Something from Nothing: Why Some Negative Existentials are Fundamental

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It strikes many as obvious that negative facts—such as that Justin Trudeau is not the prime minister of Australia—are not fundamental: negative facts must ultimately be explained in terms of positive facts (for instance, that Justin Trudeau is the prime minister of Canada). I focus on a particular class of negative facts: contingent negative existentials (such as that there are no 10ft tall humans). If contingent negative existentials are not fundamental, then they must be explained. But the claim that contingent negative existentials are explained is in tension with the widely held view that any universal generalization can be explained by its instances together with a totality fact (i.e. a fact to the effect that the instances exhaust the relevant domain). This is because a totality fact is itself a negative existential, and equivalent to a universal generalization. If the explanation for any contingent negative existential must appeal to another contingent negative existential, then—unless there are no fundamental facts— not all contingent negative existentials can be non-fundamental. I argue that we should give up the age-old mantra that only positive facts can be fundamental. I show that at least some contingent negative existentials are fundamental. I first make the case for including a totality fact in the *explanans* for a contingent negative existential and show that alternative accounts for explaining such facts are inadequate. I then undermine the standard arguments for subscribing to the view that there are no negative facts— including negative existentials—at the fundamental level.

> There is implanted in the human breast an almost unquenchable desire to find some way of avoiding the admission that negative facts are as ultimate as those that are positive.
>
> Bertrand Russell (1919)

When we inquire into the nature of the fundamental, it seems obvious to many that the fundamental facts—those facts in virtue of which all other facts obtain—are all positive. There are good questions about how we ought to characterize the distinction between positive and negative facts, and whether a precise distinction between the two kinds of facts is even possible. But let us say, as a working characterization, that negative facts are about absences or lacks, whereas positive facts are not.[1] Thus, for example, the facts that there are Komodo dragons and that Justin Trudeau is the prime minister of Canada are positive facts, whereas the facts that there are no unicorns and that Justin Trudeau is not the prime minister of Australia are negative facts. The fact that there are no unicorns is about the absence of unicorns, and the fact that Justin Trudeau is not the prime minister of Australia is about a property that Justin Trudeau lacks. The dogma that the world is fundamentally positive can be traced as far back as Parmenides, and to the thought that there is

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[1] See Barker and Jago (2011) for a similar characterization.

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nothing in the world that could possibly correspond to a negation. I argue in this paper that the dogma is mistaken: at least some negative facts *are* fundamental.

To say that some negative facts are fundamental is to say that they are ultimate explainers. This follows from the view on which the fundamental facts are just those in virtue of which the non-fundamental facts obtain, or which explain the non-fundamental facts. The relevant notion of explanation at work here is metaphysical explanation. The fact A metaphysically explains another fact B just in case A *makes it the case* that B. Thus, for example, the fact that my sweater is maroon makes it the case that it is red.

Metaphysical explanation has become closely associated with the notion of ground. Some insist that a single metaphysical dependence relation ('Grounding', with a big 'G'), with a unified set of formal features, backs metaphysical explanation.[2] Others argue that Grounding just is, rather than backs, metaphysical explanation.[3] Opponents of Grounding argue that no single metaphysical dependence relation can play this role, and instead deploy a (formally and substantively) diverse set of metaphysical dependence relations ('grounding relations', with a small 'g').[4] I remain neutral with respect to each of these views about grounding and explanation. In what follows, for convenience I use 'metaphysically explains' (or henceforth just 'explains') interchangeably with 'grounds', with the caveat that these terms should not be used interchangeably in all contexts.

Metaphysical explanation is widely taken to be irreflexive, asymmetric, transitive, and necessitating, though I will not presuppose those formal features here. If a fact is unexplained, it does not obtain in virtue of any other fact, and it will thus qualify as fundamental. It may turn out however that some fundamental facts are explained: perhaps they are explained reflexively, or 'zero-grounded', or symmetrically explained by other fundamental facts, or members of an infinitely descending explanatory sequence of fundamental facts.[5] In what follows, I argue that at least some negative facts are fundamental by showing that they are unexplained.

Negative facts come in many guises. Some negative facts—such as that Socrates does not exist—concern non-existent individuals. Others—such as that Justin Trudeau is not the prime minister of Australia—concern individuals lacking specific properties. Yet other negative facts— such as that there are no unicorns or that there is no greatest prime number—are negative existentials. Of these negative existentials, some are necessary, whereas others are contingent. For example, that there is no greatest prime number is arguably logically necessary, whereas that there are no 10ft tall humans is contingent: metaphysically (or perhaps even just logically speaking), there *could* have been 10ft tall humans. I will focus on contingent negative existentials. This is because, arguably, necessary negative existentials can be explained without requiring a further

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[2] Cf. Schaffer (2012, 2016) and Audi (2012).

[3] Cf. Fine (2001), Litland (2013), and Dasgupta (2014). Wilson (2016a) argues that proponents of such views are guilty of conflating metaphysical explanation—a partly epistemic notion—with metaphysical dependence.

