

Grounding and Truthmaking

The Routledge Handbook of Metaphysical Grounding

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1. Introduction

My dog Gomer is friendly. The truth of the claim that Gomer is friendly doesn't "float free" from how the world is. The claim is somehow made true. There are many questions to ask about this phenomenon, what has come to be called *truthmaking*. For example, does every truth have a truthmaker? What is the connection between truthmakers and the nature of truth? How are truthmaking and ontological commitment related? Let's focus, however, on another question that is arguably conceptually prior to others: just what is truthmaking?

The friendliness of Gomer is also a highly derivative aspect of the world. It's somehow determined and explained by more fundamental phenomena. I assume that talk of determination in this context points to *grounding*, which is the topic of this handbook. My interest in this entry is how appealing to grounding might help us answer the what-is-truthmaking question.

Before getting into the details I should note some of the assumptions I'm going to make about grounding and truthmaking. While each of these assumptions has been challenged in the literature, they strike me as reasonable starting points. As for regimentation, I assume that grounding and truthmaking claims are to be formulated with the predicates 'grounds' and 'makes true' rather than sentential connectives such as 'because'. As for the ontological status of grounding and truthmaking, I assume that they're relations "out there" in the domain of our ontology rather being primitive pieces of ideology. As for their relata, I assume that something is a ground, a grounded entity, or a truthmaker only if it's a *fact*, and something is made true only if it's a *proposition*. I assume that facts and propositions are structured entities, where

the former are worldly in that they lack concepts or modes of presentation as constituents, and the latter are representational in that they do have such constituents. Collections of one or more facts ground other facts, and collections of one or more facts make true propositions.¹

Following convention, let square brackets indicate facts and angle brackets propositions. Given the above assumptions, here are two simple examples of what grounding and truthmaking claims look like: [the ball is burgundy] grounds [the ball is red], and [the ball is burgundy] makes true <the ball is red>. Much of what I say in this entry can be recast with different starting assumptions about grounding and truthmaking, but I leave this as an exercise for the reader.

2. Three accounts

Here is a common informal characterization of truthmaking: a fact makes a proposition true when the latter is true *in virtue of* the former. Different accounts of the truthmaking relation interpret the in-virtue-of talk here differently. Some, such as Armstrong (2004: Ch. 2), think that it points to metaphysical necessitation. Where Δ is a collection of one or more facts, here is one way of formulating the idea:

Δ makes true <p> just in case Δ obtains and it's metaphysically necessary that if Δ obtains then <p> is true.

There is, however, a straightforward problem for the necessity account, one concerning necessary truths. Suppose that it's metaphysically necessary that <1+1=2> is true. In this case, <1+1=2> is true no matter what. So it's true if, say, Beijing is a city. So it's metaphysically necessary that if [Beijing is a city] obtains then <1+1=2> is true. In this case the necessity account says that [Beijing is a city] is a truthmaker for <1+1=2>. But this seems wrong—the facts that anchor the truth of

¹ See Raven (this volume) for more on the predicate vs. connective approaches to grounding and the relata of grounding; Melia (2005) for corresponding considerations with respect to truthmaking; Trogdon and Cowling (2019) and Kment (2014, Ch. 6) for ontological vs. ideological treatments of grounding; and Audi (forthcoming) for corresponding issues with respect to truthmaking.

this proposition to the world, whatever they turn out to be, don't have cities as constituents. Why not? Intuitively, truthmakers are relevant to the truth of what they make true—call this the *relevance condition* for truthmaking. [Beijing is a city], however, seems irrelevant to the truth of $\langle 1+1=2 \rangle$.

Some, such as Lowe (2006: Ch. 12), claim that the in-virtue-of talk in the informal characterization of truthmaking instead points to a sort of dependence involving essences, where the operative notion of essence isn't purely modal in character (see Fine 1994). Here is one way of formulating the idea:

Δ makes true $\langle p \rangle$ just in case Δ obtains and it's essential to $\langle p \rangle$ that if Δ obtains then $\langle p \rangle$ is true.

