How to properly lose direction

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Abstract

One of the central puzzles in ontology concerns the relation between apparently innocent sentences and their ontologically loaded counterparts. In recent work, Agustín Rayo has developed the insight that such cases can be usefully described with the help of the 'just is' operator: plausibly, for there to be a table *just is* for there to be some things arranged tablewise; and for the number of dinosaurs to be Zero *just is* for there to be no dinosaurs. How does the operator relate to another prominent notion that is frequently put to similar use: metaphysical grounding? In this paper I show that despite what has been argued in the literature the 'just is' operator can be spelled out in terms of grounding: roughly, as having the same ultimate grounds. This is good news for Rayo, for it broadens his target audience. It is even better news for the friends of ground. For it exemplifies the immense fruitfulness of the notion of grounding in its ability to incorporate philosophically highly significant subtheories.
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One of the central puzzles in ontology concerns the relation between apparently innocent sentences and their ontologically loaded counterparts.[1] At least since Frege's *Grundlagen*, philosophers wondered about the close connection between sentences such as

1   There are things arranged tablewise; and

2   There is a table;

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[1]   Cp., e.g., Hofweber (2007).

or

3   There are no dinosaurs; and

4   The number of dinosaurs is Zero.

The relation between the elements of such pairs is puzzling. On the one hand they do not seem to say the same: only one of them seems to concern tables and numbers respectively, while the other does not. Correspondingly, only one of them seems to require for its truth the existence of tables and numbers respectively, while the other seems to require no such thing. On the other hand, aren't the sentences quite obviously equivalent? If so, in what sense? And how is the equivalence claim compatible with their apparent differences?

A very interesting account of the relationship between the elements of such pairs has been offered in recent work by Agustín Rayo. The main insight defended there is that their equivalence can be usefully described in terms of the 'just is' operator: plausibly, for there to be a table *just is* for there to be things arranged tablewise. And for the number of dinosaurs to be Zero *just is* for there to be no dinosaurs. In his 2013 book *The Construction of Logical Space* and subsequent articles Rayo elaborates this central insight by developing an account of the 'just is' operator, and drawing out the consequences of pertinent 'just is' statements.

Rayo's main insight certainly has a deflationary ring to it: if for the number of dinosaurs to be Zero just is for there to be no dinosaurs, the fact that the number Zero exists and has some properties (e.g., numbering the dinosaurs) may seem less problematic than it otherwise would. Many philosophers believe that such deflationary ambitions are also served by the use of another notion that has taken central stage in the recent metaphysical literature: the notion of grounding.[2] As in the case of 'just is': one may reasonably hope to circumnavigate some worries about the existence and qualities of numbers, for instance, by appeal to the view that facts about them are grounded in unproblematic facts about dinosaurs and the like.[3] Thus, the two projects in terms of 'just is' and metaphysical grounds have similar targets.

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[2]   Fine (2012) is an incredibly useful introduction to the notion of grounding. I will freely use the results compounded there in what follows. The distinctions between forms of grounding that are relevant for the present paper are discussed in §1.5.

[3]   See, e.g., Rosen (2010) and Schwartzkopff (2011) for the view that the fact that there are no dinosaurs grounds the fact that the number of dinosaurs is Zero. Cp. also Schaffer (2009) for a more general plea for existential *permissivism* backed by grounding claims.

In this paper I will defend the view that the two proposals about the connection between elements of our pairs are actually closely related. Despite the suspicion raised in the literature, notably by Ross Cameron, that the lack of directionality of the 'just is' operator spoils any hope of spelling it out in terms of grounding, such an explication will be proposed: roughly as having the same ultimate grounds.[4] In the paper I proceed as follows. In section 1 I briefly sketch Rayo's account of the 'just is'-operator. In section 2 I explain why Cameron's explication proposals in terms of grounding (even the one he takes to be extensionally adequate but to use illegitimate resources) won't work. In section 3 I introduce my own proposal, which arguably captures the underlying idea that was inadequately framed in the failed attempts. In section 4 I discuss how well the resulting notion fits what Rayo claims about 'just is'-statements.

The project of the paper is a reconstructive one: it aims to reconstruct large parts of Rayo's theory within the framework of metaphysical grounding. Its success should be good news for Rayo, for it broadens his target audience. It is even better news for the friends of ground. For it shows the immense fruitfulness of the notion of grounding in its ability to incorporate subtheories that are as philosophically significant as the theory of 'just is' statements highlighted by Rayo. Philosophers skeptical of the free use of (different variants of) ground, are invited to read the reconstruction as conditional on the existence of the pertinent relation, and, thus, as yet another reason to strive for a systematic theory of grounding that would alleviate such worries.

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[4] The paper is, thus, a partial mirror image of Correia and Skiles (2017) who propose to account for grounding and essence in terms of 'just is'-statements (what they call *generalized identity*). I am not prepared to enter into a discussion about what the right direction of analysis is here – partly because I suspect that this might be a matter of preference or at the very least of subtle overall theory comparison that cannot be decided here. Let me just note that *ideological parsimony*, appealed to by Correia and Skiles, seems unable to decide between the two approaches. For, while they have generalized identity as their only fundamental notion, in terms of which they propose to account for essence and grounding, the account proposed here recognizes grounding as its only fundamental notion, in terms of which it accounts for generalized identity, which, if Correia and Skiles are right, can in turn be used to account for essence. Though it cannot be shown here, all axioms and rules of the system GI (cp. Correia and Skiles 2017: §1) turn out to be correct on our account, given plausible principles about grounding.

1   Just is

One of the key notions in Agustín Rayo's recent book 'The Construction of Logical Space' (Rayo 2013) is the notion of *just is*. Rayo's favourite means of expressing the notion is a two-place sentential operator '≡', where '$p \equiv q$' may be read as 'for it to be the case that p just is for it to be the case that q'. A 'just is'-statement is, according to Rayo, equivalent to a *no difference* statement (Rayo 2013: 5). Thus, for instance, for a to be F (for Ann to be married to Ben) is for b to be G (for Ben to be married to Ann) just in case there is no difference between a's being F and b's being G. Accordingly, the 'just is'-operator is symmetric (Rayo 2013: 5), and presumably reflexive and transitive as well. Using sentential quantification we might express this as follows:

R $\forall p \, p \equiv p$

S $\forall p \, q \, (p \equiv q \rightarrow q \equiv p)$

T $\forall p \, q \, r \, ((p \equiv q \wedge q \equiv r) \rightarrow p \equiv r)$

Or, if we suppose that there is a corresponding just is-*relation* between sentence-like entities like states,[5] this relation should be reflexive, symmetric and transitive in the usual sense (and should thus be an equivalence relation).

   To make it easier for us to home in on the notion in question, Rayo does two further things: first, he gives a few paradigmatic examples of true 'just is'-statements, and, second, he draws out a few conceptual connections between *just is* and other philosophically interesting notions. Thus, to cite only a couple of already familiar cases, the following are plausibly true 'just is' claims, according to Rayo:[6]

5   There is a table ≡ there are things arranged tablewise;

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[5]   The correspondence should be at least as strong as follows: $\forall p \, q \, (p \equiv q \leftrightarrow [p]R[q])$, where '$[p]$' denotes the sentence-like entity correlated with p. Presumably, Rayo would be happy to say that for it to be the case that $p \equiv q$ just is for it to be the case that $[p]R[q]$, from which the correspondence follows. In the informal discussions to follow I will sometimes talk in this relational way for presentational purposes, since I agree with Rayo that it is unproblematic. Official formulations will be framed in terms of the sentential operator, however. A similar distinction in framing grounding claims relationally vs. with the help of a sentence-operator is discussed, e.g., in Fine (2012: §1.4).