[4] Cf. Wilson (2014) and Koslicki (2015). Wilson argues against both the posited formal features of Grounding and the explanatory utility of positing a single relation to underwrite metaphysical explanation.

[5] See Wilson (2016b, p. 197). Fine (2001) also sketches a view on which each of a sequence of infinitely many explained facts is fundamental (which on Fine's view just is to be part of 'reality'). Fine argues: "Suppose, to take one kind of case, that Aristotle is right about the nature of water and that it is both indefinitely divisible and water through-and-through. Then it is plausible that any proposition about the location of a given body of water is grounded in some propositions about the location of smaller bodies of water (and in nothing else). The proposition that this body of water is here, in front of me, for example, will be grounded in the proposition that the one half is here, to the left, and the other half is there, to the right. But which of all these various propositions describing the location of water is real? We cannot say some are real and some not, since there is no basis upon which such a distinction might be made." (2001, p. 27) Fine concludes that all the various propositions describing the location of water are real, or part of reality, where reality is a primitive notion.

negative existential in their *explanans*: such existentials may be explained by essences or strong laws.[6] For example, what makes it the case that no triangle has four angles is that it is part of the essence of a triangle to have three angles. And for proponents of strong laws, such as many anti-Humeans, what makes it the case that a given (negative) regularity obtains is the fact that a specific law of nature obtains.

What about negative facts that are expressed by sentences that involve empty names or negated predicates? In such cases, the relevant facts either can be straightforwardly explained by positive facts, or are identical to negative existentials, or are such that an explanation for them involves negative existentials in its *explanans*. There is thus no special problem that arises when explaining negative facts that are expressed by sentences that involve empty names, or negative facts that are expressed by sentences that involve negated predicates. Any puzzle that arises in explaining such facts reduces to the more general puzzle of explaining negative existentials. For example, a fact expressed by a sentence involving an empty name—such as that Santa Claus does not exist—can be taken to be a negative existential if 'Santa Claus' is just a definite description, or equivalent to a predicate like *being called 'Santa Claus'*. Likewise, that Justin Trudeau is not the Australian prime minister—a negative fact expressed by a sentence involving a negated predicate—may be explained by the positive fact that Justin Trudeau is the Canadian prime minister and that one cannot be both the Australian prime minister and the Canadian prime minister at the same time, where the latter fact can either be taken to be a modal fact or a negative existential. Moreover, on an Armstrongian view, any subject-predicate sentence implicitly quantifies over properties, such that the sentence 'Justin Trudeau is not the Australian prime minister' says that there is no property which is the property of being the Australian prime minister and which is instantiated by Justin Trudeau. Such an analysis turns every negative fact expressed by a sentence involving a negated predicate into a negative existential.[7]

I proceed as follows. In §1, I discuss motivations and arguments for the view—a view that I ultimately reject—according to which there can be no negative existentials at the fundamental level. In §2, I show that there is good reason to include a totality fact in the *explanans* for any contingent negative existential. But totality facts are themselves contingent negative existentials, which makes it difficult to see how we might be able to avoid positing at least some negative existentials at the fundamental level. As part of my argument for the claim that some negative existentials are fundamental, in §3 I argue against candidate alternative accounts for eliminating the tension between the claim that no negative existential is fundamental and the claim that every negative existential is partially explained by a negative existential. Finally, in §4, I show that the arguments for not positing negative facts—and specifically totality facts—at the fundamental level are inadequate. This completes my case for the view that totality facts are fundamental.

§1 Are Negative Existentials Fundamental?

In *The Philosophy of Logical Atomism*, Russell writes:

> When I was lecturing on this subject at Harvard I argued that there were negative facts, and it nearly produced a riot: the class would not hear of there being negative facts at all. (1940, p. 42)

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[6] See Rosen (2010).
[7] See also Parsons (2006) for detailed discussion of the Armstrongian view.

For Russell, a fact is a worldly entity, a complex made up of constituents. In the context of the passage quoted above, Russell does not draw a distinction between fundamental and less-fundamental facts. Yet if there are no negative facts at all, then *a fortiori*, there can be no fundamental negative facts. But what motivates the general consensus that negative facts—and in particular negative existentials—cannot figure at the fundamental level, a consensus so strong that opposition to it (as Russell reports), nearly produced a riot?

First, one might argue that positing fundamental negative facts violates a version of Ockham's Razor, namely the claim that facts at the fundamental level should not be posited without necessity. Ockham's Razor implies that when given the choice between two ontologies that explain all the same facts at the non-fundamental level, we should prefer the ontology that posits fewer facts at the fundamental level.[8] This version of Ockham's Razor implies that there should be no redundancy at the fundamental level. But negative existentials seem clearly redundant: after God brings about the existence of humans, penguins, sharks, and all the other creatures that populate the earth, did he also have to bring about the non-existence of unicorns and centaurs? Intuitively, 'no': God didn't have to do anything extra to make it the case that unicorns and centaurs don't exist. That unicorns and centaurs don't exist 'comes along for free'. This consideration extends to other types of negative facts. Suppose that God brought about the fact that zebras are mammals. Did God then have to bring about the fact that zebras are not fish? Intuitively, 'no'. The fact that zebras are not fish comes along for free.

