THE FUNDAMENTAL FACTS CAN BE LOGICALLY SIMPLE

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I like the view that the fundamental facts are logically simple, not complex. However, some universal generalizations and negations may appear fundamental, because they cannot be explained by logically simple facts about particulars. I explore a natural reply: those universal generalizations and negations are true because certain logically simple facts—call them φφ—*are the fundamental facts*. I argue that this solution is only available given some metaphysical frameworks, some conceptions of metaphysical explanation and fundamentality. It requires a 'fitting' framework, according to which metaphysical theories explain the aptness of representations in terms of how things are fundamentally. Fitting frameworks conceive of the fundamental facts as those that are metaphysically 'real'; call them the 'facts-in-reality'. Moreover, we must take as primary a plural notion of the facts-in-reality, not the singular notion of a fact-in-reality. By contrast, a metaphysics that grounds facts is incompatible with my strategy for keeping the fundamental facts logically simple.

1. HOW CAN ALL THE FUNDAMENTAL FACTS BE LOGICALLY SIMPLE?

I like the view that the fundamental facts are logically simple, not complex.[1] They are particular, not quantificational, and contain no logical connectives like conjunction or even negation. Maybe there are fundamental facts like: quark q_1 is 95m from quark q_2. But there are no fundamental facts like: every quark is within 100m of another one, nor

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[1] Russell (1918–9: 521) calls logically simple facts 'atomic'. It would be misleading to express my view by saying that 'the fundamental facts are atomic': I will endorse a significantly holistic view. Sider (2011: 203–6; 2020: 38–9) calls the view that the fundamental facts are all logically simple 'Tractarianism', after Wittgenstein (1921/1974).

like: *it is not the case that* quark q_1 is 96m from quark q_2. Logical notions do not appear in the fundamental facts.[2]

The logic-free view of the fundamental facts is attractive. We can bring out its appeal as follows (taken literally or not). When God created the world, she gave the fundamental objects their fundamental properties and relations, and then she stopped. She did not need to add conjunctive and disjunctive facts, on top of the logically simple facts she'd created. She did not need to add facts about things lacking fundamental properties; she merely refrained from giving those things the relevant properties. She did not need to add fundamental facts about what all the objects of some kind are like; she just gave each of those objects the relevant property. She did not need to add a final fundamental fact that there are no further ones; she merely desisted from further creation. She did not need to add the quality of fundamentality to certain facts; she merely put the relevant facts in place and then stopped. These claims are 'intuitive', in the harmless sense that they seem true to me and to most of you, and not because of an explicit argument. These 'intuitions' reflect our learned world view. They are not beyond scrutiny, but they are reasonable places to start investigation.[3]

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[2] This paper does not address whether there are fundamental facts about identity. Jackson (MS) argues that there are not.

[3] If God put in place the initial conditions of the universe and the laws of nature, and then let the laws generate all that followed (Maudlin, 2007), then we cannot identify the fundamental facts with those God put in place, for two reasons.

First, God did not put in place the metaphysically fundamental facts about how things are after the first moment. So the metaphysically fundamental facts are not just those God put in place. Still, if God only needed to create *logically simple* facts concerning the first moment, we should generalize, concluding that the fundamental facts concerning other times are logically simple too.

Second: plausibly, the relevant laws of nature are that certain universal generalizations hold. Then if nomic facts are fundamental, those fundamental facts are logically complex. If this view of the laws is correct (contra Loewer (2012) and Demarest (2017)), then put laws aside and focus on the fundamental *non-nomic* facts—they are logically simple, I claim. Regardless of how one thinks of the laws, it seems that accidentally true universal generalizations are not fundamental facts, nor are negations. I'll omit this qualification in what follows.

Another reason to keep the fundamental facts logically simple is to avoid a disconcerting choice between redundancy and arbitrariness (Sider, 2011: 216–222; McSweeney, 2019). If quantifiers and sentential connectives feature in the fundamental facts, which ones do so? The first order quantifiers ∀ and ∃ don't mean the same thing, but they are inter-definable. It would be strange to think that both ∀ and ∃ feature in the fundamental facts as distinct, fundamental elements. It would also be strange to hold that one quantifier is metaphysically privileged (and presumably we could never know which one). Similarly, it would be strange to metaphysically privilege some truth-functional sentential connectives, and strange to avoid privileging some by holding that they all feature in the fundamental facts.[4] A simple way out of these dilemmas: no quantifiers and no sentential connectives feature in the fundamental facts.[5]

We've seen enough to motivate our investigation: let's try to keep logical notions out of the fundamental facts.[6] The puzzle is that there are potent arguments that some logically complex facts *are* fundamental. This puzzle traces back to Bertrand Russell (1918–9), and has been much discussed under the heading of 'the problem of negative truths'.[7]

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[4] Eighteen pairs of (at most) binary truth-functional connectives are minimally expressively adequate, including {'¬', '&'} and {'→', '↛'}. Two binary connectives are individually expressively adequate: NAND ('the Sheffer stroke') and NOR.

[5] Another way out: "∀x(Fx)" and "¬∃x(¬Fx)" both perspicuously represent *the same* fundamental fact. Sider (2020: chapter 5) investigates this strategy. It is not open to Sider, for whom fundamentality applies directly to 'sub-propositional' elements such as ∀ and ∃ (Sider, 2011: 128, 217).

[6] Sider argues that since our best scientific theories are framed in a language of first-order logic, we should accept that the relevant logically complex facts are fundamental (2011: 188, 216; 2020: 42). This argument assumes that logically complex scientific facts are metaphysically fundamental, but that seems false.

[7] See Russell (1918–9: 42–46, 200; 1919), Armstrong (1997: chapter 13; 2004: chapter 6), Molnar (2000), Heil (2006), Dodd (2007), Schaffer (2010a), Rosen (2010: 120–1), Sider (2011: 203–6; 2020: 38–9), Skiles (2015), Amijee (2021), and Cameron (2022: 199–218). Fine (2012: §7) raises

Let's start with the problem with universal generalizations (or negative existentials), before addressing negations. Allegedly, logically simple fundamental facts about particulars cannot make a universal generalization true, because the facts about particulars don't rule out the existence of a further object that's a counter-example. Suppose that there are fundamental facts about particular quarks and their positions. Suppose that every quark is within 100m of another one. That fact is logically complex, and so should be non-fundamental, on the view I want to defend. But here's the problem. The facts about how particular quarks are arranged—that quark q_1 is 95m from quark q_2 and so on—do not preclude there being another quark, as yet unmentioned, that is over 100m away from all the rest. The positions of q_1, q_2,…, q_n don't settle that those are *all* the quarks. So it looks like non-quantificational fundamental facts cannot explain why every quark is within 100m of another one. Rather, it is alleged, that quantificational fact must be fundamental.[8]

Similarly, it looks like some negations cannot be metaphysically explained, and are thus fundamental facts. What metaphysically explains why there are no further fields over the points of spacetime? That is, why does spacetime point a lacks alien field value property F_v? It is hard to see what could make that the case. So, allegedly, $\neg F_v a$ must be among the fundamental facts.[9]

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the argument that universal generalizations are fundamental, but does not take a stance on it. He rejects fundamental conjunctive and disjunctive facts, but is happy with fundamental negations.