[6]   These are examples 6 and 7 on Rayo's list. See Rayo (2013: 3).

6   The number of dinosaurs is Zero ≡ there are no dinosaurs.

As to the second point, I will just briefly list the connections Rayo takes there to be. A discussion will be delegated to section 4, when my own proposal is on the table. To begin with, Rayo assumes an extremely tight connection between 'just is'-statements, strict equivalence and sameness in truth conditions. Thus, according to Rayo, the following claims are equivalent for arbitrary p and q:[7]

a) $p \equiv q$

b) $\Box\,(p \leftrightarrow q)$

c) 'p' and 'q' have the same truth-conditions

Slightly weaker, since mediated by logical consequence, are the connections to metaphysically possible scenarios and so-called *why-closure*: According to Rayo, the following claims are equivalent for arbitrary sentences S:[8]

d) S is a logical consequence of the set of all true 'just is'-statements

e) $\ulcorner \neg S \urcorner$ does not describe a metaphysically possible scenario

f) S is why-closed (i.e. allows of no metaphysical explanation)

However, none of these notions is taken to be epistemically or conceptually prior, according to Rayo, so that none of them should be taken to do any foundational work. Discussing the connection with metaphysical modality, Rayo writes:

> So many philosophers have said so many things about the notion
> of metaphysical possibility [and necessity]—and so much about
> the[se] notion[s] is poorly understood—that there are limits to
> how much light can be shed on the 'just is'-operator by defining
> it in terms of metaphysical [modality]. It is better to think of
> the above connections [between (a) and (b) viz. (d) and (e), au-
> thor] as a two-way street: they use the notion of metaphysical

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[7] Cf. Rayo (2013: 49 & 52).

[8] Cf. Rayo (2013: 49 & 55). I have chosen a straightforwardly equivalent reformulation of the connection with possible scenarios for presentational reasons.

[modality] to help explain how the 'just is'-operator should be understood, but they also use the 'just is'-operator to help explain how the notion of metaphysical [modality] should be understood. (Rayo 2013: 49f.)

At least one commentator, Ross Cameron in his 2014, worries that this may not be too much of a help. For, though he has certain notions, in particular various forms of grounding, in his theoretical tool kit that can do more or less all of the work that Rayo takes the 'just is'-operator to be doing, there is no straightforward way of 'defining up' the latter in terms of the former, and, thus, no straightforward way of understanding 'just is'-statements for Cameron. In the next section I explain why Cameron's own attempts at defining *just is* in terms of grounding indeed fail.

2 Cameron on elucidating 'just is' in terms of grounds

Cameron (2014: 432ff.) discusses three proposals to elucidate 'just is' in terms of grounding. The first two he rejects as extensionally inadequate, the third he takes to be extensionally adequate but unavailable to Rayo. In this section, I will prepare for my own proposal to be given in the next section by adding to the reasons Cameron himself cites against the first two proposals, and by showing that, pace Cameron, even the third fails to specify the right extension.

2.1 Cameron's first proposal

Presumably led on by Rayo's paradigm examples and the fact that 'just is' is supposed to be symmetric, Cameron starts out with the following suggestion as a warm up:

C1 $p \equiv q$ $:\leftrightarrow$ $p < q \lor q < p$

where '<' is a two place operator that takes a (potentially infinite) list (or set) of sentences on its left-hand side and a single sentence on its right and signifies what Fine (2012: §1.5) calls factive (as opposed to non-factive) strict (as opposed to weak, see below) full (as opposed to partial) mediate (as opposed to immediate) ground, strict ground, for short. Cameron's own

reason for rejecting the proposal has to do with an alleged tight connection between the truth of a 'just is'-statement and reduction, which could not be upheld on the current proposal.[9] But there are much more straightforward reasons: (a) strict ground is factive, 'just is' is not. Thus, the truth of the right-hand side requires the truth of 'p' and 'q', the truth of the left-hand side does not; (b) strict ground is irreflexive, *just is* is reflexive. Thus, while all instances of '$p \equiv p$' are true, no instance of '$p < p \lor p < p$' is. Consequently, I agree with Cameron that his first proposal is not a serious contender.

2.2 Cameron's second proposal

Rayo sometimes says that a 'just is'-statement is true just in case the sentences flanking the 'just is'-operator make the same demand on the world. A straightforward way of understanding demands talk in terms of ground leads Cameron to his second proposal:

C2 $p \equiv q$:↔ $\forall r \, (r < p \leftrightarrow r < q)$

In words (and allowing factual assent): For it to be the case that p just is for it to be the case that q just in case the fact that p has the same grounds as the fact that q.

The second proposal is a nonstarter as well. First of all, the factivity problem of the first proposal stays in place.[10] Secondly, the proposal rules out cases where we have *both $p \equiv q$* and *and $p < q$*.[11] For, assume for reductio that (a) the fact that p strictly grounds the fact that q ($p < q$) and (b) $p \equiv q$. By definition proposal (C2) and (b), both facts have the same strict grounds. Thus, by (a), the fact that p strictly grounds the fact that p. But

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[9]   Given the symmetry of 'just is' the reasonable response would seem to be to claim that the truth of the 'just is'-statement opens the door for a theoretical reduction, but that further (partially epistemic) facts determine the direction of the reduction. The very same thing could then be said about the proposed definiens. Moreover, the assumed connection with reduction is glaringly absent from Rayo's own discussion of the connections 'just is'-statements have that was summarized above. Cf. Rayo (2013: §2.2).

[10] Since Cameron does not seem to be aware of it, while there are various straightforward moves one could make to fix it, I will ignore the factivity problem for the time being.

[11] Cameron's own reason for being dissatisfied with the proposal is a special case of the problem stated in the main text having to do with fundamental facts. As the consideration in the main text shows, fundamentality is inessential to the problem.

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this is absurd, since strict ground is irreflexive. Thus either $p \nless q$ or $p \not\equiv q$, if '$\equiv$' is defined as suggested in (C2).

This makes (C2) unacceptable as an explication proposal for 'just is' that could help the friend of ground, since all paradigmatic examples Rayo are of the sort ruled out by the proposal, given orthodox views on what grounds what. So, for instance, the friend of ground might want to hold that

7 There are things arranged tablewise < there is a table; and

8 There are no dinosaurs < the number of dinosaurs is Zero.

Moreover, this is what makes the 'just is'-statement sound plausible to her in the first place.[12]

2.3 Cameron's third proposal

Consider

9 There are tigers $\equiv$ Tiger Tony exists;

10 There is an even prime $\equiv$ the number 2 exists.

According to Cameron, (10) is plausibly true, while (9) is hopeless: for Tiger Tony to exist is just one possible way for there to be tigers, but certainly not the only such way (Cameron 2014: 434). On the other hand, in both cases the fact corresponding to the first sentence is strictly grounded in the fact corresponding to the second. The cases are, thus, Cameron suggests, indistinguishable in terms of strict grounding (Cameron 2014: 434).[13] So, the pair consisting of the fact that there are tigers and the fact that Tiger Tony exists and the pair consisting of the fact that there is an even prime and the fact that the number Two exists are *strict grounding*-indistinguishable but *just is*-distinguishable, according to Cameron.

