

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

Annotated bibliography on metaphysical grounding. Third part: H-Lop

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From the section **Ontologists of 19th and 20th centuries**:

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Unpublished Papers (available on line)

Kit Fine. Annotated bibliography of the studies on His Philosophy



Annotated bibliography of Kit Fine: Complete PDF Version on the website [Academia.edu](https://www.academia.edu)

Bibliography

1. Hakkarainen, Jani, and Keinänen, Markku. 2021. "Away with Dispositional Essences in Trope Theory." In *Neo-Aristotelian Perspectives on Formal Causation*, edited by Jansen, Ludger and Sandstad, Petter, 106-123. New York: Routledge. "In Section 1, we will outline the central features of our theory relevant to the present discussion. We will argue in Section 2 that dispositional essentialism is incompatible with the Strong Nuclear Theory or Keith Campbell's and Douglas Ehring's trope theories because tropes would be identity-dependent on other tropes in dispositional essentialism. In addition to being incompatible with these one-category trope ontologies, dispositional essentialism faces serious problems in characterizing essences of fundamental properties. As we will argue in Section 3, the exact advantages of dispositional essentialism remain unclear in comparison with the views taking laws of nature as primitive. Finally, in Section 4, we outline an alternative account, based on Smith's (2016) non-recombinatorial quidditism, according to which tropes as particular characters or natures necessitate their own fundamental nomological roles. The resulting conception of powerful tropes is compatible with the Strong Nuclear Theory and does not introduce any such problematic additional constructions as primitive dispositional essences or laws of nature considered as fundamental constituents of reality. In our view, the closest substitutes for formal causes are powerful tropes necessary to a given substance." (p. 107)
- References
- Campbell, K. (1981) 'The Metaphysic of Abstract Particulars'. *Midwest Studies in Philosophy* 6 (1), 477-88.
- Campbell, K. (1990) *Abstract Particulars*. Oxford: Blackwell Publishing.
- Ehring, D. (2011) *Tropes: Properties, Objects, and Mental Causation*. Oxford: Oxford University Press.
- Smith, D. (2016) 'Quid Quidditism Est?' *Erkenntnis* 81(2), 237-57.

2. Hansen, Casper Storm. 2014. "Grounded Ungroundedness." *Inquiry: An Interdisciplinary Journal of Philosophy* no. 57:216-243.
 "Kripke's well-known theory of truth(1) has some (also well-known) problems with regard to semantic openness and inadequate modelling of some intuitively unproblematic uses of the truth predicate. I will present a modification of the theory that solves some of these problems. But first (Section II) it is argued that the basic version of Kripke's theory is on the right track if we are looking for an explication of the correspondence theory of truth, because the correspondence relation is a grounding relation. The modification is done in an attempt to stay true to these basic ideas behind Kripke's construction and just take them a step further by extending the range of facts that truth values can be grounded in to include facts about sentences being ungrounded.
 Thereby some of the problems of expressive weakness in Kripke's own theory are solved." (p. 216)
 (1) Kripke, Saul. 'Outline of a Theory of Truth'. *The Journal of Philosophy* 72 (1975): 690–716.

3. ———. 2016. "Unified Grounding." *Erkenntnis* no. 81:993-2010.
 Abstract: "This paper offers a unification and systematization of the grounding approaches to truth, denotation, classes and abstraction. Its main innovation is a method for "kleenifying" bivalent semantics so as to ensure that the trivalent semantics used for various linguistic elements are perfectly analogous to the semantics used by Kripke, rather than relying on intuition to achieve similarity. The focus is on generalizing strong Kleene semantics, but one section is devoted to supervaluation, and the unification method also extends to weak Kleene semantics."

4. Harbecke, Jens. 2016. "Is Mechanistic Constitution a Version of Material Constitution?" In *Scientific Composition and Metaphysical Ground*, edited by Carl Gillett, Ken Aizawa, 91-121. London: Palgrave-Macmillan.
 "The investigation proceeds as follows. In a first step, I reconstruct the context in which the question about mechanistic constitution arises (section "The Question of Mechanistic Constitution"). I then review the philosophical enquiry associated with mechanistic constitution (section "The Mechanistic Approach"), which includes a discussion of the regularity theory (section "What Is Mechanistic Constitution?") and of identity statements about phenomena and mechanisms (section "Identity"). Subsequently, I review the problem of material constitution and the grounding problem (section "The Question of Material Constitution").
 I then show that material constitution is to be distinguished from mechanistic constitution (section "Is Mechanistic Constitution Material Constitution?") while there are various logical and conceptual connections between the two notions (section "Connections"). In a final step, I suggest that the ontology presupposed by the regularity approach to mechanistic constitution offers an informative eliminativist solution to the problem of mechanistic constitution and grounding (section "Mechanisms and the Grounding Problem"). The last section summarizes the argument and raises some open questions that the present chapter was unable to answer (section "Conclusion")." (p. 93)

5. Haukioja, Jussi. 2013. "Different Notions of Response-Dependence." In *Varieties of Dependence: Ontological Dependence, Grounding, Supervenience, Response-Dependence*, edited by Hoeltje, Miguel, Schnieder, Benjamin and Steinberg, Alex, 167-190. Munich: Philosophia Verlag.
 "An intuitively compelling distinction seems to exist between those areas of discourse in which the facts are in some sense 'up to us' and those in which they are not.
 (...)
 Response dependence theories were initially proposed as an attempt to sharpen this distinction. However, the original idea has since been extended in various different ways, with different philosophical aims in mind. As a result, discussions of response-dependence can sometimes be confusing--my hope in the present chapter

- is to clarify the situation and reduce the risk of misunderstandings, by presenting an overview of the main theories and their differences." (p. 167)
6. Henderson, David, and Horgan, Terry. 2013. "On the Armchair Justification of Conceptually Grounded Necessary Truths." In *The a Priori in Philosophy*, edited by Casullo, Albert and Thurow, Joshua C., 111-133. New York: Oxford University Press.
 "The plan of the chapter is as follows. In Section 1, we discuss armchair methodology in linguistics, as a useful model for armchair philosophical reasoning. In Section 2, we elaborate on our conception of low-grade a priori reasoning in philosophy, in a way that emphasizes some key respects in which such reasoning incorporates empirical considerations. In Section 3, we illustrate low-grade a priori reasoning in action. We discuss a series of scenarios concerning a much-discussed concept (namely, the concept water), and we use these scenarios to argue for two hypotheses, each of which is apt to seem somewhat surprising in the current philosophical climate: first, metaphysically necessary truths that are semantically non-analytic and epistemologically a posteriori— e.g., "Water is composed of H₂O"—are underwritten by yet-more-fundamental necessary truths that are analytic; and second, it is a conceptually grounded necessary truth that some statements expressing epistemic possibilities do not express metaphysical possibilities. In Section 4, we situate our conception of armchair reasoning in philosophy in relation to two other conceptions—on the one hand, that of Timothy Williamson, whose construal of such reasoning is less traditional than ours, and on the other hand, that of those philosophers who continue to deploy a more traditional understanding of the a priori. We argue that our own conception is preferable to each of these alternatives." (p. 112)
 7. Hoeltje, Miguel, Schnieder, Benjamin, and Steinberg, Alex, eds. 2013. *Varieties of Dependence: Ontological dependence, Grounding, Supervenience, Response-Dependence*. Munich: Philosophia Verlag.
 Contents: Miguel Hoeltje: Introduction 9:
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 Name Index 419; Subject Index 423; List of Contributors 429-431.
 8. Horgan, Terence. 1993. "From Supervenience to Superdupervenience: Meeting the Demands of a Material World." *Mind* no. 102:555-586.
 "There now seems to be emerging (e.g., Kim 1990; 1993b, ch. 9) an attitude of sober reassessment, accompanied by a suspicion that supervenience theses per se do less work philosophically than some had hoped they would.
 I think this change of mood was in many ways inevitable, given certain ironic facts about the history of the notion of supervenience in philosophical thought during the 20th century. There is much to be learned from this history about both the uses and the limitations of supervenience theses, especially with respect to materialism. So the first half of this paper, §§ 1-4, will be a historical overview, aimed at highlighting some key ironies and drawing some important lessons for materialist metaphysics. The principal moral will be that supervenience relations, in order to

figure in a broadly materialistic worldview, must be explainable rather than *sui generis*."

References

Kim, Jaegwon 1990: "Supervenience as a Philosophical Concept". *Metaphilosophy* 2, 1, 1 & 2, pp. 1-27.

-- 1993b: *Supervenience and Mind*. Cambridge: Cambridge University Press.

