

Explanation and Fundamentality¹

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1. Introduction

Members of a wide range of ontological categories can apparently be described as (at least putatively) metaphysically ‘fundamental’. On taking a quick look through some of the contemporary metaphysics I’ve been reading lately, I find that the adjective ‘fundamental’ is being applied by metaphysicians to, among other things:

truths (e.g. Williams 2010, Sider MS),
facts (e.g. deRosset 2010),
states of affairs (Armstrong 1997),
layers or levels of reality (e.g. Schaffer 2003, Cameron 2008, Paseau 2010),
reality’s structure (e.g. Lowe 1998, Hall 2010, Sider MS),
things (e.g. Fine 2001),
individuals (e.g. deRosset 2010),
entities (e.g. Cameron 2008, Hall 2010),
objects (e.g. Cameron 2008),
qualities (e.g. Schaffer 2003),
properties and relations (e.g. Lewis 1986, Armstrong 1997),
universals (e.g. Armstrong 1997),
quantifiers (e.g. Sider MS),
laws (e.g. Lewis 1986, Armstrong 1997),
languages (e.g. Sider MS),
and theories (e.g. Sider MS).

And I haven’t even started on uses of the adverb ‘fundamentally’.

Setting aside some no-doubt-important differences, for current purposes I shall take it that metaphysical fundamentality is generally supposed to amount to something *reasonably similar* regardless of the ontological category of that to which it is being attributed. My purpose in this paper is to explore the question: what are metaphysicians doing when they describe something as ‘metaphysically fundamental’? There is influential recent work in metaphysics arguing about whether *there exists* anything fundamental (see e.g. Markosian 2005, Cameron 2008). The fundamentality or otherwise of *particular* things is also a rich source of metaphysical debate (see e.g. Schaffer 2010). And this work taps into a venerable tradition plausibly dating back at least to Aristotle.

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This paper asks: what kind of question is being disputed here? I consider the following hypothesis by way of an answer:

Hypothesis H

When metaphysicians describe something as 'fundamental', that means approximately the same in their mouths as if they had called it '(part of) that by appeal to which all *the rest* can be explained'. Correspondingly, 'x metaphysically depends upon y' and other cognate phrases should be understood as expressing roughly the same thing as '(salient things about) x can be explained by appeal to y'.

Some initial points to note about **H**:

- (1) It is deliberately generic. I do not mean to suggest that *every* metaphysician who uses the phrase 'metaphysically fundamental' uses it as **H** suggests. Some explicitly define the phrase in such a way that this would be implausible. The aim is to get at the gist of what metaphysicians in general are up to when they are talk the 'fundamentality' talk.
- (2) 'The rest' is a deliberately fluid phrase. It could mean the rest of reality, the rest of the propositions, the rest of the facts, etc..
- (3) 'By appeal to' is woolly: it doesn't tell you much about the kinds of role(s) that the thing appealed to should be playing in the relevant explanations. That too is deliberate; my view is that calling something 'fundamental' does not give that much information as to what sorts of roles that thing plays in the relevant sorts of explanations.
- (4) It is not assumed that *the rest* will be disjoint from the fundamental; for example, parts of things which are fundamental could be among *the rest*.
- (5) What if there is no *rest*? What if reality has just one 'layer', so that everything is fundamental? Then, trivially, all of *the rest* can be explained by appeal to the fundamental.
- (6) The parenthetical 'part of' is there because it is not typical to believe that each fundamental thing is explanatory of all of *the rest* by itself. It is more usual to believe that the fundamental, *taken all together*, can explain 'the rest'.
- (7) Because we are talking about metaphysical fundamentality, the word 'explained' as it appears in **H** is being used to talk about certain kinds of metaphysically interesting explanation, not just any old explanation. More on that later.
- (8) **H** avoids difficult questions as to whether the various things which can be called fundamental or said to depend on one another are of the correct ontological categories to *be explanations* or *do any explaining* themselves. Anything might be *appealed* to in an explanation, or be such as to have

salient things about it explained. For brevity, I'll sometimes talk as if, according to **H**, explanation *constitutes* grounding or dependence, but this 'constitution' talk isn't meant to imply anything more or less than the hypothesis just described.

- (9) **H** is a claim about meaning. But that doesn't imply that it is either false or obvious. Often, we use words competently but without a thorough reflective grasp of their meaning.
- (10) 'All the rest' may need to be restricted so as to allow for the possibility that some non-fundamental things are in some respects inexplicable. We might want to allow for the possibility that (say) consciousness is not fully explicable by appeal to fundamental physical facts, although the former does depend upon the latter in such a way as to make it non-fundamental. But it wouldn't solve this problem to suggest that 'by appeal to which all the rest can be explained' be read as something like 'by appeal to which everything *that can be explained* about the rest can be explained'. I take it that the fundamental has to be doing *some* significant explanatory work, even it isn't doing quite all that one might want, and the formulation just considered doesn't deliver that. A form of words that gets closer to what I'm after would be: 'by appeal to which much (and everything *that can be explained*) about the rest can be explained'.
- (11) Similarly, the kind of 'explanation'-relationship that one attributes by using 'dependence'-talk may be incomplete in important respects. One might, for example, believe in some emergent mental properties which 'depend' upon physical properties but cannot be fully explained by them.
- (12) The *quality* of a putative explanation can affect our willingness to label it 'an explanation', at least in some contexts,² and the same goes for our willingness to use 'dependence'-talk and 'fundamentality'-talk. One explanatory virtue that seems particularly important here is the omission of irrelevant or unnecessary material. You might think that if the fundamental can 'explain' all *the rest*, then so can: the fundamental together with a few other bits and pieces. But the inclusion of unnecessary extras (especially if they interfere with the tidiness or uniformity of the envisaged explanation) could well be enough to make the putative explanation bad enough not to count as 'an explanation' in the relevant contexts.

