) plausible as reflected in the structure and discoveries of the sciences, and consider the ontological primacy of the fundamental entities in (c) a natural (though not inevitable) conclusion.
 In any case I will not discuss these issues here. Rather I will discuss the assumption (b) that there exists a fundamental level; first because it is almost entirely neglected; second because, as I will argue, there is no evidence in its favor; and third because the hierarchical picture minus (b) yields a far more palatable metaphysic in which, *contra* (c), all entities are equally real.
 So why believe that there is a fundamental level? Why not an infinite descending hierarchy of levels?
 In discussing the evidence for fundamentality I will, on route, clarify the various senses of "levels", assess the epistemic standing of various fundamentalist doctrines such as physicalism, and present a rival metaphysic of infinite descent which is at home in the macroworld." (pp. 498-499)
130. ———. 2004. "Two Conceptions of Sparse Properties." *Pacific Philosophical Quarterly* no. 85:92-102.
 Abstract: "Are the sparse properties drawn from all the levels of nature, or only the fundamental level? I discuss the notion of sparse property found in Armstrong and

- Lewis, show that there are tensions in the roles they have assigned the sparse properties, and argue that the sparse properties should be drawn from all the levels of nature. The issue has direct bearing on reductionism. If the sparse properties are drawn from all the levels of nature, then macro-scientific properties are just as primary as microscientific properties, and do not need to be reduced to them."
131. ———. 2008. "Truth and Fundamentality: On Merricks's Truth and Ontology." *Philosophical Books* no. 49:302-316.
Abstract: "*Truth and Ontology* is a lively book, brimming with arguments, and drawing the reader towards the radical conclusion that what is true does not depend on what there is. If there is a central line of argument, it is that the best account of truthmaking requires truths to be about their truthmakers, but negative existentials, modals, and claims about the past and future are not about what is, but rather about *what is not*, *what might be*, and *what was and will be*.
In §1 I will discuss this central line of argument, and invite Merricks to clarify his notion of aboutness. In §2 I will try to (re-)motivate truthmaking, and sketch a positive account that takes dependence seriously. Whether this account succeeds or fails, Merricks deserves credit for pushing us all to reconsider truthmaking and its motivations."
References
Trenton Merricks, *Truth and Ontology*. Oxford: Clarendon Press, 2007.
132. ———. 2008. "Truthmaker Commitments." *Philosophical Studies* no. 141:7-19.
133. ———. 2010. "The Least Discerning and Most Promiscuous Truthmaker." *Philosophical Quarterly* no. 60:307-324.
Abstract: "I argue that the one and only truthmaker is the world. This view can be seen as arising from (i) the view that truthmaking is a relation of grounding holding between true propositions and fundamental entities, together with (ii) the view that the world is the one and only fundamental entity. I argue that this view provides an elegant and economical account of the truthmakers, while solving the problem of negative existentials, in a way that proves ontologically revealing."
134. ———. 2013. "The Action of the Whole." *Aristotelian Society Supplementary Volume* no. 87:67-87.
"I discuss an argument for the monistic idea that the cosmos is the one and only fundamental thing, drawing on the idea that the cosmos is the one and only thing that evolves by the fundamental laws."
(...)
"What are the fundamental blocks from which reality is built? The pluralist views the cosmos as pieced together from many tiny parts, while the monist holds that the entire scene is painted onto one vast unbroken whole. I provide an argument for monism—the *argument from nomic integrity*—which draws on the idea that the fundamental laws of nature govern the temporal evolution of the cosmos as a whole, applying at most approximately and derivatively to any merely partial subsystem:
(1) *Leibnizian Substance* : Something is a substance if and only if it evolves by the fundamental laws.
(2) *Russellian Laws* : The cosmos is the one and only thing that evolves by the fundamental laws.
(3) *Spinozan Monism* : The cosmos is the one and only substance (from 1 and 2).
To fix another image: the cosmos ticks like a single clockwork. To cast a slogan: reality acts as one." (p. 67)
135. ———. 2013. "Metaphysical Semantics Meets Multiple Realizability." *Analysis* no. 73:736-751.
"Sider's *Writing the Book of the World* is an outstanding work. In an earlier review (Schaffer forthcoming) I called it 'masterful' and 'required reading', while worrying about Sider's notion(s) of structure. Here I offer the further praise of

further discussion, centred on a separate worry concerning whether Sider's metaphysical semantics can handle multiple realizability." (p. 736)

(...)

"Overview: In Section 1 I describe metaphysical semantics, and identify three conditions of adequacy. In Section 2 I propose three ways for metaphysical semantics to treat multiple realizability, and in Sections 3–5 I argue that none of these three ways can satisfy more than one adequacy condition. I conclude in Section 6 that the underlying problem lies with Sider's eliminativist attitude to the non-fundamental." (p. 737)

References

Schaffer, J. forthcoming [(2014) 123 (1): 125–129]. Review of Theodore Sider's *Writing the Book of the World*. *Philosophical Review* .

136. Schipper, Arthur. 2019. "Fundamental Truthmakers and Non-fundamental Truths." *Synthese* no. 198:3073-3098.

Abstract: "Recently, philosophers have tried to develop a version of truthmaker theory which ties the truthmaking relation (t-rel) closely to the notion of fundamentality. In fact, some of these *truthmaker-fundamentalists* (tf-ists), as I call them, assume that the notion of fundamentality is intelligible in part by citing, as central examples of fundamentals, truthmakers, which they understand necessarily as constituents of fundamental reality.

The aim of this paper is first to bring some order and clarity to this discussion, sketching how far tf is compatible with orthodox truthmaking, and then critically to evaluate the limits of tf. It will be argued that truthmaker theory cannot directly help with articulating the nature of fundamental reality and that t-rel does not necessarily relate truths with anything more fundamental, unless what is fundamental is what the

truthbearers in question are about. I shall argue that tf faces a rather thorny dilemma and some general problems. I shall present two exhaustive types of fundamentalism on which a version of tf can be based: deflationary and inflationary. It will be argued that each version of tf runs into significant troubles accounting for all truth, specifically ordinary truths and metaphysical truths about the relations between ordinary facts and fundamental facts. I shall not attempt to solve these problems, but rather, at the end, diagnose the issues with tf as lying in the difficulties with reconciling the manifest image with the scientific and metaphysical images of reality."

137. Schnieder, Benjamin. 2020. "Atomism and Fundamentality." *Erkenntnis* no. 85:551-574.

Abstract: "The paper focusses on two claims about metaphysical structure: Atomism and Fundamentalism.