9. Horvath, Joachim. 2018. "Philosophical Analysis: The Concept Grounding View." *Philosophy and Phenomenological Research* no. 97:724-750.
 Abstract: "Philosophical analysis was the central preoccupation of 20th-century analytic philosophy. In the contemporary methodological debate, however, it faces a number of pressing external and internal challenges. While external challenges, like those from experimental philosophy or semantic externalism, have been extensively discussed, internal challenges to philosophical analysis have received much less attention. One especially vexing internal challenge is that the success conditions of philosophical analysis are deeply unclear.
 According to the standard textbook view, a philosophical analysis aims at a strict biconditional that captures the necessary and sufficient conditions for membership in the relevant category. The textbook view arguably identifies a necessary condition on successful philosophical analyses, but understood as a sufficient condition it is untenable, as I will argue in this paper. To this end, I first uncover eight conditions of adequacy on successful philosophical analyses, some of which have rarely been spelled out in detail. As we shall see, even sophisticated alternatives to the textbook view fail to accommodate some of these conditions. I then propose the concept grounding view as a more promising account of philosophical analysis.
 According to this view, successful philosophical analyses require necessary biconditionals that are constrained by grounding relations among the concepts involved. Apart from providing a satisfactory account of philosophical analysis in its own right, the concept grounding view is also able to meet the challenge that the success conditions of philosophical analysis are problematically unclear."
10. Hovda, Paul, and Cross, Troy. 2013. "Grounding Relation(s): Introduction." *Essays in Philosophy* no. 14:1-6.
 "Metaphysics has witnessed a dramatic shift of late. While questions about existence, possibility, and necessity still matter to the discipline, the focus now rests on questions about essence, grounding, naturalness, fundamentality, and structure. Metaphysicians have gone from asking merely what there is, could be, or must be, to asking about features of things, and connections among things, that may not be describable merely in terms of existence, possibility, and necessity; for example: what grounds what?
 From the perspective of a logical empiricist, the transition from ontology and modal metaphysics to essentialist metaphysics is a passing from dark to still darker days. But Aristotle might see things differently. In fact, one might be tempted to dub this transition "The Aristotelian Turn". This issue features papers illuminating one of the central notions enabling this recent turn, the notion of grounding." (p. 1)
11. Howard-Snyder, Daniel, Rasmussen, Joshua, and Cullison, Andrew. 2013. "On Whitcomb's Grounding Argument for Atheism." *Faith and Philosophy* no. 30:198-204.
 Abstract: "Dennis Whitcomb argues that there is no God on the grounds that (i) God is supposed to be omniscient, yet (ii) nothing could be omniscient due to the nature of grounding. We give a formally identical argument that concludes that one of the present co-authors does not exist. Since he does exist, Whitcomb's argument is unsound. But why is it unsound? That is a difficult question.
 We venture two answers. First, one of the grounding principles that the argument relies on is false. Second, the argument equivocates between two kinds of grounding: instance-grounding and quasi-mereological grounding."

- Happily, the equivocation can be avoided; unhappily, avoidance comes at the price of a false premise."
- References
Dennis Whitcomb, "Grounding and Omniscience," *Oxford Studies in Philosophy of Religion* 4 (2012). pp. 173-201.
12. Jago, Mark, ed. 2016. *Reality Making*. Oxford: Oxford University Press.
Contents: List of Figures VII; List of Contributors VIII; Mark Jago: Reality-Making: Introduction 1; Martin Glazier: Laws and the Completeness of the Fundamental 11; Naomi Thompson: Metaphysical Interdependence 38; Jacek Brzozowski: Monism and Gunk 57; Matthew Tugby: What are Dispositional Properties? 75; Mark Jago: Essence and the Grounding Problem 99; Nicholas K. Jones: Object as a Determinable 121; Sonia Roca-Royes: Rethinking Origin Essentialism (for Artefacts) 152; Nathan Wildman: How (not) to be a Modalist About Essence 177; Index 197-200.
13. ———. 2016. "Reality-Making: Introduction." In *Reality Making*, edited by Jago, Mark, 1-10. Oxford: Oxford University Press.
"This volume contains chapters based on the *Reality Making* conference in metaphysics, held in Nottingham in July, 2012. Most of them are revised and expanded versions of talks given at the conference. They are closely focused on the conference's main metaphysical themes: *grounding, fundamentality, and essence*. The first two, by Martin Glazier and Naomi Thompson, primarily concern grounding. They address questions of how entities non-causally depend on other entities for their existence and qualitative character; and they consider the nature and importance of that dependence relation. The next two chapters, by Jacek Brzozowski and Matthew Tugby, consider what kinds of entity, if any, are fundamental to reality. They investigate the relationship between the fundamental and all the other parts of reality, and the connection between fundamental reality and other ways the world could have been. The remaining four chapters, by Mark Jago, Nicholas Jones, Sonia Roca-Royes, and Nathan Wildman, focus on the topic of reality-making:
essence and its connection to *grounding* and *fundamentality*. These chapters focus on the essences of objects (as opposed to properties and other kinds of entity). They ask: what are material objects? Are they fundamental parts of reality? If not, how are they grounded? What grounds their essences and their modal properties?"
14. ———. 2016. "Essence and the Grounding Problem." In *Reality Making*, edited by Jago, Mark, 99-120. Oxford: Oxford University Press.
"As I indicated above, I find pluralism to be well-motivated, independently of the modal argument; and I've argued for pluralism (by arguing against monism) elsewhere (Barker and Jago 2014). My aim in this paper is not to argue for pluralism, but to defend it against its most serious problem."
(...)
"If modal differences (including differences in persistence conditions) between coincident objects cannot be grounded, then pluralism about coincident objects looks to be in bad shape.
How should the pluralist respond? Her options seem to be limited from the start. Some have suggested that modal differences between coincident objects depend on the way we conceptualize the objects in question (§5.3). Others have claimed that the pluralist must take such modal differences to be primitive facts about our world (§5.4). Both approaches are unappealing; and the pluralist can do much better. My aim in this chapter is to set out (what I take to be) the best response to the grounding problem." (p. 100)
- References
Barker, S. and Jago, M. (2014). 'Monism and material constitution', *Pacific Philosophical Quarterly* 95(2): 189-204-
15. ———. 2018. "From Nature to Grounding." In *Reality and its Structure: Essays in Fundamentality*, edited by Bliss, Ricki Leigh and Priest, Graham, 199-216. Oxford:

Oxford University Press.

"The underlying complaint is that there's no way to understand the general features of grounding.

(...)

We can develop both a general theory of grounding and a theory of how particular things are grounded. The key link between the simple logical cases and the difficult ones-involving material objects, mental states, truth, and so on-concerns the natures of those entities. I'll argue for a certain view of what makes those entities what they are, and then show how this provides us with information on how they are (or could be) grounded. If we can get a grasp on the natures of things (in the sense to be articulated below), then the simple logical cases give us what we need to understand the grounding conditions for those entities." (pp. 199-200)

16. Jansen, Ludger, and Sanstad, Petter, eds. 2021. *Neo-Aristotelian Perspectives on Formal Causation*. New York: Routledge.
 Contents: List of Figures IX, List of Tables XI, Acknowledgements XIII; List of Abbreviations XV;
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 List of Contributors 287; Index of Passages from Aristotle 291; General Index 293.
17. ———. 2021. "Introducing Formal Causation." In *Neo-Aristotelian Perspectives on Formal Causation*, edited by Jansen, Ludger and Sanstad, Petter, 1-16. New York: Routledge.
 "The essays in this volume, together with this introduction, trace the historical development of formal causation and demonstrate its relevance for contemporary issues, such as causation, explanation, laws of nature, powers, functions, trope theory, essence, dependence, and metaphysical grounding. There are also papers connecting formal causation to contemporary work in biology and cognitive science.
 In this introduction, we will first sketch the history of formal causation, from its beginning with Plato and Aristotle, its reception by (and criticism from) the ancient commentators, and all the way to our current time (Section 1). Second, we take a more systematic point of view, and attempt to answer the question of why we need a theory of formal causation today (Section 2). To do so, we point at possible applications for such a theory by pinpointing the relevance of formal causation to the current literature (Section 2.1). We next look at the different approaches to formal causation that is to be found today and investigate whether they are concerned with the same issue (Section 2.2). Lastly, we point out some open questions, some of which are addressed by the contributions of this volume (Section

