**Ontology without Hierarchy**

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It has recently become popular to suggest that questions of ontology ought be settled by determining, first, which fundamental things exist, and second, which derivative things depend on, or are grounded by, those fundamental things. This methodology typically leads to a hierarchical view of ontology according to which there are chains of entities, each dependent on the next, all the way down to a fundamental base. In this paper we defend an alternative ontological picture according to which there is no ontological hierarchy. Such a picture appears counterintuitive (at least to many), in part because in the absence of a hierarchical structure to our world, there would be no structure apt to back metaphysical explanations. There are two reasons to suppose this is so. First, there would be no structure apt to back metaphysical explanations because there would be a fatal mismatch between the formal features of metaphysical explanation, on the one hand, and the structure of the world, on the other hand. Second, in the absence of an ontological hierarchy there would be no structure apt to back metaphysical explanations because the only connections that would obtain between relevant facts are mere correlational connections. But mere correlations are not the right kinds of relations to back metaphysical explanations: explanation requires something more. This paper aims to show that neither of these is a good reason to prefer a hierarchical view of ontology.

**1. Introduction**

According to an increasingly popular view, our world is composed of facts—conceived as structured entities consisting of objects, properties and relations—which are hierarchically organised in terms of relations of relative fundamentality which obtain between those facts; most typically, relations of *ground*. Proponents of this view disagree about many things. They disagree about whether there must be a most fundamental level to the hierarchy: a set of facts that are not grounded in any further facts;[[1]](#footnote-1) they disagree about whether grounding relations are asymmetric or non-symmetric,[[2]](#footnote-2) and whether they are irreflexive or quasi-irreflexive.[[3]](#footnote-3) Still, said proponents agree about a lot. They agree that this hierarchical picture is attractive because it allows us to vindicate a range of explanatory intuitions. It allows us to say that our intuitions about metaphysical explanation track the hierarchical nature of the world itself. For simplicity, in what follows we suppose that metaphysical explanations are representational entities: they are true propositions of the form ⌜x *because* y⌝,[[4]](#footnote-4) [[5]](#footnote-5) rather than being non-representational parts of the world.[[6]](#footnote-6) [[7]](#footnote-7) Instead, non-representational parts of the world *back* there being said explanations.

Metaphysical explanations are typically taken to be asymmetric, irreflexive and non-monotonic. Strictly speaking, of course, these are logical properties of relations, and the view of metaphysical explanation just outlined is not one on which we identify the obtaining of some relation (such as grounding) with a metaphysical explanation. Hence in some sense we are using these terms non-standardly when we attribute these features to metaphysical explanations. However, metaphysical explanations clearly have features that are captured by these terms.[[8]](#footnote-8) In what follows, we will say that metaphysical explanations are asymmetric iff, if we explain x in terms of y, then we don’t explain y in terms of x, and are irreflexive iff we don’t explain anything in terms of itself, and are non-monotonic iff just because y explains x, it doesn’t follow that y plus some arbitrary j explains x.

We have a good explanation for these features of metaphysical explanation if our world’s being hierarchically organised backs there being such explanations; that is, if our explanatory endeavours track relations of relative fundamentality. For then we can explain the asymmetry of metaphysical explanation by noting that we always explain a less fundamental fact in terms of a more fundamental fact, and we can explain the irreflexivity of metaphysical explanation by noting that no fact is more (or less) fundamental than itself and hence no fact can back an explanation of itself, and we can explain non-monotonicity by noting that just because one fact, [y], grounds another, [x], it doesn’t follow that [y] plus any other arbitrary fact, [j], grounds [x].[[9]](#footnote-9)

By contrast, it has been argued that if our world is not hierarchically organised via relations of relative fundamentality, then our world is flat, and little sense can be made of our explanatory practices.[[10]](#footnote-10) To put things most starkly, if our world lacks hierarchical structure, then it lacks the structure needed to back metaphysical explanations. In what follows we suppose, following orthodoxy on the matter, that the right account of metaphysical explanation will be one under which it is necessary to there being an explanation present for a subject that there is some appropriate *structure* in the world. That is, there is some ontic constraint on what is apt to back explanations.