The first of these claims says that there are mereological atoms, i.e. minimal elements in the mereological structure of reality. The second says that there are fundamental truths, i.e. minimal elements in the grounding structure of reality. A philosopher who defended both of these claims was Bernard Bolzano; the present paper is an exploration of his views on the matter."

138. Schrenk, Markus. 2009. "Can Physics ever be Complete if there is no Fundamental Level in Nature?" *Dialectica* no. 63:205-208.

Abstract: "In their recent book *Every Thing Must Go* , Ladyman and Ross (2007) claim:

1. Physics is analytically complete since it is the only science that cannot be left incomplete (cf. p. 283).

2. There might not be an ontologically fundamental level (cf. p. 178).

3. We should not admit anything into our ontology unless it has explanatory and predictive utility (cf. p. 179).

In this discussion note I aim to show that the ontological commitment in (3) implies that the completeness of no science can be achieved where no fundamental level exists. Therefore, if claim (1) requires a science to actually be complete in order to

be considered as physics, (1), and if Ladyman and Ross's "tentative metaphysical hypothesis [. . .] that there is no fundamental level" (p. 178) is true, (2), then there simply is no physics. Ladyman and Ross can, however, avoid this unwanted result if they merely require physics to ever strive for completeness rather than to already be complete."

References

Ladyman, J. and Ross, D. 2007, *Every Thing Must Go. Metaphysics Naturalized*, Oxford: Clarendon Press.

139. Shumener, Erica. 2017. "The Metaphysics of Identity: Is Identity Fundamental?" *Philosophy Compass* no. 12:1-13.
 "In this paper, I will first say more about what the question 'Are identity and distinctness facts fundamental?' means. Next, I will explore attempts to treat identity and distinctness facts as non-fundamental. Finally, I will examine two approaches that treat (at least some) identity and distinctness facts as fundamental. Metaphysicians have different conceptions of fundamentality. As a result, discussion of the fundamentality status of identity and distinctness facts shifts depending on the characterization of fundamentality in play. In the first part of this paper (section 3), we will consider the question of whether identity and distinctness facts are fundamental in light of grounding-based characterizations of fundamentality. In section 4, we will also consider how a different account of fundamentality, one that appeals to the notion of 'joint-carvingness', bears on this question" (p.1, notes omitted)
140. ———. 2019. "Building and Surveying: Relative Fundamentality in Karen Bennett's Making Things Up." *Analysis* no. 79:303-314.
 "One of the most important contributions of *Making Things Up* is Bennett's discussion of relative fundamentality, of one entity's being more fundamental than, less fundamental than, or equifundamental to another.(2) Bennett understands relative fundamentality in terms of building relations. Before delving into Bennett's account of relative fundamentality, we can first divide positions on relative fundamentality into two camps:
Builders : Facts about relative fundamentality are fixed solely by facts involving building relations and their patterns of instantiation.
Surveyors : Facts about relative fundamentality are not fixed solely by facts about building relations and their patterns of instantiation.
 Bennett is a builder. Surveyors come in different varieties. Some surveyors understand relative fundamentality without an appeal to building relations. While David Lewis did not provide a full account of relative fundamentality, we should probably think of him as this kind of surveyor." (pp. 303-304, a ote omitted)
 (2) I use 'entity' loosely to range over members of different ontological categories (objects, facts, properties, events and so on).
141. Sider, Theodore. 2008. "Monism and Statespace Structure." *Royal Institute of Philosophy Supplement* no. 62:129-150.
 "An intriguing newcomer to the contemporary scene is the ancient doctrine of monism, the claim that "reality is one". I will argue that, contrary to initial appearances, monism can be made materially adequate. But the monist's reconstruction of common sense and science will reveal some troublesome commitments." (p. 130, anote omitted)
142. ———. 2011. *Writing the Book of the World*. Oxford: Oxford University Press.
 "The central theme of this book is: realism about structure. The world has a distinguished structure, a privileged description. For a representation to be fully successful, truth is not enough; the representation must also use the right concepts, so that its conceptual structure matches reality's structure. There is an objectively correct way to "write the book of the world".
 Realism about predicate structure is fairly widely accepted. Many—especially those influenced by David Lewis—think that some predicates (like 'green') do a better job than others (like 'grue') at marking objective similarities, carving nature at the

- joints. But this realism should be extended, beyond predicates, to expressions of other grammatical categories, including logical expressions. Let “there schmexists an F” mean that the property of being an F is expressed by some predicate in some sentence of this book. ‘Schmexists’ does not carve at the joints; it is to the quantifier ‘there exists’ as ‘grue’ is to ‘green’. Likewise, the question of joint-carving can be raised for predicate modifiers, sentential connectives, and expressions of other grammatical categories. (Structure is a generalization and extension of Lewisian naturalness.)
- I connect structure to fundamentality. The joint-carving notions are the fundamental notions; a fact is fundamental when it is stated in joint-carving terms. A central task of metaphysics has always been to discern the ultimate or fundamental reality underlying the appearances. I think of this task as the investigation of reality’s structure.” (*Preface* , p. VII)
143. ———. 2013. “Précis of Writing the Book of the World.” *Philosophy and Phenomenological Research* no. 87:706-708.
- “My central thesis is that there *is* a ready-made world. Some concepts are objectively privileged: the “fundamental”, or “joint-carving”, or “structural” ones. A complete description of reality using these concepts—the “book of the world”—gives reality’s fundamental structure. A description using cooked-up concepts can be true, and even equivalent (in a sense) to the book of the world, but is nevertheless representationally deficient since its structure does not match the world’s structure.
- Many traditional questions of metaphysics are about the nature of “ultimate reality”. Is reality ultimately just physical, or is there also a mental aspect? In my terms, this is the question of whether the book of the world mentions mentality—of whether mental concepts are structural.” (p. 706)
144. ———. 2013. “Replies to Dorr, Fine, and Hirsch.” *Philosophy and Phenomenological Research* no. 87:733-754.
- “Reply to Kit Fine
- Kit Fine’s rich paper raises important issues about the metaphysics of fundamentality. Fine and I agree that fundamentality-theoretic concepts are not to be defined modally, that they are not to be understood in terms of ordinary meaning, and that some such concepts are to be adopted as conceptually primitive. But we differ over which such concepts to adopt.
- Fine’s (2001; 2012) primitive concepts are those of ground and reality. One proposition grounds another if and only if the first accounts for the second in a certain metaphysically distinctive way; one proposition holds in reality if and only if it is part of “reality’s intrinsic structure” (2001, section 8).
- My primitive concept, on the other hand, is that of joint-carving.
- Ground and reality apply at the level of entire propositions (or sentences, or facts), whereas joint-carving applies at the level of parts of propositions (or sentences, or facts). Mass, existential quantification, negation, and the like, rather than entire propositions, are candidates for joint-carving.
- Thus my account is more atomistic than Fine’s: the locus of fundamentality for me is sub-propositional whereas for Fine it is propositional.” (pp. 738-739)
- References
- Fine, Kit (2001). “The Question of Realism.” *Philosopher’s Imprint* 1: 1–30.
- (2012). “Guide to Ground.” In Fabrice Correia and Benjamin Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality* , 37–80. Cambridge: Cambridge University Press.
- (2013). “Fundamental Truth and Fundamental Terms.” *Philosophy and Phenomenological Research* 87: 725-732.
145. ———. 2013. “Symposium on Writing the Book of the World.” *Analysis* no. 73:751-770.
- “Reply to Trenton Merricks