[8] Skiles (2015) says that the particular facts about the distances between quarks *can* ground that [every quark is within 100m of another], because grounds need not entail the fact they ground. I am not sympathetic. Surely facts about the locations of quarks q_1, q_2,…, q_n do not make it the case that there are no further quarks. Cameron (2022: 199–218) suggests we don't need to ground or explain the problematic facts, and yet they are not fundamental either. Amijee (2021) reviews and criticizes some other recent attempts to keep quantification out of the fundamental facts.

[9] See Russell (1918–9: 42–46), Molnar (2000: 74–5), Armstrong (2004: 62–3), Dodd (2007: 387). The latter three rebut the following inadequate suggestion: a thing's fundamental qualities explain why it doesn't have incompatible fundamental qualities. For example, that [o has mass 1kg] explains why [o does not have mass 2kg]. This doesn't work for all absent properties. In particular, the fundamental facts are compatible with the presence of extra fields over spacetime.

The cases of universal generalizations and negations are deeply analogous. They both concern facts about absences, which accounts for the urge to exclude them from the fundamental, and the problem with doing so. On the one hand, it seems that fundamental reality consists only of 'positive' facts: that fundamental objects have certain fundamental properties and relations. God did not have to add in by hand any 'negative' facts—the absence of further fundamental individuals and property-instances. On the other hand, the difficulty with explaining universal generalizations and negations is at bottom the same. The positive facts cannot metaphysically explain absences, whether of further individuals or of an individual's having a property. We should look for a unified treatment of the two cases.

The first page of Wittgenstein's *Tractatus Logico-Philosophicus* suggests an answer (Wittgenstein 1921/1974). (Let's not worry about what he says later on in that oeuvre.)

> 1.11   The world is determined by the facts, and by their being *all* the facts.
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> 1.12   For the totality of facts determines what is the case, and also whatever is not the case.

Wittgenstein suggests that what explains the truth of the troublesome universal generalizations and negations is that *the fundamental facts are what they are*. Some notation helps. Some facts are the fundamental facts—call them 'φφ'. Standardly, a double letter designates *some things*, to contrast with one letter designating one thing.[10] 'φφ' does not objectionably reify those facts: it is a higher-order expression, not of the same linguistic kind as terms designating some objects (such as some quarks). Heuristically, think of 'φφ' as replacing a list such as: [quark q_1 is 95m from quark q_2], [object c has quality Q], …. (I use square brackets simply as punctuation to aid legibility, not as a term-forming operator for denoting reified facts; they do not change how sentences are to be pronounced.) Don't worry about whether there are too many fundamental facts to list; thinking of a list just reveals that 'φφ' does not reify facts. We can now state the Wittgenstein-inspired suggestion: *that φφ are the fundamental facts* explains why [every quark is within 100m of

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[10] Florio and Linnebo (2021: 15–19); compare Oliver and Smiley (2016: 106–8).

another one], and why $\neg F_v a$. That $\varphi\varphi$ are the fundamental facts settles that there are no more quarks and no more fundamental fields than those $\varphi\varphi$ concern.

The suggestion strikes me as on the right lines, but it immediately runs into trouble. Call the fact that *$\varphi\varphi$ are the fundamental facts* 'the totality fact'. The strategy is to take the totality fact to be metaphysically unexplained. This is the right interpretation of the strategy, for two reasons. First, the strategy is not distinctive if it then explains why [$\varphi\varphi$ are the fundamental facts] in more fundamental terms. That further explanation would be the distinctive move. Second, it seems exactly right that metaphysical explanation comes to an end with fundamental reality being the way that it is. We should explore this view. The problem is that if the totality fact is metaphysically unexplained, it must itself be a fundamental fact, it seems. This view has been defended—David Armstrong's proposal is in the vicinity[11]—but it is unsatisfactory. The totality fact seems non-fundamental, for two reasons.[12]

First, the totality fact concerns which facts are fundamental. But intuitively, no fundamental fact concerns fundamentality; they only concern physical properties and

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[11] See Armstrong (1997: 199–200; 2004: 72–5), Heil (2006), and McBride (2020: §2.1.4.2). Armstrong's theory concerns what 'states of affairs' there are—that's how he refines the naïve question of what facts are fundamental. 'First-order' states of affairs are those which do not themselves concern states of affairs. They correspond to what I countenance as fundamental facts. Armstrong adds one extra state of affairs: that certain states of affairs—call them *ff*—are the first-order states of affairs. I reject Armstrong's view of the logical form of that 'totality' state of affairs—see §§5–6.

[12] An objection I do not endorse: the totality fact is quantificational, and we are trying to avoid fundamental quantificational facts. Allegedly, '$\varphi\varphi$ are the fundamental facts' just means: any fact is fundamental iff it is among $\varphi\varphi$. This worry does not stick. As we'll see later (§§5–6), the totality fact should be understood non-quantificationally.

Another worry: that [$\varphi\varphi$ are the fundamental facts] is objectionably self-referential, if it is fundamental and thus among $\varphi\varphi$. This worry would stick if facts have constituents, for then the totality fact would be a proper constituent of itself, which seems impossible. However, my proposal should deny that facts have constituents (§7).

relations. Throw in fundamental mental facts if you insist; fundamentality still seems the wrong sort of thing for the fundamental facts to concern.

Second, the totality fact is partly negative: it is partly about the absence of any further fundamental facts. So if the totality fact is fundamental, then a partly negative fact is fundamental; but that is what we are trying to avoid.[13]

We can pump these intuitions together by considering whether God had to put in place a fundamental fact that [φφ are the fundamental facts]. Having put in place the positive and logically simple fundamental facts, God did not have to perform one more act of creation, namely making those facts—plus the very fact she thereby creates—the fundamental facts. No such further fundamental fact is required.

So, it seems, that [φφ are the fundamental facts] is not itself a fundamental fact. Yet it is an ultimate metaphysical explainer, on the strategy I want to defend. That [φφ are the fundamental facts] explains the truth of negations and universal generalizations, and is not itself metaphysically explained by a deeper truth. This may seem contradictory—how can an ultimate metaphysical explainer fail to be a fundamental fact?

We *can* hold that the totality fact is an ultimate metaphysical explainer but not—in some sense—a fundamental fact, but only if we adopt some controversial meta-metaphysical positions. Let me sketch the strategy.[14] According to 'fitting' frameworks, a metaphysical theory for *p* explains, ultimately in terms of how things are fundamentally, why *a representation* that *p* is apt or not—how well it 'fits' reality. Fitting meta-metaphysical frameworks refine the intuitive notion of 'a fundamental fact' into two theoretical notions. One is the notion of an ultimate metaphysical explainer. The other is the notion of 'the facts-in-reality'; these are the facts God had to put in place to create the universe (modulo

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[13] Molnar (2000: 81–2), Dodd (2007: 389).

[14] Heil's (2006) diagnosis has something in common with mine. He alleges that talk of 'fundamental facts' conflates two notions: the fundamental elements of reality, which are worldly, and a complete description of fundamental reality, which is representational. Simply distinguishing reality from representation solves our puzzle, he claims: the complete description is the ultimate metaphysical explainer, and is not a fundamental element. I will argue this is not enough: substantive meta-metaphysical commitments are needed. For example, we must reject the grounding framework.

footnote 3). Fitting meta-metaphysical frameworks allows us to say: that [φφ are the facts-in-reality] is an ultimate metaphysical explainer, but is not itself among the facts-in-reality. This proposal respects all the relevant intuitions, I will argue.