In fact, our preferred view is a *hybrid* view of metaphysical explanation according to which there being an explanation present for a subject is in part a matter of there being some appropriate structure in the world, and in part a matter of that part of the world playing some appropriate *epistemic* role for that subject. That is, we think there are *subjective, agent-relative* constraints on how that part of the world needs to interact with a subject’s epistemic context if it is to count as backing an explanation for that subject. Metaphysical explanations are agent-relativebecause they are explanations *for a particular subjec*t—that is, in spelling out the conditions under which there is a metaphysical explanation, one must, of necessity, mention some particular subject for whom that explanation is an explanation. They are *subjective* because they depend in some way on the mental states of subjects—in particular, they depend on subjects’ epistemic goals, as well as other more general psychological features of those subjects. We will have much more to say about these subjective states shortly.

For present purposes what matters is that one might think that in the absence of any hierarchical structure to our world there is *no* structure that is apt to back explanation, regardless of what kind of subjective states one takes to be relevant. We take this to be a central objection to any non-hierarchical picture of the world. Indeed, we can distinguish two related objections here. According to the first, the formal features of metaphysical explanation are such that, in the absence of a hierarchical structure to our world, there would be no structure apt to back metaphysical explanations. For in the absence of a hierarchical structure there would be a fatal mismatch between the features of explanation, on the one hand, and the structure of the world, on the other. Hence the latter would not be apt to back the former, for it would not satisfy what Kovacs (2017) calls the Generality Constraint. Call this *the mismatch objection.*

According to the second objection, in the absence of an ontological hierarchy there would be no structure apt to back metaphysical explanations, because the only connections that would obtain between the relevant facts are mere modal correlational connections. But mere correlations are not the right kinds of relations to back metaphysical explanations: explanation requires something more. So in the absence of this something more—e.g., connections of relative fundamentality obtaining between facts—there would be no structure apt to back metaphysical explanations. Call this *the wrong kind of structure* *objection*.

In what follows we aim to show that both the mismatch objection and the wrong kind of structure objection are misplaced. We begin (§2) by presenting a schematic hybrid account of metaphysical explanation, and then outlining two non-hierarchical views of ontology. Our aim is not to argue that our world is as these views describe. That is a much larger project. Instead, our aim is to show (§3) that these accounts can, at least in principle, evade the mismatch objection by appealing to features of epistemic context. In §4 we turn to the wrong kind of structure objection. There, we argue that at least one of the views we outline in §2 (and most likely both) escapes the wrong kind of structure objection. Hence, we conclude, we don’t need to posit an ontological hierarchy to accommodate the phenomenon of metaphysical explanation.

**2. Hybrid Explanation and a Non-hierarchical Ontology**

In what follows we begin (§2.1) by outlining, in very schematic form, how we are thinking about hybrid theories of metaphysical explanation. This will become central in §3. We then outline two very different ontological pictures (§2.2). What these pictures have in common is that both entail that the world is not hierarchically structured. We call the first view *flatland,*[[11]](#footnote-11) and the second, *symmetrical roughland.*

**2.1 Hybrid Explanation**

We noted earlier that we take the most promising kind of theory of metaphysical explanation to be a hybrid theory. According to hybrid theories, there being an explanation present for a subject is in part a matter of there being some appropriate structure in the world, and in part a matter of that part of the world playing some appropriate epistemic role for that subject. On such a view metaphysical explanations are *agent-relative*: in spelling out there being a metaphysical explanation, one must, of necessity, mention some particular subject for whom that explanation is an explanation. A proposition of the form ⌜x *because* y⌝ will count as a metaphysical explanation only relative to an epistemic context, where an epistemic context is a centred world: a world, time, individual, triple.

Contexts of assessment, then, are effectively centred worlds. Some aspects of that centre are particularly important for our purposes, namely epistemic feature of the subject at the context of assessment. What we will call *epistemic contexts* include the evolved psychological mechanisms of the subject at the world centre, her epistemic goals, as well as her local environment. Frequently, then, we will talk about epistemic contexts, where this simply focuses attention on certain features of a context of assessment. So hybrid theories, as we are conceiving of them, are not only agent-relative; they are also *subjective*. Whether a candidate metaphysical explanation counts as an explanation, at an epistemic context, is in part determined by the mental states of the subject situated at that context.

In their most abstract, then, hybrid theories hold that relative to an epistemic context, there is a metaphysical explanation present iff there is some structure in the world, which is apt to back explanation, and some part of that structure plays some epistemic role, E, at that context. Let’s call the relation, whatever it might be, which obtains between facts, and whose obtaining between those facts is apt to back a metaphysical explanation, *R*. And let’s call any fact of the form [[y] R [x]] an *R-fact*. R-facts are structured bits of the world which are apt to back metaphysical explanations. Then we can say the following:

**Hybrid Explanation:** An utterance of ⌜x *because* y⌝ assessed at epistemic context C, is true iff [y] R [x], and at C, [y] plays epistemic role E relative to [x].