The essence account is designed satisfy the relevance condition. In this case, Δ makes true $\langle p \rangle$ only if a connection between Δ and the truth of $\langle p \rangle$ is built into the very nature of the proposition. Relatedly, the essence account doesn't face the same problem with necessary truths. While it's metaphysically necessary that if [Beijing is a city] obtains then $\langle 1+1=2 \rangle$ is true, the essence of this proposition doesn't involve Beijing—you might know everything there is to know about the nature of $\langle 1+1=2 \rangle$ without knowing anything about Beijing in particular. So it isn't essential to $\langle 1+1=2 \rangle$ that if [Beijing is a city] obtains then $\langle 1+1=2 \rangle$ is true. Hence, the essence account doesn't say that [Beijing is a city] is a truthmaker for $\langle 1+1=2 \rangle$.

A problem for the essence account, however, concerns the essence claims that it commits us to. Consider a proposition to the effect that something is a city. The fact that Beijing is a city is, we will suppose, a truthmaker for this proposition. So a consequence of the essence account is this: it's essential to $\langle \text{something is a city} \rangle$ that if [Beijing is a city] obtains then $\langle \text{something is a city} \rangle$ is true. But this seems wrong. The essence of this proposition, like the essence of $\langle 1+1=2 \rangle$, doesn't involve Beijing—you might know everything there is to know about the nature of this proposition without knowing anything about Beijing in particular.

As a potential fix, we might revise the essence account so that it appeals to the natures of truthmakers in addition to the natures of what they make true. Here is one approach along these lines:

Δ makes true $\langle p \rangle$ just in case Δ obtains and it's essential to either $\langle p \rangle$ or facts among Δ that if Δ obtains then $\langle p \rangle$ is true.

Here the thought is that, while it isn't essential to $\langle \text{something is a city} \rangle$ that if [Beijing is a city] obtains then $\langle \text{something is a city} \rangle$ is true, this is essential to [Beijing is a city]. If this is right, then the revised essence account says that [Beijing is a city] is a truthmaker for $\langle \text{something is a city} \rangle$, as it should.

This revised essence account, however, also brings in its train questionable essence claims. Suppose that the liquid in the flask is boiling. And suppose that thus-and-so molecules compose the liquid; they're behaving in thus-and-so way; and their evolution is governed by thus-and-so laws—call this trio of facts MOLECULE. MOLECULE is presumably a truthmaker for $\langle \text{the liquid is boiling} \rangle$. So a consequence of the revised essence account is this: it's essential to either $\langle \text{the liquid is boiling} \rangle$ or facts among MOLECULE that if MOLECULE obtains then $\langle \text{the liquid is boiling} \rangle$ is true. But, on the face of it, the essence of $\langle \text{the liquid is boiling} \rangle$ doesn't involve laws governing the evolution of molecules. And, on the face of it, no sub-collection of MOLECULE is such that its essence involves boiling. So it's apparently essential to neither $\langle \text{the liquid is boiling} \rangle$ nor facts among MOLECULE that if MOLECULE obtains then $\langle \text{the liquid is boiling} \rangle$ is true.²

Perhaps the way to fix this problem is to be even more liberal about what the relevant essential truths might characterize. Returning to the liquid example, one thought is that we should focus on the collection that results from combining $\langle \text{the liquid is boiling} \rangle$ and MOLECULE—it's essential to this collection of entities that if MOLECULE obtains then $\langle \text{the liquid is boiling} \rangle$ is true. But things are getting pretty baroque here and this essence claim lacks any intuitive appeal. Moreover,

² Thanks to Ken Aizawa for proposing a case along these lines in conversation.

pursuing this strategy might lead to over-generating truthmakers in any case—you might think, for example, that it's essential to the collection consisting of $\langle 1+1=2 \rangle$ and [Beijing is a city] that if [Beijing is a city] obtains then $\langle 1+1=2 \rangle$ is true. So we would do well to see what alternative approaches to truthmaking might be available.