I'll start by distinguishing the 'fitting' conception of metaphysical explanation from the popular 'grounding' conception (§2). These meta-metaphysical frameworks conceive of fundamentality differently. §3 assumes a fitting framework and makes the proposal: that [φφ are the facts-in-reality] is an ultimate metaphysical explainer, but is not itself among the facts-in-reality. §4 shows that the proposal is compatible with the slogan that "*how things are fundamentally* metaphysically explains everything else". The proposal is not happily formulated using the singular notion of a fact-in-reality. Rather, it should use a plural predicate, sensibly glossed in English as '… are the facts-in-reality' (§§5–6). This plural notion of 'the facts-in-reality' encodes a holistic conception of fundamental reality (§7). §8 checks that a fitting framework is needed to formulate my proposal, by considering the closest proposal formulated in the grounding framework. The results are unsatisfactory. If you want to keep the fundamental facts logically simple in the way I propose, you must reject the grounding framework in favour of a fitting framework.

2. TWO METAPHYSICAL FRAMEWORKS: GROUNDING AND FITTING

This section sketches the grounding and fitting metaphysical frameworks. These frameworks refine differently the proto-theoretical notions of metaphysical explanation and fundamental fact. The difference is crucial to whether the fundamental facts can all be logically simple. 'Metaphysical explanation' is my neutral term for ways of accounting for the non-fundamental in terms of the fundamental.

According to the 'grounding' framework, a metaphysical theory for *p* says what grounds *p*; it says in virtue of what that fact holds. For example:

(1) London buses are red *in virtue of the fact that* London buses are of shade *R*.

Philosophers understand grounding in different ways; I focus on the following view. Grounding gives reality its structure.[15] To be a fundamental fact is to be ungrounded, i.e. a terminal node in the structure.[16] Metaphysical explanation is tied to grounding: to metaphysically explain p is to say what grounds p.[17] According to grounders, the puzzle from §1 concerns *what grounds the fact that* [every quark is within 100m of another], etc.

According to 'fitting' frameworks, a metaphysical theory for p explains, ultimately in terms of how things are fundamentally, why *a representation* that p is apt or not, how well

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[15] Wilson (2018) argues that grounding should be rejected in favour of a variety of worldly determination relations, such as identity, functional realization, part–whole, etc. In Wilson's terminology: those 'small-g' grounding relations make 'big-G' Grounding otiose. (Thompson (2019) takes a related view.) This makes no difference to the topic of this paper: no worldly determination relation holds between φφ and the absence of further individuals and property-instances.

[16] Schaffer (2009: 353; 2016: 49–51); Rosen (2010: 112); Audi (2012: 710); Dasgupta (2014: 536); Raven (2016: 613); Bennett (2017: chapter 5). Fine (2001, 2012) understands fundamentality differently—see below.

[17] Some say that Q, R, S and T metaphysically explaining p just is their grounding p. (Fine, 2001: 15; Dasgupta, 2014: 558, 2017: 75). Others says that the explanatory relationship is 'backed by' the grounding relationship (Audi, 2012: 687–8; Schaffer, 2016: 58, 83–5, 89–90; deRosset, 2023: 5–15, 180–1, 191–3). The latter view sits better with the thought that grounding is worldly but explanation is epistemic. Wilson (2018: 504–5), Thompson (2019), and Maurin (2019) claim that this combination is poorly motivated, but I am not convinced by their arguments.

It is not always clear that a true grounding claim explains. Grounding qualia in physical states should leave an 'explanatory gap', says Wilson (2018: 505). One may still be puzzled about the existence of sets, even granting that a set is grounded in its members (Cameron, 2022: 109–119). In an infinitely descending chain of grounds, no fact is really explained, says Cameron (2022: chapter 5). Thus one might suggest that, while φφ do not *explain* negations and universal generalizations, they do *ground* them. That grounding-claim is not plausible: surely the qualities and physical relations of quarks $q_1, q_2,…, q_n$ do not make it the case that there are no further quarks.

it 'fits' reality (hence the name).[18] Frameworks of this kind will differ on the representational entities they concern, and how they conceive of the relevant aptness of a representation. Our working example of a fitting framework will be the 'truth-explaining' approach. In the 'truth-explaining' framework, a metaphysical theory for *p* explains, ultimately in terms of how things are fundamentally, why the proposition that *p* is true/false. This particular fitting framework takes propositions to be the relevant representational entities, and takes truth to be the relevant kind of aptness for propositions. Let's use angled brackets to denote propositions. A truth-explainer's metaphysical theory for *London buses are red* might say:

> (2) The proposition <London buses are red> is true because: London buses are of shade *R*.

It is not a fundamental fact that London buses are of shade *R*; but as long as we can explain the truth of *that* proposition in more fundamental terms, and so on till we hit the fundamental facts, then we have explained the truth of <London buses are red> 'ultimately' in terms of how things are fundamentally. We should not require all metaphysical explanations to appeal directly to the fundamental facts, because such explanations typically don't deliver understanding. For example, an account of why <London buses are red> is true, in terms of what certain quarks are up to, leaves us baffled (though it may be correct). We should also permit illuminating metaphysical explanations, like (2), that merely take us closer to the fundamental facts.

Truth-explainer frameworks are familiar in the literature, though they typically assume that the truth of propositions will always be explained directly in terms of the fundamental facts. Robbie Williams (2010, 2012) and Ross Cameron (2008, 2010) take this view. Relatedly, Ted Sider (2011: 112–124) holds that metaphysical theories for non-fundamental matters take the form of a 'metaphysical semantics', which gives truth-conditions for the relevant sentences in fundamental terms. A 'toy' metaphysical

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[18] I'm leaving it open for now whether fitters' ultimate metaphysical explainers should be φφ, or that [φφ are the facts-in-reality]. I will argue for the latter view.

semantics, which gives truth-conditions in non-fundamental terms, may be suggestive, but it is not the real thing (Sider, 2011: 116–8). Armstrong (1997: 115, 2004: 5–7) holds that metaphysical theories for non-fundamental matters explain how 'states of affairs' make the relevant propositions true. 'States of affairs' are his versions of fundamental facts.

I favour another fitting framework (Jackson, 2016, 2019). Unlike truth-explaining, it is designed so that metaphysical theories can characterize vagueness and relativity. My approach assesses judgements, states of suspending judgement, and combinations thereof. Aptness comes in degrees (that's part of the story about vagueness), and what it is apt to judge can vary between people (that's relativity). Aptness is not truth, on this approach. Because it treats vagueness and relativity nicely, my fitting view is preferable to grounding and truth-explaining views. I yearn to tell you more, but will restrain myself. Truth-explaining will be our working example of a fitting framework. It is inferior to my alternative, but for reasons that make no difference to what follows,[19] and it has the virtue of being familiar. According to truth-explainers, the puzzle from §1 concerns why the proposition <every quark is within 100m of another> is true. That's what needs explaining in fundamental terms.

Grounders and fitters differ in how they conceive of the fundamental facts; they refine that proto-theoretical notion differently. They differ over whether the non-fundamental facts are just as metaphysically 'real' as the fundamental facts. Let me explain.

Fitters hold that only the fundamental facts are metaphysically 'real'—we can call them the 'facts-in-reality'.[20] That is, metaphysical reality contains only the fundamental facts, and representations answer to *them*.[21] A representation of some non-fundamental matter does not answer to a corresponding non-fundamental fact. For example, the proposition <London buses are red> does not answer to the fact that they are red, according to (2). That can only be because facts about what's red are not metaphysically

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[19] Footnotes 25 and 29 identify places where things go even smoother given my fitting framework.