Trenton Merricks's illuminating paper begins by criticizing the first sentence of my book: 'Metaphysics, at bottom, is about the fundamental structure of reality'. Metaphysics isn't about any single thing 'at bottom', Merricks says, and anyway, plenty of it isn't about structure. He's largely right; I got a little carried away with my rhetoric. But I do think that fundamentality is more central to metaphysics than Merricks allows.

Questions about which concepts are fundamental are indeed just one part of metaphysics. But there are also questions that use fundamental concepts, which I also meant to count as being 'about the fundamental structure of reality'. If quantifiers carve at the joints, for instance, then ontological questions are about the fundamental structure of reality (see, e.g. p. viii)." (p. 754, notes omitted)
(...)

"Reply to Jonathan Schaffer

In addition to characterizing fundamentality itself, a theory of fundamentality must also account for the *connection* between fundamental and nonfundamental.

The fundamental 'underlies' everything else, but in what sense exactly? According to Jonathan Schaffer's kind yet deeply challenging critique, my account of the connection – metaphysical semantics – cannot handle multiply realizable non-fundamental facts. This is an important criticism, and I'll discuss it in a moment, but first I want to resist Schaffer's description of my account as being 'radically eliminativist' and implying that the non-fundamental is 'mere talk'." (p. 760)

References

Trenton Merricks. "Three Comments on Writing the Book of the World." *Analysis*, 73 (2013): 722-736.

Jonathan Schaffer. "Metaphysical Semantics Meets Multiple Realizability." *Analysis*, 73 (2013): 736-751.

146. ———. 2013. "Against Parthood." *Oxford Studies in Metaphysics* no. 8:237-293.

"In this paper, I will defend what Peter van Inwagen calls nihilism: composite entities (entities with proper parts) do not exist.(1) This formulation will need to be refined, and, at the very end of the paper, softened a little. But let us stick to the simple, strong version for now." (p. 237)

(...)

"Since I accept the existence of the particles, my denial of an object composed of them isn't absurd. Denying that *T* exists *in addition to a, b, and c* is no more absurd than denying that holes exist in addition to perforated things, or denying that smirks exist in addition to smirking faces. Similarly, denying the existence of persons, animals, plants, and the rest is not absurd if one accepts subatomic particles that are "arranged personwise" (to use van Inwagen's phrase), animal-wise, plant-wise, and so on." (p. 238)

(1) van Inwagen (1990). "Proper parts" of *x* are parts of *x* other than *x* itself (it is customary to count entities as being parts of themselves). By "composition" I have in mind only mereological composition, i.e. composition by parts, though I do discuss sets in the final section. Other nihilists include Dorr (2002) and Cameron (2010 b); see also Dorr (2005). See Dorr and Rosen (2002) for a defense—partly overlapping mine—of nihilism against objections. For stylistic reasons I often speak of existence, but as a good Quinean I intend this to be recast in terms of quantification.

References

Cameron, Ross P. (2010 b). "Quantification, Naturalness and Ontology". In Allan Hazlett (ed.), *New Waves in Metaphysics*, 8–26. Basingstoke: Palgrave Macmillan.

Dorr, Cian (2002). "The Simplicity of Everything". Ph.D. thesis, Princeton University.

——— (2005). "What We Disagree About When We Disagree About Ontology". In Mark Kalderon (ed.), *Fictionalism in Metaphysics*, 234–86. Oxford: Oxford University Press.

Dorr, Cian (2009) and Gideon Rosen (2002). "Composition as a Fiction". In Richard Gale (ed.), *The Blackwell Guide to Metaphysics*, 151–74. Oxford:

- Blackwell.
van Inwagen, Peter (1990). *Material Beings*. Ithaca, NY: Cornell University Press.
147. ———. 2017. "Substantivity in Feminist Metaphysics." *Philosophical Studies* no. 174:2467-2478.
Abstract: "Elizabeth Barnes and Mari Mikkola raise the important question of whether certain recent approaches to metaphysics exclude feminist metaphysics. My own approach (from my book *Writing the Book of the World*) does not, or so I argue.
I do define "substantive" questions in terms of fundamentality; and the concepts of feminist metaphysics (and social metaphysics generally) are nonfundamental. But my definition does not count a question as being nonsubstantive simply because it involves nonfundamental concepts. Questions about the causal structure of the world, including the causal structure of the social world, are generally substantive because their answers are not sensitive to any alternate, equally good conceptual choices we could have made. I also argue that such questions are substantive regardless of the ontology of social kinds."
References
Elizabeth Barnes (2017). "Realism and Social Structure." *Philosophical Studies*, 174, 2417–2433.
Mari Mikkola (2017). "On the Apparent Antagonism between Feminist and Mainstream Metaphysics." *Philosophical Studies*, 174, 2435-2448.
148. Sijuwade, Joshua R. 2021. "Fundamentality and the Existence of God." *Manuscripto: Revista Internacional de Filosofia Campinas* no. 44:93-168.
Abstract: "In this article, I seek to assess the extent to which Theism, the claim that there is a God, can provide a true fundamental explanation for the existence of certain entities within the layered structure of reality. More precisely, I assume the cogency of Swinburne's explanatory framework and seek to resituate it within a new philosophical context—that of the field of contemporary metaphysics—which will enable me to develop a true fundamental explanation for the existence of the non-fundamental entities that fill up the various levels of the layered structure of reality. And thus, given the truth of this type of explanation, we will have one more good reason to believe in the existence of God."
References
Swinburne, R. 2004. *The Existence of God*. Oxford: Oxford University Press.
Swinburne, R. 2010. *Is There a God?*. Oxford: Oxford University Press.
149. Simmons, Byron. 2021. "Fundamental Non-qualitative Properties." *Synthese* no. 198:6183-6206.
Abstract: "The distinction between qualitative and non-qualitative properties should be familiar from discussions of the principle of the identity of indiscernibles: two otherwise exactly similar individuals, Castor and Pollux, might share all their qualitative properties yet differ with respect to their non-qualitative properties—for while Castor has the property *being identical to Castor*, Pollux does not. But while this distinction is familiar, there has not been much critical attention devoted to spelling out its precise nature. I argue that the class of non-qualitative properties is broader than it is often taken to be. When properly construed, it will not only include properties such as *being identical to Castor*, which somehow make reference to particular individuals, it will also include more general properties such as identity, composition, set membership, as well as various peculiarly ontological properties. Given that some of these more general properties help to explain objective similarity, we have reason to believe that there are fundamental non-qualitative properties."
150. Skiles, Alexander. 2009. "Trogon on Monism and Intrinsicity." *Australasian Journal of Philosophy* no. 87:149-154.
Abstract: "Kelly Trogon [2009] argues that priority monism—here, the view that only the world as a whole has fundamental properties—conflicts with the best extant accounts of intrinsicity. He then proposes an alternative account that is