Many, including Correia (2014), Fischer (2015), Jago (2018, Ch. 6), Rodríguez-Pereyra (2005; 2015), Rosen (2010), Schnieder (2006), and Tahko (2013), suggest that the in-virtue-of talk in the informal characterization points not directly to necessity or essential dependence but instead to grounding. With this in mind, consider the following simple grounding-theoretic account of truthmaking:

Δ makes true $\langle p \rangle$ just in case Δ grounds the fact that $\langle p \rangle$ is true.³

The grounding account, like the essence account, speaks to the aforementioned relevance condition, as grounds are relevant to what they ground. Relatedly, the grounding account doesn't seem to have a problem with necessary truths, at least in the absence of further argument. While there are many plausible grounding claims, the claim that [Beijing is a city] grounds [$\langle 1+1=2 \rangle$ is true] isn't among them. Grounds contribute to explaining what they ground, and clearly the former doesn't contribute to explaining the latter. And it doesn't commit us to implausible essence claims either, at least in the absence of further argument.⁴ Is the grounding account otherwise plausible? There are various potential problems for the account that I don't have the space to discuss here. One concern is that the account vitiates the transitivity of grounding—see Tahko (2013) and Griffith (2014) for discussion. In the next section I focus on a potential problem that concerns the theoretical role of truthmaking in particular.

³ Among those who think that there is a definitional connection between grounding and truthmaking, it's generally agreed that the former is definitionally prior to the latter—Cameron (2010), however, is an exception.

⁴ See Glazier (this volume) for more on the connection between grounding and explanation, and Zylstra (this volume) for connections between grounding and essence.

Before proceeding, I should say something about an even simpler grounding-theoretic account truthmaking that might have occurred to you, viz. Δ makes $\langle p \rangle$ true just in case Δ grounds $[p]$. Why not work with something like this instead? Well, the proposal as formulated is difficult to evaluate, provided that propositions have concepts as constituents and facts do not. For suppose that $[p]$ has property P as a constituent. As there are multiple concepts whose semantic value is P , it's unclear just which conceptually structured entity is supposed to be made true by Δ when Δ grounds $[p]$. There is, however, a similar proposal worth considering that addresses this concern, viz. for any proposition $\langle p \rangle$ that represents $[p]$, Δ makes $\langle p \rangle$ true if and only if Δ grounds $[p]$. But this proposal too faces a difficult question: for any given proposition, just which facts does that proposition represent? Let's therefore continue to focus on the original grounding-theoretic account of truthmaking, one that doesn't face these problems.

3. A potential problem

Proponents of truthmaking think that the notion is theoretical useful. So, if an account of truthmaking has the effect of undermining its theoretical utility, this counts against the account from the perspective of the truthmaking theorist. What theoretical role is truthmaking supposed to play? Two potential theoretical applications of truthmaking are helping characterize ontological commitment (Cameron 2008a and Rettler 2016) and truth (Jago 2018). Let's focus, however, on a different potential application, one Sider memorably glosses as that of catching "cheaters," where a cheater is someone who "...is unwilling to accept an ontology robust enough to bear the weight of the truths he feels free to invoke" (2001: 41).

How should we understand this evaluative role that truthmaking is supposed to play? Here's a straightforward take on the matter: supposing that the true propositions concerning some subject matter have truthmakers, if a metaphysical thesis about this subject matter leaves us with no plausible story to tell about what makes these propositions true, this counts against the thesis. Armstrong (2004: Ch. 1) claims that truthmaking considerations undermine behaviorism in particular, so let's work through this example. True propositions about behavioral dispositions, we will

suppose, have truthmakers. Returning to my friendly dog, functionalists about the mental claim that the property of being friendly is the property of having some property or other that plays a certain causal role, one characterized in terms of internal mental states, sensory inputs, and behavioral outputs. Functionalists point to facts concerning the physical properties that actually play this role as a truthmaker for <Gomer is friendly>. In rejecting the existence of internal mental states, however, you might think that the behaviorist is left with no plausible story to tell about what makes this proposition true. With respect to Ryle who defended a view similar to behaviorism, Armstrong writes, “What is there in the world in virtue of which these [dispositional] truths are true? Ryle had no answer” (2004: 3). If functionalism but not behaviorism has recourse to truthmakers for true propositions concerning behavioral dispositions, then the former is preferable to the latter, all other things being equal. (Armstrong himself endorses a version of the identity theory rather than functionalism as I’ve characterized it above, identifying mental properties with what the functionalist claims are their physical realizers—see Armstrong 1968: Ch. 6).