Earlier, we noted that we are taking metaphysical explanations to be true propositions of the form ⌜x *because* y⌝. Hence, it follows that an utterance of ⌜x *because* y⌝, assessed at epistemic context C, expresses a metaphysical explanation iff [y] R [x], (i.e., [y] stands in relation R to [x]), and at C, [y] plays epistemic role E relative to [x]. Henceforth we will move freely between talk of true utterances of ⌜x *because* y⌝ assessed at a context, and metaphysical explanations obtaining at some context.

Here, we make two assumptions. First, we assume that it is proper parts of R-facts that play the relevant epistemic role at epistemic contexts: namely, it is one of the two facts that are R-related to one another. Second, we assume E is a relational role. It’s not simply that [y] plays the role relative to an epistemic context; it also plays that role relative to some other fact (namely, [x]). [y] never plays role E *simpliciter.* So for instance, if E is the role of inducing understanding, then it will be that [y] induces understanding *of [x]* at an epistemic context. Little has been said about exactly what epistemic role some structure (or part thereof) must play in order for there to be a metaphysical explanation present at an epistemic context.[[12]](#footnote-12) To make things a little less abstract moving forward, then, we will suppose that some fact, [y], plays the relevant epistemic role relative to some other fact, [x], at an epistemic context, just in case [y] contributes to the *understanding* of [x] for the subject at that context. Henceforth, when we talk of a subject understanding [x] in terms of [y], we mean that [y] contributes to her understanding of [x]. We do not mean to suggest that [y] is all the subject needs to understand in order to understand [x], or that nothing else can contribute to her understanding of [x].

Of course, there are other possible accounts; our claim is only that something roughly in the vicinity of the account we offer can do the work required to respond to the mismatch objection. That leaves open that there are also other accounts that can do the same work. In §3 we will have more to say about what understanding consists in, when we turn our attention to spelling out a detailed response to the mismatch objection. For now, it will suffice to simply think about understanding in an intuitive way, and to note that hybrid theories of metaphysical explanation are consistent with the truth-values of propositions of the form ⌜x *because* y⌝ varying across epistemic contexts. As we will see in §3, this context-variability is important in responding to the mismatch objection. Before we get to the general form of this response, however, we first introduce two very different ontological pictures. Each picture takes a different stand on which facts are the R-facts (though both agree that there being said R-facts does not require any kind of hierarchical ontology).

**2.2 Flatland and Symmetrical Roughland**

Call those who think our world is flat, *flatlanders*. Flatlanders are those who believe that although there exists modal covariation, in the form of modal relations of necessitation and supervenience, there are no additional relations which obtain between modally co-varying entities, and which outstrip the relations of supervenience and necessitation by being asymmetric, irreflexive, or non-monotonic. That is, there are no relations of relative fundamentality. Hence, on this view everything that exists is fundamental, or, alternatively (perhaps), everything that exists is neither fundamental nor non-fundamental.

Our aim is not to defend this ontological picture.[[13]](#footnote-13) Instead, it is to say something about what the Flatlander can say about which structures in the world are apt to back metaphysical explanations. Our suggestion is that the flatlander ought suppose that the structure that backs metaphysical explanations is the presence of necessitation relations obtaining between facts. On such a view, the R-relation is necessitation, and the R-facts are what we will call *necessitation facts.* Necessitation facts are facts of the form [[y] necessitates [x]]. Following Norton (2017; ms) let’s call this a *necessitation-based theory* of metaphysical explanation. Then a necessitation-based hybrid theory of metaphysical explanation can be characterised as follows:

**Necessitation-based Hybrid Explanation:** An utterance of ⌜x *because* y⌝, assessed at epistemic context C, is true iff [y] necessitates [x], and, at C, [y] plays epistemic role E relative to [x].

Necessitation relations are non-symmetric, reflexive, and monotonic. Hence the necessitation-based hybrid view of metaphysical explanation faces the mismatch objection. Necessitation facts, says the objection, are not apt to back explanations because they simply have the wrong formal features to do so. We turn to this worry shortly. First, however, we will outline a less familiar ontological picture: the symmetrical roughland picture.

According to the symmetrical roughland picture, there exist relations of ground. But grounding relations are not relations of relative fundamentality: they do not generate a hierarchical ontology. We call this view symmetrical roughland because, first, on this view grounding relations are symmetrical, and second, because on this view the world is not flat: it is *rough*. Again, it is not our aim to defend this view here.[[14]](#footnote-14) Our aim is to say just enough to show what sort of account of metaphysical explanation might accompany such a view, and to see how such a view can respond to the mismatch objection.