Secondly, one might worry that positing negative existentials at the fundamental level risks violating a version of Hume's Dictum, the widely endorsed principle according to which there are no necessary connections between distinct entities. Hume's Dictum underlies recombination, a principle for generating the space of possible worlds. According to recombination, there is a possible world corresponding to any combination of the fundamental entities. Suppose we include facts in the class of fundamental entities. Now suppose that a negative existential—such as the fact that there are no humans over 10ft tall—was a fundamental fact. Then by recombination, there is a possible world *w* where all the same positive facts obtain, yet the fact that there are no humans over 10ft tall does not obtain. But if it is not the case that there are no humans over 10ft tall, then there *are* humans over 10ft tall. So, it turns out that the same positive facts cannot obtain after all. This sort of argument has been taken to support the view that negative existentials cannot figure at the fundamental level.[9]

I argue in §4 that both these arguments against positing negative existentials at the fundamental level fail. I show that at least some negative facts are not redundant, and that the argument from Hume's Dictum rests on a misapplication of that principle. There may be an argument that seeks to show that negative facts cannot be fundamental that I have not canvassed here. But if there is no good argument available, then the intuition that there can be no fundamental negative facts is just that—an intuition. And we should not put much stock in an intuition that cannot be substantiated by argument.

However, let us grant for the sake of argument that negative existentials are not fundamental. How might they be explained? I turn to this question in the next section.

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[8] Schaffer (2009) calls a principle in the neighborhood the "bang for the buck" principle. According to this principle, "[w]hat one ought to have is the strongest theory (generating the most derivative entities) on the simplest basis (from the fewest substances)." (p. 361) Della Rocca (2014), however, argues that Ockham's Razor cannot apply to fundamental entities without also applying to non-fundamental entities.
[9] See Munoz (2019) for a version of this argument.

§2 Explaining Negative Existentials

Negative existentials may be either necessary or contingent. If they are necessary, they may be explained by essences or laws. However, contingent negative existentials cannot be explained in the same way.[10] The worry with respect to contingent negative existentials in particular is that, at least on the face of it, they cannot be explained without appealing to yet another contingent negative existential. And this is problematic because it suggests that contingent negative existentials can never be eliminated from any explanatory sequence of facts that grounds a contingent negative existential. At least on the face of it, this result is in tension with the claim that negative facts—including negative existentials—cannot be fundamental.

If we assume that disjunctions are explained by their disjuncts, then *some* contingent negative existentials are explained by other contingent negative existentials. For example, the fact that there are no humans over 10ft tall at least partially explains the fact that there are no unicorns or humans over 10ft tall. But there is an argument for the stronger result that *every* contingent negative existential is at least partially explained by a contingent negative existential. Suppose for example that F is the predicate 'is a unicorn'. Then we can formalize the claim that there are no unicorns as follows: $\sim\exists x\, Fx$. A negative existential is logically equivalent to a universal generalization. But if we also take a negative existential to be *the same fact as* the equivalent universal generalization (as is standardly supposed), then the fact that $\sim\exists x\, Fx$ is identical to the fact that $\forall x \sim Fx$.[11] The instances of a universal generalization, however, do not entail it unless we fix the domain in advance. For entailment, a further *totality fact* is required. In our example, let us say that the instances consist in the negative facts expressed by 'Sam is not a unicorn', 'Dawn is not a unicorn' and 'Evelyn is not a unicorn'. But the full explanation also seems to require the following totality fact: ~∃x (x is not identical to Sam and x is not identical to Dawn and x is not identical to Evelyn). This is just the fact that Sam, Dawn, and Evelyn exhaust the domain of the quantifier. But a totality fact is itself a contingent negative existential!

We thus have a tension between two claims. On the one hand, we have the strong intuition that negative existentials, as negative facts, cannot be fundamental. On the other hand, on the standard way of explaining contingent negative existentials, the *explanans* for every negative existential contains a totality fact, which is itself a contingent negative existential.

In the next section, I discuss some alternative ways to eliminate the tension between these two claims, before arguing for the view that totality facts are simply unexplained, and thus fundamental.

§3 Why Totality Facts are Fundamental

My overall aim in this paper is to show that we should take at least some contingent negative existentials—namely, totality facts—to be fundamental. Part of my case for this claim rests on showing that it is the only adequate way to eliminate the tension between the claim that no

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[10] At least not if we assume necessitation, for laws and essences are plausibly necessary. Necessitation is the thesis that explanation carries modal entailment, such that if some facts explain a fact *p*, then necessarily, if those facts obtain, then so does *p*.

[11] While taking negative existentials to be identical to the equivalent universal generalizations is the standard view, Fine (2012) rejects this view for the case of totality facts. I discuss Fine's view in more detail in §3.

contingent negative existential is fundamental and the claim that every contingent negative existential is at least partially explained by a contingent negative existential.