You might think that, given the grounding account, truthmaking isn’t up to playing the role of helping us evaluate the plausibility of metaphysical theses. Various facts such as [Gomer is friendly] ground [<Gomer is friendly> is true]. Given the grounding account, these facts are truthmakers for the proposition, and the behaviorist is free to appeal to them. Hence, given our take on the evaluative role of truthmaking, truthmaking doesn’t help us adjudicate between behaviorism and functionalism after all. And you might think that the same applies to other debates that truthmaking is supposed to help us with, such as the debate between idealists about the physical and physicalists about the mental, and the debate between presentists and eternalists about the temporal extent of reality. The thought is that, no matter how implausible a metaphysical thesis about some subject matter might

be, the advocate of that thesis won't be without truthmakers for the true propositions concerning that subject matter. Trivial truthmakers abound.⁵

4. Appealing to fundamentality

How to proceed? One option is to revise the grounding account. The idea is to add further conditions that rule out the sort of trivial truthmaking described above. One such approach appeals to the notion of fundamentality, where a fact is fundamental in the relevant sense just in case it isn't grounded:

Δ makes true $\langle p \rangle$ just in case the facts among Δ are fundamental and Δ grounds the fact that $\langle p \rangle$ is true.⁶

Given this proposal, while [Gomer is friendly] grounds [\langle Gomer is friendly \rangle is true], the former isn't a truthmaker for \langle Gomer is friendly \rangle , as [Gomer is friendly] isn't fundamental. Both Schaffer (2010) and Cameron (2018) propose grounding-theoretic accounts of truthmaking that appeal to fundamentality so understood. Schaffer in particular claims that all truthmakers are fundamental, as truthmaking is “the relation of grounding between substance and truth”, where substances are fundamental entities (310).⁷ And Schaffer's central rationale for this claim is that it resolves the problem of trivial truthmakers outlined above—he claims that “the restriction to fundamental entities is needed if ‘cheaters’ [such as the behaviorist] are to be caught” (319).

⁵ See Daly (2005) for more on the idea that behaviorists, idealists, and other misfits have recourse to truthmakers (though his discussion isn't framed in terms of grounding).

⁶ See Bliss (this volume) for more on grounding-theoretic conceptions of fundamentality.

⁷ Rettler (2016) claims that all truthmakers are fundamental, though he doesn't explicitly endorse (or reject) the view according to which a fact is fundamental just in case it lacks grounds. Barnes (2012) also sees a connection between truthmaking and (a primitive notion of) fundamentality.

Given our characterization of the evaluative role that truthmaking is supposed to play in metaphysics, it's unclear, however, that the fundamentality account of truthmaking does any better than the original simple grounding account in showing how truthmaking might play this role. Returning to the debate between the behaviorist and functionalist, the fundamentality account likewise undermines the idea that truthmaking is potentially useful here. The facts that the functionalist cites as truthmakers for <Gomer is friendly> concern his cognitive economy, which consists of ordinary mental states like his belief that he will get to play fetch soon. The functionalist (and most of everyone else as well) denies that such facts are fundamental.

Moreover, if all truthmakers are fundamental, then it seems that we need to have a good sense of what the fundamental facts are like before truthmaking considerations can provide any guidance in adjudicating between competing theories. Consider, for example, the debate between idealists about the physical and physicalists about the mental. Suppose we have a good grip on what the fundamental facts are like—let's say that we have reason to think that none are mental in nature. The problem is that in this case we already know which thesis is the more plausible (physicalism), so truthmaking considerations are otiose in this context. Merricks (2007: 35) makes a similar observation about accounts of truthmaking formulated so as to rule out truthmakers that appeal to “suspicious” properties.