- 2.3). Finally, we shall give a summary of each contribution of this volume (Section 3)." (p. 1)
18. Jansson, Lina. 2017. "Explanatory Asymmetries, Ground, and Ontological dependence." *Erkenntnis* no. 82:17-44.
 Abstract: "The notions of ground and ontological dependence have made a prominent resurgence in much of contemporary metaphysics. However, objections have been raised. On the one hand, objections have been raised to the need for distinctively metaphysical notions of ground and ontological dependence. On the other, objections have been raised to the usefulness of adding ground and ontological dependence to the existing store of other metaphysical notions. Even the logical properties of ground and ontological dependence are under debate. In this article, I focus on how to account for the judgements of non-symmetry in several of the cases that motivate the introduction of notions like ground and ontological dependence. By focusing on the notion of explanation relative to a theory, I conclude that we do not need to postulate a distinctively asymmetric metaphysical notion in order to account for these judgements."
19. ———. 2018. "When are Structural Equation Models Apt? Causation versus Grounding." In *Explanation Beyond Causation: Philosophical Perspectives on Non-Causal Explanations*, edited by Reutlinger, Alexander and Saatsi, Juha, 250-266. New York: Oxford University Press.
 "In section 2 I will briefly review how structural equation modelling works in the causal case before showing how the formal framework can be extended to the grounding case.
 In section 3 I will argue that it is only the formal framework that carries over to the grounding case. In particular, the seeming unification of the structural equations approach to explanation disappears once we take into account what it takes for a structural equations model to have appropriately captured the situation that we are modelling. As Schaffer (2016) and Blanchard and Schaffer (2017) emphasize, structural equation modelling is a type of modelling. Once we are given a model of some scenario or system, the obvious question to ask is whether the model is any good. That is, is the model an apt or fitting one (for the purpose at hand)? For a model to be a good one for the purposes at hand it has to contain appropriate (whatever that turns out to mean) variables and appropriately (whatever that turns out to mean) represent the relations of causal or grounding relevance." (p. 251)
 References
 Blanchard, T. and Schaffer, J. (2017), 'Cause without Default', in H. Beebe, C. Hitchcock, and H. Price (eds.), *Making a Difference: Essays on the Philosophy of Causation* (Oxford: Oxford University Press), 175–214.
 Schaffer, J. (2016), 'Grounding in the Image of Causation', *Philosophical Studies* 173: 49–100.
20. Javier-Castellanos, Amir A. 2014. "Some Challenges to a Contrastive Treatment of Grounding." *Thought: A Journal of Philosophy* no. 3:184-192.
 Abstract: "Jonathan Schaffer has provided three putative counterexamples to the transitivity of grounding, and has argued that a contrastive treatment of grounding is able to provide a resolution to them, which in turn provides some motivation for accepting such a treatment. In this article, I argue that one of these cases can easily be turned into a putative counterexample to a principle which Schaffer calls differential transitivity. Since Schaffer's proposed resolution rests on this principle, this presents a dilemma for the contrastivist: either he dismisses the third case, which weakens the motivation for accepting his treatment of grounding, or else he accepts it, in which case he is faced with a counterexample to a principle that his proposed resolution to the original cases depends on. In the remainder of the article, I argue that the prima facie most promising strategy the contrastivist could take, which is to place some restriction on which contrastive facts are admissible so as to rule out the purported counterexample to differential transitivity, faces some

important difficulties. Although these difficulties are not insurmountable, they do pose a substantial challenge for the contrastivist."

References

Schaffer, Jonathan. "Grounding, Transitivity, and Contrastivity," in Correia, Fabrice and Schneider, Benjamin, *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge: Cambridge University Press, 2012, pp. 122-138.

21. Jenkins, C. S. 2008. *Grounding Concepts: An Empirical Basis for Arithmetical Knowledge*. New York: Oxford University Press.
 "I assume that arithmetical truths are conceptual truths; that is, that we can tell that they are true just by examining our concepts (i.e. certain of our mental representations). But, I say, the epistemological story cannot end there. In order for an examination of our concepts to supply us with knowledge of an independent reality, it must be that those concepts are appropriately sensitive to the nature of that reality, or what I call *grounded*. A concept's being grounded in my sense requires that it (or, perhaps, the constituent concepts from which it is built) should accurately represent some feature of the independent world.(8) That is, groundedness requires that the concept be what I call *fitting*. But more is also required: just as knowledge requires more than truth, groundedness requires more than fittingness. In fact, I suggest that there is a very tight analogy between the two cases." (Introduction, p. 8)
 (8) In fact, there is a little more subtlety involved in the precise formulation of this notion. But this sketch will do to convey the general idea.
22. ———. 2011. "Is Metaphysical Dependence Irreflexive?" *The Monist* no. 94:267-276.
 "It is very commonly asserted that metaphysical dependence or grounding is an irreflexive relation: that is to say, it *never holds between an item and itself*." (p. 267)
 (...)
 "Maybe the irreflexivity assumption doesn't require argument?
 Perhaps it is reasonable just to assume it in the absence of arguments to the contrary. There are (at least) three possible ways to back up this suggestion. One could take the irreflexivity claim to be:
 1. stipulative,
 2. intuitive, or
 3. too basic to require justification (at least in the relevant contexts).
 If it is taken to be stipulative (i.e. if one takes it to be true by definition that dependence is irreflexive), one runs the risk of discussing something that isn't what everyone else meant by 'dependence', or of discussing something that is less interesting than schmeppendence (a nearby non-irreflexive relation). One can mean whatever one likes by 'dependence', of course, but these risks are to be treated with respect by any serious philosopher.
 If one merely takes irreflexivity to be intuitive, however, one is open to the possibility that its intuitiveness might be explained away as being due to quasi-irreflexivity.
 What about taking irreflexivity to be too basic to require justification in the relevant contexts?8 After all, one must start somewhere if one is to make any progress; one can't argue for all one's assumptions. But one can assert that dependence appears to be irreflexive, or exhibits some features suggestive of irreflexivity, almost as quickly as one can assert that it is irreflexive.
 Now that the irreflexivity assumption has been questioned and one obvious motivation for it undermined, it is not good philosophical practice to sweep the challenge back under the carpet." (p. 275, notes omitted)
23. Jones, Nicholas K. 2016. "Object as a Determinable." In *Reality Making*, edited by Jago, Mark, 121-151. Oxford: Oxford University Press.
 Contents: List of Figures VII; List of Contributors VIII; Mark Jago: Reality-Making: Introduction 1; Martin Glazier: Laws and the Completeness of the Fundamental 11; Naomi Thompson: Metaphysical Interdependence 38; Jacek

- Brzozowski: Monism and Gunk 57; Matthew Tugby: What are Dispositional Properties? 75; Mark Jago: Essence and the Grounding Problem 99; Nicholas K. Jones: Object as a Determinable 121; Sonia Roca-Royes: Rethinking Origin Essentialism (for Artefacts) 152; Nathan Wildman: How (not) to be a Modalist About Essence 177; Index 197-200.
24. Katzav, Joel. 2002. "Identity, Nature, and Ground." *Philosophical Topics* no. 30:167-187.
 Abstract: "What does the qualitative identity of objects consist in? A standard response is that it consists in the possession of properties and relations. If all of an object's properties and relations are specified, all there is to be specified about its qualitative as opposed to its numerical identity will have been specified. Another response adds that kinds, conceived of as an irreducible category of entity, also play a part in fixing the qualitative identities of objects. In what follows, two arguments are offered according to which these views are insufficient. Both lead to the conclusion that the qualitative identities of objects consist in part in their natures being grounded in what differs from entities, that is to say in something like conditions for the possibility of entities. The idea of such grounding will be clarified, and some of the criteria of adequacy for theses about it will be spelled out. Further, the implications of the claim that the natures of objects are grounded for the problems of the one and the many will be discussed."
25. Khudairi, Hasen. 2018. "Grounding, Conceivability, and the Mind-Body Problem." *Synthese* no. 195:919-926.
 Abstract: "This paper challenges the soundness of the two-dimensional conceivability argument against the derivation of phenomenal truths from physical truths (cf. Chalmers in *The conscious mind*, Oxford University Press, Oxford, 1996; *The character of consciousness*, Oxford University Press, Oxford, 2010) in light of a hyperintensional regimentation of the ontology of consciousness. The regimentation demonstrates how ontological dependencies between truths about consciousness and about physics cannot be witnessed by epistemic constraints, when the latter are recorded by the conceivability—i.e., the epistemic possibility—thereof. Generalizations and other aspects of the philosophical significance of the hyperintensional regimentation are further examined."
26. Kirchin, Simon. 2013. "Evaluation, Normativity and Grounding." *Aristotelian Society Supplementary Volume* no. 87:179-198.
 Abstract: "I consider the 'normative relevance' argument and the idea of grounding. I diagnose why there appears to be a tension between the conclusion that we are tempted to reach and the intuition that the normative is grounded in or by the non-normative. Much of what I say turns on the idea of the normative itself. In short, I think that concentrating on this idea can help us see how the tension arises. My aim is to encourage people to reconceptualize the debate so as to begin to offer additional insight. To that end, I spend some time contrasting normativity with evaluation, and then think how the debate may alter if we run it with the latter. I doubt that doing so will solve any problem, and I suspect that what I say will be controversial anyway.
 But there is some value to changing matters nonetheless. The idea that runs through this paper is that the whole issue is so complex and deep that we should not narrowly construe it with reference only to normativity."
27. Kment, Boris. 2014. *Modality and Explanatory Reasoning*. New York: Oxford University Press.
 "The goal of this book is to shed light on metaphysical necessity and the broader class of modal properties to which it belongs."
 (...)
 I will argue that to understand modality we need to reconceptualize its relationship to causation and other forms of explanation such as grounding, a relation that connects metaphysically fundamental facts to non-fundamental ones. While many