Belief in some significant connection between fundamentality and explanation is not uncommon; I shall consider extant discussions of it below. However, two things that are so far absent from the literature are (1) a worked-out account of the connection which makes it as intimate as is suggested in **H**, and (2) a sustained assessment of

² See Jenkins 2008: 68-70 for further discussion.

the plausibility of such a close connection between fundamentality and explanation. The task of this paper is to try to offer both.

For the sake of clarity, let me stress that there are other philosophically interesting uses of 'fundamentality' which I am not talking about in this paper. These include uses which express conceptual fundamentality (a property putatively possessed by those concepts – if any – of which our grasp is not derivative upon our grasp of other concepts) and uses which express epistemic fundamentality (a property putatively possessed by basic knowledge: that knowledge – if any – which is not derived – in some relevant sense – from other knowledge).

Let me also stress that although my project is interpretative – I want to find out what the 'fundamentality' debates are all about – that does not mean I am not also pursuing the project of finding out *what fundamentality is* (at least, assuming that I write this sentence in a similar context to some of those in which metaphysicians use their word 'fundamentality'). I take it that this technical term is owned by the metaphysicians who deal in it at least to the extent that if I find out what metaphysicians are discussing when they talk their 'fundamentality'-talk, then I know what metaphysical fundamentality is.

2. Key Features of Fundamentality

Many suggestive words and phrases are bandied about by philosophers in the process of characterising metaphysical fundamentality. Some of these appear to import some pretty substantial assumptions about what fundamentality amounts to. These include:

'degrees of reality',
'structure',
'objectivity',
'smallness',
'composition',
and 'featuring in the best and/or minimal metaphysically complete language or theory'.

The idea that dependence and fundamentality are to be cashed out in terms of degrees of reality, with the fundamental being most real and that which merely depends upon it being somewhat less real, is discussed by e.g. Cameron (2008: 9-10) and Schaffer (2003: 498). Unless this is simply the view that the non-fundamental is unreal (which I shall discuss below), I find it difficult to make sense of it. I don't know what it would be for reality to have more than two 'degrees', unless that's way of cashing out the idea of some thing's existing vaguely or otherwise indeterminately. I assume here that a commitment to the non-fundamentality of a thing ought not entail a commitment to that thing's existing vaguely or otherwise indeterminately.

Fundamentality is particularly associated with structure by Sider (MS). He says, for example, that: '[d]iscerning "structure" means ... inquiring into how the world fundamentally is, as opposed to how we ordinarily speak of or conceive of it as being' (1). As I understand it, this association is intimately connected to Sider's belief in an *objective* structure to reality: a structure created by the 'joints in nature', such that the difference between non-electrons and electrons marks such a joint, but the difference between things which are electrons-or-cows and things which are neither electrons nor cows does not. Underlying Sider's association of fundamentality with structure, there may be a ghost of the assumption that the fundamental, and only the fundamental, is *objective*. Although Sider does reject this assumption explicitly in his MS, it would, in conjunction with his desire to establish that *structure* is objective, explain why he is at pains to argue that the kind of 'structure' he's talking about is fundamental.

But I don't see why non-fundamental reality, if any such there is, should not count as structured, and objectively so. For the sake of neutrality on this issue, I think we should understand the notion of fundamentality in such a way that it is not obviously mistaken to think that non-fundamental reality has a structure just as objective as that of non-fundamental reality.

I do not endorse ways of characterising fundamentality which force us to associate fundamentality (or the lack of it) too closely with objectivity (or the lack of it); again, there is nothing obviously wrong with the idea that there are objective but non-fundamental things. Non-empty sets are often taken to be paradigms of non-fundamentality. So consider the singleton of the natural number 9. It metaphysically depends upon 9. But I don't see that this gives us any reason to deny *objectivity* to {9}; it seems about as objective as anything could be. Plausibly, *one* way for something to be non-fundamental is for it depend metaphysically *on our minds*. (Maybe humour facts are non-fundamental for this reason.) But we obviously shouldn't assume that depending on *something* is the same as depending on our minds.

The connections between smallness, composition and fundamentality make sense if it is assumed that if anything is fundamental it's the smallest parts out of which everything else is mereologically composed (and/or the facts about those smallest parts, and/or their properties, or whatever). This view is in evidence in e.g. Schaffer 2003 and Markosian 2005, and in both cases it appears that, as a result, mereological notions are being imported into the very characterisation of fundamentality and/or dependence. But doing this automatically rules out the view that the whole universe is fundamental and its smaller parts are grounded in it (see e.g. Schaffer 2010; Schaffer now declines to analyse metaphysical priority), and may also problematise views on which (e.g.) the physical is fundamental and the mental is grounded in it. Regardless of whether such views are correct, it seems inappropriate to rule them out by giving a *definition* of fundamentality which makes them impossible.

