

# Properties and a Grounding Principle

NOËL B. SAENZ

*University of Illinois at Urbana-Champaign*

*nbsaenz@illinois.edu*

*Inquiry (forthcoming)*

In this paper, I advance a lesser known counterfactual principle of grounding in a new kind of way by appealing to properties and the work they do. I then show that this new way of arguing for this principle is superior to another way, describe some of the work this principle can do, defend my use of this principle, and conclude with remarks on why principles like it are needed.

When it comes to modal principles of grounding, two have dominated the discussion. Where ‘<’ is our predicate for grounding and ‘[*p*]’ stands for the fact that *p*, they are:

**Necessitation.**  $[p] < [q] \rightarrow \Box(p \rightarrow q)$

**Internality.**  $[p] < [q] \rightarrow \Box(p \ \& \ q \rightarrow [p] < [q]).$ <sup>1</sup>

Now there are two ways in which these principles can be said to be coarse: by being “loose” and by being “chunky”. Consider first the first way. In putting necessity conditions on grounding, they inherit the “looseness” of necessity. Focusing on Necessitation, suppose it is claimed that the ball’s being red grounds that  $1 + 2 = 3$ . Given that the latter fact holds of necessity, this implausible

---

<sup>1</sup> For discussion of these principles, see *inter alia*, Dancy (2004, Ch. 3), Zangwill (2008), Rosen (2010, 118), Chudnoff (2011, 563-7), Fine (2012, 38-40), Trogon (2013), Leuenberger (2014), Litland (2015), Skiles (2015), and Chilovi (forthcoming).

grounding claim is consistent with Necessitation. Generalizing, any supposed grounded fact that holds of necessity or is metaphysically equivalent to the fact that grounds it is consistent with Necessitation.

Consider second the second way, which has to do with this paper's topic. Both Necessitation and Internality are responsive only to whether the facts flanking grounding obtain. The "innards" of such facts matter not. For any instance of either principle, what kinds of properties the facts flanking grounding involve, and which individuals such facts include, is neither here nor there. That there are modal principles of grounding that are "chunky" in this sense is fine. But it is not enough. In addition to them, we need principles that are sensitive to what goes on "inside" the facts flanking grounding.<sup>2</sup>

In what follows, I put forward a non-chunky principle of grounding. To be more precise, I motivate a modal principle of grounding on the basis of the role properties play in certain kinds of grounding facts (§1). I then show why motivating this principle in this way is advantageous (§2), discuss some of this principle's implications (§3), say something about why my use of this principle is appropriate (§4), and close by noting why having a principle like it is important for a theory of grounding (§5).

## 1 A Counterfactual Principle

Consider this conditional:

---

<sup>2</sup> That we should pay attention to what goes on "inside" the facts has been discussed before (Rosen 2010, 119; Audi 2012, 693; Fine 2012, 74-80; Dasgupta 2014). But the focus of such discussions has been on explaining why some facts ground others and not so much on modal principles.

$x \text{ is crimson} \rightarrow [x \text{ is crimson}] < [x \text{ is red}]$ .<sup>3</sup>

This seems true. For anything whatsoever, if it is crimson, it's being crimson grounds its being red. And if true, then it seems that the identity of what instantiates crimson matters not. It plays no role in explaining why it is red rather than some other color. Borrowing from Rosen (2015, 199), 'the capacity of the first fact [that  $x$  is crimson] to ground the second [that  $x$  is red] derives entirely from the distinctive powers of the predicable [crimson], and not from the combination of [crimson] and [ $x$ ] together'. That is, the grounding work being done in cases where  $x$ 's being crimson grounds its being red is due entirely to crimson and its grounding relationship to red, namely, that *red is instantiated because crimson is*.

Consider another conditional:

$x \text{ is tall} \rightarrow [x \text{ is tall}] < [x \text{ is tall} \vee \text{short}]$ .