[20] The terminology is Fine's (2001).

[21] Explaining how representations answer to the fundamental facts can be a matter of chaining together explanations that do not appeal to the fundamental facts until the last step, I suggested above.

'real'; they are not facts-in-reality. Until we get down to fundamental matters, truth-explaining metaphysical theories explain *away* the metaphysical reality of the relevant facts.

By contrast, grounders hold the grounded facts to be just as real as the ungrounded facts. Grounding structures reality, so reality contains fundamental and non-fundamental facts, on this picture. Grounders can put grounded and ungrounded facts on a metaphysical par by asserting that they are all facts-in-reality, or by rejecting that notion.[22]

Unfortunately, while most metaphysicians who use the word 'grounding' hold the picture just described, some do not. Notably, Kit Fine (2001, 2012) holds that 'grounded' facts are typically *not* facts-in-reality.[23] What others explain, Fine explains *away*. I find it unhelpful to assimilate such different conceptions under the banner of 'grounding'. The metaphysical pictures are too different. I will reserve the label 'grounding framework' for views on which the grounded is just as real as the ungrounded.[24]

3. THE ULTIMATE METAPHYSICAL EXPLAINER IS NOT AMONG THE FACTS-IN-REALITY

Let's see how fitters can keep the fundamental facts—conceived of as the facts-in-reality—logically simple and positive. We will assume a truth-explaining framework. '$\varphi\varphi$' is our label for the facts-in-reality.

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[22] Grounders who hold that the non-fundamental is just as real as the fundamental include: Schaffer (2009: 360), Rosen (2010: 114), Audi (2012: 101−102) and Bennett (2017: 4, 135, 216).

[23] I am not sure that Fine's picture is coherent, unless it is a fitting framework in disguise; but let's not get into that.

[24] deRosset (2023: chapter 6) agrees that if p is grounded, then p is a fact-in-reality: he says that grounding p precludes 'conciliatory irrealism' about p. But, he argues, one can use the notion of grounds to give a metaphysical theory for p that does not ground p itself, and so does not entail that p is a fact-in-reality. The idea is to ground the existence of sets of fundamental facts, and sets of such sets, etc., and have these sets stand in for non-fundamental facts. I reserve the label 'grounding framework' for views that ground the non-fundamental facts, unlike deRosset's suggestion.

Truth-explainers should admit that there is a thin sense of 'because' in which <*p*> is always true 'because' *p*. That is not the sense of 'because' they use to frame their theories. In their metaphysically meaty sense of 'because', it is only in special cases that <*p*> is true because *p*. For instance, <London buses are red> is true because$_{\text{metaphysical}}$ they are of shade R, not because$_{\text{metaphysical}}$ they are red.[25] Let's consider what happens in the special cases where metaphysical explanation hits bedrock. Define:

p is *an ultimate metaphysical explainer* =$_{\text{def}}$ <*p*> is true because: *p*.

Ultimate metaphysical explainers lie at the bottom of every chain of metaphysical explanation, according to fitters. To illustrate, suppose that <London buses are red> is true because: they are of shade R. But <London buses are of shade R> is true because of facts about how the human visual system reacts to those buses. And so on, till we hit bedrock—ultimate metaphysical explainers.

The notion of an ultimate metaphysical explainer is one way to refine the intuitive notion of a 'fundamental fact'. It is defined in terms of a primitive theoretical notion of the fitting framework, namely the metaphysical explanation for the truth of a proposition. I suggest fitters take some facts being 'the facts-in-reality' to be another primitive theoretical notion. The facts-in-reality are thus a second refinement of 'the fundamental facts'. With these two refinements of the notion of 'the fundamental facts', fitters have the degree of freedom needed to make the following proposal.

(PROPOSAL) That [φφ are the facts-in-reality] is an ultimate metaphysical explainer, but is not itself among the facts-in-reality; it is not one of φφ.

The facts-in-reality correspond to the intuitions about what God had to do to create the world (modulo footnote 3). The facts-in-reality are logically simple and positive facts concerning fundamental physical objects, quantities, and relations (say). They do not

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[25] My fitting framework (Jackson, 2016, 2019) further separates thin explanations of truth from metaphysical explanations of aptness. Aptness is not truth, on my view, so the explananda differ.

concern which facts are the facts-in-reality. Still, that [φφ are the facts-in-reality] is explanatory bedrock. That is, <φφ are the facts-in-reality> is true because: φφ are the facts-in-reality. It is an ultimate metaphysical explainer.

I suggest we take 'being the facts-in-reality' as a primitive notion of our metaphysical theory. There is precedent for taking a notion in the vicinity of fundamentality to be a theoretical primitive. Fine (2001) takes the notion of a fact-in-reality as a theoretical primitive. Sider takes as primitive a sub-propositional element's being 'structural' (2011: 8–10). My suggestion is of a sort that's de rigeur. More importantly, there is nothing wrong with it. Metaphysical theories can introduce primitive theoretical notions, because they are theories. One cannot demand that a theory use only notions that one grasped antecedently (say because they are commonsensical). For example, a theory of the behaviour of matter can introduce the theoretical notions of being a proton, and of being positively charged. Theoretical notions are explained by explaining the theories in which they appear. In the case at hand, the notion of the facts-in-reality glosses intuitions about what God had to do to create the world; and the PROPOSAL relates the facts-in-reality to metaphysical explanation, which itself glosses certain intuitions. We understand the theory by understanding how it captures the relevant intuitions and how its claims relate to each other. We understand the theory's primitive notions by understanding the theory. A philosopher may announce that they do not to understand the theory, but that should not deflect those of us who do.

Let's check that [φφ being the facts-in-reality] explains the truth of the troublesome universal generalizations from §1, and then consider the troublesome negations. In my view, <every quark is within 100m of another> is true because: φφ are the facts-in-reality. That explanation is plausible because quarks can only exist fundamentally. More precisely: for there to be true propositions about a particular quark, that quark must feature in the facts-in-reality. Quarks differ from non-fundamental objects, like tables, in this regard. Propositions about a particular table can be true even though that table does not feature in the facts-in-reality. Quarks are not like that. That's a truth about the right 'fitting' metaphysical theory for propositions about quarks. If the facts-in-reality feature n quarks, the situation is not well described by <there are n+1 quarks>. So <the quarks that feature in φφ are *all* the quarks> is true, because φφ are the

facts-in-reality. That [φφ are the facts-in-reality] also settles that the truth of <every quark that features in φφ is within 100m of another quark that features in φφ>. Hence that [φφ are the facts-in-reality] settles the truth of <every quark is within 100m of another>.

The same move allows us to explain the truth of the troublesome negations. For spacetime point *a* and alien field value property F_v, why is $<\neg F_v a>$ true? I resist the answer that $\neg F_v a$ is among the facts-in-reality. Rather, $<\neg F_v a>$ is true because: φφ are the facts-in-reality. φφ are the facts-in-reality—that completely characterizes how things are fundamentally. $F_v a$ is not among φφ. That's a world it is apt to describe as: $\neg F_v a$. This explanation is plausible because $F_v a$ can only obtain fundamentally. More precisely: for $<F_v a>$ to be true, that $[F_v a]$ must be among the facts-in-reality. That's a truth about the right 'fitting' metaphysical theory for $<F_v a>$. Hence that [φφ are the facts-in-reality] settles that $<F_v a>$ is false, and $<\neg F_v a>$ is true.