It's sometimes proposed that fundamentality either is closely associated with being part of and/or expressible in a certain language: some sort of ideal and/or minimal language adequate for description of the world. Sider MS, for example, associates fundamentality with an optimal (though not minimal) language for describing the world. Relatedly, fundamentality might be associated with appearance in an ideal and/or minimally adequate *theory* of the world. Though I don't know of anyone who explicitly does this, some of Lewis's work comes close: see Lewis 1983: 42, where it is claimed that the perfectly natural properties are the only properties which appear in the basic axioms of the 'ideal system' or theory. (For Lewis, minimality or non-redundancy *is* a requirement on such a theory.) And the perfectly natural properties are the properties which, according to some commentators, Lewis takes to be limiting the 'fundamental structure of reality' (see Hall 2010, §3), though Lewis himself doesn't explicitly describe them as 'fundamental' in his 1983.

Perhaps associations of some kind with these things are warranted; perhaps, for example, appearance in such a language or theory is symptomatic of fundamentality. However, it would seem inappropriate to attempt to *define* metaphysical fundamentality in terms of languages or theories. (I don't mean to implicate here that Sider or Lewis does so.) I take it that in defending a fundamentality thesis one may also want the relevant fundamentality structures to be wholly metaphysical, mind-independent, and objective. And that won't sit well with their being simply a matter of how things are with our languages or theories. I'm not even sure we should take either of these symptoms as a necessary and sufficient for fundamentality.³ What happens if there is more than one ideal or minimally adequate language or theory? What if there are none? I'm not sure how one would go about answering these questions.

Many other words associated with fundamentality are relatively neutral with respect to *what fundamentality actually is*, but are still suggestive regarding the nature of fundamentality. These include the following:

'priority',
'primitiveness',
'elementariness',
'primariness',
'dependence',
'ground',
'ultimate',
'basis'/'basic',
'hierarchy',
'foundations',
'depth',
'derivativeness',

³ Except if we link these symptoms explicitly to **H**: if (for example) we say that appearance in the relevant kind of theory is necessary and sufficient and also that the relevant kind of theory is one that states the facts in terms of which the rest are to be explained.

‘secondariness’,
‘shallowness’,
‘reduction’,
and ‘inheritance’.

Two things are worth noting about these associations. Firstly, the appearance of so many words suggestive of *ordering* strongly indicates that the existence of some kind of ordering is (or at least: is considered) absolutely crucial for fundamentality. I will hereafter refer to this ordering as the ‘dependence’ ordering. However, although some of the order-suggesting words on the above list are suggestive of a *stratified* ordering, it is not obvious that just because there is an ordering there must be stratification. Fundamentality does not obviously require ‘layers’ or ‘levels’ of reality; there might instead be a continuous scale from the less fundamental to the more fundamental. At least, nothing about the idea of fundamentality as requiring some sort of ordering obviously rules that out.

Secondly, the ordering needs to have a minimal end: the fundamental end. But it is not clear that it need have a maximal end. And we should make room (at least in conceptual space) for the possibility that is some vagueness, indeterminacy and contextual shiftiness as to whether some particular thing counts as being ‘at the minimal end’ (i.e. falls in the extension of ‘fundamental’). Compare: being dry is being at the minimal end of the wetness spectrum, but there may be some vagueness, indeterminacy, and contextual shiftiness as to exactly how dry something has to be to fall in the extension of ‘dry’.

3. The Need For H

It is sometimes suggested that fundamentality and/or dependence are ‘unanalysable’ or ‘primitive’, without much detail as to what would be required for an analysis and why one cannot be provided (see e.g. Cameron 2008: 3; Schaffer 2009: 364). But it is also common for philosophers to assume that we have *some* grasp of what these things amount to, which is adequate (at least as a starting point) to enable us to make use of the notions in serious philosophy (see e.g. Williams 2010: 107; Cameron 2008: 3; Schaffer 2010: 36). Maybe we do, but it’s risky to proceed on that assumption, lest when pressed we turn out not to have a decent grasp at all, or to have a variety of different grasps.

If we had a secure grasp of the dependence notion which gives us the ordering required for fundamentality, we would be in good shape: we could simply understand the fundamental as that which depends on nothing. Modal characterisations of the dependence notion as some kind of supervenience are familiar, but also (since at least Fine 1994) familiarly hopeless. Issues include the unwanted dependence of everything upon the necessary, and the fact that supervenience can be symmetric and this makes it difficult to see how it could generate the ordering required for dependence. There is widespread recent consensus is that such modal characterisations just don’t work for these reasons.

(See e.g. McLaughlin and Bennett 2005, §3.5; Correia 2008, §1.4; and Koslicki MS; a similar point to the second is made in Lowe 2009.)

I was deliberately careful about stating the second worry (the worry generated by symmetries in supervenience). It's tempting to cash it out (as McLaughlin and Bennett, Correia and Koslicki do) by stating that dependence is *asymmetric*, but I have put the point in terms of the need to 'generate the requisite ordering'. I explain why in Jenkins Forthcoming: although it is very natural to treat metaphysical dependence as irreflexive and asymmetric, there are other ways in which one could accommodate the data responsible for the appearance of irreflexivity and asymmetry.

