

Theory and History of Ontology (www.ontology.co) by Raul Corazzon | e-mail: rc@ontology.co

Annotated bibliography on metaphysical fundamentality (Gib - P)

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For the work of Kit Fine see:

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Bibliography

1. 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."
2. 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.

3. 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;
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 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;
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 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.
4. 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."
5. ———. 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)

6. 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."
7. 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, a note omitted)
8. 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.
9. 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."
 10. ———. 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."
 11. 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."
 12. 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."
 13. 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.

14. ———. 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."
15. 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.
16. 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."

17. 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 P!u!osophica* 7, pp. 69-83.

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

18. 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.

19. 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."
20. 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."
21. 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)."
22. 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.
23. 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."
24. Koons, Robert C., and Pickavance, Timothy H. 2017. *The Atlas of Reality: A Comprehensive Guide to Metaphysics*. Malden: Wiley Blackwell.
Chapter 3: *Grounding, Ontological Dependence, and Fundamentality*, pp. 47-73.
"So, we must distinguish between two kinds of fundamental entities, namely, those whose existence is ungrounded, and those which are not ontologically dependent on any other entity. These are, respectively, G-fundamental and O-fundamental entities.
Def D3.5 G-Fundamentality. An entity x is G-fundamental if the existence of x is ungrounded.
Def D3.6 O-Fundamentality. An entity x is O-fundamental if and only if neither the quiddity (generic essence) nor the haecceity (individual essence) of x contains any entity other than x itself.
Something that isn't G-fundamental will be G-derivative, and, similarly, something that isn't O-fundamental will be O-derivative." (p. 59)
25. 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 existential_O 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."
26. 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 exist fundamentally."
27. 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)
28. Kovacs, David Mark. 2020. "What is Priority Monism?" *Philosophical Studies* no. 178:2873-2893.
 Abstract: "In a series 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."
29. 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."
 References
 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]
30. 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.
31. 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."

32. 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.
33. 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."
34. 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."
35. 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."
36. 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."
37. 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.
38. 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)
39. 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
 Sider, T. (2011). *Writing the Book of the World*. Oxford: Oxford University Press.
40. 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.
 References
 Carnap, Rudolph. 1956. "Empiricism, Semantics, and Ontology", in *Meaning and Necessity: A Study in Semantics and Modal Logic*. University of Chicago Press, 205–28.
 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.
41. ———. 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 exists to the same degree." (p. 3)

References

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42. ———. 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.
43. 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."
44. ———. 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."

45. ———. 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."

46. ———. 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.

References

Dorr, Cian (2008). 'There Are No Abstract Objects', in *Contemporary Debates in Metaphysics*, eds. Theodore Sider, John Hawthorne and Dean W. Zimmerman. Oxford: Blackwell.

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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.
47. ———. 2022. *Fundamentality and Grounding*. Cambridge: Cambridge University Press.
 Abstract: "A suite of questions concerning fundamentality lies at the heart of contemporary metaphysics. The relation of grounding, thought to connect the more to the less fundamental, sits at the heart of those debates in turn. Since most contemporary metaphysicians embrace the doctrine of physicalism and thus hold that reality is fundamentally physical, a natural question is how physics can inform the current debates over fundamentality and grounding. This Element introduces the reader to the concept of grounding and some of the key issues that animate contemporary debates around it, such as the question of whether grounding is 'unified' or 'plural' and whether there exists a fundamental level of reality. It moves on to show how resources from physics can help point the way towards their answers - thus furthering the case for a naturalistic approach to even the most fundamental of questions in metaphysics."
48. 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."
49. 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."
50. ———. 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."

51. 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."
52. ———. 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."
53. ———. 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)

References

Ladyman, J. (1998). 'What is Structural Realism?', *Studies in the History and Philosophy of Science Part A* 29, 409-424.

54. Ney, Alyssa. 2020. "Are the Questions of Metaphysics More Fundamental Than Those of Science?" *Philosophy and Phenomenological Research* no. 100:695-715. Abstract: "When pursued naturalistically, metaphysics may seem forced to navigate a narrow path. So that it may be a worthwhile enterprise, it must have claim to discovery of a distinctive set of objective truths. Yet it must also avoid potential competition or conflict with the results of scientific theories. In response to this problem, some naturalistic metaphysicians have argued that properly understood, metaphysics is aimed at a set of truths distinct from those of science. Metaphysicians investigate a realm of truths more fundamental than those of even fundamental science. This paper examines what is required both in science and metaphysics for a theory to count as a fundamental theory. Several criteria are presented which suggest that metaphysics does not investigate a realm more fundamental than that of science."
55. 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)
56. 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."
57. 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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- _____ (2013). "Ramseyan Humility, scepticism and grasp". *Philosophical Studies*, 164: 705-726
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58. 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."
59. 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)
60. ———. 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)
61. 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."

References

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62. 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."
63. 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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