There is no difficulty in explaining why $<\neg p>$ is true, when $<p>$ could be true without *p* being among the facts-in-reality. For then, the truth of $<\neg p>$ can be explained in the same kind of way as the truth of $<p>$ would be. For example, the arrangement of quarks in a region explains why it is true that <the region does not contain a table>.

Fitting frameworks refine the notion of fundamentality into two: the facts-in-reality, and the ultimate metaphysical explainers. The intuition that the 'fundamental facts' are particular, logically simple and positive must be disambiguated. It is a correct claim about the facts-in-reality: they are particular, logically simple and positive. They are what God had to put in place to create the universe.

What about the ultimate metaphysical explainer I posit? That [φφ are the facts-in-reality] is partly negative: it concerns the absence of anything more from fundamental reality. That is unobjectionable. Is that ultimate metaphysical explainer logically simple, or is it quantificational? As I will explain (§§5–6), there are different analyses of 'φφ are the facts-in-reality'. Whether we have plausibly identified an ultimate metaphysical explainer depends on its logical form. But first let's address an urgent objection to the PROPOSAL. The view will emerge more strongly motivated.

4. IN WHAT SENSE IS THE FUNDAMENTAL COMPLETE?

That [φφ are the facts-in-reality] is not itself one of the facts-in-reality; it is not among φφ. So in my view, the ultimate metaphysical explainer is not itself one of the facts-in-reality. One might object that this is incompatible with THE COMPLETENESS SLOGAN.

> (THE COMPLETENESS SLOGAN) *How things are fundamentally* ultimately metaphysically explains the truth-values of all propositions.

This slogan adapts a compelling thought to the truth-explaining fitting framework.[26] It rules out views of fundamental reality that are too stingy to account for non-fundamental matters. (We may allow exceptions for truths that make no demands of the world, and thus do not need explaining in terms of how the world is fundamentally; but let's not get into that.)

Allegedly, fitting frameworks must interpret THE COMPLETENESS SLOGAN as follows.

> (THE COMPLETENESS OF THE FACTS-IN-REALITY) Facts-in-reality—φφ and sub-pluralities of them—ultimately metaphysically explain the truth-values of all propositions.

If that's right, then my PROPOSAL is mistaken. If [φφ are the facts-in-reality] is an ultimate metaphysical explainer, then it would itself be among the facts-in-reality.

I reply: fitting frameworks should not interpret THE COMPLETENESS SLOGAN that way. THE COMPLETENESS OF THE FACTS-IN-REALITY is mistaken: φφ don't explain the correctness of a universal generalization. Instead, fitters should read THE COMPLETENESS SLOGAN as follows.

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[26] The slogan is in the spirit of Sider's 'completeness' principle (Sider, 2011: 105–6, 115–6; 2020: 40).

(THE COMPLETENESS OF THEIR BEING THE FACTS-IN-REALITY) That [φφ are the facts-in-reality] ultimately metaphysically explains the truth-values of all propositions.

That φφ are the facts-in-reality says 'how things are fundamentally', and that's what ultimately metaphysically explains all the truth-values, according to this principle. Hence it respects THE COMPLETENESS SLOGAN. The picture remains that our metaphysical explanations ultimately appeal to how reality fundamentally is.

Given THE COMPLETENESS OF THEIR BEING THE FACTS-IN-REALITY, that [φφ are the facts-in-reality] is an ultimate metaphysical explainer, without any need for it to be among the facts-in-reality. No other claim is afforded this status—the case is unique. Far from refuting my proposal, THE COMPLETENESS SLOGAN—correctly understood— explains the special treatment of the fact that [φφ are the facts-in-reality]. THE COMPLETENESS SLOGAN motivates my PROPOSAL.

Unfortunately, 'fitting' is sometimes conceived in a way that implies THE COMPLETENESS OF THE FACTS-IN-REALITY (the bad view). It is tempting to think that only something worldly can *make* representations true: *the world* must *generate* the truths. The facts-in-reality themselves must make propositions true, or so it seems. Call this the 'truth-generator' conception of how representations fit fundamental reality. Armstrong's truth-maker view is in this vicinity: he holds that ontologically basic, worldly states of affairs make representations true (Armstrong, 1997: 115, 2004: 5–7).

The truth-generator conception is unattractive. On that view, facts-in-reality 'generate' the truth of propositions. But why would that be the only thing they generate? Why would φφ generate the fact that [<there are tables> is true], but not the fact that [there are tables]? No principled position treats those cases differently. The generation of truths is only plausible in a more general fact-generator framework—that is, in a grounding framework.[27] A grounding framework is not a fitting framework: it explains why there are tables, and so must say that <there are tables> is true because of that fact.

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[27] Trogdon (2020) reviews work on how truth-making relates to grounding.

So fitters should deny that metaphysical explanations say how worldly facts generate facts about which propositions are true.

Instead, I suggest we take an 'explanation-centred' conception of fitting. An explanation-centred conception takes as primary formulations like: '<*p*> is true *because qq*'.[28] For example, we might eschew claims about 'what makes' propositions true. Alternatively, we might take claims about 'what makes' propositions true simply to rephrase the 'because' claims, or to answer to the needs of metaphysical explanation in some other way. (Compare: Dasgupta (2017: 75) and Kovacs (2022) take explanation-centred views of grounding.) There are no facts-in-reality about how representations fit reality, so it does not seem too anthropocentric to orient 'fitting' metaphysical theories around our explanatory needs.[29] Once we ditch the truth-generator conception of fitting for an explanation-centred conception, we are free to endorse THE COMPLETENESS OF THEIR BEING THE FACTS-IN-REALITY.

5. SINGULAR AND COLLECTIVE ANALYSES OF "φφ ARE THE FACTS-IN-REALITY"

I proposed that [φφ are the facts-in-reality] is an ultimate metaphysical explainer. That's plausible because THE COMPLETENESS SLOGAN can be glossed as THE COMPLETENESS OF THEIR BEING THE FACTS-IN-REALITY. But we aren't out of the woods yet. As we shall see in this section, there are different views of the logical form of "φφ are the facts-in-reality". In the next section, I will argue that the 'singular' analyses undermine the plausibility of my proposal, but the 'collective' analysis bolsters it.

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[28] Sider's 'metaphysical semantics' just supplies a material biconditional linking the truth of the target sentence with a condition on fundamental reality (2011: 113 esp. n. 9). Rejecting the generative conception does not commit us to quite so thin a view of metaphysical explanation.

[29] On my fitting framework, metaphysical theories explain a normative status of people's judgements. For example: it is apt for you to judge that London buses are red, because they are of shade *R*. The framework is hospitable to expressivist-inspired treatments of normativity. This suggests an expressivist-inspired treatment of the metaphysical theories I propose. That's as far as you can get from thinking that metaphysical explanations track how the world 'generates' the explananda.

'Singular' views analyse "φφ are the facts-in-reality" using the singular notion of *a fact-in-reality* (Fine 2001: 26, 28). We'll look at two such analyses. First, the 'quantificational' proposal analyses 'φφ are the facts-in-reality' as: $\forall p(p$ is a fact-in-reality $\leftrightarrow p$ is among φφ). So on the singular quantificational version of my proposal, $[\forall p(p$ is a fact-in-reality $\leftrightarrow p$ is among φφ)] is an ultimate metaphysical explainer.

