Debunking Logical Ground: Distinguishing Metaphysics from Semantics
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Abstract: Many philosophers take purportedly logical cases of ground (such as a true disjunction being grounded in its true disjunct(s)) to be obvious cases, and indeed such cases have been used to motivate the existence of and importance of ground. I argue against this. I do so by motivating two kinds of semantic determination relations. Intuitions of logical ground track these semantic relations. Moreover, our knowledge of semantics for (e.g.) first order logic can explain why we have such intuitions. And, I argue, neither semantic relation can be a species of ground, even on a quite broad conception of what ground is. Hence, without a positive argument for taking so-called 'logical ground' to be something distinct from a semantic determination relation, we should cease treating logical cases as cases of ground.

1. Introduction[1]

Discussion of *ground* and what it might do for us is rampant in philosophy.[2] Ground is often taken either to be, or to back, some kind of non-causal metaphysical explanation. And purportedly logical cases of ground, like the following (adapted from Fine (2012)), are often taken to be paradigmatic:

That the ball is red and that the ball is round together ground that the ball is red and round.

That it is raining grounds that it is either raining or snowing.

That Anscombe is a philosopher grounds that someone is a philosopher.

But what is this purported logical ground? Hofweber says:

Consider the case of a true disjunction and its true disjunct. One might hold that the true disjunct is metaphysically more basic than the true disjunction. But it seems to be rather a simple case of an asymmetrical logical relationship between them: the disjunction implies the disjunct, but not the other way round. That the disjunct is in some sense more basic than the disjunction can be accepted by all. What is controversial is whether this is in a metaphysical sense, or some other sense. I think it is simply a logical sense (Hofweber 2009, p. 269).

[2] See Audi (2012), Correia (2005), Rosen (2010), Fine (2012), Schaffer (2009), Raven (2012), and Koslicki (2013) for some of the initial discussion that launched the rebirth of grounding, and also Wilson (2014) for some challenges. For an overview, see Trogdon (2013).

The pro-grounder's intuition in the case of the disjunction is not just that the disjunct is "more basic" than the disjunction, but that the disjunction is *determined* in some important way by its true disjunct.

If we take the pro-grounder's intuition seriously, we must say more about this logical determination. Consider a conjunction. The conjuncts together entail the conjunction, and the conjunction entails its conjuncts. So this instance of entailment is symmetric; and yet, a conjunction being grounded in its two conjuncts is often held up as a paradigmatic (asymmetric) case of ground. So these intuitions are not simply tracking logical entailment. Pro-grounders have taken this to be a reason to claim that logical determination is either a species of, or simply a case of, ground. Logical entailment is not *always* symmetrical (but it is always reflexive!), but the conjunctive case alone is enough to show that there is a challenge here. (For another discussion of this issue see Koslicki (2015, p. 314). Others have tried to narrow in on the difference between entailment and logical ground. See, for example, Correia (2010, 2014), and Poggiolesi (2016), who treats logical ground as a special case of logical entailment.)

I argue that logical determination is not (either a species of, or a case of) ground. I argue that what intuitions are tracking in these cases is one of two semantic relationships that hold between logically complex sentences, claims, or facts, and the logically simpler sentences, claims, or facts that determine them. I argue that these are the best candidates for being logical determination. And I argue that neither semantic relationship is ground, even as a species of an expansive, "big G" notion of Ground. (I use 'Ground' to mark the genus in what follows, though I don't use it in the exact same way that Wilson (2014), from whom I borrow this term, does.)

My conclusion is this: since semantic determination relations are excellent candidates for being what our intuitions of logical determination are tracking, we should not believe that there is Ground in logical cases on the basis of those intuitions. However, this leaves open that there might be arguments that are independent of these appeals to intuition for the claim that there is Ground in logical cases. The main point of the paper is hence to shift the argumentative burden to the pro-logical-grounder. One move that is open to the pro-logical-grounder is to provide an argument that there is a distinctively metaphysically explanatory relation that holds between (e.g.) a true disjunct and a disjunction that it logically entails. I summarize (and reply to) some arguments that logical determination is a species of Ground in (forthcoming), but I note here that there are very few arguments for this claim in the extant literature.