Given that modal characterisations won't work, I propose that **H** take their place. Explanation talk is everywhere in this literature. It's strikingly common to see words associated with explanation (particularly 'because' and 'in virtue of') dropped into discussions of dependence and fundamentality as if the connection between explanation and dependence were a very obvious or natural one. Here, for example, is Schaffer (2010: 35, emphasis in the original):

There is also the metaphysical structure of prior and posterior, reflecting what depends on what, and revealing what are the fundamental independent entities ... Consider Socrates. Given that he exists, the proposition <Socrates exists> must be true, And conversely, given that the proposition <Socrates exists> is true, there must be Socrates. Yet clearly there is an asymmetry. The proposition is true *because* the man exists and not vice versa. Truth depends on being ...

Less often, but still fairly frequently, explanation isn't merely dropped into the discussion in passing; it is explicitly stated that metaphysical dependence (or some related notion) is closely connected with explanation. Here is deRosset (2010: 74):

The priority theorist holds that the existence and features of all macroscopic concreta are fully explicable solely by reference to the existence and features of other things. Those other things are in this sense prior to the familiar macroscopic individuals. Ultimately, the explanation bottoms out in a relatively sparse inventory of entities, whose existence and features have no further explanation.

And here is Fine (2001: 15; emphases in the original):

We take *ground* to be an explanatory relation: if the truth that *P* is grounded in other truths, then they *account* for its truth; *P*'s being the case holds *in virtue of* the other truths' being the case.

(I *think* the ‘we’ here is the academic first person singular ‘we’, but maybe Fine intends to express the view that this is what philosophers in general take ground to be.)

Clearly, both deRosset and Fine at least think that belief in metaphysical grounding/priority relations *commits* one to some corresponding claims about explanation. That by itself, though, is weaker than the hypothesis **H** that I’m interested in, which says that there’s nothing *more* to calling something ‘fundamental’ than calling it ‘(part of) that by appeal to which the rest can be explained’. (A similar point is noted by Correia; see his 2005: 56.) According to **H**, therefore, attributions of the kind of ‘dependence’ that generates the ordering required for fundamentality just *are* attributions of (a certain kind of) explanatory dependence. It isn’t that there’s something else, metaphysical dependence, that goes along with or gives rise to explanations. The metaphysical dependence of Y upon X *consists in* the fact that Y can be explained in the right kind of way by citing X.

It’s not entirely clear to me whether Fine or deRosset actually endorses **H** or merely the weaker thesis, though I assume deRosset would endorse something fairly close, since he also enjoins us to ‘[c]all a fact *fundamental* if it is not explained by any other fact’ and to ‘[c]all an entity or kind *fundamental* if reference to it must be made in any complete statement of all of the fundamental facts’ (3).

Fine, I think, may intend merely the weaker claim that grounding gives rise to explanations, since he also says (2001: 15) that when the propositions expressed by sentences *T, U ...* ground the proposition expressed by sentence *S*, ‘[i]ts being the case that *S* consists in nothing more than its being the case that *T, U, ...*.’ But if deRosset and/or Fine do endorse **H**, neither of them provides much commentary on how to understand it, nor a sustained assessment of **H**’s merits and demerits as a characterisation of fundamentality.

Correia’s 2005 notion of ‘metaphysical grounding’ is very close to the dependence notion characterised by **H**. He describes (53) a notion of priority such that:

a is prior to {a} insofar as the existence of a *explains, or helps explain,* the existence of {a}—while the converse is false. ... Metaphysical grounding is an explanatory link of the kind under consideration.

However, Correia’s definition is stipulative. We aren’t offered an argument to the effect that this characterisation in terms of explanation is a good characterisation of the thing metaphysicians have been interested in. (He does offer objections to some alternative characterisations of notions in the vicinity, but that doesn’t do all the required work, since there could be others.)

My view contrasts sharply with that of Koslicki (MS), whose position is that ontological dependence is something which *merely* ‘underwrites’ explanations:

As a number of writers have noted, it is plausible to think that

dependence and explanation are related in something like the following way: when the presence of one type of phenomenon Φ explains that of another type of phenomenon Ψ , this explanatory relationship is underwritten by a dependence relation of some sort. For example, it is plausible to think that the causal, probabilistic or logical dependence relations mentioned earlier in this paper underwrite causal, probabilistic or logical explanations, respectively. It would certainly be attractive to extend this idea to the realm of ontological dependence, so that we may similarly take ontological dependence relations to give rise to ontological explanations.

There are other accounts of notions that are at least in the vicinity of metaphysical dependence which assign some crucial role to explanation, notably that of Lowe 1998. Lowe's proposal is considerably less straightforward than **H**, but it is suggestive that explanation is an important *part* of his picture. Schnieder (2006), developing a simpler proposal which is considered but rejected by Lowe, also suggests that explanation is crucial for dependence (at least of things on other things). He characterises such dependence thus (409):

x depends upon $y \leftrightarrow$ df. $\exists F$ (x exists, because y is F).

However, Schnieder also says that the relevant kind of explanation is 'conceptual', and says that conceptual explanations are 'based on certain conceptual relations which they in turn illuminate' (404). He stresses the 'objectivity' of the explanations, notwithstanding their conceptual nature. But whether conceptual explanations count as 'objective' in the relevant sense or not, I think Schnieder's focus on the conceptual is misplaced. One reason why is that it seems desirable to allow for the possibility that some interesting dependence relations hold entirely a posteriori, and in ways that have nothing particularly to do with concepts. For example, one might want to claim that facts about water are metaphysically dependent upon facts about hydrogen and oxygen and the way they bond. Or that facts about my mental states are grounded in facts about the distribution and fundamental properties of the subatomic particles in my brain.