The second singular analysis is loosely inspired by Armstrong's view (1997: 199–200, 2004: 72–5). The proposed logical form is that: φφ 'totalize' or 'are the extension of' the property of being a fact-in-reality. Analogously, some birds 'totalize' or 'are the extension of' the property of being a swan. (On the latter way of talking, 'extensions' are pluralities, not sets.) On this 'totalizer' analysis, the alleged ultimate metaphysical explainer is: Extension(φφ, being a fact-in-reality). This is a 'singular' analysis in the sense that it uses the singular notion of being a fact-in-reality; being the extension of that property is a collective business, of course.

The alternative to singular analyses is a 'collective' analysis of 'φφ are the facts-in-reality'. This is the view I endorse. This approach takes as primary a plural predicate, of some facts being the facts-in-reality, not the singular notion of one fact being *a* fact-in-reality. The primary notion is a predicate that applies to exactly one plurality of facts. Here are some other examples of plural predicates that apply uniquely.

Abbie and Bert lifted the piano. Each of them 'helped to lift' the piano, but it is not the case that Abbie lifted the piano, and it is not the case that Bert lifted the piano. (At least, the expression "lifted the piano" can be used this way.) Because Abbie and Bert lifted the piano, no-one else helped to do so (on the relevant occasion). It is true that: $\forall xx(xx$ lifted the piano $\leftrightarrow \forall y(y$ helped to lift the piano $\leftrightarrow y$ is among xx)). I assume that this condition serves to define the singular notion of helping to lift the piano, in terms of the more fundamental plural notion of (jointly) lifting the piano, not vice versa. Similarly, Russell and Whitehead authored *Principia Mathematica*; they are *the* authors of *PM* (Oliver & Smiley 2016: 3, 116–9, 131–3). Ninety-eight stones compose Avebury Stone Circle. No stone itself composes the circle. Maybe the atoms in the stones also *compose Avebury Stone Circle*, but they are not *stones that compose Avebury Stone Circle*. Those ninety-eight stones are *the* stones that compose Avebury Stone Circle. Two people *jointly* lifted the piano, on a certain occasion; two logicians *jointly* authored *PM*; ninety-eight things *jointly* are stones

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that compose Avebury Stone Circle. No other pluralities satisfy those predicates. Analogously, certain facts *jointly* are "the facts-in-reality".

On the collective analysis, the primary notion of fundamentality is a plural *predicate*. "φφ are the facts-in-reality" analysed as: $\Re\varphi\varphi$, where "$\Re$" is a higher-order plural predicate that applies only to φφ. $\Re\varphi\varphi$ can also be glossed as: φφ are fundamental reality. It is true that: $\forall pp(\Re pp \leftrightarrow \forall q(q$ is a fact-in-reality $\leftrightarrow q$ is among $pp))$. On the collective view, this condition serves to define the singular notion of being a fact-in-reality in terms of the plural predicate "$\Re$", not vice versa.

The proposed ultimate metaphysical explainer is that $\Re\varphi\varphi$, not that: $\forall pp(\Re pp \leftrightarrow pp = \varphi\varphi)$. That's a different and inferior view. $\Re\varphi\varphi$ is not a quantificational fact. Still, it is not accidental that $\Re$ applies to at most one plurality of facts. It is in the nature of the property. Similarly, it is not accidental that at most one plurality are *stones that compose Avebury Stone Circle*; it is in the nature of the property. That *ss* are stones that compose Avebury Stone Circle settles that no other stones do so, without help from further facts. That Abbie and Bert lifted the piano settles that (on the relevant occasion) no other people did. Similarly, $\Re\varphi\varphi$ settles that no other facts jointly satisfy $\Re$. That is, $<\forall pp(\Re pp \leftrightarrow pp = \varphi\varphi)>$ is true because: $\Re\varphi\varphi$.

6. IN FAVOUR OF THE COLLECTIVE NOTION OF THE FACTS-IN-REALITY

Which analysis of [φφ's being the facts-in-reality] yields the most plausible ultimate metaphysical explainer? In my view, it's the collective analysis. I'll explain why the collective analysis yields an attractive version of my proposal, and then argue that the two singular analyses do not.

In fitting frameworks, explanation comes to an end with cases where $<p>$ is true because: p. These are the 'ultimate metaphysical explainers'. It is natural and unmysterious for metaphysical explanation to come to an end with basic predicative claims about what's fundamental. For singularists, those are claims of the form: p is a fact-in-reality. There is no mystery as to why those claims would be ultimate metaphysical explainers. But that [φφ are the facts-in-reality] is a different sort of claim, given

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singularism. So singularists face a difficulty in adopting my proposal. They must explain why that [φφ are the facts-in-reality]—analysed in one of the two ways we saw in §5—is another kind of ultimate metaphysical explainer. Collectivists do not face this challenge. According to the collective conception, basic predicative claims about what's fundamental are of the form: ℜφφ. So it is natural and unmysterious for [ℜφφ] to be an ultimate metaphysical explainer. It is no more mysterious than "*p* is a fact-in-reality" being an ultimate metaphysical explainer given singularism. Thus the collective analysis makes it natural and unproblematic that "φφ are the facts-in-reality" is an ultimate metaphysical explainer.

Neither singular analysis of "φφ are the facts-in-reality" yields a plausible ultimate metaphysical explainer. Start with the quantificational analysis. Is it plausibly an ultimate metaphysical explainer that: $\forall p(p$ is a fact-in-reality $\leftrightarrow p$ is among φφ)?[30] No—surely metaphysical explanation does not come to an end with the facts-in-reality meeting a complex condition like that. The facts-in-reality meet that complicated condition because they are what they are. To feel the intuition, consider a rival view, according to which (‡) is an ultimate metaphysical explainer.[31]

> <Every quark is within 100m of another> is true because:
> (‡) $\forall$x(if it is a fact-in-reality that x is a quark, then $\exists D\exists y$((D is a distance relation of less than 100m) & (it is a fact-in-reality that y is a quark) & (it is a fact-in-reality that Dxy))).

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[30] The following objection can be answered. [$\forall p(p$ is a fact-in-reality $\leftrightarrow p$ is among φφ] is made true partly by: [*New York is a city* is not a fact-in-reality, and is not among φφ]. An ultimate metaphysical explainer should not quantify over non-fundamental facts like *New York is a city*. Solution: re-state the proposal using binary quantifiers (Westerståhl, 2016). [Every fact-in-reality is among φφ] is not a claim about every proposition, but only about the facts-in-reality. It is not even partly made true by anything about New York's being a city. Similarly for [each of φφ is a fact-in-reality].

[31] The proposal is inspired by Williams (2012: §3.2).

None of the quantifiers in (‡) appears within the scope of a 'fact-in-reality' operator. Thus the proposal apparently accounts for the truth of <every quark is within 100m of another> by appeal only to non-quantificational facts-in-reality. But it sacrifices the idea that metaphysical explanation should bottom out in the specific nature of how things are fundamentally. Surely metaphysical explanation does not come to an end with the facts-in-reality meeting some complex condition like (‡). The facts-in-reality meet that complicated condition because they are what they are, i.e. because φφ are the facts-in-reality.