Opponents must argue that there are other viable ways to eliminate this tension. If contingent negative existentials are not fundamental, they are explained. If all negative existentials are explained, then explaining a contingent negative existential either requires a totality fact, or it does not. If explaining a contingent negative existential requires a totality fact, then either the totality fact is part of the *explanans* (or ground), or the explanation requires a totality fact without needing it to be part of the *explanans*. Finally, if explaining a contingent negative existential does not require a totality fact, then it is either zero-grounded—i.e. grounded by zero-many facts—or it has an alternative explanation in terms of non-zero-many facts.

The above options exhaust the possible alternatives for someone committed to the claim that no contingent negative existential is fundamental, and they generate the following alternative possibilities for eliminating the tension between the claim that no negative existential is fundamental and the claim that every contingent negative existential is partially explained by a contingent negative existential:

(a) Admit a regress of negative existential facts, where a totality fact figures as a partial ground for every negative existential.
(b) Accept that contingent negative existentials are grounded in their instances but deny that a totality fact also figures as a partial ground when explaining any contingent negative existential.
(c) Claim that contingent negative existentials are grounded in something other than their instances, such as the universe.
(d) Claim that contingent negative existentials are grounded, but in nothing—i.e. they are zero-grounded.

I show that the above alternatives for eliminating the tension are inadequate, and thereby defend the view that totality facts are fundamental.

3.1 The Regress Account

The regress account gives us a way to accept both the claim that no negative existential is fundamental and the claim that every contingent negative existential is partially grounded in a contingent negative existential. On this account, we simply have an infinitely descending regress of contingent negative existential facts.

Suppose for the sake of argument that there is no incoherence in admitting such a regress. The obvious cost of the regress account would then be that it does away with a fundamental level altogether. Insofar as many philosophers would like to admit a fundamental level, this seems to be a significant cost. There are, of course, accounts on which an infinitely descending explanatory regress is compatible with fundamental facts.[12] But since the goal of the regress account is to preserve the non-fundamentality of negative existentials, while allowing that every contingent negative existential is at least partly explained by a contingent negative existential, I put such views aside.

However, even if we accept the cost of doing away with a fundamental level, I argue that the regress account fails. This is because the totality facts that are part of the *explanans* for every contingent negative existential are in fact *one and same* totality fact. The regress account thus

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[12] See, for example, Wilson (2016b) and Amijee (ms), 'Relativism about Fundamentality'.

violates the irreflexivity of explanation. To see why, let us return to our earlier example and suppose that $\sim\exists x\, Fx$, where F is the predicate 'is a unicorn'. This negative existential is equivalent to $\forall x \sim Fx$. On the assumption that universal generalizations are grounded in their instances and a totality fact, let us say that $\forall x \sim Fx$ is grounded in ~Fa, ~Fb, and ~Fc, and the claim that a, b, and c are all the things. That is, ~∃x (x ≠ a and x ≠ b and x ≠ c). But what grounds this further negative existential? This negative existential is equivalent to $\forall x \sim$(x ≠ a and x ≠ b and x ≠ c), which is equivalent to $\forall x$ (x=a or x=b or x=c). The instances that ground the preceding universal generalization are (a=a or a=b or a=c), (b=a or b=b or b=c) and (c=a or c=b or c=c). Now the grounds for any negative existential (or universal generalization) must also include a totality fact. The totality fact that grounds our universal generalization is just this: ~∃x (x ≠ a and x ≠ b and x ≠ c). It is the very same totality fact as the totality fact that partially grounds $\sim\exists x\, Fx$, our original negative existential! The regress account thus violates the irreflexivity of explanation.[13]

At the outset, I claimed neutrality with respect to whether explanation is irreflexive. However, even if explanation is not irreflexive across the board and there are some instances of reflexive explanation, at least on the face of it, it is implausible that totality facts can partially explain themselves. The burden of proof lies with the proponent of such a view: they would need to show not only that explanation is not irreflexive as a rule, but also that totality facts in particular can be partially explained by themselves. Absent further argument, the regress account thus fails to adequately accommodate both the intuition that no negative existential can be fundamental, and the intuition that every contingent negative existential is grounded in a contingent negative existential.

In order to block a violation of the irreflexivity of explanation in explaining totality facts, Fine (2012) argues that while a totality fact is equivalent to a universal generalization, it is not the same fact as a universal generalization, and so need not be grounded in the same way that a universal generalization is grounded. However, while Fine can then deny that a totality fact is grounded in its instances and a totality fact, Fine does not provide a positive proposal for what, if anything, grounds the totality fact.[14]

3.2 Conditional Grounding Account

The second option for opponents is to allow that contingent negative existentials are grounded in their instances, but deny that a totality fact also figures as a partial ground when explaining any contingent negative existential. How might such an account work? The best candidate for such a view—and the only one that I am aware of—treats the totality fact as a background condition for explanation rather than a partial ground. According to this conditional grounding account, a contingent negative existential can be grounded in just its instances, so long as a condition— namely, the totality fact—obtains. This account relies on there being a principled distinction between a ground and a condition. If a totality fact does not figure as a partial ground of a

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[13] Fine (2012) also acknowledges this worry.
[14] Fine (2012, p. 62) writes: 'The issue of the ground for universal truths has caused a great deal of puzzlement in the philosophical literature, going back to Russell (1918) and continuing to this day (Armstrong (2004)). But if I am right, there is a purely logical aspect to the problem which is readily solved once one draws a distinction between the totality claim and the corresponding universal claim. Of course, this still opens the question of the grounds, if any, for the totality claim. But this is a question that lies on the side of metaphysics, so to speak, rather than of logic; and it should not be supposed that there is anything in our general understanding of the quantifiers or of the concept of ground that might indicate how it should be answered.'

contingent negative existential, then a contingent negative existential can be straightforwardly grounded in just its instances, and there isn't a worry that we will end up with a contingent negative existential at the fundamental level.