Others have argued for somewhat similar conclusions to mine. Wilson (2014), p. 549-50, and note 46) argues that much more needs to be said to motivate that there is some metaphysically substantive determination relation in logical cases. Kovacs (2019, esp. §4.4) provides a distinctive account of metaphysical explanation which, while distinct from Ground, challenges the idea that there is an 'impure logic' of metaphysical explanation (or the relation that backs it). Jansson (2017, §5) provides a way to recover the "felt asymmetry" of logical determination without the machinery of Ground.

Turner (2016) raises worries both about treating cases of 'realization grounding'—which include logical cases—as just like cases of 'dependence grounding', and about whether there are any universal laws of the logic of Ground. Audi (2019) argues for a different conclusion, that truthmaking is not ground, but some of our argumentation is, I suspect, motivated by similar positions. And elsewhere (in my (forthcoming)), I argue that if there is Ground in logical cases, there are serious challenges to assumptions about what direction it runs in. However, the argument in this paper is distinctive. Rather than directly challenging the claim that logical determination is Ground, I show that there are simple debunkers for our intuitions about Ground in logical cases: two quite innocent semantic determination relations. Further, the argument in this paper has broader implications: semantic determination plausibly can debunk Ground in a much broader set of cases than those I focus on here.

In what follows, I follow Fine (2012) and others in treating *Ground* as a sentential operator. This is merely a practical choice. Everything I say translates to e.g. the view that grounding is a relation that holds between facts. I use 'logical determination' as a neutral term to describe the sense of determination that our intuitions seem to be tracking (regardless of whether there turns out to be such a thing, and regardless of whether it turns out to be a species of Ground).

In §2, I describe what I call *metaphysical ground* (m-ground)*,* so that I can later appeal to the differences between m-grounding and whatever is going on in these logical cases. The central argument is in §3, where I describe two kinds of *semantic determination*, argue that they are what our logical determination intuitions are tracking, and show that neither is either (a) identical to or a guide to m-ground or (b) a species of Ground more generally. In §4, I conclude by briefly gesturing at some of the work that the rejecting logical ground might do for pro-grounders.

2. M-ground

In the spirit of others' accounts of Ground, I won't give an analysis of m-ground, but instead will gesture at what 'metaphysical' is supposed to be marking: a distinctively metaphysical relation. An m-ground claim must relate two claims that don't *say the same thing about the world by the world's lights:* that aren't just two different conceptual or linguistic descriptions of the same worldly underlying state of affairs, fact, or way the world is. So if 'Naomi is taller than Kareem' and 'Kareem is shorter than Naomi' are just descriptions of the same *worldly* state of affairs, then it is not possible for one (disquoted) to ground the other (disquoted), because there is no worldly distinction between the two. This is just one approach to illuminating what is distinctively metaphysical about m-grounding. The right way to do so might not be by talking about language at all. We might instead treat m-ground*ing* as a relation between facts, and say something like this: if [A] m-grounds [B] then [A] and [B] must be metaphysically, and not just conceptually, or epistemically, or meaning-wise distinct (though note: this won't get things right, in my view, if facts are individuated in a very fine-grained way). What is important is that m-ground claims relate *metaphysically inequivalent* entities, sentences, facts, etc.

Whether Ground just *is* m-ground is related to the question of how *fine-grained* grounding is. Correia remarks about a case like my Naomi and Kareem case: "one feels that (the difference between the two descriptions) does not correspond to a relevant metaphysical distinction" (2010, p. 259). Wilson (2014), in the course of arguing against 'big G' Ground, argues that Ground is not taken to be anything as restrictive as m-ground by many pro-grounders, e.g. Rosen and Fine. I think this is right; Rosen (2010, p. 114-15), for example, insists that "(grounding is) a very fine-grained notion. If p and q are distinct propositions, then the fact that pv~p is distinct from the fact that qv~q." Audi (2012) comes the closest of anyone to endorsing the claim that Ground just *is* m-ground, though he doesn't put things in these terms. I don't here assume that Ground is just m-ground, though I like that view.