- philosophers have tried to give modal analyses of causation and explanation, often in counterfactual terms, I will argue that we obtain a more plausible, explanatorily powerful and unified theory if we regard explanation as more fundamental than modality." (p. 1)
28. ———. 2021. "Russell–Myhill and Grounding." *Analysis*.
First online 1 October 2021.
Abstract: "The Russell-Myhill paradox (RMP) puts pressure on the Russellian structured view of propositions (structurism) by showing that it conflicts with certain prima facie attractive ontological and logical principles. I describe several versions of RMP and argue that structurists can appeal to natural assumptions about metaphysical grounding to provide independent reasons for rejecting the ontological principles used in these paradoxes. It remains a task for future work to extend this grounding-based approach to all variants of RMP."
29. 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.
"In recent years, many metaphysicians, following the lead of Kit Fine, have used the term 'grounding' to represent a relation of metaphysical dependency: if x is grounded in y, then x (in a certain sense) depends upon y, for its existence, or truth, or nature. We could identify fundamental entities or truths with those that are not grounded in other entities or truths, either by being absolutely ungrounded or by being in some special way grounded without being grounded in or by anything." (pp. 47-48)
30. Korbmacher, Johannes. 2015. "Yet Another Puzzle of Ground." *Kriterion - Journal of Philosophy* no. 29:1-10.
Abstract: "We show that any predicational theory of partial ground that extends a standard theory of syntax and that proves some commonly accepted principles for partial ground is inconsistent.
We suggest a way to obtain a consistent predicational theory of ground."
31. ———. 2018. "Axiomatic Theories of Partial Ground I: The Base Theory." *Journal of Philosophical Logic* no. 47:161-191.
Abstract: "This is part one of a two-part paper, in which we develop an axiomatic theory of the relation of partial ground. The main novelty of the paper is the use of a binary ground predicate rather than an operator to formalize ground. This allows us to connect theories of partial ground with axiomatic theories of truth. In this part of the paper, we develop an axiomatization of the relation of partial ground over the truths of arithmetic and show that the theory is a proof-theoretically conservative extension of the theory PT of positive truth. We construct models for the theory and draw some conclusions for the semantics of conceptualist ground."
32. ———. 2018. "Axiomatic Theories of Partial Ground II: Partial Ground and Hierarchies of Typed Truth." *Journal of Philosophical Logic* no. 47:193-226.
Abstract: "This is part two of a two-part paper in which we develop an axiomatic theory of the relation of partial ground. The main novelty of the paper is the use of a binary ground predicate rather than an operator to formalize ground. In this part of the paper, we extend the base theory of the first part of the paper with hierarchically typed truth-predicates and principles about the interaction of partial ground and truth.
We show that our theory is a proof-theoretically conservative extension of the ramified theory of positive truth up to ε_0 and thus is consistent. We argue that this theory provides a natural solution to Fine's "puzzle of ground" about the interaction of truth and ground. Finally, we show that if we apply the truth-predicate to sentences involving our ground-predicate, we run into paradoxes similar to the semantic paradoxes: we get ground-theoretical paradoxes of self-reference."
33. Koslicki, Kathrin. 2015. "The Coarse-Grainedness of Grounding." *Oxford Studies in Metaphysics* no. 9:306-344.

- "At least with respect to its formal properties, then, grounding does appear to hold more promise than supervenience for the purposes of developing an approach to relative fundamentality, if only because grounding is commonly stipulated to be asymmetric and not definable in modal terms. However, as we will discover below, grounding nevertheless suffers from some of the same deficiencies as supervenience: most prominently, grounding also fails to be sufficiently finegrained to do its intended explanatory work. In addition, there is doubt as to whether the phenomena collected together under the rubric of grounding are really unified by the presence of a single relation.
- And, finally, grounding turns out not to be particularly helpful in capturing and illuminating what is philosophically important about the traditional substance/non-substance distinction. In the end, we will find that, although grounding performs better than supervenience in some ways, it does not solve all of the problems to which a supervenience-based approach to relative fundamentality falls prey." (p. 309)
34. ———. 2016. "Where Grounding and Causation Part Ways: Comments on Schaffer." *Philosophical Studies* no. 173:101-112.
 Abstract: "Does the notion of ground, as it has recently been employed by metaphysicians, point to a single unified phenomenon (the "Unity Hypothesis")? Jonathan Schaffer holds that the phenomenon of grounding exhibits the unity characteristic of a single genus. In defense of this hypothesis, Schaffer proposes to take seriously the analogy between causation and grounding. More specifically, Schaffer argues that both grounding and causation are best approached through a single formalism, viz., that utilized by structural equation models of causation. In this paper, I present several concerns which suggest that the structural equation model does not transfer as smoothly from the case of causation to the case of grounding as Schaffer would have us believe. If it can in fact be shown that significant differences surface in how the formalism in question applies to the two types of phenomena in question, Schaffer's attempt at establishing an analogy between grounding and causation has thereby been weakened and, as a result, the application of the Unity Hypothesis to the case of grounding once again stands in need of justification."
35. ———. 2020. "Skeptical Doubts." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 164-179. New York: Routledge.
 "What exactly are we supposed to learn from the grounding enthusiast's alleged insight that factual and/or nonfactual connections such as those cited in (1) and (2) are all grounding connections? In what follows, I shall refer to this as "the Central Question". *Grounding skeptics* (also known as "ground busters", see Fine 2020), depending on the version of grounding skepticism they endorse, respond to the Central Question as follows: either (i) we learn nothing at all from the grounding enthusiast's alleged insight; or (ii) what we learn from the grounding enthusiast's alleged insight can be better stated in terms that do not appeal to the grounding idiom. In either case, so the grounding skeptic reasons, the grounding idiom lacks theoretical utility, and we therefore might as well continue to go about the business of trying to clarify the nature of the factual and/or nonfactual connections at issue without appeal to the grounding idiom." (p. 165, a note omitted)
 References
 Fine, Kit (2020) "The Essential Glossary of Ground," this volume.
36. Kovacs, David Mark. 2017. "Grounding and the Argument from Explanatoriness." *Philosophical Studies* no. 174:2927-2952.
 Abstract: "In recent years, metaphysics has undergone what some describe as a revolution: it has become standard to understand a vast array of questions as questions about grounding, a metaphysical notion of determination. Why should we believe in grounding, though? Supporters of the revolution often gesture at what I call the *Argument from Explanatoriness*: the notion of grounding is somehow indispensable to a metaphysical type of explanation. I challenge this argument and