On this view grounding relations are relations of *fitting-together-with* that certain facts bear to one another. But these facts do not fit together across any of the four dimensions of space-time; instead, these facts are arrayed along a fifth dimension—*a dimension of metaphysical extension*—and they fit together along that dimension.[[15]](#footnote-15) Why do these facts fit together as they do? They do so because they are parts of some larger structured entity. Consider jigsaw puzzle pieces. These do not fit together because some of the pieces generate the rest of the pieces. One might put together the puzzle from left to right, or right to left, but the puzzle isn’t directed either way. Instead, there is a unified whole—the puzzle image—and the pieces are just that: pieces of that structured whole. The reason facts arrayed along the dimension of metaphysical extension bear the fitting-together-with relation to one another is that these facts are parts of a larger structured fact. Hence the relation of fitting-together-with binds together facts with a particular structure. So, on this view grounding relations are structural connections between facts. Given this, we ought regiment talk of ground as ⌜[y] ⇔ [x]⌝, where this is read as ‘a grounding relation obtains between [y] and [x]’. On this picture the world is not flat: it has extension along this fifth dimension. But nor is the world hierarchically organised. There is no sense in which facts arrayed along the dimension of metaphysical extension really run from more fundamental to less fundamental: instead, the facts arrayed along that dimension have an ordering, but no direction.

According to such a view the R-relation is the grounding relation, and the R-facts are grounding facts of the form [[y] ⇔ [x]]. Hence it is these grounding facts that back metaphysical explanations. Call this a *symmetrical grounding-based* hybrid account of metaphysical explanation. Then that view is characterised as follows:

**SGHE:** An utterance of ⌜x *because* y⌝ assessed at epistemic context C, is true iff [y] ⇔ [x] and, at C, [y] plays epistemic role E relative to [x].

In what follows we outline how these approaches to metaphysical explanation can respond to the mismatch objection.

**3. Hybrid Explanations and the Mismatch Objection**

In what follows we will outline, in broad brushstrokes, our response to the mismatch objection. We will then proceed to spell out the finer details of the proposal.

Here is the rough idea. The defender of a hybrid theory of metaphysical explanation can concede that there is a certain amount of mismatch between *our* intuitions about when metaphysical explanations obtain, and the obtaining of R-facts. For she can point out that lots of R-facts are such that no proper part of those facts plays epistemic role E relative to another proper part of that R-fact, at epistemic contexts such as ours. Hence there will be cases where there obtain R-facts, but no metaphysical explanations at contexts like ours. Thus she need not suppose that our explanatory intuitions proceed in lockstep with the presence of R-facts. Nevertheless, this concession alone is not sufficient to defang the mismatch objection. For that objection points out something deeper than just a mismatch of intuitions: it points to a mismatch of the formal features of R-facts and metaphysical explanations.

The mismatch objection rests on the assumption that there ought be a match between the formal features of R-facts and the formal features of metaphysical explanations, because only this match could explain why metaphysical explanations have the formal features they do. We take it that this is the right conclusion if one is drawn to an entirely ontic conception of metaphysical explanation, according to which epistemic context plays no role in determining whether an explanation obtains at a context. For on such a view the only possible explanation for, say, the asymmetry of metaphysical explanation would issue from the asymmetry of the relation that backs each such explanation.

Hybrid theorists, however, have additional resources with which to work. For hybrid theorists think that, in part, what makes ⌜x *because* y⌝ true at an epistemic context, is that some part of the world plays some epistemic role at that context. This leaves it open that what determines the formal features of metaphysical explanation is not only the bit of the world that backs the explanation, but also features of the epistemic context itself. This is the view we will pursue here. Hence the broad response that we recommend in this paper locates at least some of the various formal features of metaphysical explanation—its asymmetry, irreflexivity and non-monotonicity—in features of the epistemic context of subjects like us. In fact, in what follows we will argue that *all* of these formal features *can* be explained in terms of the epistemic context of subjects like us.

In fact, as we will see, things are a little more complicated than this. Whether or not metaphysical explanation turns out to be irreflexive will depend on how one individuates propositions. On some views it will turn out that they are not, in fact, irreflexive at all, but are instead quasi-irreflexive (see Jenkins, 2011 and §3.2). Whichever view one takes on this, however, our contention is that either the irreflexivity, or the quasi-irreflexivity, can be explained by features of our epistemic context.