This seems true. For anything whatsoever, if it is tall, it's being tall grounds its being tall  $\vee$  short. And if true, then it seem that the identity of what instantiates tall-ness matters not. It plays no role in explaining why it is tall  $\vee$  short rather than some other way. Repeating the above, the capacity of  $x$ 's being tall to ground  $x$ 's being tall  $\vee$  short derives entirely from the distinctive powers of tall-ness. And so the grounding work being done in cases where  $x$ 's being tall grounds its being tall  $\vee$  short is due entirely to tall-ness and its grounding relationship to the disjunctive property tall  $\vee$  short, namely, that *tall  $\vee$  short is instantiated because tall-ness is*.

---

<sup>3</sup> In this conditional and others below, ' $x$ ' is bound by a universal quantifier. Because of this, such conditionals have us quantifying into the operator 'the fact that'. We could instead state the conditional as follows:  $x \text{ is crimson} \rightarrow (x \text{ is red because } x \text{ is crimson})$ . For those who prefer regimenting talk about grounding in terms of 'because', feel free to translate as you see fit. Nothing of substance follows.

Examples like these are not few and far between. Moral properties are instantiated because natural ones are; mental ones because physical ones are; hypothetical ones because categorical ones are, and so on. And it is these kinds of facts about instantiation that underly the claim that the identity of the things that are crimson, tall, some natural way, some physical way, and some categorical way is irrelevant to their being red, tall v short, some moral way, some mental way, and some hypothetical way.

All of this motivates a counterfactual principle. Red is instantiated solely because crimson is. Not because crimson is instantiated by *me*, or *you*, or *anything else*. That crimson is instantiated alone, without reference to any particular thing, is enough to explain that red is instantiated. Because of this, we can ask what happens in cases where, keeping everything else fixed, something fails to instantiate red. That is, we can ask what happens in cases where apples, strawberries, and roses are not red. And the answer is that in these cases, apples, strawberries, and roses are not crimson.

Here, the counterfactual scenario we are going to involves “fiddling” with red alone. We kept fixed the things that are red and “messed” only with their being red. This makes sense since, in this case, that something is red derives entirely from the distinctive powers of crimson. The thing that is red plays no grounding role. And so the counterfactual scenario we are going to is one where negation takes narrow scope. Now it is clear that the wide scope reading holds:

$[x \text{ is crimson}] < [x \text{ is red}] \rightarrow$  if it were *not* the case that  $x$  is red, it would *not* be the case that  $x$  is crimson.

But given that red is instantiated because crimson is, so should the narrow scope reading:

$[x \text{ is crimson}] < [x \text{ is red}] \rightarrow$  if it were the case that  $x$  is *not* red, it would be the case that  $x$  is *not* crimson.

Here then, in fiddling only with the instantiation of red, we are doing what the above told us we should be doing: taking into account the unique role properties are playing. Focusing just on the wide scope reading overlooks this and so overlooks something important.

There is nothing special about red here. So what was just said about it generalizes. If we fiddle with  $G$  alone, then assuming that  $G$  is instantiated because  $F$  is, whatever was  $G$  before the fiddling is not  $F$  after it. This yields

**Sensitivity.**  $[Fx] < [Gx] \rightarrow$  if it were the case that  $x$  is not  $G$ , it would be the case that  $x$  is not  $F$ .

This is not the first time I have argued for this principle.<sup>4</sup> It is the first time I have argued for it in this way. I will now show why the argument given here is better.

## 2 A Better Argument

In my previous argument for Sensitivity, I began by considering the following principle:

---

<sup>4</sup> See Saenz (2018) which involves, among other things, defending it against various criticisms.

**Counterfactual.**  $[Fx] < [Gx] \rightarrow$  if it were not the case that  $x$  is  $G$ , it would not be the case that  $x$  is  $F$ .

Here, negation takes wide scope in both the antecedent and consequent of the embedded counterfactual. Because of this, I claimed that the following inference cannot be accounted for by Counterfactual:

1.  $[Amy \text{ is human } ] < [Amy \text{ is rational}]$ ,

so

2. If it were the case that Amy is not rational, it would be the case that she is not human.

Here is the thought. Since Amy is essentially rational, then

the closest worlds where it is not the case that Amy is rational are worlds where she does not exist. These worlds are possible (assuming, of course, that Amy contingently exists). They are not worlds where she exists but is not rational, which are impossible and hence much further away ... [So] 2 takes us to impossible worlds, whereas, given 1, Counterfactual takes us to possible worlds (ones where Amy does not exist). So Counterfactual does not give us all the counterfactuals we want. (Saenz 2018, 105)

Since Sensitivity can, but Counterfactual cannot, make sense of the inference from 1 to 2, I claimed that we have reason to accept it.