If (‡) is not an acceptable ultimate metaphysical explainer, then neither is: [∀p(p is a fact-in-reality ↔ p is among φφ)]. No plausible criterion separates them. Both proposals posit logically complex ultimate metaphysical explainers. Reflecting on (‡) suggests that metaphysical explanation comes to an end with the specific nature of fundamental reality, not with the facts-in-reality meeting a complex condition. The singular quantificational proposal fails this requirement. The collective proposal passes the test. On that view, metaphysical explanation comes to an end, not with a complex condition on the facts-in-reality, but with ℜφφ.

The totalizer analysis is also unsatisfactory. While the collective view uses a predicate and the plural term 'φφ', the totalizer view uses a predicate, the plural term, *and* the notion of totalizing a property (i.e., being its extension). The added logical complexity is not a benefit, and creates a problem. The totalizer explains the absence of further facts-in-reality on the basis that φφ are the extension of that property. Does this account generalize to other singular properties? Surely not. It is not plausible that: <I am not a swan> is true because certain other creatures are the extension of swanhood. My not being a swan is part of what explains the extension of swanhood, not vice versa. But if the account does not generalize, then the totalizer's account is objectionably ad hoc. They appeal to extensions to explain why there are no other facts-in-reality, but refuse to give the same account of why there are no other swans. Totalizers cannot explain why these cases would differ.

By contrast, collectivism says that by nature, fundamentality is collective and uniquely jointly instantiated, like lifting a piano, etc. That's why ℜφφ settles that there no further facts-in-reality. Being a swan is different: it is a singular not collective matter, let

alone uniquely jointly instantiated. So it is not ad hoc for collectivists to give a different kind of explanation for <I am not a swan>. In sum, the collective analysis yields the most attractive version of my proposal.

7. THE COLLECTIVE ANALYSIS TAKES A HOLISTIC VIEW OF FUNDAMENTAL REALITY

The collective conception of the facts-in-reality takes a holistic view of fundamental reality. On the collective conception, the facts-in-reality all come together in one go. God performed one act of creation, creating *them*. The picture is not that first each of φφ obtains, and then they do something special together. Rather, obtaining in the metaphysically load-bearing sense is a collective business. The collective version of my proposal implies that [φφ being the facts-in-reality] is *the only* ultimate metaphysical explainer. It lies at the bottom of every chain of metaphysical explanation, for on the collective conception, what's primary is the nature of fundamental reality as a whole. That's where metaphysical explanation should come to an end. This section addresses two challenges and one competitor to the collective version of my proposal.

First a challenge. Allegedly, facts are constituted by the things they concern, but the collective conception must deny this. Constituents constitute, and are thus explanatorily more fundamental than what they constitute, let's grant.[32] So if each one of φφ is a constituent of [φφ's being the facts-in-reality], then each one of φφ is explanatorily more fundamental than [φφ's being the facts-in-reality]. That's incompatible with the collective proposal, according to which explanation comes to an end with the nature of fundamental reality as a whole. Collectivists should deny that facts are 'constituted' by the things they concern. Is this a cost?

Talk of the 'constituents' of facts rules out other attractive views too. For example, it rules out structuralism about points of spacetime. Structuralism denies that the points are metaphysically prior to the facts about their spatio-temporal relationships. But if the points concerned are constituents of those spatio-temporal facts, then the points are prior.

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[32] Another reply: facts have parts, but facts are explanatorily more fundamental than their parts (cf. Schaffer 2010b).

Talk of facts being constituted by constituents is only appealing if we reify facts, and that's not a metaphysically perspicuous way of talking, in my view. For example, I feel no draw to assert that Quentin partially constitutes Quentin's being a quark. We don't need to reify facts to ask, how are things fundamentally? As I explained in §1, I take as primary non-reified talk, like *Quentin is a quark*; reified talk of facts is just a means of stating generalizations. Instead of talking of the 'constituents' of facts, we can talk harmlessly of what a fact 'concerns'. (Talk of 'the facts-in-reality' is not meant to be reifying; it may be better to gloss the plural predicate by saying that φφ 'are fundamental reality'.)

Let's move on to the second challenge. One might object to how I explain the truth of <ψ>, when ψ is one of φφ. Given the collective conception, <ψ> is true because: φφ are the facts-in-reality. Informally: <ψ> is true because it corresponds to part of how reality fundamentally is. One might object that the other facts-in-reality are irrelevant to explaining why <ψ> is true, and so the explanation should not invoke all the facts-in-reality. The collective conception may seem excessively holistic in this respect.

I reply in two stages. First, the collective conception largely accommodates the anti-holistic intuition. An analogy brings out why. Abbie and Bernie lifted the piano, and for their work, each was paid. Lifting the piano was something Abbie and Bernie did together, and that plural notion should not be analysed in terms of the singular notion of helping to lift the piano. Consider two *causal* explanations of why Abbie got paid.

    (i) Abbie got paid because: Abbie is among the people who lifted the piano.
    (That is, because: ∃*xx*(Abbie is among *xx* and *xx* lifted the piano).)

    (ii) Abbie got paid because: Abbie and Bernie lifted the piano.

Both of these explanations are legitimate. They have different strengths. The first does not bring in the seemingly irrelevant fact that Bernie was the other piano lifter, which is an advantage over the second explanation. But the second explanation has the more fundamental explanans: Abbie is among the people who lifted the piano *because* Abbie and Bernie lifted the piano. There is no way to combine these virtues. You just have to pick

the explanation best suited to your current needs. If you are interested in what it is about this piano-lifting—compared with other things that could have happened—that is responsible for Abbie getting paid rather than not, then give explanation (i). If you are interested in the causal chain leading to Abbie getting paid, the actual history, then give explanation (ii).

The situation is similar when explaining why <Quentin is a quark> is true, when that [Quentin is a quark] is one of the facts-in-reality. Consider the following two metaphysical explanations.

> (I) <Quentin is a quark> is true because: that [Quentin is a quark] is among the facts-in-reality.
>
> (That is, because: $\exists pp$(that [Quentin is a quark] is among pp and pp are the facts-in-reality).)
>
> (II) <Quentin is a quark> is true because: $\varphi\varphi$ are the facts-in-reality (where [Quentin is a quark] is among $\varphi\varphi$).

In my view, both are legitimate metaphysical explanations. The former is not directly in terms of the ultimate metaphysical explainer, but in general that's OK (§2), and I see no special reason to object here. As when explaining Abbie's payment, the two explanations have different virtues, which cannot be combined. You have to choose—depending on your explanatory interests—between a less fundamental explanans, or a more fundamental explanans which includes irrelevant details. In some explanatory contexts, (II) will be inferior to (I). That's predictable given the collective conception, so is not evidence against it.

It remains mildly surprising that <Quentin is a quark> is true because: $\varphi\varphi$ are the facts-in-reality. Still, we should not dismiss mildly surprising metaphysical theses when there are serious arguments for them. There are several important arguments for holism, in addition to that given in this paper. First, quantum entanglement may imply that fundamental reality comes "all together in one go" (Schaffer, 2010b: 50–55). Second, 'structuralism' about the points of spacetime is attractive: in some sense, the identity of a

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point consists in its spatiotemporal relations to the other points. Maybe the best version of structuralism holds that the existence of the points, and the spatio-temporal relations between them, "come together in one go". Other objects, properties and relations will be part of the package too, if they are equally fundamental. That is, fundamental reality comes "all together in one go". Third, I defend a view worthy of being called 'structuralism about all fundamental objects' (Jackson, MS). We should not posit substantive facts about which individuals are playing which roles in the qualitative structure, because such facts make no difference to anything else (Dasgupta, 2009). My structuralism about fundamental individuals is designed to avoid positing these explanatorily idle facts. The view assumes a holistic view of fundamental reality. In sum, there are several serious arguments for holism. We cannot adjudicate its ultimate plausibility by noting one mildly surprising consequence. The judgement must be…holistic.