Whether a hybrid theorist wishes to explain all these features in this way is, however, an open question, the answer to which depends in part on which non-hierarchical ontological picture she endorses.

Consider the symmetrical grounding-based hybrid account. It is plausible that the symmetrical roughlander might want to locate some of the formal features of metaphysical explanation in features of the grounding relation itself. According to this view, grounding relations just are structural relations of fitting-together-with. While we won’t attempt to make this case here, it seems pretty plausible that nothing fits together with itself: that fitting-together-with is a relation that distinct facts with certain structural properties bear to one another. If that’s so, then grounding is irreflexive. Equally, it’s pretty plausible that grounding relations, so construed, will be non-monotonic. After all, just because x fits together with y, it doesn’t seem to follow that x and some arbitrary j will fit together with y. Again, we won’t argue for this here. Our point is just this: on this view one might appeal to the nature of the grounding relations that back explanations to explain why metaphysical explanations are irreflexive and non-monotonic *simpliciter* (and hence at contexts like ours).

In what follows, however, we will be interested in seeing how far we can get in explaining these features of metaphysical explanation *only* by appealing to features of our epistemic context. This is, after all, the most difficult task, and one we must undertake on behalf of the necessitation-based hybrid account. If it can be achieved, then the less ambitious goal—of explaining only some of these formal features by appealing to epistemic context—can certainly be achieved.

In §3.1 we present an account of *understanding,* and in §3.2 we show why, at contexts like ours, understanding is non-monotonic and irreflexive/quasi-irreflexive. That, in turn, will explain why metaphysical explanation is non-monotonic and irreflexive/quasi-irreflexive at contexts like ours. It might be that what we say here generalises to *all* contexts. If one thinks so, then one will think that we have shown that, at all contexts, understanding is non-monotonic and irreflexive, and hence that so too is metaphysical explanation. But we won’t make that stronger claim here.

We will have something rather different to say about asymmetry. In §3.3 we will suggest that features of our epistemic contexts explain why *often*, metaphysical explanation is asymmetric at contexts like ours. But what we will say will leave open that at some contexts, including, perhaps, those occupied by human subjects, metaphysical explanation is symmetrical. Even if metaphysical explanation is never symmetrical at such contexts, we will suggest that it is the case that at various contexts occupied by human subjects the *direction* of explanation changes. Hence whether some particular instance of ⌜x *because* y⌝, or the converse, is true, can vary from context to context, even for subjects like us. In particular, we will argue that where metaphysical explanations at a context are asymmetric, which direction the explanation goes is sometimes determined in part by certain sorts of saliences at that context: either interventional saliences or conceptual saliences.

But let’s begin by outlining an account of understanding which we can then use to show why metaphysical explanations have certain formal features at contexts like ours.

**3.1 Understanding**

In §2.1 we supposed that some fact, [y], plays the relevant epistemic role, E, relative to some other fact, [x], at an epistemic context, C, just in case for the subject at C, [y] contributes to the understanding of [x]. This might strike one as puzzling, though, given that understanding is psychological, and hence one might think that it can’t be *facts* that contribute to our understanding, but rather, our representation of those facts. In what follows we will have more to say about the nature of understanding to make this rough characterisation more precise. But for now, we want to say the following. Some fact, [y], plays the relevant epistemic role, E, relative to some other fact, [x], at an epistemic context, C, just in case for the subject at C, there is a representation of [y], Rep[y], which contributes to the understanding of [x] via a representation of [x] (Rep[x]). Henceforth then, when we talk of [y] contributing to the understanding of [x], we intend that this occurs via there being representations, Rep[x] and Rep[y], which are part of some mental map, such that the map represents there being certain connections between the represented facts. In what follows we are principally interested in the mental map’s representation of certain facts, and the connections between those facts: that is, we are interested in *how things are represented as being*. So we will talk about facts themselves, not representations of facts, since the mental map doesn’t represent there being representations of facts: it just represents there being facts, and connections between these.

Precisely characterising the nature of understanding is no easy task. However, following Miller (ms), we think that by drawing upon contemporary empirical work exploring the psychological mechanisms that generate explanations, and the impact of explanations on how we represent the world, we can say enough about understanding to make the case that, at the very least, subjects like us do not come to understand [x] in terms of [x] (irreflexivity/quasi-irreflexivity), and that just because subjects like us come to understand [x] in terms of [y], it does not follow that we also understand [x] in terms of both [y] and some arbitrary [j] (non-monotonicity).