However, the conditional grounding account succeeds only if good sense can be made of the distinction between a partial ground and a condition without merely appealing to intuition, or salience in a given context. To be sure, there is an analogous distinction in the causal case between a cause and a background condition.[15] But it is unclear whether a similar distinction can be plausibly drawn in the case of metaphysical explanation. While the distinction in the case of causation seems intuitive and even familiar (in most contexts we would be inclined to say that the presence of oxygen did not *cause* the fire but was a mere background or enabling condition), it does not in the case of metaphysical explanation.

Bader (ms) proposes the following sufficient condition for something's counting as a condition for metaphysical explanation, as opposed to a partial ground: if what is required for a grounding relation to obtain is an absence, then that absence is a mere condition, rather than a ground. This criterion relies on there being a substantive metaphysical difference between presences and absences. It also relies on the idea that absences cannot figure as grounds, because absences do not exist as such—they are nothing. Let us grant for the sake of argument that there is indeed a robust metaphysical distinction between presences and absences, and that absences do not exist and thus cannot figure as grounds. It is still not clear that the conditional grounding proposal can extend to totality facts, for totality facts are not themselves absences or non-existent, even if they are *about* absences. When a totality fact figures as a partial ground for a negative existential, the work it does is not the work of nothing (which is nothing!), but of the fact that a, b, and c exhaust what there is.

Moreover, if a totality fact does not figure as a partial ground for a negative existential, then we get a failure of necessitation (the thesis that if some facts explain a fact *p*, then necessarily, if those facts obtain, then so does *p*).[16] To see why, let us return to our toy example, the fact that there are no unicorns. The instances that partially ground this fact consist in the negative facts expressed by 'Sam is not a unicorn', 'Dawn is not a unicorn' and 'Evelyn is not a unicorn'. But these instances do not, on their own, make it the case that there are no unicorns, for it is possible that Sam, Dawn and Evelyn exist (as non-unicorns), and yet Ed, who *is* a unicorn, also exists. The instances thus fail to entail, and so fail to metaphysically explain, the fact that there are no unicorns. For entailment, a totality fact is required—the fact that Sam, Dawn and Evelyn are all the beings.

The above objection to the conditional grounding proposal does not presuppose that metaphysical explanation is governed by necessitation. It does presuppose that if metaphysical explanation is *not* governed by necessitation, then, given that the general consensus is in favor of necessitation, the burden of proof for showing that it does not lies with those who deny necessitation.[17] In particular, unless there is an independent argument for conditional grounding, it would not do to reject necessitation as a principle that governs explanation.

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[15] See Schaffer (2016) for discussion.

[16] Necessitation is widely taken to govern metaphysical explanation. See for example Rosen (2010), Audi (2012), Bliss and Trogdon (2014), and Dasgupta (2014).

[17] In Amijee (forthcoming), I argue that we should reject the claim that no necessary facts can, on their own, explain a contingent fact. Rejecting this claim entails a rejection of necessitation (though not vice versa). However, one might reject necessitation and allow that in some cases necessary facts can fully explain a contingent fact, while still subscribing to a restricted necessitation principle, according to which there is entailment whenever the *explanans* is contingent.

But let us suppose for the sake of argument that a good case can be made for a robust distinction between conditions and grounds. Then, at least on the face of it, it seems that conditional grounding allows us to say that there are no totality facts at the fundamental level, for totality facts figure as mere conditions, rather than as grounds of a contingent negative existential. It also allows us to capture the intuition that totality facts are somehow involved in the grounding of contingent negative existentials.

I argue, however, that the conditional grounding account still fails, for it involves a violation of a principle closely related to the irreflexivity of explanation. Let us call this principle irreflexivity*. According to irreflexivity*, a fact cannot figure as a condition for the grounding of itself. To see why irreflexivity* is plausible, let us consider the case of causation, where the distinction between conditions and grounds is more intuitive. Suppose that the striking of a match causes it to be lit, and that the presence of oxygen in the atmosphere is a background condition for the striking causing the match to be lit. The presence of oxygen in the atmosphere can itself be taken to be a causal event, about which we can ask: what causes *it*? Now there would surely be circularity of a problematic variety if we then cited the presence of oxygen in the atmosphere as a background condition for the presence of oxygen in the atmosphere. Irreflexivity* thus seems fairly plausible for causal explanation. What about metaphysical explanation and grounding? Given the intuitive appeal of irreflexivity* for causal explanation, the burden of showing that irreflexivity* does not hold for metaphysical explanation lies with those inclined to reject the principle.