It's not always obvious whether a (purported) case of Ground is m-ground or not. One test for whether a given question is genuinely metaphysical is to ask whether it can be settled only by examining semantics and facts about the way language works. If it can, it is not genuinely metaphysical. (Note: the test only gives us a necessary condition for being genuinely metaphysical: if it can't be settled this way, it doesn't follow that it is genuinely metaphysical.) But this test doesn't provide us with an *analysis* what it is to be metaphysical, since as an analysis, it mistakenly ties questions of what is genuinely metaphysical to questions about language. (You might worry here that this test rules out views like Thomasson's (e.g. 2015) 'easy ontology' as counting as being genuinely metaphysical in nature. I don't mind this, because Thomasson's view seems to me to in fact be claiming that ontology is not a matter of the kind of metaphysical distinctions that make a difference to what *I'm* calling 'metaphysical inequivalence'. That said, if one objects to the use of the term 'metaphysical' here, just substitute 'm*-ground' for 'm-ground'.)

I haven't given a full account of m-ground, and am taking it as an intuitive but primitive notion. (Or rather, I am taking the notion of metaphysical inequivalence it bottoms out in as primitive. In my (2016) I provide a more detailed discussion of metaphysical equivalence and inequivalence, but for now the intuitive notion is good enough.) I will use the gloss I have given to argue, in the next section, that logical determination cannot be m-ground. I will also show that it can't be a distinctive species of Ground.

3. LEM and Two Kinds of Semantic Determination

Consider an instance of the Law of Excluded Middle, say 'Fa v ~Fa'. Suppose that 'Fa' is true. There is a clear sense in which 'Fa' determines 'Fa v ~Fa'. I think there are at least two ways to cash out what this determination is. I'll argue that neither is m-ground, and that neither is some other species of Ground.

First, *meaning-determination*. Sometimes we explain meaning by appealing to things that are either inside our heads, or out in the non-linguistic/non-representational world. But sometimes we explain meaning by simply appealing to a semantic structure or model or set of rules. Meaning-determination

is what backs (or provides) this kind of 'purely semantic' explanation of meaning. While meaning-determination is everywhere (consider the difference between explaining what 'keyboard' means by explaining that it is a compound of 'key' and 'board' vs. by demonstratively pointing), it is easiest to see in simple logical cases, since we've got such a straightforward semantics: the meaning of 'Fa' helps determine (along with the meaning of '~' and 'v') the meaning of 'Fa v ~Fa'. That is because, given our compositional semantics, the meaning of 'Fa v ~Fa' is literally *built out of* the meaning of 'Fa'. Or consider the sentence 'Erica is an electron or Nina is a neutron'. This sentence is meaning-determined by both the sentence 'Erica is an electron' and the sentence 'Nina is a neutron'.

While I won't give a full account of meaning-determination here, the differences between it and Ground—or, for now, m-ground—can be initially highlighted by thinking about the way in which both have to do with *functions*. I think that part of what has gone wrong in the discussion of logical ground is that metaphysicians have imported a metaphysical way of thinking about functions—as in some sense *doing something,* as *producing* (metaphysically speaking) their output from their input—into logic. The meaning of 'Fa v ~Fa' is partly a function of the meaning of 'Fa'. But all it means to say this is that there is a certain kind of mapping that holds between the two. And it is a strange move to elevate the status of this mapping to being m-ground.[3]

The second way to cash out the determination present in this case is by appeal to *truth-determination.* Truth-determination similarly backs (or provides) a kind of semantic explanation. Just as in the meaning-determination case, rather than pointing to *the world* to explain why our true sentences are true, sometimes we point to semantic structures, models, or rules to explain why our true sentences are true. So, e.g., the truth value of 'Fa v ~Fa' is truth-determined by the truth value of 'Fa', and this just follows from our standard semantics for first-order logic: 'Fa' being true *semantically forces* 'Fa v ~Fa' to be true, given our semantics. But the mistake of those who think that this semantic forcing is Ground—or, for now, m-ground—is in their thinking that the truth of 'Fa v ~Fa' being a function of the truth of 'Fa' somehow suggests that there is something metaphysical at stake about the mapping between the two. If the functions in question are nothing above mappings between elements of sets, or sets of ordered pairs, or any of the things that *mathematical* functions are typically taken to be, then *that y is a function of x* tells us nothing whatsoever about a grounding relationship between x and y. We can think of truth-determination as backing (or providing) a kind of semantic explanation; the truth of 'Fa v ~Fa' is semantically explained by 'Fa' being true.