Because there are such pairs of facts that are, according to Cameron, strict grounding-wise indistinguishable but 'just is'-wise diverse, Cameron

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[12] Cf. Cameron on the claim (Set) 'For a set to exist just is for its members to exist': '[...] my first inclination is [...] to hear (Set) as saying that it is the existence of some individuals that *explains* the existence of a set containing them; that the individal-facts are metaphysically prior to the set-facts'.

[13] Here is a pertinent quotation: '[...] as far as grounding goes, [(10)] is structurally identical to the Tony example. [...] So [sic.] the grounding structure is the same, but whether the associated *just is* statement is acceptable is different' (Cameron 2014: 434).

comes to the conclusion that no definition whose only (non-logical) resource is a notion of grounding can do the desired job. Instead, Cameron thinks, one has to appeal to metaphysical modality. For, as Cameron points out, there is a difference in modal strength between the two strict grounding claims: while the fact that the number Two exists strictly grounds the fact that there is an even prime in every possible world, there are worlds in which the fact that Tiger Tony exists doesn't strictly ground the fact that there are tigers, simply because Tiger Tony does not exist in that world.

This observation leads Cameron to his third and final proposal:[14]

C3 $\quad p \equiv q \quad :\leftrightarrow \quad \Box \forall r \left(r \leq p \leftrightarrow r \leq q \right)$

where '$\leq$' signifies factive mediate full weak ground (or weak ground, for short).

The notion of weak ground deserves some comment. Fine (2012: 52) intuitively characterizes it as follows: Some facts Δ weakly ground a fact f just in case the Δs can do all the strict grounding work f does. More precisely, weak ground is definable in terms of strict ground:

Weak Ground $\quad \Delta \leq q \quad :\leftrightarrow \quad \forall \Gamma \, r \left(q, \Gamma < r \to \Delta, \Gamma < r \right)$

The straightforward consequences of this definition that are important for our purposes are: (a) weak ground is reflexive, (b) strict implies weak ground,[15] and (c) that the fact that p weakly grounds the fact that q ($p \leq q$) entails that the fact that p strictly grounds all the facts the fact that q strictly grounds: $\forall r \left(q < r \to p < r \right)$.

Cameron's estimation of (C3) is mixed: on the one hand, Cameron takes (C3) to be extensionally adequate, on the other, he thinks it is of no help to Rayo, since accepting it would render 'just is statements unfit for at least some of the work for which they are intended' (Cameron 2014: 435), namely the job of shedding light on metaphysical modality. And indeed, (C3) has

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[14] This is not quite Cameron's own count. But the 'third' proposal he proposes on p. 434 ($p \equiv q :\leftrightarrow \exists f (f = [p] \wedge f$ grounds $[q] \vee f = [q] \wedge f$ grounds $[p])$) seems to differ from his first proposal only by the (not clearly motivated) introduction of factual assent. Consequently, the former shares the latter's shortcomings and need not be discussed separately.

[15] This is an instance of Fine (2012: 55)'s first subsumption rule. It can also be proved in a one liner using the definition of weak ground and a Cut-rule for strict ground (a generalisation of transitivity). Proof. Suppose $\Delta < q$ and $q, \Gamma < r$. By Cut these strict grounding claims may be chained and we get: $\Delta, \Gamma < r$. Thus, by definition, $\Delta \leq q$.

some welcome results that support the positive part of Cameron's assessment. First, feature (a) of weak ground prevents the argument we gave for the incompatibility of '$p < q$' and '$p \equiv q$' on the second proposal to get off the ground.[16] For, in the argument we used the fact that strict ground is irreflexive to derive an absurdity. Since weak ground is not irreflexive (but even reflexive), no analogous argument can be given for the incompatibility on the current proposal.

Second, features (b) and (c) of weak ground help to distinguish the two pairs from the beginning by their grounds. For, as a matter of fact, there are other tigers than Tony around, Shere Khan, for instance (let's assume). Granted that the fact that Tiger Tony exists strictly grounds the fact that there are tigers,[17] the fact that Shere Khan exists should do as well. But then

$$\text{Shere Khan exists} \ < \ \text{there are tigers,}$$

and, thus, by feature (b) of weak ground,

$$\text{Shere Khan exists} \ \leq \ \text{there are tigers.}$$

But (absent any unintended family relations)

$$\text{Shere Khan exists} \ \nleq \ \text{Tiger Tony exists.}$$

Intuitively, the former cannot do all the grounding work the latter can do. More formally, feature (c) of weak grounding drives the point home: we have, e.g.,

$$\text{Tiger Tony exists} \ < (\text{Tiger Tony exists} \ \lor \ \text{grass is red}),$$

whereas

$$\text{Shere Khan exists} \ \nless (\text{Tiger Tony exists} \ \lor \ \text{grass is red}).$$

Thus, by feature (c), the conclusion follows. Consequently, there is an r such that $r \leq$ there are tigers $\land \ r \nleq$ Tiger Tony exists. Since the two facts

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[16] Though Cameron does not explicitly appeal to it, this might be his reason for the switch from strict to weak grounding.

[17] I myself am not quite convinced. Standard logics of ground yield that the fact that Tiger Tony *is a tiger* strictly grounds the fact that there are tigers, but that is not quite what Cameron claims. If we change the example accordingly, it is not clearly correct that for there to be an even prime just is for the number Two to be an even prime. I ignore this difficulty in the main text.

are, thus, not ground-wise indistinguishable, (9) turns out false on the (C3) proposal to understand 'just is'.[18]

Unfortunately, feature (c) of weak ground, also shows that the current proposal is unacceptable, since it again excludes cases of ground by fiat. This can be seen by reconsidering Cameron's even prime case, but any of the plausible examples for true 'just is'-statements would have done as well. Since weak ground is reflexive, we have

$$\text{there is an even prime} \ \leq \ \text{there is an even prime.}$$

But

$$\text{there is an even prime} \ \nleq \ \text{the number Two exists.}$$

Intuitively the fact that there is an even prime cannot do all the strict grounding work the fact that the number Two exists can do. In particular, it cannot strictly ground itself! More formally, feature (c) of weak grounding drives the point home: Cameron asked us to accept that

$$\text{the number Two exists} \ < \ \text{there is an even prime.}$$

But since strict ground is irreflexive,

$$\text{there is an even prime} \ \nless \ \text{there is an even prime.}$$

The case generalizes: whenever $p < q$, $p \not\equiv q$ on the current proposal. Since all the paradigm examples plausibly involve a grounding relationship, and this is part of what makes the acceptance of the just is claim plausible for a friend of grounding, I take this result to show that proposal (C3) is unacceptable.

2.4   The need for compatibility

In the last few sections I followed Cameron in arguing against elucidation proposal (C2) by appeal to the fact that it would make $p \equiv q$ and $p < q$

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[18] Note that the modal aspect of the proposal was not appealed to in order to show that *these* cases are distinguishable. It would, however, have some work to do in distinguishing between cases that concern existential quantifications both of which have only one true instance, e.g., the even prime case and the pair consisting of the fact that there is a first US president and the fact that George Washington was the first US president. Note also that, since weak ground is definable in terms of strict ground, Cameron's original pairs were not *strict ground*-indistinguishable to begin with.

incompatible, and I employed the same consideration against (C3). In his reply to Cameron, Rayo (2014) shows himself unimpressed with this kind of worry, which allows him to make short thrift of the friends of ground:

> […] it is important to distinguish between two different issues. The first is the question of whether one can define the 'just is'-operator using vocabulary that the friend of grounding is already committed to. The second is the question of whether a friend of grounding would have to disagree with me about which 'just is'-statements to accept. (Rayo 2014: 518f.)