designed to be not only compatible with this view, but also independently plausible. But his account conflicts with priority monism as well, and incorrectly classifies various non-intrinsic properties."

References

Trogon, Kelly 2009. Monism and Intrinsicity, *Australasian Journal of Philosophy*, Philosophy, 87:1, 127-148.

151. ———. 2014. "Primitivism About Intrinsicity." In *Companion to Intrinsic Properties*, edited by Francescotti, Robert M., 221-252. Berlin: de Gruyter. "The goal of this chapter is to explore the prospects of the view I shall call *primitivism about intrinsicity*, and offer a limited defense. A key component of this limited defense consists simply in clarifying what it could be, exactly, for intrinsicity to be "primitive". As we shall see, at least some *prima facie* decisive objections to primitivism seem less convincing once this has been done. Doing so is the task of section 1. In section 2, I then consider several arguments for primitivism about intrinsicity. And finally, in section 3, I consider several arguments against it." (p. 222)
152. Sorensen, Roy. 2011. "Bottomless Determination: How Yablo Can Get Proportionality from Gunk." *Analysis* no. 71:637-630. Abstract: "Consider the beginningless sequence: ... being less than 0.01 grams, being less than 0.1 grams, being less than 1 gram, being less than 10 grams ... There is no super-determinate in this chain. Just as the possibility of bottomless constitution shows that there may be no fundamental layer of reality with *respect to objects*, the possibility of bottomless determination shows that there may be no fundamental level of reality with *respect to properties*. This possibility supports Stephen Yablo's proportionality principle that the cause of an event is the most specific property *that makes a difference*."
153. Steinberg, Alex. 2015. "Priority Monism and Part/Whole Dependence." *Philosophical Studies* no. 172:2025-2031.
154. Tahko, Tuomas E. 2014. "Boring Infinite Descent." *Metaphilosophy* no. 45:257-269. Abstract: "In formal ontology, infinite regresses are generally considered a bad sign. One debate where such regresses come into play is the debate about fundamentality. Arguments in favour of some type of fundamentalism are many, but they generally share the idea that infinite chains of ontological dependence must be ruled out. Some motivations for this view are assessed in this article, with the conclusion that such infinite chains may not always be vicious. Indeed, there may even be room for a type of fundamentalism combined with infinite descent as long as this descent is "boring," that is, the same structure repeats ad infinitum. A start is made in the article towards a systematic account of this type of infinite descent. The philosophical prospects and scientific tenability of the account are briefly evaluated using an example from physics."
155. ———. 2018. "Fundamentality and Ontological Minimality." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki and Priest, Graham, 237-253. New York: Oxford University Press. "In particular, we should clarify the role of mereology in discussions of fundamentality, which we'll do in Section 2. In Section 3, a common objection to the possibility of metaphysical infinitism is outlined, with some critical remarks. In Section 4, a more general sense of fundamentality will be explicated with the help of the idea of ontological minimality— this more general approach to fundamentality considers it as an ontological minimality thesis. Section 5 examines the tension between the mereological, object-oriented ontology and structuralism. It is suggested that fundamentality understood as an ontological minimality thesis can accommodate both. Finally, in Section 6, we will briefly consider whether fundamentality understood as an ontological minimality thesis rules out metaphysical infinitism."

156. ———. 2021. "Bohmian Holism." In *Unfolding the Big Picture. Essays in Honour of Paavo Pylkkänen*, edited by Linnell, Petteri and Vadén, Tero. Helsinki: Philosophical Studies from the University of Helsinki
- "I will take my cue from a recent paper, co-authored by Pylkkanen, Hiley, and Pattiniemi (2015). This paper focuses on Bohm's views about individuality and the possible reconciliation of individuality with the holistic aspects of quantum theory. These aspects have led some, like Ladyman and Ross (2007), to argue that there are no individuals, just relations-this is the upshot of their ontic structural realism (OSR). Taking this thought further, some authors (Ismael and Schaffer, forthcoming) have taken the holistic approach to its extreme and argued that the cosmos as a whole is the most fundamental thing (since it forms one vast entangled system); this is a form of priority monism. Pylkkanen, Hiley, and Pattiniemi examine where Bohm's view might fall among these options. The result is interesting: there is clearly an element of holism involved-let us call it Bohmian holism-but it does not appear to be of the eliminative type that some versions of OSR might promote, nor the priority monist's version of quantum holism."
- References
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- Ladyman, J., Ross, D., Spurrett, D., and Collier, J. (2007). *Every Thing Must Go: Metaphysics Naturalized*. Oxford: Oxford University Press.
- Pylkkanen, P., Hiley, B.J., and Pattiniemi, I. (2015). 'Bohm's Approach and Individuality', in A. Guay and T. Pradeu (eds.) *Individuals Across the Sciences*. Oxford: Oxford University Press, pp. 226-49.
157. Tahko, Tuomas E., and O'Conaill, Donnchadh. 2012. "On the Common Sense Argument for Monism." In *Spinoza on Monism*, edited by Goff, Philip, 149-166. New York: Palgrave-Macmillan.
- "Priority monism is the claim that there is one fundamental entity, upon which all other entities are ontologically dependent (by 'entity', we mean any portion of the universe which can be distinguished from other portions by its identity conditions). The priority monism we shall address in this chapter regards the entire spatiotemporal cosmos as the fundamental entity.
- Shoes, ships, sealing-wax and any other spatiotemporal entities are all parts of, and exist in virtue of, this entity.(1)" (p. 149)
- (...)
- "We have demonstrated that Schaffer's common sense argument in favour of priority monism cannot work, for both semantic and ontological reasons. In the process of criticising this argument we have made some suggestions as to what a NCS [*Near-Complete Scheme*] could look like. We remain neutral as to the details of this scheme, but we believe that there are good reasons to think that one must exist.(21)" (p. 162)
- (1) In this chapter, we shall be considering only spatiotemporal entities. We shall thus ignore the relation between the cosmos and abstract entities such as numbers or sets.
- References
- Jonathan Schaffer (2012). "Monism: The Priority of the Whole", In Philip Goff (ed.), *Spinoza on Monism*, New York: Palgrave-Macmillan, 9-50.
158. Tallant, Jonathan. 2013. "Problems of Parthood for Proponents of Priority." *Analysis* no. 73:429-438.
- "Introduction: According to some views of reality, some objects are fundamental and other objects depend for their existence upon these fundamental objects. In this article, I argue that we have reason to reject these views." (p. 429)
- (...)
- "It is a common enough view in metaphysics that at least some objects are fundamental. Typically, the entities that are fundamental are taken to be metaphysically basic and to not depend upon anything else for their existence. Further, on such views, non-fundamental objects exist. However, non-fundamental