Conditional grounding falls afoul of irreflexivity*. Suppose that totality facts figure as mere conditions in explaining a contingent negative existential. What might explain the totality fact, which, as discussed above, is itself a contingent negative existential? Just as it is implausible to cite the presence of oxygen in the atmosphere as a background condition in explaining the presence of oxygen in the atmosphere, it would be implausible, and a violation of irreflexivity*, to cite a totality fact as a condition in explaining the very same totality fact. Thus, if irreflexivity* holds for metaphysical explanation, then conditional grounding cannot help us resolve the tension between the claim that no negative existential can be fundamental and the claim that every contingent negative existential is partially grounded in a contingent negative existential.

The type of worry I have raised here is analogous to my argument against the regress account in §3.1. There I argued that the regress account involves an illegitimate violation of irreflexivity. This suggests that the mere fact that a totality fact plays a different kind of role—in this case, the role of a background condition rather than a partial ground—is not enough to resolve the tension between the claim that no negative existential can be fundamental and that every contingent negative existential is partially grounded in a contingent negative existential. The tension arguable arises because totality facts must play some *role* in grounding contingent negative existentials, even if that role is not a straightforward grounding role. Having the totality fact play a non-grounding role does not allow us to avoid a vicious explanatory circle.

3.3 Actuality Account

Yet another option for opponents is to claim that contingent negative existentials are grounded in something other than their instances. A seemingly suitable candidate explanation for negative existentials appeals to the way the universe actually is. On this view, there are no humans over 10ft tall because the universe—the totality of all that exists—is such that there are no 10ft tall

humans in it. Let us call the universe 'The One'. On this view then, there are no humans over 10ft tall because The One exists, where The One does not contain humans over 10ft tall. This view is endorsed by Cheyne and Pigden, who write:

> Our answer is that *the (first-order) way the universe actually is* (a very large and complex fact, but a positive fact nonetheless) *makes it true* that there are no unicorns. For (on the assumption that there are no unicorns) the universe would have to be a different way for unicorns to exist. Thus the *way the universe actually is* would *not* exist and some other way the universe might have been *would* exist (namely a way which involved existing unicorns). (Cheyne and Pidgen 2006, p. 257).

However, this account does not succeed in doing away with a totality fact. Unless a totality fact to the effect that The One is the totality of all that exists is also part of the grounds, the existence of The One does not on its own explain why there are no humans over 10ft tall. This is because 'The One' picks out the world as it actually is, and absent a totality fact that stipulates that The One is all that exists, it is possible that in addition to The One, there also exist humans over 10ft tall. Thus, appealing to the existence of the universe as it actually is in explaining a contingent negative existential does not get rid of the need for a totality fact.[18] At best, it smuggles that totality fact into the grounds. The worry remains if we replace talk of "the universe" with talk of "the actual world", for if "the actual world" is taken referentially, then it simply picks out what actually exists, and it is consistent with what actually exists—say, a, b and c—that there also exists a further thing, d.[19]

On a slight variant of the view endorsed by Cheyne and Pidgen, there are no humans over 10ft tall because there are no humans over 10ft tall in w, and w is actual. One might then add that it is essential to w that it lacks humans over 10ft tall. This essentialist fact explains why there are no humans over 10ft tall in w, which in turn explains the fact that there are no humans over 10ft tall. The worry with such an account is that the most plausible examples of essential properties (if any such properties exist) are positive properties: presences, rather than absences. Thus, for example, it might be essential to me that I have the parents I do, but intuitively, it is not essential to me that I do not have frog DNA, even if what is in fact part of my essence entails that I do not have frog DNA.

I close this subsection with a brief discussion of accounts that seek to explain why our world is the actual world. Such accounts would seem to explain both why our world exists—where "our world" referentially picks out whatever in fact exists—*and* why nothing else exists, i.e. why what exists is *all* that exists. Consider, for example, Leibniz's 'optimist' account, according to which our world is the actual world because it is best of all possible worlds. I am here putting aside the question of whether Leibniz's account of why our world is actual is correct. The question I am interested in is whether such an account could serve to explain contingent negative existentials without smuggling a contingent negative existential into the *explanans*. While the optimist account of why our world is the actual world may be a bit too optimistic for contemporary tastes, Leibniz also has a different, less popular account. On this alternative account, our world—and no other possible world—is actual because nothing prevented our world from coming into existence. This is Leibniz's 'striving possibles' account, on which all possibles strive for existence, and unless there is something that prevents x from coming into existence, x will come into being.[20] Again, I

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[18] Josh Parsons elegantly makes this point in Parsons (2006).

[19] By contrast, "the actual world" may be treated attributively, in which case it picks out whatever happens to the be the totality of what exists. However, if treated attributively, the grand fact that explains a negative existential would itself involve a negative existential. Cf. Parsons (2006).

[20] Cf. Look (2011) and Leibniz's 1697 essay "On the Ultimate Origination of Things" in Leibniz (1989).

am not interested in the question of whether Leibniz's explanations succeed. I am instead interested in whether they can help us avoid positing negative existentials at the fundamental level.