He then suggests that at least those friends of grounding who are already committed to *facts* as the relata of the grounding relation can answer the second question by appeal to sameness of facts. Let '$[p]$' abbreviate 'the fact that p'. Then Rayo's proposal is in effect the following:[19]

R1 $\quad p \equiv q \quad :\leftrightarrow \quad [p] = [q] \vee [\neg p] = [\neg q]$

Of course, all those who think that, roughly, the set of facts is *strictly* ordered by the grounding relation, like the classics of the debate Schaffer (2009), Rosen (2010), and Fine (2012) for instance, will then have to deny most of the 'just is'-statements offered by Rayo.[20] But this, Rayo seems to think, just goes to show that their position on issues of ground forces them into the rejection of imminently plausible 'just is'-statements, not that they cannot understand them.

I don't think this is a promising route to take. As I said before, one of the reasons the 'just is'-statements sound so plausible to friends of grounds is exactly that the corresponding grounding claims are so plausible. Rayo's proposal not only fails to capture the appearance of a *positive* evidential

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[19] (R1) conforms to the spirit if not the letter of the proposal that is rendered as follows in Rayo (2014: 520):

$\ulcorner p \equiv q \urcorner =_{df} \ulcorner$ the fact that $\bar{p}$ = the fact that $\bar{q} \urcorner$
where $\bar{r} = r$ if r is true, and $\bar{r} = \ulcorner \neg r \urcorner$ [if r] is false.

On this formulation, the proposal would make '$p \equiv q$' equivalent to '$p \equiv \neg q$', which is clearly not intended. Consequently, I opted for the formulation in the main text. Note also that the difficulty arises because Rayo, without mentioning it, attempts to deal with the factivity problem that plague Cameron's proposals.

[20] The key claim here is, of course, that no fact grounds itself.

relationship between 'just is'-statements and corresponding statements of ground, it straightforwardly entails that there is an *incompatibility*. On his proposal, it is utterly mysterious how the friend of ground could be drawn to *both* statements while being in her right mind.

To be sure, the notion of fact is somewhat up for grabs. I do not want to exclude that there is *some* notion of fact the friends of ground can accept according to which (R1) turns out to be true. My point here rather is that, whatever notion of fact they employ when they talk about the relata of the grounding relation, *that* is not a very good candidate for figuring in a grounding-friendly explication of the 'just is'-operator. In the next section I will detail a more promising proposal. It will turn out that once the proposal is in place one may be able to specify a notion of R(ayo)-fact for which (R1) holds: roughly, R-facts can just be taken to be equivalence classes of G(rounding-friendly)-facts under the defined *just is*-relation.[21] But this means that, rather than shedding light on the 'just is'-operator, the connection between true 'just is'-statements and R-fact identities is epistemically downstream from a satisfactory explication of the operator, to which I now turn.

3 A better proposal

Three of the four proposals we have considered so far attempt to explicate the 'just is'-operator via some form of fact-identity: (R1) via an identity of those facts 'fully and accurately described' by the two sentences flanking the 'just is'-operator, (C2) and (C3) via an identity of their strict or weak grounds. All three proposals are too strong because they fail to provide for the possibility that one of the pertinent facts is higher up in the grounding hierarchy than the other. If one of the facts is higher up, this entails at once that they cannot be the same, and that one has a ground the other lacks, which is why all three proposals fail. Looking at it this way, however, already suggests an easy fix.

Suppose to begin with[22] that the grounding relation is well-founded: each grounding chain eventually terminates in facts that are groundingwise funda-

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[21] Thanks to Peter Fritz, Jon Litland and Agustín Rayo whose comments convinced me that I need to be more explicit on this point. It is spelled out further in the next section.

[22] The assumption is only made for simplicity and will eventually be dropped in what follows.

mental. Suppose we're considering whether to accept the 'just is' statement '$p \equiv q$', where it's a fact that p and it's a fact that q. There will be various grounding chains running through both facts. Now, instead of checking whether *each* fact below (and perhaps including) the fact that p is identical to some fact below (and perhaps including) the fact that q in the grounding hierarchy, we can trace the grounding chains to their roots and check only whether we have ended up in the same place. If so, the corresponding 'just is'-statement should come out true, if not not. This, in a nutshell, is the proposal to be developed in this section.

In order to deal with the factivity problem that beset Cameron's proposals I will from now on assume that we're dealing with the slightly less well known variants of grounding that are *non-factive*. Consequently, in what follows, the symbols '$<$' and '$\leq$' will be reappropriated to signify non-factive mediate full strict and non-factive mediate full weak grounding respectively. Appeal to non-factive grounding has three advantages that in my view outweigh the disadvantage of being slightly less well known than its factive analogue. First, switching to the non-factive notions avoids the need to complicate the proposal by, e.g., making awkward case distinctions on the order of 'if it is true that p then ... $<$ ... p ..., and if it is false that p then ... $<$ ... $\neg p$ ...'. Second, and more importantly, as Fine (2012: 49) argues, there is no straightforward definition of the non-factive notions in terms of their factive counterparts. The straightforward definition proposal would be in terms of possible factive grounding:

NF   The Δs non-factively ground f just in case it is possible that the Δs factively ground f

However, we might have thought that non-factive grounding allows us to state logical principles of ground in a particularly simple form, such as that a conjunctive state (whether it obtains or not) is non-factively grounded in its conjunct states, or that a disjunctive state is non-factively grounded in either of its disjunct states. But according to (NF) this is not true. E.g. the only disjunct that *could* factively ground $[p \vee (q \wedge \neg q)]$ is $[p]$.[23] This

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[23] Note that '[__]' gets temporarily reappropriated as well, to denote states which, contrary to facts, may exist without obtaining. In fact, in the main text I use the bracket notation to denote whatever sentence-like entities are at issue, since we will soon have occasion to talk about facts again. Note also that, just as before, talk of states is just a presentational tool. Cf. fn. 5 above

observation is important, since it has repercussions for the envisaged explication of the 'just is'-operator: if we tried to replace appeal to non-factive grounding by the definiens candidate of (NF), this would yield the result that $p \equiv (p \vee (q \wedge \neg q))$. But this is undesirable, since it severs the connection between 'just is'-statements and content identity (or identity in truth conditions), given plausible assumptions: a sentence just does not seem to have the same content as its disjunction with an arbitrary necessary falsehood.[24] And third, talk of possible factive grounds as suggested by (NF) would re-invite Cameron's worry concerning the legitimacy of using modal notions in spelling out the 'just is'-operator in the context of Rayo's project. Nothing much hangs on the choice of non-factive grounding for current purposes, however. The reader unimpressed with the three reasons given in its favour is invited to stick to factive grounding and make the appropriate modifications along the lines of (NF) to the proposal to be given presently.