Finally, let's compare my proposal to another way holism may be understood. Given the collective conception of the facts-in-reality, holism is built into the very notion of fundamentality. By contrast, Jonathan Schaffer formulates holism as a monistic claim using a neutral notion of fundamentality. Schaffer's 'priority monism' (2010a, 2010b) says that the cosmos—spacetime itself—is the only ungrounded entity. That's a holistic view, formulated in his grounding framework (Schaffer, 2009, refined in Schaffer, 2016). It's another way to capture the vibe that fundamental reality comes all together in one go.

Can monism replace the collective conception of the facts-in-reality, doing the same work in keeping the fact-in-reality logically simple? Schaffer (2010a: §IV) suggests something like this, though we will work in a fitting framework. Let 'monism' be the view that there is only one fact-in-reality, and let's start by formulating it using the singular notion of *a fact-in-reality*, which is inherently neutral on the matter of holism. This form of monism does not keep the fact-in-reality logically simple. First, note that the alleged solitary fact-in-reality does not itself explain universal generalizations, because it does not imply that there is nothing more to fundamental reality. For example, suppose that [c is F] is the only fact-in-reality, where c is a region that is in fact the whole of spacetime, and F denotes the exact way c is. That [c is F] does not settle that there are no regions of spacetime outside c. So [c is F] does not settle that every quark is within 100m of another

one.[33] What *would* explain the truth of <every quark is within 100m of another one> is that: [c is F] is the only fact-in-reality.[34] But now the reasoning parallels §6. Surely metaphysical explanation does not come to an end with: $\forall p(p$ is a fact-in-reality $\leftrightarrow p = $ [c is F]). On the best view in the vicinity, the ultimate metaphysical explainer is that: $\mathfrak{R}_1$[c is F], where '$\mathfrak{R}_1$' is a predicate of facts, and it is in the nature of $\mathfrak{R}_1$ that it applies to only one fact. The best version of monism uses a conception of fundamentality that bakes in that there can only be one fact-in-reality.

So monism should ditch a neutral conception of fundamentality for an inherently holistic one. In this respect, monism is in the same boat as the collective conception of the facts-in-reality. But then why restrict ourselves to one fact-in-reality? The monist restriction does no work that the collective conception cannot. The collective conception allows us to stick with an attractive view of what the facts-in-reality might be like: quarks and spacetime-points having properties and bearing relations, nothing logically complex. Monism crams all that into one fact-in-reality, and so will be revisionary. So it seems that best form of holism endorses the collective conception of the facts-in-reality, and rejects monism.

8. GROUNDERS CANNOT ADAPT MY PROPOSAL

Grounders cannot adopt my way of keeping the fundamental facts logically simple. Fitting frameworks have two primitive notions, and so two refinements of the notion of the fundamental facts. This allows fitters to formulate my proposal:

> That [φφ are the facts-in-reality] is an ultimate metaphysical explainer, but is not itself among the facts-in-reality.

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[33] One might build into the predicate 'F' that there is nothing more to fundamental reality than what it attributes, but that makes the fact-in-reality concern fundamentality itself, which we are trying to avoid.

[34] Schaffer (2010a) sees that the explainer must be a claim about what's fundamental. He writes, "<there are no dragons> is true at actuality, in virtue of actuality's being the unique actual fundament" (Schaffer, 2010a: 321). Apparently, this posits a fundamental (i.e. ungrounded) fact about which object is uniquely fundamental. That's not my preference.

Grounders only have one primitive notion, namely grounding. They only have one refinement of the notion of the fundamental facts, namely as the ungrounded facts.[35] If something is an ultimate metaphysical explainer, then it is ungrounded, and fundamental in the only sense the framework recognizes. So the closest grounders can come to my proposal is:

That [φφ are the ungrounded facts] is itself fundamental, i.e. ungrounded.

This is Armstrong's ontologically basic 'totality fact' (1997: chapter 13; 2004: chapters 5–6), translated into the idiom of grounds. There are two problems with this proposal.

First, we are trying to avoid fundamental quantificational facts; but that [φφ are the ungrounded facts] is doubly quantificational. ψ's being ungrounded is a matter of there not being some plurality of facts that ground it. In other words, that ψ is ungrounded just is: $\neg\exists pp(pp$ ground $\psi)$. So its being fundamental that [φφ are the ungrounded facts] just is: its being fundamental that [$\forall\psi(\neg\exists pp(pp$ ground $\psi) \leftrightarrow (\psi$ is one of φφ))]. The alleged fundamental fact is quantificational (quantifying over facts and over pluralities of facts). But the point of the exercise was to avoid fundamental quantificational facts. Grounders cannot do so in this manner.

Suppose we set aside that desideratum. Is it plausibly fundamental that [φφ are the ungrounded facts]? No. The fundamental facts are not about fundamentality. The fundamental facts concern fundamental physical objects, quantities, and relations; fundamentality is not one of those. This seems right generally—I deny that any of the facts-in-reality are about what the facts-in-reality are—but it is particularly compelling in the grounding framework. Surely it is not a fundamental matter what grounding relations

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[35] Dasgupta (2014: 575, 583) says that certain principles about grounding are 'autonomous': they are not apt to be grounded or ungrounded. Maybe those principles count as a second kind of a 'fundamental fact'. That's of no help here: that [φφ are the ungrounded facts] is not a principle about how facts are grounded.

hold, let alone what grounding relations don't hold.[36] So it is not fundamental that [φφ are the ungrounded facts].

I conclude that grounders cannot say that [every quark is within 100m of another] in virtue of [φφ being the ungrounded facts], holding that the latter is fundamental. That proposal does not avoid fundamental quantification facts, and is inherently implausible. I doubt that grounders can avoid fundamental quantificational facts by any other means.[37] If that's right, then to keep the fundamental facts logically simple, we must reject the grounding framework in favour of a fitting framework.

9. CONCLUSION

One might have thought that nothing hangs on the choice between the grounding and fitting frameworks, and that there is no good reason to favour one over the other. That is not so. Which metaphysical views are plausible depends on one's meta-metaphysics— one's choice of framework for formulating metaphysical claims. Ted Sider is dead right about that (Sider, 2020 esp. chapter 1; 2011: chapters 5.6 & 9–12). The right meta-metaphysical choices allow us to hold that the fundamental facts are logically simple—for a particular refined notion of the fundamental facts. Assume the grounding framework and the prospects are dim. We need a 'fitting' conception of metaphysical explanation, and to privilege the collective conception of the facts-in-reality.

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[36] This argument pumps intuitions in the vicinity of Sider's 'purity' principle: "fundamental truths involve only fundamental notions" (2011: 106). Remarkably, Sider holds that fundamentality is a fundamental notion (2011: 137–141).

[37] Footnote 8 cites some recent attempts.

audiences of talks at the University of Leeds Centre for Metaphysics and Mind (2020) and Arizona State University (2022).

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