I haven't fully cashed out meaning-determination or truth-determination, but I'm going to argue that neither of them (a) can be m-ground or (b) can even be a species of Ground, and I hope that in the course of the argument they will become more clear.

First, neither meaning-determination nor truth-determination can be m-ground. All we need in order

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[3] Thanks to an anonymous referee for suggesting that I discuss these two different ways of thinking about functions.

to know what *meaning-determines* 'Fa v ~Fa' is to know how our semantics for disjunction, negation, etc. works. Not everyone has a mastery of these concepts, as we learn when we teach introductory logic. But once we do have the concepts, we know exactly what meaning-determines 'Fa v ~Fa'. (The meanings of 'Fa', '~', and 'v'.) And all we need in order to know what *truth-determines* 'Fa v ~Fa' is the relevant mastery of the semantics plus which of its disjuncts are true.

However, we haven't learned anything about what *m-grounds* Fa v ~Fa when we learn either how the semantics for negation, disjunction, etc. works, or which disjunct of Fa v ~Fa is true (plus the relevant facts about the semantics of negation, disjunction, etc.). So neither meaning-determination nor truth-determination is m-ground. And further, there is no reason to think that either is a guide to m-ground.

That this is true for meaning-dependence should be uncontroversial, and exploring why this is will also reveal that meaning-dependence cannot be a species of Ground more generally. First, there is no reason to assume that compositional semantics tracks the true order of metaphysical determination in the mind-independent world. (We might have independent reasons for thinking that metaphysics is itself compositional, but the point is that those reasons must be independent—we can't just assume that because compositionality is best for us when doing semantics, it maps onto how the world is.)

But even if you reject this, meaning-determination and m-ground simply have different properties: first, m-grounding is factive—if p grounds q, then p and q must be true—and meaning-determination is not; '~Fa' helps meaning-determine 'Fa v ~Fa' even when '~Fa' is false, and the false sentence 'snow is blue' helps meaning-determine the false sentence 'snow is blue or grass is pink', as well as the true sentence 'snow is blue or orangutans are funny'.

Second, meaning-determination might sometimes relate metaphysically equivalent expressions, hence is not m-ground (nor a guide to m-ground). E.g.: if you think that there are no conjunctive states of affairs or facts in the world, and that conjunction is otherwise not "worldly"--conjunction is syncategorematic and its meaning is purely a function of e.g. how we use it (it doesn't capture any worldly structure in addition to not referring)—then 'snow is white', 'and', and 'grass is green' together meaning-determine 'snow is white and grass is green'. But since the 'and' here is metaphysically inert, there are no metaphysical differences between the left and right side of the determination relation. (See Turner (2016) for related discussion.) So the corollary m-ground statement must be false. One can instead think that conjunction is metaphysically important (I sometimes do), and that, e.g., the two states of affairs in question are not metaphysically equivalent, but note that if so, whether there is m-grounding here, and which direction it runs in, is a substantive metaphysical question, one which there is no reason to think that our off-the-cuff intuitions (which are, I am trying to nudge my reader to believe, based on the way we learned semantics for logic!) will track.

Third, I've been treating meaning-determination as a relation that holds between sentences and sentences, which on many philosophers' views immediately disqualifies it from either being m-ground

or a species of Ground. One could plausibly massage things here to avoid this worry. However, it seems clear that there is no reason to bar e.g. single *words* from helping to meaning-determine sentences (e.g. 'snow' contributes to meaning-determining 'snow is white'). Most accounts of Ground can't accommodate this.

That truth-determination cannot be m-ground (and that it is not an exact guide to m-ground) will likely be much more controversial. The way we tend to think about semantics for sentential logic seems to me to be something like this: if Fa is true, that *forces* (Fa v ~Fa) to be true, and this relation is asymmetric. In a moment, I'll question the asymmetry claim. But for now let's take it on board.