Let us say that it is fundamental that p ($\mathcal{F}(p)$) just in case the state that p has no strict ground:

Df. Fundamental $\mathcal{F}(p)$ $:\leftrightarrow$ $\neg \exists q \, q < p$

Since we're assuming for the moment that grounding is well-founded, every state has a fundamental weak ground: if s is fundamental, then s is its own weak fundamental ground; if s is not fundamental, we can trace back the grounding chains in which s figures to get at s's fundamental grounds. We are now in a position to state our explication proposal more formally:

Just Is (fundamental version)
$p \equiv q$ $:\leftrightarrow$ $\forall \Delta \, (\forall r \, (r \in \Delta \rightarrow \mathcal{F}(r)) \rightarrow (\Delta \leq p \leftrightarrow \Delta \leq q))$

In words: for it to be the case that p just is for it to be the case that q just in case the state that p has the same fundamental non-factive weak grounds as the state that q.

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[24] Rayo (2013: 53) disagrees, so this reason carries no weight for him. But then, his views on the matter are shaped by his belief that there is a particularly tight connection between true 'just is'-statements and strict implications, which the current proposal cannot sustain in full generality in any case. This topic will be discussed in section 4 below.

Given this proposal, we are not forced to deny a 'just is'-statement just because we accept a corresponding statement of ground. To illustrate, suppose the following grounding claim from the beginning is true and has true subclauses:

7   There are things arranged tablewise < there is a table.

There is, let's suppose with the friends of fact grounding, a corresponding true relational grounding claim between G-facts:

7$_\text{F}$ [There are things arranged tablewise] grounds [there is a table].

Because of the irreflexivity of strict ground, the G-fact that there are things arranged tablewise is different from the G-fact that there is a table. Moreover, since the latter is higher up in the grounding hierarchy, there are some things that weakly ground the latter but do not weakly ground the former (namely [there is a table]), and there are some things that strictly ground the latter but do not strictly ground the former (namely [there are things arranged tablewise]). However, all this is compatible with the view that both facts have the very same fundamental grounds. As a matter of fact, it is plausible to hold that the first fact is the only fact that immediately grounds the second. If so, every grounding chain that runs through the second fact will have to run through the first, and, thus, the two will have the same fundamental grounds. So, the friends of grounding can have their cake and eat it, too.

The proposal also has some other pleasing features. For one, it makes clear that the ability to understand 'just is' does not rely on an independent understanding of a notion of *fact*, even though it may alternatively be given in relational terms, of course, if one chooses. But the heavy lifting is done by the notion of *ground* in play not by the auxiliary notion of (G-)*fact*.

Second, contrary to (C1) the so-defined operator satisfies reflexivity, symmetry and transitivity (see page 4 above), since having the same fundamental weak grounds is an equivalence relation. This may even allow us to explicate a notion of *fact* under which Rayo's proposal (R1) comes out true. Note first that (R1)'s definiens is disjunctive in order to deal with the difficulty that there is a fact that p only if p. If we turn to states instead, which exist regardless of whether they obtain or not, we can just drop this complication and the following streamlining of (R1) suggests itself:

R2 $p \equiv q$ $:\leftrightarrow$ the R-state that p = the R-state that q

Since having the same fundamental (non-factive weak) grounds is an equivalence relation on G(rounding-friendly)-states, we may simply take R-states to

be equivalence classes of *G*-states under that relation and get (R2) for free. We might even be able to do better than that, if (a) we take facts to be obtaining states and (b) the following principle holds:

Fundamental Grounds of Negations Principle

For all states *s* and *s'*: *s* has the same fundamental grounds as *s'* just in case the negation of *s* has the same fundamental grounds as the negation of *s'*.

In that case, we can prove that *R*-facts, i.e. obtaining *R*-states, satisfy Rayo's explication proposal (R1): $p \equiv q$ just in case the *R*-fact that p = the *R*-fact that q or the *R*-fact that $\neg p$ = the *R*-fact that $\neg q$.[25]

Lastly, the explication proposal is similar but superior to one offered to a friend of a Sider-style perspective on metaphysics by both Cameron (2014: 436) and Rayo (2014: 520). On the Siderian view, we can state truth-conditions for natural language sentences in a *metaphysical semantics* whose meta-language ('ontologese') is one that only employs 'joint-carving' terms while our object language sentences may not (cf. Sider 2011). For example, perhaps, 'There are things arranged tablewise' is a sentence of ontologese, while 'there are tables' is not, since 'table' does not carve the

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[25] Proof. [⇒] Suppose $p \equiv q$. Then, by our definition, (a) the *G*-state that p has the same fundamental grounds as the *G*-state that q. Let s be an element of the *R*-state that p. By construction, s has the same fundamental grounds as the *G*-state that p. By (a), s has the same fundamental grounds as the *G*-state that q. Thus, by construction, s is an element of the *R*-state that q. The same holds, *mutatis mutandis*, in the reverse direction. Consequently, (b) the *R*-state that p = the *R*=state that q. By (a) and our assumption that the *Fundamental Grounds of Negations Principle* holds, we get that the *G*-state that $\neg p$ has the same fundamental grounds as the *G*-state that $\neg q$. An analogous argument yields that (c) the *R*-state that $\neg p$ = the *R*-state that $\neg q$. Now, either it is true that p or it is true that $\neg p$. [Note that this is a non-trivial step. It assumes that if a 'just is'-statement is true, its subclauses are either true or false. But this is an assumption on which the plausibility of (R1) itself relies. For, suppose it fails for '$p \equiv q$'. Then, presumably, there will neither be an *R*-fact that p nor an *R*-fact that q, and, thus, the left-hand side of (R1) will be true, while the right-hand side is not.] If the former, then all states obtain that have the same fundamental grounds as the *G*-state that p. Thus, the *R*-state that p obtains, and, by (b), the *R*-fact that p = the *R*-fact that q. [I'm assuming here that an *R*-state obtains just in case all of its elements do.] If the latter, all states obtain that have the same fundamental grounds as the *G*-state that $\neg p$. Thus, the *R*-state that $\neg p$ obtains, and, by (c), the *R*-fact that $\neg p$ = the *R*-fact that $\neg q$. [⇐] Suppose now that the *R*-fact that p = the *R*-fact that q or the *R*-fact that $\neg p$ = the *R*-fact that $\neg q$. By the assumption that the *Fundamental Grounds of Negations Principle* holds, it follows that the *R*-state that p = the *R*-state that q. Thus, by (R2), $p \equiv q$.

world at its joints. Still, our metaphysical semantics yields truth-conditions for the object language sentence 'there are tables' on which it turns out to be true by yielding the following theorem:

> 'There are tables' is true (in English) just in case there are things arranged tablewise.

Since in our example we took ontologese to be a fragment of English, the metaphysical semantics will also yield the following homophonic theorem:

> 'There are things arranged tablewise' is true (in English) just in case there are things arranged tablewise.

This observation leads Cameron (2014: 436) to propose (and Rayo (2014: 520) to endorse) the following explication proposal of the 'just is'-operator to the Siderian friend of the idea of a metaphysical semantics:

C4 $\ulcorner S_1 \equiv S_2 \urcorner$ is true $:\leftrightarrow$ $\exists r$ (a metaphysical semantics yields the following theorems:
  (i) S_1 is true $\leftrightarrow r$; and
  (ii) S_2 is true $\leftrightarrow r$).

In words: a 'just is'-statement is true just in case a metaphysical semantics entails that the sentences flanking the 'just is'-operator have the same metaphysical truth-conditions.