- objects are derivative and depend for their existence upon the fundamental objects. Views with this structure take one of two forms: Priority Pluralism and Priority Monism. For the purposes of this article, I'll describe the union of these views as 'Priority Views' – or 'PVs'. In this article I argue against PVs." (p. 430)
159. Taylor, Eleanor. 2018. "How to Make the Case for Brute Facts." In *Brute Facts*, edited by Vintiadis, Elly and Mekios, Constantinos, 28-44. Oxford: Oxford University Press.
- "The view that there are ontologically brute facts is the view that certain facts are not like this, because those facts are not and never will be explained. Although ontologically brute facts appear to be suspiciously mysterious, some philosophers have argued that we should embrace them (Barnes 1994).
- The possibility of ontologically brute facts generates a methodological question: what is an adequate basis for belief in ontological bruteness? When is it reasonable to think that some fact is not and never will be explained? In this chapter I explore this question.
- I begin by introducing ontological bruteness, and distinguishing it from other types of bruteness and related notions of emergence and fundamentality. I then consider three hypothetical failed attempts to make the case for ontological bruteness. The first is an attempt to infer bruteness from fundamentality, the second an attempt to infer bruteness from the absence of a particular kind of scientific explanation, and the third an attempt to infer bruteness from the absence of a particular kind of philosophical explanation. I draw cautionary lessons from these failures, arguing that in each case the inference to bruteness is made too quickly. Finally, I offer a positive proposal according to which if a naturalistic, general metaphysical theory with strong abductive support posits ontologically brute facts, then this is an adequate (but defeasible) case for ontological bruteness." (p. 28)
- References
- Barnes, Eric. 1994. "Explaining Brute Facts." *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, Vol. 1. Contributed Papers, pp. 61–8.
160. Thalos, Mariam. 2011. "Two Conceptions of Fundamentality." *Philosophy of the Social Sciences* no. 41:151-177.
- Abstract: "This article aims to show that fundamentality is construed differently in the two most prominent strategies of analysis we find in physical science and engineering today: (1) atomistic, reductive analysis and (2) Systems analysis. Correspondingly, atomism is the conception according to which the simplest (smallest) indivisible entity of a certain kind is most fundamental; while systemism, as will be articulated here, is the conception according to which the bonds that structure wholes are most fundamental, and scale and/or constituting entities are of no significance whatsoever for fundamentality. Accordingly, atomists maintain that the basic entities—the atoms—are fundamental, and together with the "external" interactions among them, are sufficient for illuminating all the features and behaviors of the wholes they constitute; whereas systemists proclaim that it is instead structural qualities of systems, that flow from internal relations among their constituents and translate directly into behaviors, that are fundamental, and by themselves largely (if not entirely) sufficient for illuminating the features and behaviors of the wholes thereby structured.
- Systemism, as will be argued, is consistent with the nonexistence of a fundamental "level" of nondecomposable entities, just as it is consistent with the existence of such a level. Still, systemism is a conception of the fundamental in quite different, but still ontological terms. Systemism can serve the special sciences—the social sciences especially—better than the conception of fundamentality in terms of atoms. Systemism is, in fact, a conception of fundamentality that has rather different uses—and importantly, different resonances. This conception of fundamentality makes contact with questions pertaining to natural kinds and their situation in the metaphysics of the special sciences—their situation within an order of autonomous sciences.

- The controversy over fundamentality is evident in the social sciences too, albeit somewhat imperfectly, in the terms of debate between methodological individualists and functionalists/holists. This article will thus clarify the difference between systemism and holism."
161. ———. 2013. *Without Hierarchy: The Scale Freedom of the Universe*. New York: Oxford University Press.
Chapter 3: *Multiple Conceptions of Fundametality*, pp. 105-126.
Abstract: "A venerable tradition in the metaphysics of science commends ontological reduction: the practice of analysis of theoretical entities into further and further proper parts, with the understanding that the original entity is nothing but the sum of these. This tradition implicitly subscribes to the principle that all the real action of the universe (also referred to as its "causation") happens at the smallest scales—at the scale of microphysics. A vast majority of metaphysicians and philosophers of science, covering a wide swath of the spectrum from reductionists to emergentists, defend this principle. It provides one pillar of the most prominent theory of science, to the effect that the sciences are organized in a hierarchy, according to the scales of measurement occupied by the phenomena they study. On this view, the fundamentality of a science is reckoned inversely to its position on that scale. This venerable tradition has been justly and vigorously countered—in physics, most notably: it is countered in quantum theory, in theories of radiation and superconduction, and most spectacularly in renormalization theories of the structure of matter. But these counters—and the profound revisions they prompt—lie just below the philosophical radar. This book illuminates these counters to the tradition principle, in order to assemble them in support of a vaster (and at its core Aristotelian) philosophical vision of sciences that are not organized within a hierarchy. In so doing, the book articulates the principle that the universe is active at absolutely all scales of measurement. This vision, as the book shows, is warranted by philosophical treatment of cardinal issues in the philosophy of science: fundamentality, causation, scientific innovation, dependence and independence, and the proprieties of explanation."
162. Thompson, Naomi. 2018. "Metaphysical Interdependence, Epistemic Coherentism, and Holistic Explanation." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki and Priest, Graham, 107-125. New York: Oxford University Press.
"This paper develops an argument for metaphysical interdependence; an alternative to orthodox foundationalist accounts of metaphysical structure as characterized by grounding relations. Friends of metaphysical interdependence take facts to be related in networks of grounding such that there might be no foundational facts, and that a given fact can appear in its own grounding ancestry. Grounding is an explanatory relation, and the need to recognize holistic explanations (and in particular, holistic metaphysical explanations) generates a requirement for an account of grounding with a holistic structure. Metaphysical interdependence is such an account.
After briefly introducing the notion of ground in §2, §3 outlines both the core of the foundationalist approach, and that of metaphysical interdependence. §4 develops an analogy between metaphysical interdependence and coherentism in epistemology. §5 argues that grounding is to be thought of as an explanatory relation. In §6, the view that grounding is an explanatory relation is considered against the backdrop of different approaches to explanatory structure. In §7 I respond to some perceived objections to holistic explanation. §8 concludes this chapter." (p. 107)
163. Torza, Alessandro. 2017. "Ideology in a Desert Landscape." *Philosophical Issues* no. 27:383-406.
Abstract: "On one influential view, metaphysical fundamentality can be understood in terms of joint-carving. Ted Sider has recently argued that (i) some first order quantifier is joint-carving, and (ii) modal notions are not joint-carving.