Notice that there is no discussion of the role that humanity and rationality play in this argument (I at most hint at this role on page 106 of my 2018 paper). I presented us with some data, argued that Sensitivity but not Counterfactual can make sense of this data, and claimed that because of this, we have reason to accept it. But this does not get to the heart of the matter. What is central here is not the ability to capture certain counterfactuals but that rationality is instantiated because humanity is. As our discussion in §1 made clear, given this fact about humanity and rationality, that 2 follows from 1 is unsurprising. Because of this, this paper's argument is better than my previous one. It is better because it is deeper, and it is deeper because it focuses on the work properties are doing.

In addition to being deeper, this paper's argument is also immune to a worry with the previous argument (Kappes 2019). Distinguish between *factive* and *non-factive* grounding, where claims of the latter require a grounding relation between states of affairs but do not entail that these states obtain.

Now when it comes to counterfactual scenarios, the non-factive grounding claims that hold in these scenarios are typically those that hold in the actual scenario. Because of this, the facts in the counterfactual scenarios must cooperate with these non-factive grounding claims. Where '⇒' expresses non-factive full grounding, here is the thought:

**Cooperation.** In a normal counterfactual scenario  $S$  in which a non-factive grounding claim of form ' $\varphi \Rightarrow \psi$ ' obtains, the facts only cooperate if it is not both the case that  $\varphi$  obtains, and that  $\psi$  does not obtain, in  $S$ .

Assuming 1, the non-factive grounding claim 'Amy is human  $\Rightarrow$  Amy is rational' still holds in those closest scenarios where Amy is not rational. Since the facts in these scenarios have to cooperate with this non-factive grounding claim, it follows from Cooperation and that Amy exists that Amy is not human in these scenarios. So by means of Cooperation, that Amy exists, and that the facts have to cooperate, we can explain why 2 follows from 1 without appealing to Sensitivity.

There are a few things to say about this worry with my previous argument. Most notable is that it has no bearing on the present argument for Sensitivity. That we can make sense of 2 following from 1 without appealing to Sensitivity is irrelevant. The reason that we should accept Sensitivity is not that it makes sense of this inference, but that it follows from the work properties do in certain facts about grounding. Since nothing about Cooperation give us reason to think that properties fail to do this work, nothing about it gives us reason to think that our argument for Sensitivity fails.

In addition to this, notice that Cooperation is a "chunky" principle. In it, all that matters is whether the states flanking ' $\Rightarrow$ ' obtain. When  $\psi$  does not obtain, the strongest thing that we can infer from ' $\varphi \Rightarrow \psi$ ' is that  $\varphi$  does not obtain. But given that rationality is instantiated because humanity is, from Amy's not being rational we want to infer something stronger than Amy's being human not obtaining. We want to infer that she is not human. We therefore need a principle that "digs" into the structure of the states; a principle that is responsive not just to *whether* the states flanking grounding obtain, but to *how* those states obtain. Sensitivity is such a principle.



### 3 Some Work

Following Cameron (2014, 95), a superinternal relation is one where the ‘mere existence [of the first relatum] gives ground to ... the fact that the relation holds between them’. That is, existence gives ground to a superinternal relation’s holding. Now forget about whether we should call such relations ‘superinternal’. Focus instead on what it is being said about them: that if  $R$  is such a relation, then  $R$  is instantiated because existence is.<sup>5</sup>

Assume with Cameron (2014, 95 & 97) that both set-membership and composition are such relations. So both set-membership and composition are instantiated because existence is. This yields the following instance of Sensitivity

$[x \text{ exist}] < [x \text{ is a member of } y] \rightarrow$  if it were the case that  $x$  is not a member of  $y$ , it would be the case that  $x$  does not exist.