Miller (ms) suggests that a subject *comes to understand* [x] in terms of [y] when she updates her mental map in certain ways that represent new *interventional affordances*. While *affordances* are environmental features that an agent can make use of in order to achieve her goals, interventional affordances are those ways in which a subject can intervene on some part of the world in order to intervene on some other part of the world. The provision of a means to manipulate some parts of the world *via* others is one way in which the environment provides affordances to an agent. A familiar case of an interventional affordance between A and B obtains when A causes B.

One reason to focus on interventional affordances is that counterfactual reasoning—reasoning that involves imagining (or performing) interventions—has been shown to be vital in causal reasoning (Gopnik et al., 2004; Kushnir, Gopnik, Lucas & Schultz, 2010; Lagnado & Sloman, 2004; Steyvers, Tenenbaum, Wagenmakers & Blum, 2003: Sloman, 2005)[[16]](#footnote-16) and in causal explanation (Einhorn & Hogarth, 1986). Since causal reasoning is such a powerful tool in guiding causal explanations, we have good reason to think that imaginative interventions on metaphysically connected facts will be an equally powerful tool in guiding metaphysical explanations. Hence we should think that understanding one fact in terms of another involves representing certain interventional affordances to obtain between those facts. Importantly (as we will see in the following section) interventional affordances are ways in which intervening on one thing provides a way to intervene *on some other thing.* So representations of interventional affordances are representations of ways in which intervening on one thing provides a way to intervene *on* *some other* *thing*. Or, to put it another way, our mental map represents there being interventional affordances when it represents certain facts, and represents intervention on one of these facts as a means of intervening on the other.

The representation of interventional affordances, though, is not the full story. It is very likely that a subject’s coming to understand [x] in terms of [y] involves the subject representing new conceptual connections as obtaining between the concepts that the representations of those facts[[17]](#footnote-17) (or some parts of the representations of those facts) satisfy, or fall under. Our conceptual systems make use of a so-called formal mode of explanation: a non-causal mode that appeals to connections between kinds of things (Haward, Wagner, Carey, & Prasada, 2017; Prasada & Dillingham, 2006, 2009; Prasada, Khemlani, Leslie, & Glucksberg, 2013). While not all formal explanations are metaphysical explanations, they include metaphysical explanations. This is suggestive of the idea that when a subject comes to understand one fact in terms of the other, she represents there to be new connections between those facts, and further, that by doing so she creates new conceptual connections.

Bearing all this in mind, we suggest that a subject, S, coming to understand [x] in terms of [y] is a matter of S updating his or her mental map in certain ways to represent new interventional affordances and conceptual connections as obtaining between [x] and [y]. More specifically, what it is for a subject, S, at context, C, to *come to understand* [x] in terms of [y], is for that subject to update, via a reliable process, his or her mental map of the world in certain relevant ways—ways involving the representation of [x] and [y], and of interventional affordances and conceptual connections between [x] and [y]—such that local changes appropriately ramify through the map.

What are the relevant ways of updating one’s mental map with regard to conceptual connections and interventional affordances? Well, we think that coming to understand (at C) [x] in terms of [y], involves the subject at C updating her mental map in such a way that she represents [x] and [y], and represents that she can intervene on [x] by intervening on [y]. This is to represent an interventional affordance obtaining between [x] and [y]. The relevant interventional affordance, in the case of understanding [x] in terms of [y], is the affordance that [y] provides regarding [x]. That updating might also be accompanied by the updating of a representation of the conceptual connections between [x] and [y]: for instance, coming to represent that anything that satisfies the concept of [y] satisfies the concept of [x].

Hence we will say that a subject S, at context C, *comes to understand* [x] in terms of [y] when that subject updates, via a reliable process, his or her mental map of the world in such a way that S comes to represent that [y] provides an affordance to intervene on [x], and, where appropriate, S updates any representation of the conceptual connections between [x] and [y], and these local changes appropriately ramify through the map. (More on ramification shortly.) Then we will say that [y] *contributes to a subject’s understanding of* [x] if S’s mental map represents certain relevant interventional affordances (namely that [y] can be used to intervene on [x]) and conceptual connections to obtain between [x] and [y], where this is the result of a reliable process*.* In most cases [y] *contributes to a subject’s understanding of* [x] because the subject at some point came to understand [x] in terms of [y], but we leave open that in some cases these representations might be hard-wired into the system via some evolutionary process (which is also reliable).

We won’t have much to say about reliability in what follows: there would be a good deal of work in spelling this out. For now, we just want to flag that not all changes to the mental map are via reliable processes. For instance, we take it that updates to the mental map as a result of physical intervention on the brain (traumatic brain injuries, nefarious neuroscientists, or through drugs, etc.) are just some ways that a process can fail to be reliable (for hitting your head is not normally a good way to update your mental map).