Let me conclude this section by noting that **H** differs from all the precursors described here by being *metalinguistic*. I think this is important, because I think 'explains' is massively context sensitive (see Jenkins 2008) and I suspect that 'depends' and 'fundamental' may well exhibit the same sort of behaviour. The non-metalinguistic precursors of the proposal can't deliver this feature as they stand.

Let me give an example of the sort of context sensitivity for 'depends' that I'm trying to capture. The following utterances sound good to me. (Maybe they're true. They're at least plausible.)

1. The funniness of joke J depends upon its reception by normal audiences.
2. The funniness of joke J depends upon its reference to ducks.

But this one sounds strange:

3. The funniness of joke J depends upon its reception by normal audiences and its reference to ducks.

This, I conjecture, is because ‘depend’ in 1 is used to gesture at the obtaining of one of the relations that can (in certain contexts) be described as a metaphysical ‘explanation’, whereas in 2 it is used to gesture at a different relation, which can also (albeit in a different set of contexts) be so described. Perhaps the operative relation in 1 is *constitution* – the idea being that the funniness of joke J is *constituted* by something about its reception by normal audiences – whereas in 2 the operative relation is something more like influence or (non-causal) generation – the idea being that J’s funniness is influenced or generated by J’s reference to ducks.

This difference gives rise to two different (though related) meanings for ‘depends’, and 3 sounds odd because it attempts to ignore this difference. The trio 1, 2, 3 is in that respect analogous to:

- a. Sarah called Teri a cab.
- b. Sarah called Teri a fool.
- c. Sarah called Teri a cab and a fool.

Also suggestive is the fact that it can sound OK to say ‘The funniness of J depends only upon its reception by normal audiences’, even though it is also true to say ‘The funniness of J depends upon its reference to ducks’. This is analogous to the acceptability of saying ‘The only thing Sarah called Teri was a fool’, even though it is also true to say ‘Sarah called Teri a cab’.⁴

Even readers who are not convinced by these particular examples may agree that it is advantageous for an account of what metaphysicians are doing when they talk the ‘fundamentality’-talk to be *capable* of accommodating shiftiness of this kind. If such behaviour is even on the cards, we are better off taking a metalinguistic approach. There is no particular disadvantage to doing so, except the addition of a very manageable amount of extra complexity in the statement of the account.

4. Assessing H: Pros

In this section I look at what considerations (in addition to the already-noted associations between fundamentality/dependence and explanation) can be marshalled in support of H.

Commonly-assumed features of the kind of metaphysical dependence that can help us understand metaphysical fundamentality include irreflexivity, asymmetry and

⁴ Thanks to Jonathan Ichikawa for discussion of this point.

transitivity (see e.g. Cameron 2008: 3; Schaffer 2010: 37). Explanation relations are also often taken to have some or all of these features. (See e.g. Nozick 1981: 116-7). I'm not actually sure we should endorse the claim that metaphysical dependence is an irreflexive relation (see Jenkins Forthcoming), but that needn't matter; I'm not sure that explanation is an irreflexive relation either. What matters is that they both *seem* to be. (They both at least exhibit what I call 'quasi-irreflexivity': it sounds bad to say 'x explains x' and it sounds bad to say 'x metaphysically depends upon x'.) If **H** is correct one would expect various (apparent) features of explanation to have echoes in (apparent) features of metaphysical dependence.

It is also noteworthy that arguments in favour of fundamentality (that is, in favour of there actually *being something which is fundamental*) tend to make play with the feeling that something or other needs to be 'got off the ground'. This feeling is, I think, plausibly related to the feeling that explanations have to start somewhere. Some authors explicitly connect the need for fundamentality with the need for metaphysical explanation to begin somewhere: for example, Cameron (2008: 3) says that 'there is a problem if metaphysical explanation never 'grounds out' at some fundamental level'.

Also worth mentioning is that fact that modal connections can be symptomatic of the presence of explanation, and particularly of certain kinds of explanation.

Modal connections are symptomatically associated with explanations that trade on identities, for example. We can explain why there are moral facts by saying that there are facts about the maximisation of utility, if we believe the two kinds of facts are identical. And, if we believe that, we may well also think that the obtaining of certain utility maximisation facts is necessary and sufficient for the obtaining of corresponding moral facts. Similarly, we can expect modal symptoms to be associated with explanations which trade on mereological relations, constitution relations, and other relations that are distinctively of interest to metaphysicians (of which more later). So it is not too surprising that modal characterisations of metaphysical dependence have been suggested, if explanation is in fact what's going on, particularly if the explanations in question are at least reasonably often of a kind associated with modal connections.

Two final advantages of **H**. Firstly, since pretty much anything can be appealed to in an explanation, pretty much anything can be sensibly called 'fundamental' if **H** is correct. This makes sense of the length of the (long but still very incomplete) list in §1 above of kinds of things to which the term is being applied in contemporary metaphysics.

Secondly, the lack of any serious philosophical interest in questions like whether there exists anything maximally *unfundamental*, and what if anything has that property, is also interesting in this context. For one thing, we are generally more likely to be interested in getting to an ultimate explanation of some given phenomenon than finding out how far its explanatory reach extends. (I don't propose to explain that fact about us here; I merely note that it *is* a fact.) For another, it is less intuitive to think that that the explanatory reach of some

phenomenon *will* come to an end than it is to think that there will be an ultimate explanation for the given phenomena. (Again, I don't propose to offer an explanation of why this is less intuitive; it's enough for current purposes that it is.)