But the counterfactual is false. If it were the case that  $x$  is not a member of  $y$ , it would be the case that  $x$  exists (negation takes narrow scope). Given Sensitivity, it would also be the case that  $x$  does not exist. So if it were the case that  $x$  is not a member of  $y$ , it would be the case that  $x$  both does and does not exist. This is false. The closest worlds where Socrates is not a member of his singleton

---

<sup>5</sup> Cameron (2014, 95) also speaks of the first relatum, as opposed to the existence of the first relatum, giving ground to  $R$ ’s being instantiated. Now this is a different kind of claim and so involves a different kind of relation (again, forget about what relations, if any, we should call ‘superinternal’). It also seems to be a non-starter. Cameron claims that set-membership and composition are such relations. But how can an electron or a plurality of electrons ground that set-membership or composition is instantiated? They do not seem to be the kinds of things that could do this. At any rate, the claim I am targeting here is not that  $R$  is instantiated because of the first relatum, but that  $R$  is instantiated because existence is.

are not worlds where contradictions occur. Perhaps such worlds are metaphysically impossible. But metaphysical impossibility does not entail logical impossibility.

The same goes for composition. If composition is instantiated because existence is, then if it were the case that Socrates and Aristotle do not compose a whole, it would be the case that they both do and do not exist. But this is false. Assuming that both Socrates and Aristotle compose a whole, the closest worlds where they do not are not worlds where contradictions occur.<sup>6</sup>

Notice that the worry here is not with set-membership or composition. It is not even with relations that are instantiated because existence is. It is instead with set-membership and composition being such relations.

Sensitivity makes clear what happens when we try to get certain things at little to no cost. Relations like set-membership and composition are non-trivial. Unlike logical properties or relations, that they are, when they are, and how they are instantiated is not a matter of logic. Such relations are not “logical” in the sense that it is not a logical truth that for any  $x$ s, the  $x$ s stand in one of these relations. But it is a logical truth that for any  $x$ s, the  $x$ s exist. One wonders then how these relations can be had on as thin and trivial a basis as existence. If we want an explanation of the instantiation of set-membership or composition, we need to appeal to properties or relations that do not so easily follow from the things that are members of sets or compose wholes. And this is what Sensitivity motivates. On pain of arriving at worlds where contradictions occur, it needs to be that set-membership and composition are instantiated because non-trivial properties are instantiated. Given this, Sensitivity has it that in those scenarios where  $x$  is not a member of a set,  $x$  is not these non-trivial ways. But in this no explicit or obvious contradiction lies.

---

<sup>6</sup> A similar point about composition was made in my (2018). But there, my concern had to do with whether or not there are mereological sums. And I claimed that all summists are committed to thinking that for any sum  $y$ , the  $x$ s that compose  $y$  do so simply in virtue of existing. But issues having to do with sums and summists do not matter here. What does matter is whether or not set-membership and composition are instantiated because existence is.

According to Bennett (2017, 193), a superinternal relation is one where the ‘intrinsic nature of the entity(ies) on one side of the relation builds ... the fact that the relation holds’. Again, forget about whether we should call such relations ‘superinternal’ and focus instead on what it is being said about them: that if R is such a relation, then R is instantiated because an intrinsic nature is.

Now focus on those instances of such relations where the intrinsic nature is had essentially. As an example, consider the “limitation of size” conception of a set which has it that something is a set just in case it is smaller than the class of hereditarily well-founded sets. Now a proponent of this view of sets will find it natural to think that when a plurality of objects form a set, they do so in virtue of being sufficiently small in number.<sup>7</sup> So a proponent of this view will find it natural to think that set formation is instantiated because sufficiently small is. This yields the following instance of Sensitivity

[*xs* are sufficiently small] < [*xs* form *y*] → if it were the case that the *xs* do not form *y*, it would be the case that the *xs* are not sufficiently small.

But the counterfactual is false. If it were the case that the *xs* do not form *y*, their number would not somehow increase and so change. So we should reject that the *xs* forming *y* is grounded in their being sufficiently small.