I argue that they cannot. Both Leibnizian explanations for the actuality of our world also involve a totality fact. To say that our world is the best of all possible worlds is just to say that it is better than any other world in a given domain. But notice now that we also require a domain-specifying totality fact.[21] Likewise, that our world is actual because nothing prevented it from coming into existence also clearly involves a negative existential, and one that would need to be contingent if it is to help explain a contingent negative existential. [22]

It is of course possible that there are viable alternative explanations of contingent negative existentials that avoid explaining them in terms of their instances (and which provide them with non-zero-many grounds). I here canvassed only variants on explanations which appeal to the way the universe actually is. But absent any good alterative candidates, it is safe to assume that this general style of grounding contingent negative existentials is a non-starter.

3.4 Zero-Grounding Account

A final proposal for explaining contingent negative existentials is inspired by Kit Fine's notion of 'zero grounding'. According to Fine, a fact may lack a ground either because it is ungrounded, or because it is zero-grounded, where to be zero-grounded is to be grounded, but in nothing. But what exactly does it mean to say that something is zero-grounded? Fine (2012) draws an analogy with sets:

> Any non-empty set {a,b,…} is generated (via the 'set-builder') from its members a, b,…The empty set {} is also generated from its member, though in this case there is a zero number of members from which it is generated. An urelement such as Socrates, on the other hand, is ungenerated; there is no number of objects – not even a zero number – from which it may be generated. Thus 'generated from nothing' is ambiguous between being generated from a zero number of objects and there being nothing – not even a zero plurality of objects – from which it is generated; and the empty set will be generated from nothing in the one sense and an urelement from nothing in the other sense. (Fine 2012, p. 47)[23]

A zero-grounded fact is then a fact that is grounded in zero facts, rather than one that is ungrounded. According to a recent proposal defended by Munoz (2019), contingent negative existentials are zero-grounded.

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[21] A proponent of this Leibnizian explanation might argue that the relevant totality fact is necessary, rather than contingent, and (as discussed above) a necessary negative existential need not be partially grounded in a negative existential. If right, this might allow the Leibnizian to avoid positing contingent negative existentials at the fundamental level. Of course, few contemporary metaphysicians would accept the resulting escape route from my argument, since it relies upon highly controversial Leibnizian assumptions.

[22] Spinoza, too, has an account of makes our world the actual world. On Spinoza's view, our world is the only possible world, and consists in only one substance—God. Since God and everything that follows from God exists necessarily, the world could not have been any other way. God is also the most powerful substance because God has infinitely many attributes. This explains why the only possible world (our world) is the world that God inhabits rather than some other necessarily existing substance. Unlike Leibniz's accounts, it is not obvious that Spinoza's account of why our world is actual appeals to a negative existential. After all, on Spinoza's view, there isn't a possible word or possible entity that could have existed but didn't. However, since on a standard interpretation of Spinoza's view there are also no contingent facts, the problem of explaining contingent negative existentials does not arise at all. (See, for example, Della Rocca 2008; it is worth noting, however, that there is some disagreement in Spinoza scholarship over whether Spinoza is really committed to a full-blown necessitarianism: see especially Curley 1999).

[23] Litland (2017) further and more rigorously develops the notion of zero-grounding.

Munoz highlights a worry with the zero-grounding proposal for contingent negative existentials, namely that contingent negative existentials are *contingent*, whereas their zero-many grounds obtain at all possible worlds. The zero-grounded proposal thus entails a failure of necessitation when applied to contingent negative existentials. Like in all cases where necessitation fails, a question arises: what explains why a fact p fails to obtain in world w_1 but obtains in world w_2, when its zero-many grounds obtain at both w_1 and w_2? Munoz's solution to this worry relies on a distinction between background conditions and grounds, and the idea that zero-grounding fails when a disabling condition is present. But Munoz does not provide much reason to think that this is a metaphysically robust distinction.

However, unlike Munoz, I do not see the worry as posing a major challenge to the zero-grounding proposal for contingent negative existentials. On my view, the question of why a fact q (say) which obtains at both w_1 and w_2 grounds p at w_1 but does not at w_2 is just a question about what grounds the grounding facts. The fact q grounds p at w_1, and there are candidate answers available to the question of what grounds the fact that q grounds p.[24] By contrast, q does not ground p at w_2, and there is thus no grounding fact about which we can ask 'what grounds it?'. There is of course more to be said in defense of my view that there is no real problem here posed by the failure of necessitation, but I will leave it here for present purposes.

Even if the zero-grounding proposal is not problematic for the reasons just given, it remains implausible when applied across the board to all contingent negative existentials. Intuitively, if a totality fact is grounded, then its grounds must have something to do with which facts there are. This is because a totality fact is a domain-specifying fact. Yet the zero-grounding proposal makes it the case that every possible domain-specifying fact will have the same ground—namely nothing—despite each of these totality facts delineating a different domain.