- along the way develop a “reactionary” view, according to which there is no interesting sense in which the notion of grounding is explanatorily indispensable. I begin with a distinction between two conceptions of grounding, a distinction which extant critiques of the revolution have usually failed to take into consideration: grounding *qua* that which underlies metaphysical explanation and grounding *qua* metaphysical explanation itself. Accordingly, I distinguish between two versions of the Argument from Explanatoriness: the Unexplained Explanations Version for the first conception of grounding, and the Expressive Power Version for the second. The paper’s conclusion is that no version of the Argument from Explanatoriness is successful.”
37. ———. 2018. "What Is Wrong with Self-Grounding?" *Erkenntnis* no. 83:1157-1180.
Abstract: "Many philosophers embrace grounding, supposedly a central notion of metaphysics. Grounding is widely assumed to be irreflexive, but recently a number of authors have questioned this assumption: according to them, it is at least possible that some facts ground themselves. The primary purpose of this paper is to problematize the notion of self-grounding through the theoretical roles usually assigned to grounding. The literature typically characterizes grounding as at least playing two central theoretical roles: a structuring role and an explanatory role. Once we carefully spell out what playing these roles includes, however, we find that any notion of grounding that isn't irreflexive fails to play these roles when they are interpreted narrowly, and is redundant for playing them when they are interpreted more broadly. The upshot is that no useful notion of grounding can allow a fact to ground itself."
38. ———. 2020. "Four Questions of Iterated Grounding." *Philosophy and Phenomenological Research* no. 101:341-364.
Abstract: "The Question of Iterated Grounding (QIG) asks what grounds the grounding facts. Although the question received a lot of attention in the past few years, it is usually discussed independently of another important issue: the connection between metaphysical explanation and the relation or relations that supposedly “back” it. I will show that once we get clear on the distinction between metaphysical explanation and the relation(s) backing it, we can distinguish no fewer than four questions lumped under QIG. I will also argue that given some plausible assumptions about what it would take for a relation to back metaphysical explanation, many salient views about grounding allow us to give “easy” answers to these questions—easy in the sense that we can straightforwardly derive them from the respective conception of grounding without getting into the sorts of complexities that typically inform answers to QIG. The paper’s main upshot is that we cannot expect to make much progress on QIG without first addressing the difficult issue of how exactly grounding is related to metaphysical explanation."
39. ———. 2020. "Modality." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 348-360. New York: Routledge.
"How is grounding related to modality? This question is ambiguous, since several phenomena fit under the broad label ‘modality’. First, we could ask whether grounds necessitate what they ground (‘Grounding Necessitarianism’). Second, we could ask whether grounding is an internal relation, i.e., whether in every possible world in which some fact and its grounds obtain they automatically stand in the grounding relation. Third, we could ask how grounding is related to modal notions, in particular supervenience, which used to be assigned similar theoretical roles. Alex Skiles’s contribution to this volume [Chapter 10] discusses the first and the second of these questions, and in the context of a broader discussion of meta-grounding, Jon Erling Litland [Chapter 9] also touches on the second; the present chapter will entirely focus on the relation between grounding and supervenience." (p. 348)
40. ———. 2021. "An Explanatory Idealist Theory of Grounding." *Noûs*.
First online 12 April 2021.

- Abstract: "How is grounding related to metaphysical explanation? The standard view is that the former somehow “backs”, “undergirds” or “underlies” the latter. This view fits into a general picture of explanation, according to which explanations in general hold in virtue of a certain elite group of “explanatory relations” or “determinative relations” that back them. This paper turns the standard view on its head: grounding doesn't “back” metaphysical explanation but is in an important sense downstream from it. I call this view “grounding idealism”, since it structurally resembles an analogous view about causation that is known as “causal idealism” and has been endorsed by philosophers like Michael Scriven and Philip Kitcher. I formulate a specific version of grounding idealism, Metaphysical Explanation-First Idealism (MEFI), according to which the semantic value of ‘grounding’ is an abundant, gerrymandered relation settled by the metaphysical explanation facts. Then I offer some theoretical considerations that support MEFI over rival accounts of the relation between grounding and metaphysical explanation. Finally, I address the question of what role is left for grounding to play, if not that of “backing” metaphysical explanations."
41. Krämer, Stephan. 2013. "A simpler puzzle of ground." *Thought: A Journal of Philosophy* no. 2:85-89.
Abstract: "Metaphysical grounding is standardly taken to be irreflexive: nothing grounds itself. Kit Fine has presented some puzzles that appear to contradict this principle. I construct a particularly simple variant of those puzzles that is independent of several of the assumptions required by Fine, instead employing quantification into sentence position. Various possible responses to Fine's puzzles thus turn out to apply only in a restricted range of cases."
42. ———. 2019. "Ground-theoretic Equivalence." *Synthese* no. 198:1643-1683.
Abstract: "Say that two sentences are ground-theoretically equivalent iff they are interchangeable *salva veritate* in grounding contexts. Notoriously, ground-theoretic equivalence is a hyperintensional matter: even logically equivalent sentences may fail to be interchangeable in grounding contexts. Still, there seem to be some substantive, general principles of ground-theoretic equivalence. For example, it seems plausible that any sentences of the form $A \wedge B$ and $B \wedge A$ are ground-theoretically equivalent. What, then, are in general the conditions for two sentences to stand in the relation of ground-theoretic equivalence, and what are the logical features of that relation? This paper develops and defends an answer to these questions based on the mode-ified truthmaker theory of content presented in my recent paper 'Towards a theory of ground-theoretic content' (Krämer in *Synthese* 195(2):785–814, 2018)."
43. ———. 2020. "Puzzles." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 271-282. New York: Routledge.
"This chapter reviews the variety of logical puzzles of ground that have been identified in the literature, describes the solutions that have been proposed, and indicates what the main challenges are that these solutions face. I begin by introducing relevant notation as well as the key concepts and principles that will subsequently be used in formulating the puzzles before turning to the puzzles themselves. In principle, there is a huge number of different derivations of contradictions from the relevant principles about ground. Many of them are essentially alike, so that any reasonable solution to one will immediately provide a solution to the other. Some of them exhibit more substantial differences, however, and I shall try to describe all the substantially different types of puzzles. I then briefly discuss what desiderata we might impose on adequate solutions to the puzzles before I finally turn to the solutions themselves. Many of these, once developed in detail, involve a fair bit of formal machinery. I shall mainly attempt to convey the basic philosophical ideas underlying and motivating the technical work; readers keen on the details will have to consult the primary texts." (p. 271)
44. Krämer, Stephan, and Roski, Stefan. 2015. "A Note on the Logic of Worldly Ground." *Thought: A Journal of Philosophy* no. 4:59-68.

Abstract: "In his 2010 paper 'Grounding and Truth-Functions', Fabrice Correia has developed the first and so far only proposal for a logic of ground based on a worldly conception of facts. In this paper, we show that the logic allows the derivation of implausible grounding claims. We then generalize these results and draw some conclusions concerning the structural features of ground and its associated notion of relevance, which has so far not received the attention it deserves."

References

Correia, Fabrice. "Grounding and Truth-Functions." *Logique et Analyse* 53.211 (2010): 251–79.

45. Kroedel, Thomas, and Schulz, Moritz. 2016. "Grounding Mental Causation." *Synthese* no. 193:1909-1923.
Abstract: "This paper argues that the exclusion problem for mental causation can be solved by a variant of non-reductive physicalism that takes the mental not merely to supervene on, but to be grounded in, the physical. A grounding relation between events can be used to establish a principle that links the causal relations of grounded events to those of grounding events. Given this principle, mental events and their physical grounds either do not count as overdetermining physical effects, or they do so in a way that is not objectionable."
46. Lange, Marc. 2013. "Grounding, Scientific Explanation, and Humean Laws." *Philosophical Studies* no. 164:255-261.
Abstract: "It has often been argued that Humean accounts of natural law cannot account for the role played by laws in scientific explanations. Loewer (*Philosophical Studies* 2012) has offered a new reply to this argument on behalf of Humean accounts—a reply that distinguishes between grounding (which Loewer portrays as underwriting a kind of metaphysical explanation) and scientific explanation. I will argue that Loewer's reply fails because it cannot accommodate the relation between metaphysical and scientific explanation. This relation also resolves a puzzle about scientific explanation that Hempel and Oppenheim (*Philosophy of Science* 15:135–75, 1948) encountered."
References
Hempel, C. G., & Oppenheim, P. (1948). Studies in the logic of explanation. *Philosophy of Science*, 15, 135–175.
Loewer, B. (2012). Two accounts of laws and time. *Philosophical Studies*, 160(1): 115-137.
47. ———. 2019. "Ground and Explanation in Mathematics." *Philosopher's Imprint* no. 19:1-18.
"Increased attention has recently been paid to the fact that in mathematical practice, certain mathematical proofs but not others are recognized as explaining why the theorems they prove obtain (Mancosu 2008; Lange 2010, 2015a, 2016; Pincock 2015). Such "mathematical explanation" is presumably not a variety of causal explanation. In addition, the role of metaphysical grounding as underwriting a variety of explanations has also recently received increased attention (Correia and Schnieder 2012; Fine 2001, 2012; Rosen 2010; Schaffer 2016). Accordingly, it is natural to wonder whether mathematical explanation is a variety of grounding explanation. This paper will offer several arguments that it is not." (p. 1)
References
Correia, Fabrice and Benjamin Schnieder 2012. Grounding: An opinionated introduction. In Correia and Schnieder (eds.), *Metaphysical Grounding*. Cambridge: Cambridge University Press, pp. 1–36.
Fine, Kit 2001. The question of realism. *Philosophers' Imprint* 1 (2): 1–30.
Fine, Kit 2012. Guide to ground. In Correia and Schnieder (eds.), *Metaphysical Grounding*. Cambridge: Cambridge University Press, pp. 37–80.
Lange, Marc 2010. What are mathematical coincidences (and why does it matter)? *Mind* 119 (474): 307-340.
Lange, Marc 2015a. Explanation, existence, and natural properties in mathematics: a case study – Desargues' theorem. *Dialectica* 69 (4): 435–472.