5. Assessing H: Cons

A first objection to **H** is that it's not clear that explanation ever does 'bottom out' in the way required for fundamentality assuming that **H** is correct. One can always keep asking explanation-seeking 'why?'-questions whatever one has so far been told (see e.g. Lipton 2004). So characterising fundamentality in terms of explanation, as **H** does, appears to beg the question against views according to which there is something fundamental.

There are three possible responses here. Firstly, one could argue that this doesn't beg the question but moves the debate along. Maybe recognising that fundamentality is all about explanation, and explanation never bottoms out, is a way of finding out that nothing is fundamental. I find this somewhat methodologically unsatisfying; if we characterise fundamentality in such a way as to make it *obvious* whether there is anything fundamental, we risk being tollensed and told that since that is *not* obvious, the characterisation must be wrong.

Secondly, maybe explanation *does* bottom out. The fact that one can always ask another explanation-seeking why-question doesn't mean there is any answer to be had. Maybe there are just some explanatorily 'brute' facts, truths, objects or whatever.

Thirdly, even if explanation in general does not bottom out, maybe certain *kinds* of explanation do. Even if one can always ask 'why?' *and reasonably expect an answer*, it could be that there won't be an answer of the right *kind* of answer for a metaphysical dependence relation to be in place.

Here is a second objection to **H**: explanation is humanocentric, and metaphysical dependence and fundamentality are not. This objection might be spelled out along roughly the following lines. What makes for an explanation (or at least, a good explanation) depends on things like what the audience already knows, and what the hearer is interested in. And its goal is to produce understanding in the audience. None of this is relevant to *metaphysical* dependence relations, which obtain mind-independently and have nothing to do with what people know or are interested in or understand. (See also passing remarks in Lowe – 1998: 146 and 2009, §3 – to the effect that there is a risk, on such approaches, of conflating metaphysics and epistemology.)

I here set aside cheap answers to this objection which concede that metaphysical dependence is simply less mind-independent than (most) people previously thought. This strikes me as another invitation to the tollens manoeuvre just discussed.

Koslicki (MS) discusses this type of concern for her own view, and addresses it as follows:

... if at the end of the day we want to be left with a substantive notion of ontological dependence (as well as related concepts, such as those of priority, primacy, basicness, non-derivativeness, fundamentality, and the like), the type of explanation at work here cannot be viewed as one that is to be understood in primarily subjective, pragmatic or epistemic terms. Although it is very common these days to think of explanation in this way, other approaches to explanation, which are more conducive to a realist understanding of this notion, are available. For example, one might hold that any explanatory connection between a phenomenon, Φ , and a phenomenon, Ψ , can be traced back to there being a *law* connecting Φ and Ψ . And even to those who have a relatively easy time hearing the explanatory “because” as a highly pragmatic, subjective, epistemic and/or context-sensitive connective, it is perhaps somewhat more difficult to swallow that what counts as a law should similarly be tailored to interests or other occasion-dependent features. Aristotle’s famous doctrine of the four causes or explanatory factors also allows for a realist approach to explanation: matter (material cause), form (formal cause), telos (final cause) and source of change (efficient cause), in Aristotle’s view, are real and privileged constituents of the world, even though which of these aspects is of particular importance to us, when we ask a specific “why”-question, may of course vary from occasion to occasion.

I think this answer is roughly on the right lines, but can be made more appealingly general. I’m not sure whether it is ‘very common’ (among philosophers? among the folk?) to think of explanation as primarily subjective, pragmatic and/or epistemic. But the important point to note is that one needn’t believe that explanations require covering laws, or that Aristotle was right about explanation, in order to argue that explanation is not always humanocentric in such a way as to render it unsuitable for cashing out what metaphysical dependence amounts to.

In Jenkins 2008 (66-7) I describe several dimensions of variation in the things that we are ordinarily happy to call ‘explanations’. One of those dimensions distinguishes what I call ‘real’ explanations from what I call ‘all-in-the-mind’ explanations and what I call ‘genuine-understanding’ explanations. I suggest that sometimes ‘explanation’ is used in such a way that little more is required of something to count as ‘an explanation’ than that a feeling of understanding be produced in the recipient. Such uses express an ‘all-in-the-mind’ conception of explanation. On other occasions of use, how things stand in (mind-independent) reality is much more important for determining what falls within the extension of ‘explanation’ than feelings of understanding. This idea of ‘real’ explanation is in play when we say things like: ‘There must be some explanation of the existence of the universe but nobody could

ever grasp it'. 'Genuine-understanding' explanation combines elements of the other two (and the relationship between them).