Assume that 'Fa' is true. It does not follow from the fact that 'Fa' truth-determines '(Fa v ~Fa)' that Fa *m-grounds* (Fa v ~Fa). It could be that Fa m-grounds (Fa v ~Fa). But it could also be that something like *that it's a law of logic that* ∀x(Fx v ~Fx) m-grounds Fa v ~Fa. Or it could be that there is no grounding at all when it comes to (Fa v ~Fa), or that every logical truth is zero-grounded (that is, they are grounded, but not by anything at all--see Kovacs (2019) for an argument for this view). But the meaning of 'Fa v ~Fa' is not determined by any kind of universally quantified claim or fact. And there is a *sense*—a semantic sense--in which the truth value of 'Fa v ~Fa' is not so determined either, even if *metaphysically speaking,* it is (that is, even if (Fa v ~Fa) is m-grounded in some kind of universal law rather than its true disjunct).

All I mean by claiming that there is a semantic sense in which 'Fa' being true determines the truth value of 'Fa v ~Fa' is this: we can believe and endorse the metaphysical claim that LEM is an anti-Humean law of logic (where I take this to mean that its instances are metaphysically determined by the law, or, at least, that the law is not determined by its its instances) without needing to revise our semantics. We can still claim that, semantically speaking, the truth value of 'Fa v ~Fa' is determined by the truth value of 'Fa'. And indeed I suspect that almost none of us would want to revise our semantics even if we were to somehow become certain that LEM's instances depend, metaphysically speaking, on it. This is truth-determination: semantic determination that is independent of metaphysical determination; a relation that provides or backs explanations that have to do with semantics *rather than* metaphysics.

So: that 'Fa' is true, and that our semantics for negation and disjunction works in the way it does, is not sufficient for establishing that Fa m-grounds (Fa v ~Fa). The point here is similar to the meaning-determination case: one might have some independent reason for thinking that Fa m-grounds (Fa v ~Fa). But on its own, *that 'Fa' truth-determines '(Fa v ~Fa)'* does not provide us with any reason for believing the m-ground claim.

If an anti-humean view of logical laws is true, then what meaning-determines 'Fa v ~Fa' and what truth-determines it are both radically different from what m-grounds (Fa v ~Fa). I suspect most think the anti-humean picture is false. But it does not matter. Reflecting on the mere epistemic possibility

of anti-humean logical laws shows that m-ground conceptually comes apart from meaning-determination and truth-determination. More generally, the lesson here is that we ought not assume that either meaning-determination or truth-determination is a guide to m-ground, unless we can supply a convincing argument that, in the domain in question, they always coincide.

(Note: my discussion here is related to the question of what, exactly, humeans and anti-humeans about physical laws are disagreeing about. On the picture that fits naturally with my claims here, humeans and anti-humeans *agree* about both truth-determination and meaning-determination but *disagree* about m-ground. If that is right, than there are similar points to be made about humeanism, anti-humeanism, and ground. And indeed this seems to dovetail with some bits of the literature on humeanism. See, e.g., Lange (2013), Miller (2015), Bhogal (2017). Shumener (2017) clearly distinguishes between the metaphysical and semantic senses of determination at play for the humean, but also provides a powerful challenge to the idea that the circularity charge often leveled against humeans could be resolved by appeal to that distinction.)

If you're skeptical about this claim when it comes to truth-determination, consider the following, which I think is a clear case in which we should distinguish between truth-determination and m-ground:

> **Possible Worlds:** Many people think that modal claims depend in some semantic way on facts about possible worlds. But many of these same people would disagree with the claim that a modal claim is m-grounded in a fact about some possible world(s). In fact, some of these people don't believe in possible worlds in any robust sense—they might take them to be simply useful models. I propose that such folks should say that the modal claims *truth-depend* on those models. But they are not m-grounded in those models, they are m-grounded in (whatever these folks want to say about the metaphysics, not the semantics, of modality). (See Lewis (1986), Plantinga (1979), and Gregory (2005) for discussion of whether this attitude towards modal semantics makes sense.)