- Lange, Marc 2016. *Because Without Cause*. New York: Oxford University Press.
- Mancosu, Paolo 2008. *Mathematical explanation: why it matters*. In Mancosu (ed.), *The Philosophy of Mathematical Practice*. Oxford: Oxford University Press, pp. 134–150.
- Pincock, Christopher 2015. *The unsolvability of the quintic: A case study in abstract mathematical explanation*. *Philosophers' Imprint* 15 (3): 1–19.
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- Schaffer, Jonathan 2016. *Grounding in the image of causation*. *Philosophical Studies* 173 (1): 49–100.
48. Langton, Rae. 2018. "‘Real Grounds’ in Matter and Things in Themselves." *Kantian Review* no. 23:435-448.
 Abstract: "Matter’s real essence is a ground for certain features of phenomena. Things in themselves are likewise a ground for certain features of phenomena. How do these claims relate? The former is a causal essentialism about physics, Stang argues; and the features so grounded are phenomenally nomically necessary. The latter involves a distinctive ontology of things in themselves, I argue; but the features so grounded are not noumenally nomically necessary. Stang’s version of Kant’s modal metaphysics is admirable, but does not go far enough. Kant’s causal essentialism involves the essences of fundamental properties, as well as of matter. And things in themselves are grounds, because they are substances, the ‘substrate’ of phenomena."
 References
 Stang, Nicholas F. (2016) *Kant’s Modal Metaphysics*. Oxford: Oxford University Press.
49. Larsson, Staffan. 2018. "Grounding as a Side-Effect of Grounding." *Topics in Cognitive Science* no. 10:389-408.
 Abstract: "In relation to semantics, “grounding” has (at least) two relevant meanings. “Symbol grounding” is the process of connecting symbols (e.g., words) to perception and the world. “Communicative grounding” is the process of interactively adding to common ground in dialog. Strategies for grounding in human communication include, crucially, strategies for resolving troubles caused by various kinds of miscommunication. As it happens, these two processes of grounding are closely related. As a side-effect of grounding an utterance, dialog participants (DPs) may adjust the meanings they assign to linguistic expressions, in a process of semantic coordination.
 Meanings of at least some expressions (e.g., concrete nouns) include perceptual aspects which enable DPs to classify entities as falling under the expression or not based on their perception of those entities. We show how perceptual grounding of symbols can be achieved in a process of interactively adding to common ground. This requires that perceptual aspects of meaning can be updated as a result of participating in linguistic interaction, thereby enabling fine-grained semantic coordination of perceptually grounded linguistic meanings.
 A formal semantics for low-level perceptual aspects of meaning is presented, tying these together with the logical-inferential aspects of meaning traditionally studied in formal semantics. The key idea is to model perceptual meanings as classifiers of perceptual input. This requires a framework where intensions are (a) represented independently of extensions, and (b) structured objects which can be modified as a result of learning. We use Type Theory with Records (TTR), a formal semantics framework which starts from the idea that information and meaning are founded on our ability to perceive and classify the world, that is, to perceive objects and situations as being of types. As an example of our approach, we show how a simple classifier of spatial information based on the Perceptron can be cast in TTR."
50. Leary, Stephanie. 2017. "Non-naturalism and Normative Necessities." *Oxford Studies in Metaethics* no. 12:76-105.

"My aim in this chapter, however, is to show that non-naturalists can offer a metaphysical explanation for why the normative supervenes on the natural by adopting the sort of essentialist metaphysics developed by Fine, Rosen, and Dasgupta.(5) Specifically, I argue (in §4.4) that the non-naturalist may claim that there are some hybrid normative properties whose essences involve both naturalistic sufficient conditions for their instantiation and sufficient conditions for the instantiation of other sui generis normative properties, and that this explains why the normative is determined by, and supervenes on, the natural. Moreover, I argue (in §4.5) that this nonnaturalist explanation for supervenience does not covertly assume any brute metaphysically necessary connections between natural and normative properties, and thus avoids what McPherson calls "bruteness revenge."6" (p. 77)

(5) Fine (1994a, 2012), Rosen (2010), and Dasgupta (2014).

(6) McPherson (2012).

References

Dasgupta, S. 2014. "The Possibility of Physicalism," *Journal of Philosophy*, 111(9/10): 557–92.

Fine, K. 1994a. "Essence and Modality," *Philosophical Perspectives*, 8: 1–16.

Fine, K. 2012. "Guide to Ground," in F. Correia and B. Schnieder (eds.), *Metaphysical Grounding*, 37–80. Cambridge: Cambridge University Press.

McPherson, T. 2012. "Ethical Non-naturalism and the Metaphysics of Supervenience," in R. Shafer-Landau (ed.), *Oxford Studies in Metaethics*, 7, 205–34. Oxford: Oxford University Press.

Rosen, G. 2010. "Metaphysical Dependence: Grounding and Reduction," in B. Hale and A. Hoffmann (eds.), *Modality: Metaphysics, Logic, and Epistemology*, 109–36. New York: Oxford University Press.

51. ———. 2020. "Normativity." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 472-483. New York: Routledge.
 "One of the ways in which grounding earns its keep as a respectable bit of ideology is by being useful for understanding long-standing philosophical debates, including debates in normative ethics and metaethics. (...)
 But this common story about grounding's applications in normative inquiry is rife with controversy. First, even if normative ethicists are in the business of making because-claims, it's controversial whether these because-claims are about *metaphysical grounding* or a related but distinctly normative relation—*normative grounding*.
 Second, this grounding characterization of the naturalism versus non-naturalism debate begins to look problematic once we ask whether on this characterization, for example, the fact that an act's maximizing happiness fully grounds that it's right is itself a normative fact that must be fully grounded in natural, non-normative facts in order for naturalism to be true. Very general metaphysical considerations suggest that such grounding-facts cannot be so grounded.
 (...)
 This chapter surveys these two main issues in §2 and §3, respectively, while highlighting what's at stake in these disputes for both normative and metaphysical theorizing." (p. 472)
52. Lenart, Karol. 2021. "Grounding, Essence, and Contingentism." *Philosophia* no. 49:2157-2172.
 Abstract: "According to grounding necessitarianism if some facts ground another fact, then the obtaining of the former necessitates the latter. Proponents of grounding contingentism argue against this claim, stating that it is possible for the former facts to obtain without necessitating the latter. In this article I discuss a recent argument from restricted accidental generalisations provided by contingentists that advances such possibility. I argue that grounding necessitarianism can be defended against it. To achieve this aim, I postulate a relationship between grounding and essence by introducing a notion of individual essences understood as a set of essential properties that individuate its bearer.