But why think that their number would not increase? Because being sufficiently small is essential to the *xs*. But then that the *xs* are this way cannot be so easily lost. In particular, it cannot be lost in cases when their being some non-essential way is lost. Fiddling with a things non-essential properties should have no bearing on its essential properties (this is true even when these

---

<sup>7</sup> I thank Tom Donaldson for this example.

non-essential properties are necessarily had). One way of seeing this is by seeing that part of what it is to be an essential property (whether a constitutive or consequential essential property) is to be among the most stable properties of a thing. No non-essential property is as stable as an essential one. But then fiddling with the former should not result in fiddling with the latter. So a change in the *x*s forming a set, which is a non-essential change, should not result in an essential change. Given this and Sensitivity, it follows that nothing should be the non-essential ways it is (wholly) in virtue of the essential ways it is. But then the *x*s do not form *y* in virtue of being sufficiently small.

Here is an example involving composition. Mereological universalists think that every plurality of objects composes something. But then a proponent of universalism might find it natural to think that when the *x*s compose an object, they do so in virtue of being one or more. So a proponent of this view will find it natural to think that composition is instantiated because being one or more is.<sup>8</sup> From Sensitivity then, if it were the case that Socrates and Aristotle do not compose a whole, it would be the case that they are not one or more. But this is false. Assuming that both Socrates and Aristotle compose a whole, the closest worlds where they do not are not worlds where they cease to be one or more. Part of what it is for some things to collectively be Socrates, Aristotle is to be one or more. So we should reject that their composing a whole is grounded in their being one or more.

Here then, Sensitivity makes clear what happens when we try to get non-essential features from essential ones. Certain relations (like set formation and composition) are not essentially had

---

<sup>8</sup> Given how 'composition' is standardly defined (the *x*s compose *y* ↔ the *x*s are all parts of *y*, no two of the *x*s overlap, and every part of *y* overlaps at least one of the *x*s), it follows that everything composes itself. And so for anything, if it is one, it composes itself and so composes something.

by their first relata.<sup>9</sup> But then they should not be had in virtue of the essential features of their first relata. If we want an explanation of the instantiation of set formation or composition, we need to appeal to some non-essential (though perhaps necessary) feature of those things that form sets and compose wholes.<sup>10</sup> And this is what Sensitivity motivates. On pain of arriving at worlds where things lose their essences when they should not, we need it to be that for some non-essential feature  $F$ , the  $x$ s form  $y$  because they are  $F$ . Given this, Sensitivity has it that in those scenarios where the  $x$ s do not form  $y$ , they are not  $F$ . But in this no obvious or explicit falsehood lies.

## 4 A Difference

Suppose that set-membership is instantiated because  $F$  is instantiated. Then from Sensitivity, if it were the case that  $x$  is not a member of  $y$ , it would be the case that  $x$  is not  $F$ . Now when it comes to counterfactuals, strengthening the antecedent can affect the truth of the counterfactual (Lewis 1973, 10 & 31). And so we should not accept just any strengthening of the above counterfactual's antecedent. In particular, we should not accept

---

<sup>9</sup> That this is so is part of the point of Fine's (1994) influential article on essence. Even if necessarily, the  $x$ s form a set or compose a whole, it is not part of their essence to form or compose at all.

<sup>10</sup> Finding such features seems to be a harder thing to do for set formation than for composition (thanks to an anonymous referee for pointing this out). What non-essential necessary feature does Socrates have in-virtue-of which he's a member of  $\{\text{Socrates}\}$ ? Though I reject it, consider this: the  $x$ s form  $y$  because they are thought of as together. Here, the intellectual activity of collecting or thinking of together is that in virtue of which a plurality forms a set. This is inspired by something Georg Cantor (1932, 282) says

By a "set" we understand any collection  $M$  into a whole of definite well-distinguished objects of our intuition or our thought (which will be called the "elements" of  $M$ ).

An immediate problem with this is the existence of more sets than humans can generate. Some, realizing this, have suggested resorting to God or some God-like agent (Plantinga 2007, Appendix). Here then, a kind of anti-realism about sets provides us with a potential explanation of the instantiation of set formation that appeals to some non-essential, though necessary, feature of pluralities.