After vindicating the theoretical indispensability of quantification against recent criticism, I will defend a logical result due to Arnold Koslow which implies that (i) and (ii) are incompatible. I will therefore consider an alternative understanding of Sider's metaphysics to the effect that (i) some first order quantifier is joint-carving, and (iii) intensional notions are not joint-carving. Another result due to Koslow entails that (i) and (iii) are also incompatible. I will argue that this second result is inconclusive. Nevertheless, (iii) is incompatible with another tenet of Sider's metaphysics, namely that (iv) 'being joint-carving' is itself joint-carving. In order to resolve the inconsistency, I will tentatively argue that condition (iv) should be renounced."

References

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Synthese, [2019, (196) 2545-2554]

Sider, T. 2012. *Writing the Book of the World*. Oxford University Press.

164. ———. 2020. "Structural Indeterminacy." *Philosophy and Phenomenological Research* no. 101:365-382.
 Abstract: "The threat of ontological deflationism (the view that disagreement about what there is can be non-substantive) is averted by appealing to realism about fundamental structure—or so tells us Ted Sider. In this paper, the notion of structural indeterminacy is introduced as a particular case of metaphysical indeterminacy; then it is argued that structural indeterminacy is not only compatible with a metaphysics of fundamental structure, but it can even safeguard it from a crucial objection; finally, it is shown that, if there are instances of structural indeterminacy, a hitherto unacknowledged variety of ontological deflationism will arise. Unless structure is shown to be determinate, ontological deflationism remains a live option. Furthermore, I will consider whether structural indeterminacy could be challenged by adopting a naturalistic epistemology of structure; the question is answered in the negative on the basis of a formal result concerning theory choice. Finally, I submit a new way of articulating the epistemology of structure, which hinges on the very possibility of structural indeterminacy."
165. Trogon, Kelly. 2009. "Monism and Intrinsicity." *Australasian Journal of Philosophy* no. 87:127-148.
 Abstract: "Central to the programme of sparse ontology is a hierarchical view of reality; the basic entities form the sparse structure of being, while the derivative entities form the abundant superstructure. Priority pluralism and priority monism are both theses of sparse ontology. Roughly speaking, the priority pluralist claims that wholes and their properties ontologically depend on parts and their properties, while the priority monist claims that it goes the other way around. In this paper I focus on Ted Sider's recent argument that priority monism is probably false because it is incompatible with our best account of intrinsicity. In response I propose an account of intrinsicity that is compatible with both priority monism and priority pluralism. I argue that the account, in addition to having the virtue of being neutral between priority monism and priority pluralism, is independently plausible."
166. ———. 2009. "Physicalism and Sparse Ontology." *Philosophical Studies* no. 143:147-165.
 Abstract: "A major stumbling block for non-reductive physicalism is Kim's disjunctive property objection. In this paper I bring certain issues in sparse ontology to bear on the objection, in particular the theses of *priority monism* and *priority pluralism*. Priority pluralism (or something close to it, anyway) is a common ontological background assumption, so in the first part of the paper I consider whether the disjunctive property objection applies with equal force to non-reductive physicalism on the assumption that priority monism is instead true. I ultimately conclude that non-reductive physicalism still faces a comparable problem. In the second part, I argue, surprisingly enough, that what I call 'fine-grained reductionism', a particular version of which Kim proposes as an alternative to non-reductive physicalism, may work better in the monist framework than the pluralist

- one. I conclude that issues in sparse ontology, therefore, are more relevant to the debate about physicalism than one may have thought."
167. ———. 2010. "Intrinsicity for Monists (and Pluralists)." *Australasian Journal of Philosophy* no. 88:555-558.
 Abstract: "Two competing views in sparse ontology are monism and pluralism. In Trogdon [2009] I propose an account of intrinsicity that I argue is both compatible with monism and pluralism and independently plausible. Skiles [2009] argues that my account fails on both fronts. In this note I respond to his two objections."
 References
 Skiles, A. 2009. Trogdon on Monism and Intrinsicity, *Australasian Journal of Philosophy* 87/1: 149–54.
 Trogdon, K. 2009. Monism and Intrinsicity, *Australasian Journal of Philosophy* 87/1: 127–48.
168. ———. 2018. "Inheritance Arguments for Fundamentality." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki Leigh and Priest, Graham, 182-198. Oxford University Press.
 "In this chapter I take up the question of how we might appeal to the notion of inheritance in arguing for metaphysical foundationalism. I first clarify Schaffer's inheritance argument sketched above, suggesting that it relies on a heavy-duty metaphysical principle I call the *inheritance principle*. I show that Schaffer's argument is unsuccessful even granting the principle. Then I explore what consequences the inheritance principle might have for metaphysical foundationalism granting for the sake of argument that the principle is true. I show how in this case we can deploy the notion of *causal capacity inheritance* in arguing for two special cases of metaphysical foundationalism, what I call *causal foundationalism* and *concrete foundationalism*. I conclude that if considerations involving inheritance are to provide a route to metaphysical foundationalism, the route will be indirect—in this case we would need to argue for the thesis in a piecemeal fashion (say, by arguing for concrete foundationalism plus a corresponding thesis about abstract entities). There may indeed be plausible inheritance arguments for fundamentality—it's just that we need to be careful to focus on the appropriate theses as well as the appropriate inherited properties." (p. 183)
 References
 Schaffer, J. 2009. "On What Grounds What." In D. Chalmers, D. Manley, and R. Wasserman (eds), *Metametaphysics*. Oxford University Press.
169. Wang, Jennifer. 2016. "Fundamentality and Modal Freedom." *Philosophical Perspectives* no. 30:397-418.
 "The notion of *fundamentality* has been much discussed recently. The picture is that there is a fundamental level of the world, and that non-fundamental, or derivative, features of the world depend upon the fundamental. My focus in this paper is on a specific question about the nature of fundamentality. Many agree that if an entity is fundamental, then it is in some sense ontologically independent.(1) This accompanied by intuitions that it is 'self-sufficient', or 'need not look outside itself'. It is commonly believed that as such, fundamental entities are modally free, in a sense to be clarified.(2) Intuitively, a mark of modal freedom is some form of free recombination: For each of the various ways modally free entities can individually be, they can be those ways with each other."
 (1) I will be using the term 'entity' liberally to apply to the purported members of different ontological categories, which may include objects, properties, relations, facts, or states of affairs.
 (2) This notion is borrowed and adapted from Schaffer (2010a).
 References
 Schaffer, Jonathan. 2010a. "The Internal Relatedness of All Things." *Mind* 119/474: 341–36.