Provided one believes in real explanations and/or genuine-understanding explanations, one doesn't need to commit to a particular theory of them (say, a covering-law theory) in order to attribute the suspicion that explanation is 'humanocentric' to excessive focus on the all-in-the-mind conception of explanation to the exclusion of these other conceptions that are more suited to the role of cashing out what philosophers are attributing when they attribute metaphysical dependence.⁵

I want to stress, however, that there is nothing inconsistent in thinking that 'explanation', 'dependence' and 'fundamentality', *even once we specify* a restriction to real and/or genuine-understanding explanations, are subject to context-sensitivity of the various other kinds discussed in Jenkins 2008 (for example, context-sensitivity generated by the interests and background knowledge of contextually-determined *envisaged audience* of the explanation). Context-sensitivity simply mustn't be bundled in with subjectivity in this part of the debate. To see why not, one need only note that 'the planet we live on' is a context-sensitive phrase, but that there is nothing interestingly non-objective about planet Earth. Similarly, that what gets expressed by 'fundamental' may depend on contextual factors does not mean there is anything interestingly non-objective about whatever it is that is thus expressed.

A third objection to **H** is that fundamentality is sometimes associated (at least in the Aristotelian tradition, at least according to such commentators as Schaffer 2009) with the thought that the non-fundamental is 'no addition to being'. Armstrong (1982 and elsewhere) introduced this phrase in connection with what he called 'supervenience'. Could we make sense of the thought that whatever is non-fundamental is 'no addition to being', if fundamentality were cashed out in terms of explanation in the way **H** suggests?

There are two broad groups of ways to understand the claim that the non-fundamental is 'no addition to being'. On the first group of interpretations, the non-fundamental is 'no addition to being' because it is *either* non-real *or* identical to something fundamental. (Jenkins Forthcoming explains why I think it needn't automatically be contradictory to identify something fundamental with something non-fundamental.)

Holding that the non-fundamental is unreal, along with **H**, amounts to holding that nothing of which the relevant kind of explanation can be given is real. Something Fine says (2001: 4) suggests that he will find this combination of views problematic:

Now it may be conceded that there is a sense in which certain facts are more fundamental than others; they may serve to explain the other facts or perhaps, in some other way, be constitutive of them.

⁵ I think this response, thus far, is broadly similar (at least in spirit) to that of Schnieder 2006.

But how does this provide a ground for denying reality to the other facts? Indeed, that they had an explanation or constitution in terms of the real facts would appear to indicate that they themselves were real.

There is nothing *inconsistent* about the position under consideration, but Fine challenges it on motivation. What is it about explicability that supposedly makes for non-reality?

I think I share Fine's intuitions here, but we can't be quite so quick as Fine is. We can construct a possible (though possibly bad) motivation for denying existence to the non-fundamental on the grounds that it doesn't do the kind of heavy lifting done by the stuff that is explanatorily basic. The thought here would be, roughly, that pulling one's explanatory weight, in the sense of being a member of that-in-virtue-of-which-the-rest-is-to-be-explained, is a necessary condition for being worthy of admission to one's ontology. The idea that there is *some* connection between something's playing an explanatory role and being worthy of admission to one's ontology is not an uncommon one (see e.g. Baker 2005 for a good recent discussion of such connections in the case of mathematical entities).

On the other hand, if everything non-fundamental is simply identical to something fundamental, then on the hypothesis under consideration here, that amounts to the view that those things of which a certain kind of explanation can be given are identical to the things that are used to provide those explanations. This is not inconsistent either; indeed, it could be that the kinds of explanation that is relevant for grounding include a kind that arises from identity. For example, a certain kind of explanation of why there are minds could appeal to the fact that there are brains (which are identical to minds).

The second group of interpretations of the phrase 'no addition to being' takes it slightly less seriously. On such interpretations, the claim that the non-fundamental is no addition to being, instead of meaning that the non-fundamental adds nothing to reality *at all*, just means that it adds nothing to *fundamental* reality, and is therefore is no biggie, metaphysically speaking. Schaffer, for example, suggests reading 'no addition to being' as 'no addition to the sparse basis' (2009: 353).

Of course, if that is what's meant, then once again the view can be consistently held together with the hypothesis that grounding is about (a certain kind of) explanation. It can even be motivated by that hypothesis, since one might feel that methodologically it is much less of a big deal to posit things for which the right kinds of explanations can be given (i.e. non-fundamental things) than it is to posit explanatorily basic things. The former are no addition to *inexplicable* reality; explicable reality, it might be felt, is relatively philosophically cheap.

6. What kind of explanation?

Even assuming we have some kind of grasp on metaphysical dependence as an explanation relation as postulated by **H**, there is *much more to say* about what *kinds* of explanation are relevant. I certainly won't try to say it all here, but I'll consider some extant suggestions, then I'll finish up with some of my own.

Fine (2001: 15) thinks that metaphysical grounding is 'the tightest' explanatory connection between truths. (As before, I'm not sure whether by 'explanatory connection' he means 'connection associated with explanation', rather like Koslicki, or whether he intends a thesis more like **H**, identifying grounding with a kind of explanation.) He says (16):

It is the ultimate form of explanation; and it is perhaps for this reason that we are not inclined to think of the truth of a grounded proposition as a *further fact* over and above its grounds, even though it may be distinct from its grounds and even though it may itself be a real fact.

But I must confess that I don't know what to make of 'tight'ness and 'ultimate'ness here. Perhaps it is a gesture towards the relevance of kinds of explanation that are associated with non-distinctness: identity-based, mereology-based, constitution-based, etc.. We already have some reason to look to such explanations as likely candidates (see §4 above, where I noted that these kinds of explanation could often be expected to go along with modal connections between explanandum and explanans). I'm not sure we should expect that the relevant explanations will *always* be associated with non-distinctness, however. It is metaphysically respectable to say that {9} depends on 9, but the two entities are wholly distinct. They are, nevertheless, undeniably somewhat intimately related. Perhaps there is some way of spelling out 'tight'ness of explanation to cover this kind of case as well as the non-distinctness kinds, and all other cases of metaphysical dependence. But I don't at present know what it is.