Now, true sentences of ontologese describe *fundamental* facts, according to Sider.[26] Thus, for all intents and purposes, our proposal is a straightforward adaptation of (C4) for the friends of grounding. It has an important advantage, however. For, the view that reality has a fundamental level is, as it were, built into Sider's account of metaphysics. If there were no fundamental level, there would be nothing for ontologese to describe, no joint-carving terms, and no metaphysical semantics for natural language sentences. In short, that there is such a fundamental level is a serious and non-trivial commitment of Sider's metaphysical system, and one that the explication proposal (C4) has to rely on.[27] In contrast, *we* only needed the simplifying assumption that grounding is well-founded, and, thus, that there is a

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[26] Cf., e.g.: 'the fundamental facts are those cast in terms that carve at the joints' (Sider 2011: 6).

[27] Sider could, of course, retreat to the position that *every* fact is fundamental. But then the proposal boils down to Rayo's unsatisfactory (R1).

groundwise-fundamental level, in order to fix ideas. Nothing really hinges on the assumption: it is not built into the grounding framework, and our proposal can be easily generalized to be independent of its truth. I take this to be an important advantage of our proposal. The remainder of this section will develop the promised generalization.

Let us first ascertain that our proposal threatens to yield undesirable results if the assumption of well-foundedness of non-factive weak ground is dropped. If ground is not well-founded, some grounding chains have no ground-minimal element. Take any two states $[p]$ and $[q]$ through which run only such infinitely downward extended grounding chains. Even if the $[p]$ and the $[q]$-chains do not overlap anywhere, our current proposal undesirably rules that $p \equiv q$: the states share their fundamental grounds, simply because neither of them has any.

The generalization of the proposal that deals with the problem is straightforward. Recall that the idea behind our initial proposal in this section was to look at the place of two states in the grounding structure. In case we can find for each grounding chain of one a grounding chain of the other that has a common origin, we want to say that for one state to obtain just is for the other state to obtain, if not not. But the appeal to a common *origin* plays no loadbearing role here. What is needed is merely that each grounding chain that runs through one of the states eventually *branches off* from a grounding chain that runs through the other, whether or not the chain has an initial element or continues infinitely downward. That is, if we drop the well-foundedness assumption we should say that $p \equiv q$ just in case every grounding chain that runs through one of the states shares an *initial segment* with some grounding chain that runs through the other.

A natural way to capture this picture in an explication proposal for the 'just is'-operator is the following:

Just Is (ultimate version)
$$p \equiv q \quad :\leftrightarrow \quad \forall \Delta \big((\Delta \leq p \rightarrow \exists \Gamma \, (\Gamma \leq \Delta \wedge \Gamma \leq q)) \wedge$$
$$(\Delta \leq q \rightarrow \exists \Gamma \, (\Gamma \leq \Delta \wedge \Gamma \leq p)) \big)$$

where '$\Gamma \leq \Delta$' holds just in case the Γs *distributively* (non-factively weakly) ground the Δs in the sense of Fine (2012: 54): there are subsets $\Gamma_1, \Gamma_2, \ldots$ of Γ with $\Gamma = \Gamma_1 \cup \Gamma_2 \ldots$ and Elements $d_1, d_2, \ldots$ of Δ with $\Delta = \{d_1, d_2, \ldots\}$, such that $\Gamma_1 \leq d_1, \Gamma_2 \leq d_2, \ldots$.[28]

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[28] Cp. also Dasgupta (2014) who argues that we should add an irreducibly plural notion

In words: For it to be the case that p just is for it to be the case that q just in case all (non-factive weak) grounds of $[p]$ have a ground that is also a ground of $[q]$ and vice versa. The Γs highest up in the grounding hierarchy that satisfy the right-hand side constitute the branching point of the relevant grounding chains. From Γ on downwards all states in the chain are grounds of both. We might thus put the proposal in slogan form: $p \equiv q$ just in case $[p]$ and $[q]$ have the same *ultimate* grounds.

It is easy to see that our two explication proposals *Just Is (fundamental version)* and *Just Is (ultimate version)* yield the same results as long as the well-foundedness assumption is in place. For, suppose that s and s' have the same ultimate grounds, i.e. each ground of one is grounded in a ground common to both. This holds in particular for all of the states' fundamental grounds. Thus, since fundamental grounds are only (weakly) grounded in themselves, each fundamental ground of one of the states is also a fundamental ground of the other. Now suppose, on the other hand, that grounding is well-founded and s and s' have the same fundamental grounds. Then each ground of one of the states will be grounded in some of the state's fundamental grounds, by well-foundedness. Since each fundamental ground of one state is also a fundamental ground of the other, each ground of one will be grounded in a ground of the other.

That the ultimate version of our explication proposal is superior to the fundamental version becomes apparent once the well-foundedness assumption is dropped. For instance, the former correctly yields that $p \not\equiv q$ when the only grounding chains that run through $[p]$ and $[q]$ are infinite but non-overlapping, since in such a case even $[p]$ and $[q]$ themselves have *no* common ground. Nevertheless, for the sake of simplicity I will assume well-foundedness and talk in terms of the fundamental version in the remainder of the paper. Nothing substantial hinges on this choice for the purposes of our discussion.

4   Some lacking connections

In the last section we developed an explication of the 'just is'-operator in terms of grounding. The proposal conforms quite well with the things Rayo says about the operator that were rehearsed in section 1 above. On

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of ground to our repertoire. Thanks to Jon Litland for suggesting to simplify the formulation of the explication proposal by appeal to Fine's notion of distributive grounds.

the proposed explication, the operator turns out to be reflexive, symmetric and transitive. Further, it allows us to uphold plausible grounding claims while still accepting Rayo's paradigm examples of true 'just is'-statements.[29] Things are not so clear cut when it comes to the connections with other philosophically interesting notions. I see no difficulty in maintaining a close connection between true 'just is'-statements and sameness of truth-conditions.[30] The connection with modality and with why-closure are more problematic. In the subsequent two subsections I will argue that the friend of grounding will be unable to maintain as tight a connection as Rayo takes there to be. This, however, is not a shortcoming of our proposed explication of the 'just is'-operator, but rather reflects an underlying independent disagreement between the two camps that we might describe as one concerning the 'coarseness of grain' of our metaphysical units.[31] Rather than casting our proposal in doubt then, the discussion in the subsections to follow is testament to the dialectical fruitfulness of understanding the 'just is'-operator in terms of grounding according to our proposal.

4.1 Modality

One discrepancy that was only to be expected concerns the extremely tight connection with the strict biconditional that Rayo makes out: according

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[29] It is worth noting that prior commitments on grounding will force one's hand on which 'just is'-statements to accept on our proposal. In particular, unorthodox views on what grounds what will result in unorthodox views on which 'just is'-statements are true. For instance, a proponent of what we may call *grounding monism* – mimicking Schaffer's (2010) *priority monism* – holds that every fact is ultimately grounded in the Maximal Fact. The grounding monist should consequently accept that $p \equiv q$ whenever it is true that p and it is true that q. She will thus be committed to infinitely many wildly implausible 'just is'-statements. However, this is a direct result of the infinitely many wildly implausible grounding claims she is also committed to, and I don't see any convincing reason to think that unorthodoxy in the latter area must be combinable with orthodoxy in the former. Thanks to a reviewer for this journal for urging me to address this issue.

[30] In fact, in a companion paper I argue that the developed notion is a very good fit for a notion of *content* with which we can make sense of Gottlob Frege's talk in *Grundlagen* about certain sentences' (e.g., about whether two lines are parallel) carving up the content of some other sentences (e.g., about the identity of directions) in a different way. See Frege (1884) and cp. Hale (2001) for an alternative attempt.