170. Werner, Jonas. 2020. "A Grounding-Based Measure of Relative Fundamentality." *Synthese* no. 198:9721-9737.
 Abstract: "Reality is hierarchically structured, or so proponents of the metaphysical posit of grounding argue. The less fundamental facts obtain in virtue of, or are grounded in, the more fundamental facts. But what exactly is it for one fact to be more fundamental than another? The aim of this paper is to provide a measure of relative fundamentality.
 I develop and defend an account of the metaphysical hierarchy that assigns to each fact a set of ordinals representing the levels on which it occurs. The account allows one to compare any two facts with respect to their fundamentality and it uses immediate grounding as its sole primitive. In the first section, I will set the stage and point to some shortcomings of a rival account proposed by Karen Bennett. The second section will present my own proposal and the third section will discuss how it can be extended to non-foundationalist settings. The fourth section discusses potential objections."
 References
 Bennett, K. (2017). *Making things up*. Oxford: Oxford University Press
171. ———. 2021. "A Grounding-Based Measure of Relative Fundamentality." *Synthese* no. 198:9721-9737.
 Abstract: "Reality is hierarchically structured, or so proponents of the metaphysical posit of grounding argue. The less fundamental facts obtain in virtue of, or are grounded in, the more fundamental facts. But what exactly is it for one fact to be more fundamental than another? The aim of this paper is to provide a measure of relative fundamentality.
 I develop and defend an account of the metaphysical hierarchy that assigns to each fact a set of ordinals representing the levels on which it occurs. The account allows one to compare any two facts with respect to their fundamentality and it uses immediate grounding as its sole primitive. In the first section, I will set the stage and point to some shortcomings of a rival account proposed by Karen Bennett. The second section will present my own proposal and the third section will discuss how it can be extended to non-foundationalist settings. The fourth section discusses potential objections."
 References
 Bennett, K. (2017). *Making things up*. Oxford: Oxford University Press.
172. Wildman, Nathan. 2018. "On Shaky Ground? Exploring the Contingent Fundamentality Thesis." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki and Priest, Graham, 275-290. Oxford University Press.
 "In particular, after fixing some preliminaries in Section 1, I'll discuss in Section 2 three reasons for taking the contingent fundamentality thesis seriously. I then evaluate some objections in Section 3 intended to show that taking fundamentality to be contingent is wrong-headed; I argue that these objections can be dealt with, leaving the contingent fundamentality thesis at least *prima facie* plausible. In Section 4, I then look at how the thesis relates to views about the possibility of contingently existing fundamentalia, pulling some of the various packages apart, and making the case for adopting what I call the Shifty Shaky view. I then conclude in Section 5 by indicating further areas about the thesis ripe for fruitful future exploration." (p. 275)
173. Williams, J. Robert G. 2010. "Fundamental and Derivative Truths." *Mind* no. 119:104-141.
 Abstract: "This article investigates the claim that some truths are fundamentally or really true—and that other truths are not. Such a distinction can help us reconcile radically minimal metaphysical views with the verities of common sense. I develop an understanding of the distinction whereby *Fundamentality* is not itself a metaphysical distinction, but rather a device that must be presupposed to express metaphysical distinctions. Drawing on recent work by Rayo on anti-Quinean theories of ontological commitments, I formulate a rigorous theory of the notion.

- In the final sections, I show how this package dovetails with ‘interpretationist’ theories of meaning to give sober content to thought that some things—perhaps sets, or gerrymandered mereological sums—can be ‘postulated into existence’.”
- References
 Rayo, Agustín 2007: ‘Ontological Commitment’. *Philosophy Compass* , 2, pp. 428–44.
 ———2008: ‘On Specifying Truth-Conditions’. *Philosophical Review* , 117, pp. 385–443.
 ———unpublished: *An Account of Possibility* .
174. Wilson, Jessica M. 2002. "Causal Powers, Forces, and Superdupervenience." *Grazer Philosophische Studien* no. 63:53-77.
 Summary: "Horgan (1993) proposed that “superdupervenience” – supervenience preserving physicalistic acceptability – is a matter of robust explanation. I argued against him (1999) that (as nearly all physicalist and emergentist accounts reflect) superdupervenience is a matter of *Condition on Causal Power s* (CCP): every causal power bestowed by the supervenient property is identical with a causal power bestowed by its base property. Here I show that CCP is, as it stands, unsatisfactory, for on the usual understandings of causal power bestowal, it is trivially satisfied or falsified. I offer a revision of CCP which incorporates the evident fact that causal powers are grounded in fundamental forces."
 References
 Terence Horgan, “From Supervenience to Superdupervenience: Meeting the Demands of a Material World,” *Mind* , Vol. 102 (1993).
 Jessica Wilson, “How Superduper does a Physicalist Supervenience Need to Be?,” *Philosophical Quarterly* (1999).
175. ———. 2012. "Fundamental Determinables." *Philosophers' Imprint* no. 12:1-17.
 "Introduction: Contemporary philosophers commonly suppose that any fundamental entities there may be are maximally determinate. More generally, they commonly suppose that, whether or not there are fundamental entities, any determinable entities there may be are grounded in, hence less fundamental than, more determinate entities. So, for example, Armstrong takes the physical objects constituting the presumed fundamental base to be “determinate in all respects” (1961, 59), and Lewis takes the properties characterizing things “completely and without redundancy” to be “highly specific” (1986, 60). Here I’ll look at the usually cited reasons for these suppositions as directed against the case of determinable properties, in particular, and argue that none is compelling (Sections 1 to 3). The discussion in Section 3 will moreover identify positive reason for taking some determinable properties to be part of a fundamental (or relatively fundamental) base. I’ll close (Section 4) by noting certain questions arising from the possibility of fundamental determinables, as directions for future research."
 References
 Armstrong, D. M. (1961). *Perception and the Physical World* . Cambridge: Cambridge University Press.
 Lewis, David (1986). *On the Plurality of Worlds* . Malden, MA: Wiley-Blackwell.
176. ———. 2019. "Comments on *Making Things Up* ." *Philosophy and Phenomenological Research* no. 98:497-506.
Making Things Up is a first-rate work of philosophy, that should be read by anyone interested in fundamentality and metaphysical dependence. Here I’ll focus on the following components of Bennett’s ‘building’-based framework for understanding these notions:
 I. There are diverse building relations, including but not limited to mereological composition, constitution, set formation, and realization, via which some goings-on are built out of others.
 II. Though diverse, the building relations are unified in being members of a class of relations that are directed (irreflexive and antisymmetric), necessitating, and generative, in that building goings-on produce or generate built goings-on (32).