Aside from not helping show how truthmaking has an important evaluative role to play in metaphysics, there are other concerns for the fundamentality account. The most obvious problem is implicit in our discussion of functionalism above—on the face of it, some propositions have among their truthmakers non-fundamental facts. It seems, for example, that MOLECULE is a truthmaker for <the liquid is boiling>, yet the facts among MOLECULE aren't fundamental.

Another potential problem for the fundamentality account is that it undermines potential theoretical applications of truthmaking outside the domain of metaphysics. Consider semantic theories cast in terms of truthmaking. The relevant truthmakers in this case are typically nonfundamental in nature—the meaning of “There is a chair

over there,” for example, is thought to consist of truthmakers involving ordinary macroscopic objects. So the fundamentality account in effect says that truthmaker semantics is wrong even before we consider any of the details.⁸

Still another potential problem for the fundamentality account concerns its underlying assumptions. For any fact to the effect that a particular proposition is true, let’s say that it’s a *truthmade* fact just in case the proposition it concerns has a truthmaker. A consequence of the fundamentality account is that all truthmade facts have fundamental grounds. Why think that all such facts are grounded in this way?

Let *metaphysical foundationalism* be the view that all grounded facts are grounded by fundamental facts.⁹ It seems that in the actual world every semantic fact is grounded—there are no fundamental semantic facts. If this is right, then every truthmade fact is grounded. Provided that every truthmade fact is grounded, you might think that every truthmade fact has a fundamental ground because you think that metaphysical foundationalism is true. Indeed, it’s unclear how else we might go about motivating this claim.

So what? Well, the fundamentality account aims to specify the nature of truthmaking so it carries metaphysical necessity—the proposal is if true then true in all metaphysically possible worlds. So it looks like we have reason to believe that every truthmade fact has a fundamental ground only if both metaphysical foundationalism and the claim that every semantic fact is grounded are if true then true in all metaphysically possible worlds. It’s not absolutely clear, however, why we should think that worlds in which fundamental semantic facts obtain are metaphysically impossible. Compare: while the physicalist claims that no fundamental mental facts actually obtain, she typically grants that worlds in which such facts obtain (e.g. worlds in which our minds are roughly as Descartes conceives of them) are

⁸ For more on truthmaker semantics, see Fine (2017) and (this volume).

⁹ See Bliss (this volume) and Dixon (this volume) for more on metaphysical foundationalism.

metaphysically possible.¹⁰ And Cameron (2008b) argues that we at most have reason to believe that metaphysical foundationalism is contingently true—while the thesis is actually true, there are metaphysically possible worlds in which it's false.¹¹

5. Resolving the problem

So far we've considered two grounding-theoretic accounts of truthmaking. And we've seen that truthmaking on neither proposal plays the evaluative role that it's supposed to, given our take on what this role comes to. What are our options for addressing this issue? One option is to revise the grounding account of truthmaking in some way we've yet to consider. For example, Griffith (2014) and Saenz (forthcoming) reject the grounding account but defend grounding-theoretic accounts of truthmaking that don't appeal to fundamentality. Griffith argues that truthmaking is to be defined in terms of a species of grounding rather than grounding *per se*, and Saenz argues that the grounding account needs to be supplemented with considerations involving the idea that true propositions correspond to their truthmakers. (Neither of their discussions, however, directly engages with the problem concerning the evaluative role of truthmaking that has guided our discussion.)

Another option is to reject the idea that truthmaking is to be defined in terms of grounding in the first place. If you're sympathetic with truthmaking but skeptical of grounding, this option is for you. Heil (forthcoming), for example, articulates a pro-truthmaking, anti-grounding view.¹² Note, however, that the proponent of grounding might also reject grounding theoretic accounts of truthmaking. Audi (2012) and (forthcoming), for example, is a proponent of grounding but proposes a grounding-free take on truthmaking that appeals to the idea that true propositions correspond

¹⁰ See, however, Levine and Trogdon (2009) for critical discussion of this idea.