[31] This disagreement is mirrored by the fact that the set of R-states is a *coarsening* of the set of unit sets of G-states.

to Rayo, '$p \equiv q$' and '$\Box\,(p \leftrightarrow q)$' are equivalent (see §1 above). Given that grounds cut much more finely than intensions, it should come as no surprise that the equivalence is not generally secured by the current proposal.

It is easy to generate counterexamples to the right-to-left direction of the equivalence claim on our current proposal. Let $[p]$ and $[q]$ be ground-independent states, i.e. choose p and q in such a way that the grounding chains of $[p]$ and $[\neg p]$ are pairwise disjoint from the grounding chains of $[q]$ and $[\neg q]$. Now consider, first, $[p \wedge (q \vee \neg q)]$. The strict biconditional $\Box\,(p \leftrightarrow (p \wedge (q \vee \neg q)))$ is true, since '$q \vee \neg q$' is necessary. But while part of the conjunctive state's fundamental grounds are the fundamental grounds of $[q]$, by assumption of ground-independence these are not fundamental grounds of the bare $[p]$. Or consider, secondly, $[p \vee \neg p]$ and $[q \vee \neg q]$. '$p \vee \neg p$' and '$q \vee \neg q$' are necessary, so the corresponding strict biconditional is true. The fundamental grounds of the first state are the fundamental grounds of $[p]$ and $[\neg p]$ taken together. And the fundamental grounds of the second state are the fundamental grounds of $[q]$ and $[\neg q]$ taken together. But, by assumption of ground-independence, these are disjoint. Thus, on our proposal, (i) $p \not\equiv (p \wedge (q \vee \neg q))$ and (ii) $(p \vee \neg p) \not\equiv (q \vee \neg q)$ for ground-independent states $[p]$ and $[q]$, and the very tight connection Rayo stipulates to hold between true 'just is'-statements and strict biconditionals is severed.

How serious is the discrepancy? Not very, in my estimation. Note first that the plausibility of the left-to-right direction is unaffected. Given a few plausible though non-trivial assumptions, we can even prove that it holds. The assumptions are

Modal Stability
$\Box \forall p \,\Box\, \forall q \,\Box\, (q < p \leftrightarrow \Box\, q < p)$
Some state s (non-factively strictly fully) grounds some state s' in any world just in case s grounds s' in every world.

Ground Sufficiency
$\Box \forall p\,q\,(p < q \rightarrow (p \rightarrow q))$
If some state s (non-factively strictly fully) grounds some state s' in some possible world, then the latter obtains in that world if the former does.

Ground Necessity
$\Box \forall p\,((p \wedge \exists \Delta\, \Delta < p) \rightarrow \exists \Delta\,(\Delta < p \wedge \Delta))$
If in some world a state obtains that has any (non-factive strict full) grounds, then some of those grounds obtain in that world.

Suppose $p \equiv q$, i.e. $[p]$ and $[q]$ have the same set of fundamental grounds, A. Assume $[p]$ obtains at some possible world w. Then by *Modal Stability*, A is the set of $[p]$'s fundamental grounds in w as well. Thus, by *Ground Necessity* some of the grounds in A obtain in w. Call them Δ. The Δs are also grounds of $[q]$ in w, by hypothesis and *Modal Stability*. So, by *Ground Sufficiency*, $[q]$ obtains in w.

Further, although the right-to-left direction of the equivalence fails, this is compatible with Rayo's main claim concerning true 'just is'-statements and modality, namely that the former *determine* logical space.[32] In particular, for all that has been shown, we can still agree with Rayo that there is an important connection between true 'just is'-statements and *possible scenarios* (and, thus, mediately, the truth of strict biconditionals):

> A first-order sentence (or set of first-order sentences) describes a metaphysically possible scenario if and only if it is logically consistent with the set of true 'just is'-statements. (Rayo 2013: 49)

Reconsider our examples. Arbitrary instances of '$\neg (p \leftrightarrow (p \wedge (q \vee \neg q)))$' and '$\neg ((p \vee \neg p) \leftrightarrow (q \vee \neg q))$' are logically inconsistent with the empty set of assumptions. A fortiori, they are logically inconsistent with the set of true 'just is'-statements. Consequently, in line with the above quotation, they do not describe metaphysically possible scenarios, even though the 'just is'-statements that correspond to their negations are false. Thus, we can still think that there is a tight connection between true 'just is'-statements and the question of what possible scenarios there are. If we plausibly assume that a strict biconditional '$\square (p \leftrightarrow q)$' is true just in case the negation of its embedded biconditional '$p \leftrightarrow q$' describes no possible scenario, there will also be a connection between true 'just is'-statements and strict biconditionals. It is just slightly less tight than Rayo envisages: according to Rayo to each true strict biconditional corresponds a true 'just is'-statement. On our alternative picture, the connection is sometimes mediated by logical (in)consistency.

One might try to gain some leverage against our proposal by appeal to Rayo's gloss of sentences' flanking a true 'just is'-statement as *making the same demands on the world*. Shouldn't we want to say that two *tautologies* like different instances of '$p \vee \neg p$' make the very same demands on the world, namely none at all (cp. Cameron 2014: 436)? I do not see that we have to.

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[32] Cf., e.g., Rayo (2013: 36).

'Socrates is wise or Socrates is not wise' demands of the world for its truth
that Socrates should be wise or Socrates should be not wise. 'Plato is tall or
Plato is not tall' demands of the world that one of the following states obtain:
Plato should be tall, or alternatively Plato should be not tall. Both demands
cannot but be met by the world. But they are different demands. At least,
nothing pre-theoretically compels me to say otherwise. To this extent, I take
a verdict about these cases to be optional, even if one is intent on saving
the tight connection that Rayo takes there to be between 'just is'-statements
on the one hand and metaphysically possible scenarios as well as worldly
demands on the other.

4.2   Why-Closure

Recall that according to Rayo a first-order sentence is why-closed just in case
it is a logical consequence of the set of true 'just is' statements. Presumably,
for these purposes an instance of '$p \leftrightarrow q$' should count as a logical consequence
of the corresponding instance of '$p \equiv q$', since Rayo moves without further
ado from the observation that an instance of '$p \equiv q$' holds to the claim that
the corresponding biconditional '$p \leftrightarrow q$' is why-closed.[33]   Accordingly, the
envisaged connection between 'just is'-statements and why-closure requires
that, e.g.,

11   There is a table $\leftrightarrow$ there are things arranged tablewise;

is why-closed, given that the corresponding 'just is'-statement

5   There is a table $\equiv$ there are things arranged tablewise.

is true. Let φ be sentence (11). Then that (11) is why-closed means that it
allows of no 'metaphysical' explanation, that is

> one is unable to make sense of the question ⌜Why is it the case
> that φ?⌝ when it is understood as follows: I can see exactly what
> it would take to satisfy φ's truth-conditions, but I wish to better
> understand why the world is such as to satisfy them. (Rayo 2013:
> 55)

Nothing in the current proposal would seem to license Rayo's general
claim. If $p \equiv q$ then the state that p and the state that q have the same
fundamental grounds. Does this entail that we are unable to answer or even

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[33] Cp., e.g., Rayo (2013: 56).

make sense of the question 'Why is it the case that $p \leftrightarrow q$'? I see no reason to suppose that it entails either.