3. If it were the case that  $x$  is both F and not a member of  $y$ , it would be the case that  $x$  is not F.

If set-membership is instantiated because F is, then in scenarios where  $x$  is both F and not a member of  $y$ , the grounding connection between being F and set-membership is severed. But if severed, then there is no reason to think that in such a scenario,  $x$  is not F.

Suppose we generalize on the reason just given for thinking that 3 is false. Then if set-membership is instantiated because existence is, then in scenarios where  $x$  both exists and is not a member of  $y$ , the grounding connection between existence and set-membership is severed. But if severed, then there is no reason to think that in such a scenario,  $x$  would not exist. And so we should not accept

4. If it were the case that  $x$  is not a member of  $y$ , it would be the case that  $x$  does not exist.

But I have argued that we should accept this counterfactual *given that set-membership is instantiated because existence is* (this is simply a result of Sensitivity). And so there must be some relevant difference between counterfactuals 3 (which I claim is false) and 4 (which I claim is true).

Notice that in 3, the antecedent assumes not only that  $x$  is not a member of  $y$ , but something that we may assume does not follow from this: that  $x$  is F. So we are assuming more than we can get from  $x$ 's not being a member of  $y$ . But then we are not just fiddling with set-membership (as we should be). Because of this, that the grounding connection is severed is not surprising. We are strengthening the antecedent in a way that cuts the grounding, and thus the counterfactual, link.

(Indeed, it is precisely in “severed link” cases — the link often times being a causal one — that we can see why strengthening the antecedent of a true counterfactual can result in a false one.)

4 is different. In it, the antecedent assumes no more than that  $x$  is not a member of  $y$ . It does not assume this and something that does not follow from it. And so here, *no more* than set-membership is being fiddled with (this is as it should be). But then we should not think that in such a scenario, the grounding connection is severed. Given that set-membership is instantiated because existence is, we *should* think that in this scenario, something lacks existence if it lacks set-membership.<sup>11</sup>

## 5 Closing

Here are two virtues of Sensitivity. First, it puts a plausible restriction on what can ground what. This is important. A quick look at the literature on grounding reveals that all sorts of grounding claims are being made. Because of this, one gets the sense that there is little in the nature of

---

<sup>11</sup> Here is another worry, raised by an anonymous referee, with Sensitivity (for more worries and some responses to them, see Saenz 2018, 108-11):

At  $t_1$ , ship  $S$  is composed of the  $x$ s. Over time, each  $x$  is removed such that at  $t_2$ ,  $S$  is composed of the  $y$ s. Finally, at  $t_3$ , the  $x$ s compose a different ship while the  $y$ s, which still compose  $S$ , have become rotten. But such a situation is incompatible with Sensitivity since Sensitivity implies that if the  $x$ s’s (appropriately arranged) being sturdy grounds  $S$ ’s being sturdy, then if it were the case that  $S$  is not sturdy, it would be the case that the  $x$ s are not sturdy. But this is false since at  $t_3$ ,  $S$  is not sturdy (because the  $y$ s, being rotten, are not) and yet the  $x$ s are still in good condition.

But Sensitivity does not imply what this worry says it does. Sensitivity only applies to cases where some things are some way  $F$  because those very things are some other way  $G$ . Here, the things bearing the properties remain but the properties do not (we went from  $F$  to  $G$ ). But in the above worry, we have a case where  $S$  is sturdy because the  $x$ s are also sturdy. In this case, the things bearing the properties change (we went from  $S$  to the  $x$ s) but the property does not. Here then, Sensitivity does not apply.