Moreover, even if we grant the coherence and plausibility of zero-grounding, it is far from clear that zero-grounding can apply to contingent negative existentials. In explaining zero-grounding, Fine appeals to set-membership and the construction of sets. Litland (2017) further develops the notion of zero-grounding. Litland writes:

> The seemingly mysterious distinction between being *ungrounded* and being *zero-grounded* is a special case of the more familiar distinction not being derivable and being derivable from the empty collection of premisses. (Litland 2017, p. 280)

Neither the analogy with sets nor the distinction between being derivable and being derivable from the empty collection of premisses seems particularly applicable in the case of contingent negative existentials: a contingent negative existential cannot (or at least not obviously) be treated like an empty set. It also does not obviously make sense to say that a contingent negative existential is 'derived' from, and so grounded in, zero-many facts.

While my remarks in this section do not provide a definitive case against the zero-grounding proposal for explaining contingent negative existentials, I hope to have raised distinctive and significant concerns with the proposal as it stands. Given these concerns, we should not opt for zero-grounding when an alternative way remains available for resolving the tension discussed at the outset: we should take some contingent negative existentials—the totality facts—to be fundamental.

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[24] The options include those defended by Bennett (2011), deRosset (2013), Dasgupta (2014) and Litland (2017).

§4 Negative Fundamental Facts: Revisited

I have argued that we should take totality facts to be fundamental. In this section, I show that the reasons canvassed in §2 for taking negative existentials to be non-fundamental—namely, that negative existentials are redundant and lead to a violation of Hume's Dictum—do not extend to totality facts.

First, totality facts do not seem redundant in the way that facts about things that don't exist might seem redundant. Totality facts simply say "that's it, and no more!", and thus specify a negative limit. They are boundary facts that carve out domains.

Second, it is far from obvious that totality facts—or indeed any kind of negative fact—is in tension with Hume's Dictum. Recall that according to the objection from Hume's Dictum, including negative existential facts at the fundamental level is in tension with free modal recombination: it precludes a scenario—one that apparently corresponds to a possible world—on which a fundamental contingent negative existential is removed while all the positive facts stay the same. However, this objection neither succeeds on its own terms nor involves a correct application of Hume's Dictum.

It does not succeed on its own terms, for an analogous line of argument can be taken to show that we should do away with positive facts at the fundamental level, for it is not possible to remove a positive fact from a given world, while keeping all its negative facts the same.[25] To see why, suppose that a negative fact—such as the fact that there are butterflies—was a fundamental fact. Then by recombination, there is a possible world w where all the same negative facts obtain, but the fact that there are butterflies does not obtain. But if it is not the case that there are butterflies, then an additional negative fact obtains, namely, there are no butterflies. So, it turns out that—contra our hypothesis—the same negative facts cannot obtain after all.

The argument from Hume's Dictum also rests on a misapplication of that principle. Free modal recombination only makes sense when applied to entities—particulars and the properties that instantiate them—and not facts. It is the fundamental *entities* that are recombined in order to generate the space of possible worlds.[26] Indeed, if we conceive of worlds as entities that are either identical to or correspond to maximally consistent sets of propositions, then the propositions that are true at the actual world cannot be 'recombined', i.e. cannot have a proposition added to or subtracted from the set while maintaining consistency.

§5 Concluding Remarks

My goal has been to show that, contrary to popular dogma, at least some negative existentials are fundamental. My case had two parts. First, I argued against the extant candidate solutions for eliminating the tension between two claims: the claim that no negative existential is fundamental and the claim that every contingent negative existential is partially explained by (or grounded in) a contingent negative existential. I argued that the alternatives available to us if we do not take totality facts to be fundamental are, at least at present, inadequate. Second, I showed that the

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[25] Alternately, we might then conclude that this shows that there are no fundamental facts at all, whether negative or positive, especially in the absence of any other argument that might tip the balance in favour of only positive facts (or only negative facts) at the fundamental level. Thanks to Michael Della Rocca for this point.
[26] Cf. Wilson (2010).

standard arguments against positing any negative facts at the fundamental level—including negative existentials—fail.

My survey of potential attempts to eliminate the tension was perhaps not exhaustive. For instance, there may be yet another way of grounding a contingent negative existential in something other than its instances. I also did not rule out Fine's suggestion that we seek an explanation for totality facts that does not depend upon those facts amounting to universal generalizations. Moreover, I did not provide a definitive case against every option I discussed. More can be said, for example, in favour of the zero-grounding proposal as it might apply to negative existentials, and perhaps my criticisms of that approach could be rebutted by its proponents. And the two Leibnizian proposals for explaining the actual world—or variants on them—might be pursued in more depth within a contemporary framework.

These are areas where there is much room for future work. My case for the claim that some negative existentials are fundamental does not depend on a definitive refutation of every other option for explaining contingent negative existentials, but on a rejection of these options as they currently stand. Thus, while I have presented myself as defending the radical view that some contingent negative existentials—namely, totality facts—are fundamental, my ultimate stance is more nuanced. Nevertheless, those who still feel Russell's 'almost unquenchable desire to find some way of avoiding the admission that negative facts are as ultimate as those that are positive' must now look harder and further afield to satisfy that desire.[27]

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