Øystein Linnebo (2014) even claims that there is a *conflict* between the why-closure of (11) and the truth of a certain 'because'-claim, namely

12   There is a table because there are some things arranged tablewise.

> For by explaining the left-hand side in terms of the right-hand side, (12) entails that the associated biconditional [(11)] is not, after all, subject to why-closure [...]. (Linnebo 2014: 478, numbering adjusted)

If Linnebo is right, this has straightforward knock on effects for our proposal. For, in analogy with the causal relation that underpins causal explanations, grounding is typically taken to underpin grounding explanations. Thus, whenever a (strict) grounding claim holds and the ground obtains, the corresponding 'because'-statement will be true. In particular, if

7   There are things arranged tablewise < there is a table;

holds and there are things arranged tablewise, we should also accept that (12) is true. Consequently, if Linnebo is right, we should deny that (11) is why-closed. More generally, all cases that motivated us to look for an alternative to the inadequate explication proposals discussed in §2 above would generate conflicts with why-closure. For these were cases in which (a) $p \equiv q$, (b) $q < p$ and (c) q. (b) and (c) entail, as the friends of ground would be happy to admit, that (d) p because q. And if Linnebo is right, (d) entails that '$p \leftrightarrow q$' is not why-closed, despite (a).

Now, unfortunately, Linnebo does not go out of his way to justify his claim that the truth of a 'because'-statement linking the two subclauses of a biconditional is in conflict with the view that the biconditional itself is why-closed. On the face of it, the truth of the 'because'-statement 'p because q' ensures that the question 'Why is it the case that p?' has a correct answer, and, thus, a fortiori, can be made sense of. But this is not the question we are concerned with when we are worried about the connection between true 'just is'-statements and why-closure. The pertinent question here is 'Why is it the case that $(p \leftrightarrow q)$?' (asked in the metaphysical spirit). And I do not see why this latter question is guaranteed to be sensible just because the former is.

The friends of ground are likely to balk at Rayo's claim that pertinent biconditionals are why-closed in any case.[34] For, they will typically want to hold that a biconditional just like any other logically complex state will be grounded in its compounds.[35] Now, the biconditional does not take centre stage in the discussion of the logic of ground. But if we assume that it behaves as if it were the conjunction of two conditionals, the standard view on the grounds of conjunctions yields

$$p \to q, q \to p < p \leftrightarrow q.$$

Since true grounding claims entail true explanatory claims, provided the grounds obtain, it follows that '$p \leftrightarrow q$ because …' has a correct completion if the two conditionals are true, and, thus, a fortiori, that the 'why'-question that is answered by that completion makes sense. Further, the friend of ground might want to continue, if any explanation deserves the title 'metaphysical' then surely an explanation that is backed by a true grounding claim does. Thus, *no* true biconditional is why-closed, in particular none that corresponds to a true 'just is'-statement.[36]

There are a few moves Rayo could make in response.[37] The most straightforward reply would be to deny that all grounding explanations count as metaphysical in the pertinent sense. Perhaps, the pertinent explanations are *semantic* rather than *metaphysical*, i.e. they merely cast light on the truth conditions of the explanandum, rather than on what in the world makes it true. I am uncertain whether there is a robust distinction to be drawn here, but I don't have to rely on it. For, while it is true that the friend of ground will most likely disagree with Rayo about the why-closure of biconditionals,

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[34] This was pointed out to me by Øystein Linnebo in personal communication.

[35] For a sketch of the 'impure' logic of ground see, e.g., Fine (2012: §1.7 & 1.8). Cp. also Schnieder (2011) for a corresponding logic of 'because'-statements.

[36] There is a more general point that underlies the difficulty. 'Because'-statements backed by grounding explanations are plausibly taken to be hyper-intensional: that 'p because q' and '$\Box (p \leftrightarrow r)$' are true does not ensure that 'r because q' is true as well. The same holds, *mutatis mutandis*, for the explanans clause of the 'because'-statement. This observation strongly suggests that there is no straightforward connection between the truth of strict biconditionals and why-closure. Given that Rayo takes there to be an extremely tight connection between true 'just is'-statements and strict biconditionals, there will be no straightforward connection between true 'just is'-statements and why-closure either.

[37] See Rayo (2014: §II.ii) for the moves he does make concerning Linnebo's original complaint.

this disagreement is totally general and has nothing to do with the fact that they correspond to true 'just is'-statements. Consequently, the disagreement has nothing in particular to do with our explication proposal. No matter if and how we explicate 'just is'-statements, as long as there are any of them that are taken to be true, the friend of grounding persuaded by the consideration in the last paragraph will deny that the corresponding biconditionals are why-closed. Thus, the friend of ground will have good reasons to be dissatisfied with an aspect of Rayo's overall theory of the 'just is'-operator. But this dissatisfaction is independent of her ability to understand the theory's target notion along the lines of our explication proposal.

5 Conclusion

The 'just is'-operator is a useful tool to have in one's metaphysical tool kit. It is arguably what we want when formulating philosophically interesting *no difference* claims. For Socrates to exemplify wisdom just is for Socrates to be wise. For a possible world in which Plato is tall to exist just is for it to be possible that Plato is tall. For the number of Jupiter-moons to be 67 just is for there to be exactly 67 moons of Jupiter. Etc. Perhaps, Rayo is right and 'just is'-statements delineate logical space, in that all candidate possibilities that describe the world in a way that is logically incompatible with the set of true 'just is'-statements are thereby discounted. And 'just is'-statements may provide object language ways of expressing that two sentences have the same content in a theoretically useful sense of 'content'.

In the paper I have shown that the metaphysician who is already equipped with the relevant notion of ground (non-factive weak full ground) can get Rayo's 'just is'-operator at no extra cost: the latter is definable in terms of the former. Though, as the discussion in the last section has brought out, the resulting theory may be able to do slightly less than what Rayo had initially hoped, the proposal shows that the friend of ground has an additional powerful and intuitive instrument for describing and theorizing about the ontological structure of the world at her disposal.

One might think that the prize is still not right, since grounding is just so outlandish or strong—especially the rarefied notion of non-factive weak full mediate ground employed in the explication—that it does not make much difference if someone happy to accept *that* also gets thrown the relatively modest 'just is'-operator into the mix. To give a quick illustration, the friend

of ground wants to be able to maintain quite generally that $\forall p\,(p \nleq p)$. In order to do so, she has to rely on, to speak roughly, a reasonably fine-grained theory of G-states (or a corresponding theory of sentential quantification) in order for the principle to not conflict with various grounding claims she also wishes to make. And it may not be at all trivial to develop such a theory. So, the theory of ground has various knock on demands on our other theoretical resources that may not be easily met. This is not the place to try to meet them. But if the proposal developed here is on the right track, it provides additional motivation for sustained attempts to do so.

Relatedly, *pace* Cameron, it is not much of a surprise that the 'just is'-operator can be explicated in terms of grounding. The notion of ground is just so powerful in allowing us to make very fine-grained distinctions. On the other hand, 'just is'-statements were meant to record distinctions much coarser than that. It would have rather been surprising had we *not* been able to judiciously ignore certain distinctions made available by the former to arrive at the latter. Still, it is one thing to be convinced of the existence of an explication, another to have it on the table. Since it is available now we can start exploring the theory of the 'just is'-operator as a limited but interesting subtheory of the theory of ground.[38]

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