It seems to me that *if* there is a coherent position which embraces possible worlds semantics but rejects that facts about abstract possible worlds m-ground the truth of modal claims, then we should think that there are two different kinds of 'truth-determination': the semantic sense in which the truth of a claim is determined by the models we use in that semantics, and the way in which the truth of a claim is determined directly by how the world is. Given the prevalence of possible worlds semantics, and the lack of popularity of (e.g.) Lewisean concrete modal realism, I suspect that many philosophers think there is a coherent position here. It would be odd if instead our modal claims were m-grounded in facts about abstract models, which in turn were grounded in reality—it seems that this insert facts about an abstract object, unnecessarily, into the m-grounding chain that holds between our claims and the world. And it would also be odd if our modal claims were m-grounded in facts about abstract models, and the m-grounding chain ended there. Both of these pictures involve very radical metaphysical pictures of reality. One can

embrace them, but it is worth noting that both involve abstract objects playing strange and prominent roles in our metaphysics. A simpler, less radical move for philosophers who like possible worlds semantics and dislike concrete modal realism is to embrace the distinction between semantic-truth-determination and m-ground.

I have argued that both meaning-determination and truth-determination are bad candidates for being m-ground. But they are also bad candidates for being some other species of a broader Ground. With respect to meaning-determination: I earlier demonstrated that meaning-determination is not factive (because a false disjunct like 'snow is blue' can help meaning-determine a disjunction like 'snow is blue or grass is green'). Most (all?) pro-grounders think that Ground is factive. If this is right, then meaning-determination cannot be a species of Ground. I also suggested that meaning-determination allows for different kinds of relata (or grammatical claims, on the sentential operator view of Ground) than Ground (on most accounts) does.

Truth-determination is superficially a much better candidate for being a species of Ground. But it cannot be, for three reasons. First, truth-determination tracks our semantics and not anything worldly about what things being true 'force' other things to be true. The anti-humean about LEM might want to keep our semantics but reject the m-ground claims about instances of LEM. They seem justified in doing so—the inner workings of our semantics doesn't have to map onto reality perfectly, so long as they deliver the right results about what claims are true and false. But if this is right, and if truth-determination is a species of Ground, then the anti-humean must be committed to there being two different ways—which run in opposing directions--in which *the truth* of an instance of LEM is Grounded. This seems like a reason to reject that truth-determination is a species of Ground, even for those who dislike the anti-humean view, so long as one wants to have a somewhat (first-order) metaphysically neutral account of Ground.

Second, there might be reason to reject that truth-determination is asymmetric at all. While we learn and teach about our semantics for logic as though it is asymmetric—as though the truth of a conjunction really is *determined* by the truth of its conjuncts—it is unclear that this is the right way of thinking about the semantics itself. So, perhaps, the felt asymmetry of truth-determination is a pedagogical artifact. One might point out, however, that sometimes in e.g. logic textbooks, we've just got a bunch of 'if and only if's', with no obvious directionality. Still, these are always presented in the same way (in left-to-right languages), with more atomic things on the left side and more complex things on the right. And I suspect--even if asymmetry or priority isn't explicitly appealed to in teaching—that this kind of uniform written presentation encourages us to acquire a concept that itself is asymmetric. So we've got two explanations for why we might intuit asymmetry when it comes to truth-determination: accidents of pedagogy, and accidents of concept acquisition related to the way written information is presented.

If the felt asymmetry of truth-determination is an artifact of pedagogy or concept acquisition, then

truth-determination itself is an ambiguous notion. It might capture something symmetric about the objective (even if dependent on us, or stipulated into existence) structure of the semantics for first-order logic, and it might capture something about the ways that we happen to learn, teach, and think about that semantic structure. But once we disambiguate, neither of these candidates for being truth-determination can be Ground: the former is not a good candidate for being a species of Ground if Ground is asymmetric. And the latter is not a good candidate for being a species of Ground because it is a confused concept: there simply is no determination relation that the felt asymmetry captures. It is a mistaken artifact of pedagogy and concept acquisition. (Note: there might be reasons to reject the claims I've made in these two paragraphs. I myself am not supremely confident in them. But if you reject them, you still must grapple with the first and third reasons that truth-determination cannot be Ground.)[4]