Further, the process via which a subject comes to represent conceptual connections and interventional affordances between facts ought appropriately ramify through the subject’s mental map. Specifically, it ought result in other changes to her map including, perhaps, the representation of *other* conceptual connections and the representation of *other* interventional affordances between facts that are analogous to [x] and [y] in certain ways. To illustrate, I have a mental map of how to log on to my email on my computer. If I update that map (because I change my password, say), then that update ought to have ramifications for other analogous regions of my mental map, such as how to log on to my email on my wife’s computer. If the update to my representation of how to log on to my email doesn’t have this consequence, the change has not appropriately ramified throughout my map.

In the case of metaphysical explanation, we can imagine some subject who updates her mental map in such a way as to represent that by intervening on the mean molecular motion of the water in her glass, she can thereby intervene on the temperature of the water. She can only be said to understand the temperature of the water in terms of the mean molecular motion if this update ramifies throughout her map. In this case, one of two things ought happen. First, she might represent a wealth of other interventional affordances in analogous cases whereby temperature can be manipulated by manipulating mean molecular motion. Second, her map might update so as to represent some disanalogy between these particular facts and other facts about temperature and mean molecular motion. Either of these involves updating in such a way that the changes ramify throughout the map. The same holds, *mutatis mutandis*, for the updating of conceptual connections.

The resulting notion of understanding is such that there will not be inconsistencies in what explains what, from an epistemic context. It won’t, for instance, both be that a subject represents that water is (relevantly) analogous to honey, and that intervening on mean molecular motion is a way to intervene on water temperature, but does not represent that intervening on the mean molecular motion of honey is a way to intervene on the temperature of honey. Likewise, if there is something relevantly similar between the relationship between shades of blue, and blue, and between shades of red, and red, then if a subject comes to represent that intervening on azure is a way to intervene on blue, then she will come to represent that intervening on maroon is a way to intervene on red.

At this point we can return to our characterisation of what it is for some fact to play epistemic role E relative to some other fact, at an epistemic context. So far, we have suggested that [y] plays epistemic role, E, relative to some other fact, [x], at an epistemic context, C, just in case [y] contributes to the understanding of [x] for the subject at C. We can now see why we might want to slightly amend this view. As we have just characterised understanding, a subject at a context can both understand [x] in terms of [y], and understand [y] in terms of [x]. That seems entirely appropriate. Understanding consists in certain features of the subject’s mental map representing certain facts, and representing certain connections between those facts—connections which may be symmetrical. Nevertheless, it seems plausible that at different contexts, different parts of this mental map will be more salient than other parts

Imagine a subject who both understands [x] in terms of [y], and understands [y] in terms of [x]. Still, it might well be that at a particular context just one of the relevant interventional affordances—say, the affordance that [y] provides for intervening on [x]—is most salient. It’s not that at this context the subject ceases to understand [y] in terms of [x], it’s just that the understanding that [y] provides of [x] is particularly salient at that context in light the explanatory goals of the subject. At that context, it is the understanding of [x] in terms of [y] that is playing epistemic role E. Note that not just any salience will do. The understanding provided by one fact might be salient for many different reasons—e.g., because that fact has a constituent that is dangerous to the subject, or because it has a constituent that is especially valued by the subject for reasons other than the understanding it provides. Thus, we say “in light of the explanatory goals of the subject” in order to rule out such cases. It is only salience that results from a fact’s role in providing understanding, given the sorts of “why?” questions the subject is interested in in her current epistemic context that we are interested in here. (We discuss two scenarios involving salience of the right sort in §3.3.[[18]](#footnote-18)) Thus, we will say the following:

**Playing Epistemic Role E**: [y] plays epistemic role, E, relative to some other fact, [x], at an epistemic context, C, just in case the subject, S, at C *understands* [x] in terms of [y] and S’s understanding [x] in terms of [y] is the most (or equally most) salient at C, of the relevant class of competitors, in light of S’s explanatory goals.

Henceforth when we speak of ‘salience’ we mean only salience with respect to the explanatory goals of a subject at a context. When we say that S’s understanding [x] in terms of [y] is *the most* (*or equally most) salient* at C, of some relevant class of competitors, we mean two things. First, we mean that it *is* salient at C. Second, we mean that it’s no less salient than any member of some relevant class of competitors. Which class is this? The class of competitors is a class of competitor understandings. It is the class that includes any potential understanding of [x] in terms of something *other* than [y], as well as including understanding of [y] in terms of [x]. So, for instance, S’s understanding of [x] in terms of [y] at C is less salient than any member of the relevant class of competitors if, at C, S’s understanding of [y] in terms of [x] is more salient, or if, at C, S’s understanding of [x] in terms of [z] is more salient, or if, at C, S’s understanding of [x] in terms of [y] plus [j] is more salient.