- According to a proposed view grounding holds in virtue of identities of its relata, which are in turn determined by their respective individual essences. From there I claim that if grounding holds in virtue of the individual essences of its relata, then it is possible to resist the objection from restricted accidental generalisations and maintain a view that grounds necessitates what is grounded."
53. Lennox, James G. 2021. "Form as Cause and the Formal Cause: Aristotle's Answer." In *Neo-Aristotelian Perspectives on Formal Causation*, edited by Jansen, Ludger and Sandstad, Petter, 225-237. New York: Routledge.
 "Introduction: The primary focus of this paper is a distinction of vital importance in understanding causality in the context of Aristotle's investigation of organisms. Aristotle insists that the form of a living being, that is, its soul (*psyche*), is a cause in three of the four ways of being a cause (DA [*De anima*] 11.4, 41568-21, discussed below). This claim has two important implications:
- Being a formal cause is only one way in which form is a cause
 - It turns out that there is an intimate relationship in Aristotle's natural philosophy between the formal cause, the moving cause, and the cause for the sake of which (aka the final cause), and this has a direct implication for Aristotle's understanding of the way in which an animal's soul, that is, its form, serves as the cause of its being the kind of living thing it is.
- As we will soon see, when it comes to living beings, the relationship between form as formal cause and form as final cause is an especially intimate one." (p. 225)
54. Leuenberger, Stephan. 2013. "Supervenience Among Classes of Relations." In *Varieties of Dependence: Ontological Dependence, Grounding, Supervenience, Response-Dependence*, edited by Hoeltje, Miguel, Schnieder, Benjamin and Steinberg, Alex, 325-346. Munich: Philosophia Verlag.
 "Whatever the exact relationship between supervenience and reducibility, the question whether some relations are reducible to properties naturally leads to the question whether the former supervene on the latter. What would it take for relations to supervene on properties?
 The extant literature does not contain a sustained and systematic examination of this question, at least as far as I am aware. This is surprising, given that a great deal of work has been done on distinguishing various concepts of supervenience, supplying exact characterizations for them, and finding applications. It is even more surprising in light of the fact that the concept of supervenience is eminently suitable to be applied to relations, as I shall argue." (pp. 327-328)
55. ———. 2014. "Grounding and Necessity." *Inquiry: An Interdisciplinary Journal of Philosophy* no. 57:151-174.
 Abstract: "The elucidations and regimentations of grounding offered in the literature standardly take it to be a necessary connection. In particular, authors often assert, or at least assume, that if some facts ground another fact, then the obtaining of the former necessitates the latter; and moreover, that grounding is an internal relation, in the sense of being necessitated by the existence of the relata. In this article, I challenge the necessitarian orthodoxy about grounding by offering two *prima facie* counterexamples.
 First, some physical facts may ground a certain phenomenal fact without necessitating it; and they may co-exist with the latter without grounding it. Second, some instantiations of categorical properties may ground the instantiation of a dispositional one without necessitating it; and they may co-exist without grounding it. After arguing that these may be genuine counterexamples, I ask whether there are modal constraints on grounding that are not threatened by them. I propose two: that grounding supervenes on what facts there are, and that every grounded fact supervenes on what grounds there are. Finally, I attempt to provide a rigorous formulation of the latter supervenience claim and discuss some technical questions that arise if we allow descending grounding chains of transfinite length."
56. ———. 2014. "From Grounding to Supervenience?" *Erkenntnis* no. 79:227-240.

Abstract: "The concept of supervenience and a regimented concept of grounding are often taken to provide rival explications of pre-theoretical concepts of dependence and determination. Friends of grounding typically point out that supervenience claims do not entail corresponding grounding claims. Every fact supervenes on itself, but is not grounded in itself, and the fact that a thing exists supervenes on the fact that its singleton exists, but is not grounded in it. Common lore has it, though, that grounding claims do entail corresponding supervenience claims. In this article, I show that this assumption is problematic. On one way of understanding it, the corresponding supervenience claim is just an entailment claim under a different name. On another way of understanding it, the corresponding claim is a distinctive supervenience claim, but its specification gives rise to what I call the "reference type problem": to associate the classes of facts that are the relata of grounding with the types of facts that are the relata of supervenience. However it is understood, supervenience rules out prima facie possibilities: alien realizers, blockers, heterogeneous realizers, floaters, and heterogeneous blockers. Instead of being rival explications of one and the same pre-theoretical concept, grounding and supervenience may be complementary concepts capturing different aspects of determination and dependence."

57. ———. 2020. "Emergence." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 312-323. New York: Routledge.
 "Grounding is taken to be topic neutral, and contributors tend to be interested in general and noncontingent claims about it.
 (...)
 The literature on emergence is strikingly different on all those counts. It is dispersed over a number of subdisciplines of philosophy, with different intellectual traditions, notably philosophy of mind, philosophy of science, and to a lesser extent metaphysics. Indeed, collections on emergence (e.g., Bedau and Humphreys (2008); Clayton and Davies (2006)) tend to cast the net even wider and include contributions from various natural and social sciences, as well as speculative proposals from the margins of mainstream science. Accordingly, the literature is highly heterogeneous. This means that whatever generalizations I am about to offer on the literature should be taken with a grain of salt." (p. 312)
 References
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 Clayton, P. and Davies, P. (2006). *The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion*. Oxford University Press, Oxford.
58. Liggins, David. 2012. "Truth-makers and Dependence." In *Metaphysical Grounding: Understanding the Structure of Reality* edited by Correia, Fabrice and Schnieder, Benjamin, 254-271. Cambridge: Cambridge University Press.
 "This chapter discusses the significance of non-causal dependence for truth-maker theory. After introducing truth-maker theory (Section 10.1), I discuss a challenge to it levelled by Benjamin Schnieder. I argue that Schnieder's challenge can be met once we acknowledge the existence of non-causal dependence and of explanations which rely on it (Sections 10.2 to 10.5). I then mount my own argument against truth-maker theory, based on the notion of non-causal dependence (Sections 10.6 and 10.7)." (p. 254)
 References
 Schnieder, B. 2006. 'Truth-Making Without Truth-Makers', *Synthese* 152: 21–46
59. ———. 2016. "Grounding and the Indispensability Argument." *Synthese* no. 193:531-548.
 Abstract: "There has been much discussion of the indispensability argument for the existence of mathematical objects. In this paper I reconsider the debate by using the notion of grounding, or non-causal dependence. First of all, I investigate what proponents of the indispensability argument should say about the grounding of relations between physical objects and mathematical ones. This reveals some

resources which nominalists are entitled to use. Making use of these resources, I present a neglected but promising response to the indispensability argument—a liberalized version of Field’s response—and I discuss its significance. I argue that if it succeeds, it provides a new refutation of the indispensability argument; and that, even if it fails, its failure may bolster some of the fictionalist responses to the indispensability argument already under discussion. In addition, I use grounding to reply to a recent challenge to these responses."

60. Litland, Jon Erling. 2011. *Natural Deduction for Logics of Ground*. Available on academia.edu.
Abstract: "I develop two logics (pplg and pnlg) of grounding which can deal with iterated grounding claims. The logics are developed in natural deduction form and the grounding operators are equipped with both introduction and elimination rules. I prove normalization results for pplg and pnlg and determine their relationship to Fine’s Pure Logic of Ground."
61. ———. 2013. "On Some Counterexamples to the Transitivity of Grounding." *Essays in Philosophy* no. 14:19-32.
Abstract: "I discuss three recent counterexamples to the transitivity of grounding due to Jonathan Schaffer. I argue that the counterexamples don’t work and draw some conclusions about the relationship between grounding and explanation."
References
Schaffer, Jonathan (2012). "Grounding, Transitivity, and Contrastivity". In: *Metaphysical Grounding*. Ed. by Fabrice Correia and Benjamin Schnieder. Cambridge University Press. Chap. 4, pp. 122–138
62. ———. 2015. "Grounding, Explanation, and the Limit of Internality." *The Philosophical Review* no. 124:481-532.
"For the reader’s benefit, here’s an overview of the essay. In section 2, I introduce terminology and notation. In section 3, I explain what I mean by the thesis that grounding is internal. In section 4, I lay down the assumptions about ground that generate the problem for internality; in section 5, I present the counterexample; and in section 6, I defend it against a variety of objections. This concludes the negative part of the essay.
Moving on to the positive part of the essay, I link grounding with the notion of a “completely satisfactory explanation” (section 7).
(...)
On either alternative, we obtain a satisfactory logic of ground in settings where we have self-reference, and we can establish the conjecture of the previous section. After concluding (section 9), two technical appendixes establish some claims baldly asserted in the main text: appendix A shows how supervaluationism can be satisfactorily combined with a theory of ground, and appendix B works through the technical details of the account of ground in terms of completely satisfactory explanation." (pp. 482-483)
63. ———. 2016. "An Infinitely Descending Chain of Ground Without a Lower Bound." *Philosophical Studies* no. 173:1361-1369.
Abstract: "Using only uncontentious principles from the logic of ground I construct an infinitely descending chain of ground without a lower bound. I then compare the construction to the constructions due to Dixon (forthcoming [2016]) and Rabin and Rabern (J Philos Log, 2015)."
References
Dixon, T. S. (2016). What is the well-foundedness of grounding? *Mind*. 125, 439-468.
Rabin, G. O., & Rabern, B. (2015). Well-founding grounding grounding. *Journal of Philosophical Logic*
64. ———. 2016. "Pure Logic of Many-Many Ground." *Journal of Philosophical Logic* no. 45:531-577.