Still, given that the  $x$ s compose  $S$ , I grant that  $S$  is sturdy because the  $x$ s (appropriately arranged) are sturdy. I also grant that given this, if it were the case that  $S$  is not sturdy, it would be the case that the  $x$ s are not sturdy. And this in spite of the fact that at  $t_3$ ,  $S$  is not sturdy (because the  $y$ s are not) but the  $x$ s are. How can we make sense of this? By denying that the situation at  $t_3$  is the closest situation to the situation where  $S$  is not sturdy *when  $S$  is composed by the  $x$ s*. Given that  $S$  is sturdy because the  $x$ s (appropriately arranged) are sturdy, those closest situations where  $S$  is not sturdy are ones where  $S$  is composed by the  $x$ s. They are not ones where  $S$  is composed by the  $y$ s. And of course, in these closest situations, if  $S$  is not sturdy, then neither are the  $x$ s.

grounding that constrains what can ground what. But this sense needs to be resisted. There is much in grounding that is able to direct our use of it. What a proper theory of grounding needs then is something other metaphysically weighty relations have (think here of parthood): more principles! Theories of grounding need a whole host of principles that, in telling us what can ground what, will help us to better understand grounding and so properly invoke it. Sensitivity is among such principles.

Second, in looking at the work that properties do, we discovered something in Sensitivity about grounding. Facts are structured entities and do the grounding work they do, in part at least, because of their constituents. But then the more attention we pay to the constituents of facts when it comes to grounding, the more we will discover about grounding. That is, if we want to better understand grounding, then we had better start looking at the work the constituents of facts play in facts about grounding.

## Acknowledgements

For helpful comments, I thank Dan Korman. I also thank my wife, Amy Saenz, for her love and always present support and encouragement in my work.

## References

- Audi, Paul 2012. Grounding: Toward a Theory of the In-Virtue-Of Relation, *Journal of Philosophy*, 109: 685-711.
- Bennett, Karen 2017. *Making Things Up*, Oxford: Oxford University Press.
- Cameron, Ross 2014. Parts Generate the Whole, But They Are Not Identical to It, in *Composition as Identity*, eds. Donald Baxter & Aaron Cotnoir, Oxford University Press, 90-107.
- Cantor, Georg 1932. *Gesammelte Abhandlungen Mathematischen und Philosophischen*, ed. Ernst Zermelo, Berlin: Springer.
- Chilovi, Samuele forthcoming. Grounding entails supervenience, *Synthese*.



- Chudnoff, Elijah 2011. What Should a Theory of Knowledge Do?, *Dialectica*, 65/4: 561-79.
- Dancy, Jonathan 2004. *Ethics without Principles*, Oxford University Press.
- Dasgupta, Shamik 2014. The Possibility of Physicalism, *The Journal of Philosophy*, 111: 557-592.
- Fine, Kit 1994. Essence and Modality, *Philosophical Perspectives* 8, *Logic and Language*: 1-16.
- 2012. Guide to Ground, In F. Correia and B. Schnieder (eds), *Metaphysical Grounding: Understanding the Structure of Reality*, Cambridge: Cambridge University Press.
- Kappes, Yannic 2019. On the Grounds of Sums: Reply to Saenz, *Australasian Journal of Philosophy*, DOI: 10.1080/00048402.2018.1564153
- Lewis, David 1973. *Counterfactuals*, Oxford: Blackwell.
- Leuenberger, Stephan 2014. Grounding and Necessity, *Inquiry*, 57: 151-174.
- Litland, Jon 2015. Grounding, Explanation, and the Limit of Internality, *Philosophical Review*, 124/4: 481-533. 2015.
- Plantinga, Alvin 2007. *Two Dozen or So Theistic Arguments*, ed. Deane-Peter Baker, in Alvin Plantinga, Cambridge University Press.
- Rosen, Gideon 2010. Metaphysical Dependence: Grounding and Reduction, eds. Bob Hale and Aviv Hoffman, in *Modality: Metaphysics, Logic, and Epistemology*, Oxford University Press: 109-136.
- 2015. Real Definition, *Analytic Philosophy*, 56/3: 189-209.
- Saenz, Noël 2018. Sums and Grounding, *Australasian Journal of Philosophy*, 96/1: 102-17.
- Skiles, Alex 2015. Against Grounding Necessitarianism, *Erkenntnis*, 80/4: 717-751.
- Trogon, Kelly 2013. Grounding: Necessary or Contingent?, *Pacific Philosophical Quarterly*, 94: 465-485.
- Zangwill, Nick 2008. Moral Dependence, *Oxford Studies in Metaethics*, vol. 3: 109-127.