III. Though unified, there is no generic building relation (what I call ‘big-‘G’ Grounding’, for terminological clarity) of the sort advocated in Fine 2001, Schaffer 2009, and Rosen 2010, serving as a more natural or more fundamental core of the specific building relations.

IV. Building relations “connect entities that are in some sense more fundamental to entities that are in some sense less fundamental” in a way providing a reductive basis for relative fundamentality: “one of the central claims of the book [is] that there is nothing more to relative fundamentality than the obtaining of certain building relations”.

V. The not-holding of building relations provides a reductive basis for absolute fundamentality, via a conception according to which “to be fundamental is to be unbuilt” (103), either relative to a building relation, or simpliciter.

VI. Causation is a building relation." (p. 497, notes omitted)

References

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Rosen, Gideon 2010. “Metaphysical Dependence: Grounding and Reduction”. In B. Hale and A. Hoffmann, editors, *Modality: Metaphysics, Logic, and Epistemology*, 109–36. OUP.

Schaffer, Jonathan 2009. “On What Grounds What”. In D. Manley, D. Chalmers, and R. Wasserman, editors, *Metametaphysics: New Essays on the Foundations of Ontology*, 347–383. OUP.

177. Wolff, Johanna. 2012. "Do Objects Depend on Structures?" *British Journal for the Philosophy of Science* no. 63:607-625.

Abstract: "Ontic structural realists hold that structure is all there is, or at least all there is fundamentally.

This thesis has proved to be puzzling: What exactly does it say about the relationship between objects and structures? In this article, I look at different ways of articulating ontic structural realism in terms of the relation between structures and objects. I show that objects cannot be reduced to structure, and argue that ontological dependence cannot be used to establish strong forms of structural realism. At the end, I show how a weaker, but controversial, form of structural realism can be articulated on the basis of ontological dependence."

178. Wolff, J. E. 2020. "Fundamental and Derived Quantities." In *The Foundation of Reality: Fundamentality, Space, and Time*, edited by Glick, David, Darby, George and Marmodoro, Anna, 87-101. Oxford: Oxford University Press.

"It is fairly standard in contemporary metaphysics to distinguish between fundamental and non-fundamental properties. As I will be using these terms here, this distinction is meant to capture David Lewis’ idea that some properties are *perfectly natural*, and that these elite properties are what make for objective similarity among objects, as well as doing all kinds of other metaphysical heavy lifting. In order to perform all these metaphysical duties, fundamental properties are usually said to be *intrinsic* and *undefined*; they are the properties in terms of which less natural properties are defined, but not vice versa (Lewis 1983). In keeping with the aim of naturalistic metaphysics, the expectation is that science will reveal to us which properties are fundamental." (p. 87)

(...)

"I conclude that the distinction between fundamental and non-fundamental properties, at least as far as physical quantities are concerned, is less naturalistic than previously thought." (p. 88)

References

Lewis, D. (1983). ‘New Work for a Theory of Universals’, *Australasian Journal of Philosophy* 61, (4) 343-77.

179. Yates, David. 2018. "Inverse Functionalism and the Individuation of Powers." *Synthese* no. 195:4525-4550.

Abstract: "Abstract In the pure powers ontology (PPO), basic physical properties have wholly dispositional essences. PPO has clear advantages over categoricist

ontologies, which suffer from familiar epistemological and metaphysical problems. However, opponents argue that because it contains no qualitative properties, PPO lacks the resources to individuate powers, and generates a regress. The challenge for those who take such arguments seriously is to introduce qualitative properties without reintroducing the problems that PPO was meant to solve. In this paper, I distinguish the core claim of PPO: (i) basic physical properties have dispositional essences, from a hitherto unnoticed assumption: (ii) the dispositional essences of basic physical properties exclusively involve type-causal relations to other basic physical properties. I reject (ii), making room for structuralist ontology in which all basic physical properties are pure powers, individuated by their places in a causal structure that includes not only other powers, but also physically realized qualitative properties such as shapes, patterns and structures. Such qualities individuate pure powers in the way that non-mental input and output properties individuate realized mental properties in functionalist theories of mind, except that here it is the basic physical powers that are individuated by relations to realized non-powers. I distinguish one Platonic and two Aristotelian version of this theory, and argue that the Aristotelian versions require that grounding is not always a relative fundamentality relation, because the powers ground the qualities that individuate them. I argue that symmetric grounding is the best way to make sense of the relational individuation common to all structuralist ontologies, and is therefore no additional commitment of the one proposed here."

180. Zylstra, Justin. 2014. "Dependence and Fundamentality." *Studia Philosophica Estonica* no. 7:5-28.
 Abstract: "I argue that dependence is neither necessary nor sufficient for relative fundamentality.
 I then introduce the notion of 'likeness in nature' and provide an account of relative fundamentality in terms of it and the notion of dependence. Finally, I discuss some puzzles that arise in Aristotle's *Categories*, to which the theory developed is applied."