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

Annotated bibliography on metaphysical fundamentality (R - Z)

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For the work of Kit Fine see:

Annotated bibliography of Kit Fine

Bibliography

1.   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."

2.   ———. 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."

3.   Rayo, Agustin. 2015. "Essence Without Fundamentality." *Theoria: An International Journal for Theory, History and Fundations 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.

4. 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. 498ò-499)

5. ———. 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."

6. ———. 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.

7. ———. 2008. "Truthmaker Commitments." *Philosophical Studies* no. 141:7-19.

8. ———. 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."

9. ———. 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)

10. ———. 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*.

11. 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."

12.   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."

13.   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.

14.   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)

15. ———. 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).

16. 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)

17. ———. 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)

18. ———. 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)

19.   ———. 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.

20.   ———. 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.

21.   ———. 2013. "Against Parhood." *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). "Quantifi cation, 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.), T*he Blackwell Guide to Metaphysics*, 151–74. Oxford: Blackwell.
van Inwagen, Peter (1990). *Material Beings*. Ithaca, NY: Cornell University Press.

22.   ———. 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.

23. Sijuwade, Joshua R. 2021. "Fundamentality and the Existence of God."
     Manuscrito: Revista Internacional de Filosofía 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.

24. 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."

25. Skiles, Alexander. 2009. "Trogdon on Monism and Intrinsicality." *Australasian Journal of Philosophy* no. 87:149-154.
     Abstract: "Kelly Trogdon [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 intrinsicality. 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
     Trogdon, Kelly 2009. Monism and Intrinsicality, *Australasian Journal of Philosophy*, Philosophy, 87:1, 127-148.

26. ———. 2014. "Primitivism About Intrinsicality." 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 intrinsicality*, and offer a limited defense. A key component of this limited defense consists simply in clarifying what it could be, exactly, for intrinsicality 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 intrinsicality. And finally, in section 3, I consider several arguments against it." (p. 222)

27. 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*."

28. Steinberg, Alex. 2015. "Priority Monism and Part/Whole Dependence." *Philosophical Studies* no. 172:2025-2031.

29. Tahko, Tuomas. 2015. *An Introduction to Metametaphysics*. Cambridge: Cambridge University Press.
Chapter 6: *Fundamentality and levels of reality*, pp. 120-150.
"This chapter concerns the view that reality comes with a hierarchical structure of 'levels'. This view has a long history and it remains very popular.
(...)
To express this in terms of ontological dependence we might say that a whole *depends for its existence* on its parts (although not everyone would agree that this is the correct direction of the dependence relation, as we will see). Fundamentality comes in when we consider whether there is an end to this chain of dependence: do we ever reach the smallest parts? That is, is there a fundamental, 'bottom level', or does the hierarchical structure of reality continue *ad infinitum*? The received view has long been that there indeed is a fundamental level that everything else 'stands on'. The fundamental level is usually thought to be at the *smaller* end of the spectrum: *atomism* suggests that there are certain (subatomic) indivisible simples, particles that are fundamental or ontologically independent. But we must immediately note that the fundamental level must not necessarily be at the bottom, the smaller end – the fundamental end could also be at the top; that is, the universe as a whole could be considered fundamental, to be prior to its parts." (p. 120)

30. 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."

31. ———. 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."

32.   ———. 2021. "Bohmian Holism." In *Unfolding the Big Picture. Essays in Honour of Paavo Pylkkänen*, edited by Limnell, 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 reconcilia- tion 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
Ismael, J. and Schaffer, J. (2020). 'Quantum Holism: Nonseparability as Common Ground', Synthese 197: 4131-60.
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 Individual ty', n A. Guay and T. Pradeu (eds.) *Individuals Across the Sciences*. Oxford: Oxford Univers ty Press, pp. 226-49.

33.   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.

34.   Tallant, Jonathan. 2013. "Problems of Parthood for Proponents of Priority." *Analysis* no. 73:429-438.
"Introdcution: 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)

35.   Taylor, Elanor. 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.

36.   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."

37.   ———. 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."

38.   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)

39.   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
Koslow, A. 2014. "The modality and non-extensionality of the quantifiers". *Synthese*, [2019, (196) 2545-2554]
Sider, T. 2012. *Writing the Book of the World*. Oxford University Press.

40.   ———. 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."

41.   Trogdon, Kelly. 2009. "Monism and Intrinsicality." *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 intrinsicality. In response I propose an account of intrinsicality 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."

42.   ———. 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."

43.   ———. 2010. "Intrinsicality 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 intrinsicality 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 Intrinsicality, *Australasian Journal of Philosophy* 87/1: 149–54.
Trogdon, K. 2009. Monism and Intrinsicality, *Australasian Journal of Philosophy* 87/1: 127–48.

44.   ———. 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.

45.   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.

46.   Werner, Jonas. 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.

47.   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)

48.   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 rigourous 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*.

49.   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).

50.   ———. 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.

51.   ———. 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
Fine, Kit 2001. "The Question of Realism". Philosophers' Imprint, 1:1–30.

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.

52. 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."

53. 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.

54. 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 categoricalist 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."

55. 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."