¹¹ See Fisher (2015), Jago (2018, Ch. 5), Merricks (2008), Mulligan (2007), and Schipper (forthcoming) for further critical discussion of the project of tying truthmaking to fundamentality.

¹² See Koslicki (this volume) and deRosset (this volume) for discussion of skepticism about grounding.

to obtaining facts. Suppose that A makes true $\langle p \rangle$. Audi suggests that, provided that there are conjunctive facts, the fact that $\langle p \rangle$ is true is conjunctive in nature—it's conjuncts are A and the fact that $\langle p \rangle$ corresponds to A. In this case, A grounds the alethic fact, given the standard grounding principle that conjunctive facts are (partially) grounded by each of their conjuncts. Interestingly, Audi responds by arguing that, if there are conjunctive facts, they *aren't* grounded by their conjuncts.

Still another option is to accept the grounding account of truthmaking (or the fundamentality account, provided that its other potential problems can be addressed satisfactorily) but reject the idea that truthmaking has an important evaluative role to play in metaphysics. For example, you might argue that grounding *tout court* is important to metaphysics, and truthmaking as a special case of grounding is useful only outside the domain of metaphysics. While Fine doesn't think that truthmaking is a special case of grounding, he endorses a similar view. Fine (2012) sees grounding and truthmaking theorists as disagreeing about which relation should take pride of place in metaphysics, as they offer competing takes on the general phenomenon of what accounts for what. He sides with the grounding theorist, joking that "...truthmaking is fine as a guide to metaphysics as long as we junk the relata on the left, the things whose existence makes true, the relata on the right, the things made true, and the relation of making true (2017: 556). But at the same time he argues that truthmaking has important theoretical applications outside the domain of metaphysics.¹³

A more radical option is to reject the idea that there is truthmaking altogether. Tallant (2018) defends a striking version of this approach. He argues that truthmaking is a grounding theoretic notion, and, as there is no grounding there is no truthmaking! (Surprisingly, Tallant elsewhere conceives of metaphysics as "...the quest for truthmakers" (2017: 3). So perhaps metaphysics is the quest for nothing?)

¹³ See MacBride (2019) for critical discussion of the idea that a central theoretical role of truthmakers is to "catch cheaters."

Let's explore a different approach. Assay (2017) argues that grounding and truthmaking theorists are best interpreted as having different, compatible theoretical objectives within the domain of metaphysics. So perhaps we've simply mischaracterized the evaluative role that truthmaking plays in metaphysics. What might a different take on this role look like?

To get us started, here's a simple proposal: supposing that the true propositions concerning some subject matter have *grounded* truthmakers, if a thesis about this subject matter leaves us with no plausible story to tell about what these truthmakers are like, this counts against the thesis. Returning to the debate between behaviorists and functionalists, true propositions about behavioral dispositions presumably have grounded truthmakers. So it's not the case that any truthmaker for <Gomer is friendly> is fundamental. Assuming that true propositions are about their truthmakers, the idea is that at least part of what this proposition is about doesn't concern how the world is fundamentally speaking. Now, behaviorists and functionalists can agree that the fact that [Gomer is friendly] is a truthmaker for <Gomer is friendly>. We've seen that functionalists claim that there is a further truthmaker for this proposition, one concerning the physical properties that actually play the relevant causal role definitive of being friendly. And functionalists reasonably claim that these facts ground [Gomer is friendly]. So functionalists have a plausible story to tell according to which there are grounded truthmakers for <Gomer is friendly>. Behaviorists, by contrast, don't have such a story to tell. With respect to [Gomer is friendly], apparently part of their view is that this fact doesn't have grounds, as behavioral dispositions are brute.¹⁴