Abstract: "A logic of grounding where what is grounded can be a collection of truths is a "many-many" logic of ground. The idea that grounding might be irreducibly many-many has recently been suggested by Dasgupta (2014). In this paper I present a range of novel philosophical and logical reasons for being interested in many-many logics of ground. I then show how Fine's State-Space semantics for the Pure Logic of Ground (PLG) can be extended to the many-many case, giving rise to the Pure Logic of Many-Many Ground (PLMMG). In the second, more technical, part of the paper, I do two things. First, I present an alternative formalization of PLG; this allows us to simplify Fine's completeness proof for PLG. Second, I formalize PLMMG using an infinitary sequent calculus and prove that this formalization is sound and complete."

65. ———. 2017. "Grounding Ground." In *Oxford Studies in Metaphysics: Vol. 10*, edited by Bennett, Karen and Zimmermann, Dean W, 279-315. New York: Oxford University Press.

"If Γ 's being the case grounds ϕ 's being the case, what grounds that Γ 's being the case grounds ϕ 's being the case? This is the Problem of Iterated Ground. (1) Dasgupta (2014b), Bennett (2011), and deRosset (2013) have grappled with this problem from the point of view of metaphysics. But iterated ground is a problem not just for metaphysicians: the existing logics of ground (2) have had nothing to say about such iterated grounding claims. In this paper I propose a novel account of iterated ground and develop a logic of iterated ground. The account—what I will call the Zero-Grounding Account (ZGA for short)—is based on three mutually supporting ideas: (i) taking non-factive ground as a primitive notion of ground; (ii) tying nonfactive ground to explanatory arguments; and (iii) holding that true non-factive grounding claims are zero-grounded (in Fine's sense)." (p. 279)

(1) Here Γ are some (true) propositions and ϕ is a (true) proposition. For the official formulation of claims of ground, see § 2 below. In the interest of readability I will not distinguish carefully between use and mention throughout.

(2) Fine 2012b; Correia 2010, 2014; Schnieder 2011; Poggiolesi 2015.

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Correia, Fabrice (2010). "Grounding and Truth-functions." *Logique et Analyse* 53.211, pp. 251–79.

Correia, Fabrice (2014). "Logical Grounds." *Review of Symbolic Logic* 7.1, pp. 31–59.

Fine, Kit (2012b). "The Pure Logic of Ground." *Review of Symbolic Logic* 5.1, pp. 1–25.

Dasgupta, Shamik (2014b). "The Possibility of Physicalism." *Journal of Philosophy* 111.9/10, pp. 557–92.

deRosset, Louis (2013). "Grounding Explanations." *Philosophers' Imprint* 13.7, pp. 1–26.

Poggiolesi, Francesca (2015). "On Defining the Notion of Complete and Immediate Formal Grounding." *Synthese*, pp. 1–21.

Schnieder, Benjamin (2011). "A Logic for 'Because'." *Review of Symbolic Logic* 4.3, pp. 445–65.

66. ———. 2018. "Could the Grounds's Grounding the Grounded Ground the Grounded?" *Analysis* no. 78:56-65.

Abstract: "The answer to the opening question is 'yes': it follows from standard principles in the logic of ground that that there are facts ϕ and ψ such that ϕ 's partially grounding ψ partially grounds ψ . This might seem like a mere curiosity, but it has important consequences for the following hotly debated issue. Suppose that the fact ϕ grounds the fact ψ ; then this – that ϕ grounds ψ – is a further fact, and we may ask what grounds it. (This is the Problem of Grounding Ground.) Most philosophers who have addressed it have held that ϕ is at least a partial ground for ϕ 's grounding ψ . Unfortunately, this, together with standard principles in the logic of ground, entails that the answer to the opening question is 'no'. Standard and

plausible principles about ground are thus inconsistent; moreover, this inconsistency turns on different principles than the inconsistencies unearthed by Fine (2010) and Krämer (2013). In particular, the principle of Amalgamation – that if each of ϕ and ψ is a ground for θ then ϕ together with ψ is a ground for θ – plays a role in generating the inconsistency.

In this article, I establish the above claims and, tentatively, argue that we resolve the inconsistency by giving up Amalgamation, thus clearing the way for ϕ 's grounding ψ 's grounding ψ ."

References

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Krämer, S. 2013. A simpler puzzle of ground. *Thought* 2: 85–9.

67. ———. 2018. "In Defense of the (Moderate) Disunity of Grounding." *Thought: A Journal of Philosophy* no. 7:97-108.

Abstract: "Fine (2012) is a pluralist about grounding. He holds that there are three fundamentally distinct notions of grounding: metaphysical, normative, and natural. Berker (2017) argues for monism on the grounds that the pluralist cannot account for certain principles describing how the distinct notions of grounding interact. This paper defends pluralism. By building on work by Fine (2010) and Litland (2015) I show how the pluralist can systematically account for Berker's interaction principles.

A monist about grounding holds that there is a single fundamental grounding relation; a pluralist holds that there are several fundamentally distinct grounding relations. In this paper I do two things. First, I defend the moderate pluralism of Fine (2012) from two challenges recently presented by Berker (2017). Second, I show that the pluralist's most basic grounding relations are not asymmetric." (A note omitted)

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Litland, Jon Erling. "Grounding, Explanation, and the Limit of Internality." *Philosophical Review* 124.4 (2015): 481–532.

68. ———. 2018. "Pure Logic of Iterated Full Ground." *The Review of Symbolic Logic* no. 11:411-435.

Abstract: "This article develops the Pure Logic of Iterated Full Ground (PLIFG), a logic of ground that can deal with claims of the form " ϕ grounds that (ψ grounds θ)"—what we call iterated grounding claims. The core idea is that some truths ground a truth ϕ when there is an explanatory argument (of a certain sort) from premisses to conclusion ϕ . By developing a deductive system that distinguishes between explanatory and nonexplanatory arguments we can give introduction rules for operators for factive and nonfactive full ground, as well as for a propositional "identity" connective.

Elimination rules are then found by using a proof-theoretic inversion principle."

69. ———. 2018. "Bicollective Ground: Towards a (Hyper)graphic Account." In *Reality and Its Structure: Essays in Fundamentality*, edited by Bliss, Ricki and Priest, Graham, 140-163. Oxford: Oxford University Press.

"Overview: We begin in §2 by introducing the central notion of immediate strict full ground.

In §3 we develop some ways of making sense of the characteristic non-distributivity of bicollective ground and argue that mathematical structuralists should avail themselves of bicollective ground. In §4 we rehearse the truthmaker semantics for bicollective ground and point out some problems that arise in the bicollective case.

- In §5 we recall the graph-theoretic account for the left-collective case and argue against Fine's principle of Amalgamation. The main contribution of the paper comes in §6 where we develop the graph-theoretic account of bicollective ground. We discuss how to define acyclic graphs, mediate ground, the notions of partial ground, and what it is for two collections of truths to be ground-theoretically equivalent. We conclude with some questions for future research (§7)." (p. 141)
70. ———. 2020. "Meta-Ground." In *The Routledge Handbook of Metaphysical Grounding*, edited by Raven, Michael J., 133-147. New York: Routledge.
 "Suppose the facts Γ ground the fact ϕ . Then it is a fact that Γ grounds ϕ . And we may ask what grounds it. What is the answer? And what turns on this? This is the question of *meta-ground*, *grounding ground*, or *iterated ground*.
 The goal of this chapter is to introduce the reader to the state of the debate about meta-ground and to indicate some areas for future research. Even though the problem of meta-ground is a fairly small piece of the larger literature on ground, it is impossible to cover everything. Since I want to indicate what I take to be the most interesting areas for future research, regrettably some subtleties in the existing views had to be suppressed." (p. 133, a note omitted)
71. Lopez de Sa, Dan. 2013. "Rigid vs. Flexible Response-Dependent Properties." In *Varieties of Dependence: Ontological Dependence, Grounding, Supervenience, Response-Dependence*, edited by Hoeltje, Miguel, Schnieder, Benjamin and Steinberg, Alex, 393-417. Munich: Philosophia Verlag.
 "According to a more or less traditional view of secondary qualities, they are-or would be-real though not fully objective features of external objects. Roughly speaking, they are real not only by being the significations of natural simple predicates which can be used to make predications that are, for the most part, truth-evaluable and sometimes true, but also by being exemplified independently of those representations.
 Roughly speaking, they are *less than fully objective* in that it is essential for something having them that it bears a certain relation to subjective responses of ours, at least as we actually are.
 Response-dependence was intended to generalize the notion of a secondary quality in that respect, by applying also to values in a way such that-at least a qualified form of-realism was vindicated. My view is that response-dependence, by itself, fails with respect to this project." (p. 393)