Third, on some ways of understanding factivity, we might want to reject not just that meaning-determination is factive, but also that truth-determination is factive. Consider the possible worlds example I just gave. One option is to appeal to possible worlds as abstract objects that do genuine explanatory work, but restrict that explanatory work to a purely semantic sense of explanation. But a different option is to treat possible worlds as purely *fictional* entities, which we appeal to in semantic explanations but which we, strictly speaking, do not believe in the existence of. If this is right then truth-determination may well be a relation that is not factive, since its "determiners" might not, in fact, exist. (So, the idea goes, strictly speaking false claims can truth-determine true claims.) And the same move is available in the case of semantics for basic first-order logic. It seems to me that semantic models—like scientific models—can non-factively or fictionally explain; we don't need to believe in them to do work for us, so long as the work they are doing is lightweight; we can believe that they are merely useful fictions. And Ground is supposed to be factive. (For those skeptical of non-factive explanation, see Bokulich (2011) for an argument that scientific models can non-factively explain, which I think is easily extendable to the semantic case; for an account of one kind of explanation that makes sense of the kind of non-factive cases at issue here, see Bokulich (2018).)

While most take Ground to be factive, I don't think that it is really the factivity/non-factivity distinction that is doing the real work in distinguishing truth-determination from Ground, but rather what kind of explanatory work truth-determination does (or backs). What's really going on is that there is one sense—the lightweight semantic sense--in which a perfectly good explanation of why something is true appeals to a (perhaps non-existent!) model; there is another sense—the heavyweight metaphysical sense, that is, the sense in which we want to know what it is about *the world* that makes the claim true—in which this is a completely unacceptable explanation of why something is true. My suspicion is that there is nowhere that we are more prone to confusing these two things than when we think about logic.

I've described a specific logical case in which two semantic determination relations could both come apart from m-ground. I've also highlighted other features of both kinds of semantic determination that are inconsistent with them being species of Ground more generally.

The burden is hence on pro-logical-grounders to show that logical grounding is neither identical to, nor explained away by, some form of semantic determination. One clear move here (and sometimes I think this is what proponents of logical grounding who do distinguish it from other species of Ground, e.g. Correia (2010, 2014), Poggiolesi (2016, 2018), and Schnieder (2016), are after) is to insist that (a) logical determination is not m-ground, but is a (distinct) species of Ground, and that (b) logical determination just is, or is at least very closely aligned with, what I'm calling truth-determination. The closest anyone comes to explicitly endorsing this is Correia (2014). Given the account of truth-determination I've given here, I think Correia can be seen as claiming that the right notion of logical ground is, at the least, a tool that can capture truth-determination.

What should we make of this move? First, I've argued that truth-determination can't be a species of Ground, so if my arguments are any good, pro-logical-grounders who think "logical ground" just is truth-determination should respond to them. However, even if it turns out that I am wrong, and truth-determination is a species of Ground, it seems to be an extremely uninteresting one. Truth-determination (in the logical case) is essentially nothing more than a restatement of our simplest semantics for first-order logic (perhaps with an additional asymmetry that is not intrinsic to the semantics itself, but which can be easily explained away by the way we learn and teach that semantics). Why would there be so much ink spilled over logical determination if it is just truth-determination? And what, exactly, is interestingly common between genuine cases of m-grounding and truth-determination? If this is the move pro-logical-grounders want to make, they owe us some explanations here.

3. Work Our Two Species of Semantic Determination Can Do

While my argument is primarily grist for the anti-grounder's mill, it's important to note that distinguishing between semantic determination and m-grounding can dissolve certain problems for the pro-grounder too. For example, here are two of Fine's (2010) "puzzles of ground":

1. Let f_0 be the fact that everything exists. Then everything exists partly in virtue of f_0 's existing. But f_0 exists partly in virtue of everything existing, since f_0 is the fact that everything exists, and so everything exists partly in virtue of everything existing (Fine 2010, p. 98).

2. Let f_1 be the fact that something exists. Then something exists partly in virtue of f_1 's existing. But f_1 exists partly in virtue of something existing, and so something exists partly in virtue of something existing (Fine 2010: 98).