There is, however, a potentially more interesting way we might revise our initial take on the evaluative role that truthmaking plays in metaphysics. This will require some stage setting, so bear with me. How do we evaluate grounding claims? One way to do so is to specify the modal consequences of grounding and then ask whether the facts involved in a given grounding claim are modally connected in the right way. Let

¹⁴ Perhaps the evaluative role of truthmaking can also be reconceived in terms of minimal truthmaking—see O'Conaill & Tahko (2015) for discussion.

physicalism about the mental be the thesis that the mental facts are grounded by non-mental physical facts (perhaps together with facts that are neither mental nor physical such as indexical and totality facts). Many claim that grounding carries necessity in the following sense—if Δ (fully) grounds some fact, then it's metaphysically necessary that if Δ obtains then the grounded fact obtains. Some argue that the non-mental physical facts, however supplemented with additional non-mental facts, don't metaphysically necessitate the mental facts. If they're right then physicalism is false, provided that grounding carries metaphysical necessity.¹⁵

There is another way to evaluate grounding claims. Many implausible claims to the effect that Δ grounds A seem implausible in part because we have no sense of how Δ is supposed to ground A. This is the case, for example, with respect to the claim that [Gomer is friendly] grounds [Socrates is a philosopher]. A comparison to causal mechanisms will be helpful here. Suppose we're dealing with a subject matter like biochemistry in which causal relations have underlying causal mechanisms, and suppose I make a claim about what causes a neurochemical event such as the release of neurotransmitters. If we have no idea what sort of underlying causal mechanism might be operative in this case, this counts against my causal claim.

The physicalist claims that mental facts like [Gomer is friendly] are grounded by physical facts. It seems that we should endorse such claims only if we have a general sense of how the physical facts might ground the mental facts. At the very least, it counts against a grounding-theoretic physicalist thesis if that thesis doesn't speak to how the physical is supposed to ground the mental. And note that we've already seen in broad outline one way things might go in this case. Let's say that property P *realizes* property Q on an occasion just in case P plays thus-and-so causal role on that occasion and Q is a functional property, one defined in terms of this very role.¹⁶ The

¹⁵ See Bryant (this volume) for more on the connection between grounding and physicalism, Skiles (this volume) and Kovacs (this volume) for the connection between grounding and necessity, and Chalmers (2009) for necessitation-based objections to physicalism.

¹⁶ See Baysan (2015) for more on realization.

functionalist claims that, when neurochemical facts ground mental facts, property constituents of the former realize property constituents of the latter. Returning to Gomer, the idea is that, whatever neurochemical facts ground the fact that Gomer is friendly, some fact among the former has as a constituent some physical property that realizes the property of being friendly.

Some, of course, object to this story about how physical facts ground the mental facts, arguing that mental properties aren't functional properties. Indeed, it seems that the point of departure for the so-called explanatory gap challenge to physicalism is our general impression that there just is no plausible story to tell about how physical facts might ground the mental facts. But, whether or not functionalism and physicalism more generally speaking are true, the important point for our purposes is this: there are cases in which considerations about how Δ grounds A are relevant to whether we should think that Δ grounds A in the first place.

What does this have to do with truthmaking and its evaluative role in metaphysics? The idea is that various relations in addition to realization make similar contributions to the evaluation of grounding claims, and truthmaking is among these relations. The overall suggestion is that pointing to truthmaking relations can help us assess the plausibility of grounding claims in a way that is analogous to how pointing to causal mechanisms can help us assess the plausibility of causal claims.¹⁷

There is a potential concern, however, with the package of views consisting of the grounding account of truthmaking and this broadly mechanistic proposal about its evaluative role. Suppose you ask, "How does Δ ground A?" and I respond by pointing out that Δ grounds A. It's clear that my simple response doesn't really answer your question. Generally speaking, establishing *that* Δ grounds A doesn't show *how* Δ grounds A. According to the grounding account of truthmaking, truthmaking is a special case of grounding. So you might think that a more

¹⁷ For more on this broadly mechanistic approach to specifying how grounding connections run, see Trogon (2018). For related approaches, see Litland (2017) on what he calls "explanatory arguments" and Schaffer (2016) on structural equation models for grounding claims.

complicated response to your question according to which truthmaking is part of what yokes Δ and A together isn't much of an improvement on my simple response. By contrast, you might think that relations like realization are potentially relevant to understanding how grounding takes place precisely because they aren't merely special cases of grounding.