Koslicki (MS) believes there are different varieties of ontological dependence: one associated with 'real definition', one associated with being 'a constituent in a proposition expressing [the] accidental nature' of the grounded thing at a particular time, and at least one other kind of which she does not give a theory. Each kind of grounding is, on Koslicki's view, *associated* with explanations of the grounded in terms of its grounds. But consistently with **H** we could hold a variant of her view on which the explanation relations were *constitutive* of dependence rather than just associated with it. Real definition gives rise to explanations, Koslicki says; then she goes on to identify the dependence relation with the relation of being a constituent in a proposition expressing a real definition. We could accept most of Koslicki's story but then identify the dependence relation with the relevant explanation relations instead.

However, I am not sure that it is methodologically desirable to have belief in dependence relations commit one to believing in such things as real definition, propositions expressing accidental natures (with constituents) and/or whatever particular theoretical commitments turn out to be necessary to account for Koslicki's

further kind(s) of grounding. One of the attractions of **H** is that one can believe in dependence and fundamentality while remaining pretty neutral about what sorts of metaphysical mechanisms are that give rise to the explanations that constitute grounding.

In discussion, Koslicki has suggested to me that her discussion of the different varieties of grounding makes her view more contentful than **H** alone. That is true, but I don't think that increasing quantity of content is necessarily a good thing in an interpretative project. If we want to say more than **H** does, we should do so not by changing what **H** says (unless we have independent reason to do that), but by adding further claims. We could, for example, recapture much of what Koslicki says (if we wanted to) by reclassifying her varieties of grounding as varieties of things that can be described as 'metaphysical explanations'. This would enable us to capture a lot of her view without splintering the *notion* of dependence or building any of Koslicki's controversial metaphysics into that notion.

Let me now offer couple of suggestions of my own as to what kinds of explanation are relevant. These comments fall short of a theory, but I hope they may nonetheless be illuminating.

Firstly: transitivity seems important. It seems to be a generally accepted principle of grounding that if A grounds B and B grounds C, A grounds C, and I can't think of any reason to doubt that this is correct. (Not so for the equally common irreflexivity assumption; see Jenkins Forthcoming.) But plausibly, not all explanation works in a transitive way; it's not implausible to say that the arrangement of particles in my brain explains my feeling pain, and my feeling pain explains my taking painkillers, but that we can't explain my taking painkillers in terms of the arrangement of particles in my brain, because that sort of attempted explanation would be 'at the wrong level' (see e.g. Campbell 2010, §2 for one recent discussion of this idea).

But will any old metaphysically interesting transitive relation associated with explanation give rise to the right kind of explanations? Perhaps not. deRosset (2010: 7-8) for example, doubts whether causal explanations can be the kind of explanations to which what he calls 'priority theorists' are committed. He says that appealing to causal explanations in this context doesn't sit at all comfortably with the idea that the non-fundamental is 'no addition to being'. On some of the less serious construals of that phrase described in §5 above there is no obvious tension. Nevertheless, it does seem odd to describe an event as metaphysically non-fundamental merely on the grounds that it was caused by some other event.

So what kinds of explanation can constitute metaphysical dependence? The suggestion I want to float here is that there may be no particularly tidy answer to this question. I'm not sure why we should we *expect* there to be anything more to say here than: the kinds of explanation that have been of interest to metaphysicians working in the tradition of thinking about dependence and fundamentality (such as the kinds of explanation that identity, constitution and parthood give rise to). While there might be *some* unity to these kinds of explanation, the grouping could be in part due to historical accident, much like the discipline of metaphysics itself.

7. Some Rivals

In addition to the cousins of **H** described in §3 above, it is worth considering a couple of alternative views as to what metaphysicians are up to when they talk about fundamentality. These two are not chosen because they are the only credible alternatives, but because discussing of them helps reveal some more of the dialectical advantages of **H** itself.

Firstly, I've assumed that there is something reasonably unified to be said about what 'fundamental' means in the mouths of metaphysicians. One rival of my view states that multiple different things can be expressed by that word and there is no unity of the kind **H** postulates between these multiple meanings. However, I don't think we should postulate such ambiguity unless it demonstrably helps us make better sense of what metaphysicians are saying. I think the burden of proof is upon the ambiguity view. And **H** does already allow for a healthy amount of flexibility as to exactly what gets expressed by 'fundamental' in the mouths of different metaphysicians, while maintaining an appealing unity.

A second alternative view⁶ is that to call a *thing* fundamental is just to say that it belongs to a fundamental *kind*. Fundamental kinds might then be characterisable roughly as **H** suggests, but on this view there need be no requirement that fundamental *things* play any particular explanatory role. I don't have much against this sort of alternative view, according to which kinds are privileged for the purposes of understanding fundamentality and things get to be fundamental only (as it were) derivatively. But I don't see much motivation for it either. Why should some kind – say, the kind *electron* – be especially explanatorily interesting, unless the electrons themselves (at least qua electrons) are too? Until this question is answered, I prefer the more unified account of what it means to call something 'fundamental' that **H** provides.

⁶ Thanks to Ned Hall for suggesting I discuss this here.

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