Fine is thinking this way (I'm switching to fact talk to match his here): [[something exists] exists] is partly grounded in [something exists]. And [something exists] is partly grounded in [[something exists] exists], since the former is an instance of the latter. But this violates asymmetry and, if we assume transitivity, also violates irreflexivity. In order to dissolve the puzzles, we either must deny one of the 'general' ground-theoretic assumptions, such as irreflexivity or asymmetry, or second, we must deny one of the 'special' Ground-theoretic assumptions that generate the puzzles.[5] Those 'special' assumptions are:

> *Disjunction Grounding*: Given the truth of any disjunct, it will help ground a disjunction.
>
> *Existential Grounding*: Given that A(y) and that y exists, then y's being an A helps ground that something is an A.
>
> *Universal Grounding*: Given that everything is an A and that y exists, then y's being an A helps ground that everything is an A (Fine 2010).

Each assumption does important work in at least one of Fine's puzzles. I won't walk through how rejecting logical determination as a species of Ground resolves these puzzles, because it is obvious: All three of Fine's special assumptions are unmotivated if logical determination is just semantic determination, and if semantic determination is not a species of Ground. What I have shown is that, at the least, we need powerful arguments *for* the assumptions, since we have a debunking explanation for any intuitions we might have that they are true. And that is not typically how the discussion about "logical ground" has gone; rather, arguments have proceeded by taking intuitions of the kind under discussion here as providing evidence of some of the most basic, paradigmatic cases of Ground.

The upshot here is that if the pro-grounder rejects that logical determination is a species of Ground, she needn't accept Fine's puzzles at all, since she should immediately reject all three of his special assumptions. (Perhaps the puzzles can be re-created for truth-determination. (And see Correia 2013 for a puzzle that seems to be about something pretty close to my notion of truth-determination.) I'm skeptical that such re-creations work (at least in giving us genuinely new puzzles—they might provide us with alternate ways to state longstanding semantic puzzles and paradoxes), but also, we may have reasons (some of which I've already outlined) to reject that some of the properties of Ground (e.g. asymmetry, irreflexivity) apply to truth-determination.)

Rejecting that logical determination is a species of Ground can also do work for pro-grounders in

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[5] For objections to ascribing these properties to ground, see, e.g., Bliss (2014), Correia (2014, specifically about logical ground), Fine (2010), Schaffer (2012), Jenkins (2011), Woods (2018). For defenses, see, e.g., Raven (2013), Litland (2013) (and Kovacs (2018) for a conditional defense of irreflexivity)). I'm happy to let a thousand flowers bloom here; I'm not saying that my solution to Fine's puzzles is superior to any of those in the literature, but am rather just pointing out an interesting upshot of my view.

making the genus Ground more unified. One small example: Koslicki (2015) points out that there is an important difference between (a) truthmaking and logical determination and (b) other candidate species of Ground. Truthmaking and logical determination both allow for systematic overdetermination (just consider a true disjunction with two true disjuncts to see that this is true of logical determination), but other species of Ground seem not to allow for this. If logical determination is not a species of Ground, then a part of this difference goes away. One might reject that this is a difference that matters, but I take it that part of Koslicki's concern is that if we keep biting the bullet and allow for different species of Grounding to have different properties, we will end up with a "genus" that has no unifying properties. (You might worry here that other species of Ground (e.g. Moral? Epistemic?) allow for systematic overdetermination, and so eliminating logical determination as a species of Ground won't do much to unify the genus. I say: seems right! So we should either (a) claim that those are not really species of Ground or (b) abandon hope of identifying a unified Genus.)

But while my argument provides solutions to some problems for pro-grounders, it is more valuable to anti-grounders. I've restricted my attention to semantic determination relations in logical cases. But since such relations are plausibly everywhere, it may well be that they can do debunking work when it comes to claims about Ground in non-logical cases. This is a matter for future work.

I have argued that truth-determination and meaning-determination are the best candidates for explaining our intuitions about logical determination. These two semantic determination relations are particularly easy for philosophers to track, because of the way we explicitly learn and teach a simple semantics for first order logic; and our pedagogy imposes an asymmetry onto that semantics, which explains our intuitions of asymmetry. And neither of these semantic determination relations is a species of Ground. Of course, philosophers are still free to investigate logical determination, but if I am right that logical determination is just semantic determination, they owe us an explanation of why we should be interested in it.

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