I concede that there are cases in which Δ grounds A that involve truthmaking where the latter doesn't speak to how Δ grounds A. Suppose you ask, "How does MOLECULE ground [\langle the liquid is boiling \rangle is true]?" And suppose I respond by pointing out that MOLECULE is a truthmaker for \langle the liquid is boiling \rangle . Given the grounding account of truthmaking, my response doesn't add much of interest, as I've in effect just reiterated the initial grounding claim. Relatedly, Audi (forthcoming) observes that, while grounding relations between facts are typically underwritten by certain connections between their constituent properties, there apparently aren't such underwriting connections in the case of alethic facts and truthmakers.

There are, however, cases in which Δ grounds A and underlying truthmaking relations do speak to how Δ grounds A. Let's consider a simple case. Let $\langle s \rangle$ be a proposition according to which the singleton of the statue (the set whose sole member is the statue) exists. Consider the following grounding claim: [the clay exists], together with other facts, grounds [$\langle s \rangle$ is true]. Is this claim plausible? Well, if there is nothing to say about how the grounding connection might run here, this counts against the grounding claim.

It seems, however, that we can point to underlying relations that yoke the relevant facts together, and by doing so we specify how the grounding connection runs in this case. And one of the relations that we point to in this case is truthmaking. Here's how the story goes: there is a constituent of [the clay exists] (the clay) that stands in the material constitution relation to a constituent of [the statue exists] (the statue); the statue stands in the set formation relation to a constituent of [the singleton of the statue exists] (the singleton of the statue); and the fact that this set exists itself stands in the truthmaking relation to a constituent of [$\langle s \rangle$ is true] ($\langle s \rangle$). Provided that the relations of material constitution, set formation, and truthmaking are indeed

instantiated in this way on this occasion, it seems that we have a fairly good grip on how [the clay exists] grounds [$\langle s \rangle$ is true].¹⁸

6. Conclusion

We began by considering a simple proposal about the connection between grounding and truthmaking according to which truthmaking is a special case of grounding. Then we considered a potential problem for this proposal concerning the evaluative role of truthmaking. We considered one way of revising the proposal—the fundamentality account of truthmaking—in an effort to resolve the problem, but we saw that this proposal has a similar problem as well as various other problems. Then we considered other options for responding to the problem. We focused on one option in particular, that of revising our conception of the evaluative role of truthmaking. We ended up with what I take to be a fairly attractive package of views—a simple grounding account of truthmaking and a broadly mechanistic conception of the evaluative role of truthmaking in metaphysics.

I'll close by noting two potential directions of future research concerning the connection between grounding and truthmaking (provided that what I've said in this entry is on the right track). The first concerns the various relations we can appeal to in specifying how some facts ground another fact. I suggested above that truthmaking is such a relation. But what if anything unifies these relations beyond the fact that they potentially contribute to our understanding of how grounding takes place? Addressing this question may shed light on what truthmaking has in common with other familiar relations from metaphysics, as well as what's distinctive about it. A related question: in addition to the ones we've mentioned, what further relations speak to how the connection runs between grounds and what they ground?

The second issue concerns the evaluation of truthmaking claims rather than grounding claims more generally speaking. Provided that truthmaking is a special

¹⁸ See Wasserman (2015) for more on material constitution and Fine (2010) and Lewis (1991: Ch. 1) for set formation.

case of grounding, what sorts of considerations are relevant to the evaluation of truthmaking claims themselves? If it makes sense to speak of how some fact makes a proposition true, then perhaps we can reiterate the strategy discussed above for evaluating grounding claims. In this case, we would need to look for underlying relations that yoke truthmakers together with either the propositions they make true or facts to the effect that those propositions are true.¹⁹

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