It is an appeal to S’s understanding [x] in terms of [y] being more salient than the relevant competitors that will do a lot of the work, in what is to come, in explaining why, for subjects like us at our contexts, metaphysical explanations are largely (quasi-) irreflexive, non-monotonic and asymmetric.

We will consider two factors that contribute, at a context, to a subject’s understanding of [x] in terms of [y] being more salient, at that context. These factors are the salience of relevant interventional affordances at that context, and the salience of relevant conceptual connections at that context. It is not our contention that these are the only factors at work. Our aim is to just to show that, even limiting ourselves to these factors, we can explain why metaphysical explanations have, for the most part, the formal features they are typically supposed to have. For simplicity we will treat these as separate factors and will make no attempt to speak to how they combine. This is important future work, but not work we have time for here.

We begin, in §3.2, by explaining how features of our epistemic context result in metaphysical explanations, at these contexts, being irreflexive (or at least, quasi-irreflexive) and non-monotonic. Then in §3.3 we move on to explaining why, at contexts like ours, they are, typically, asymmetric. In doing so we defang the mismatch objection by explaining the formal features of metaphysical explanation without appealing to formal features of the relation that backs said explanations (whatever it is).

**3.2. Irreflexivity and Non-Monotonicity**

Focussing on irreflexivity and non-monotonicity, it is easy to see (at least in principle) how hybrid views can respond to the mismatch objection just by appealing to features of our epistemic context. Keep in mind our characterisation, above, of what it is for a fact to play epistemic role E at a context. Now suppose that R-facts are both reflexive and monotonic. So if [y] R [x], then [y] and [j] jointly R [x], for any [j]. And [x] R [x]. (This is certainly the case under the necessitation-based theory.) Suppose that at epistemic context C, however, ⌜x *because* y⌝ is true, but it’s not true that ⌜x *because* x⌝, or that ⌜x *because* y and j⌝.

There are two reasons one might think this could be the case. It could be that ⌜x *because* y⌝ is true at C, but neither of these other propositions are true at C, because the subject at C understands [x] in terms of [y], but it’s not the case that the subject understands [x] in terms of [y] plus some arbitrary [j], nor the case that the subject understands [x] in terms of [x]. Alternatively, it could be that the subject understands [x] in terms of [y], *and* understands [x] in terms of [x], *and* understands [x] in terms of [y] plus [j], and yet, at C, the understanding of [x] in terms of [y] is most salient. In either case, because there are no relevant competitors, or because those competitors are less salient, it is [y] which plays epistemic role E at context C, relative to [x], while [x] does not play that role relative to [x], and nor do [y] and [j] jointly. Thus neither ⌜x *because* x⌝, nor ⌜x *because* y and j⌝, will be true at C, while ⌜x *because* y⌝ will be.

Of course, the fact that someone *could* have patterns of understanding like this does not show that subjects like us, at contexts like ours, *do* have such patterns. Making that case is our next task.

Consider an easy case of irreflexivity first. Consider ⌜x *because* x⌝. Here, we have a single fact, [x], which is represented in the mental map. For ⌜x *because* x⌝ to be true at an epistemic context, C, it must be that the subject at C represents [x], and represents certain interventional affordances to obtain between [x] and [x], and (at least in some cases) encodes relevant conceptual connections between the concept of [x] and itself.

To see why, pretty plausibly, *no* subject can do this, let’s return to interventional affordances. Recall that interventional affordances are ways in which intervening on one thing provides a way to intervene *on some other thing.* Thus a subject can only represent an interventional affordance by representing that there are distinct facts, and there is an interventional affordance between those distinct facts. So no subject can represent that [x] provides an interventional affordance for [x]. Of course, quite trivially, intervening on [x] *is* a way of intervening on [x]. But representing this is not a way of representing an interventional affordance to obtain between [x] and [x]. This means that no subject can have a mental map in which they represent an interventional affordance to obtain between [x] and [x]. Since a subject’s understanding [x] in terms of [x] requires that the subject represent such an interventional affordance, it follows that no subject can understand [x] in terms of [x]. Hence it follows that [x] cannot play epistemic role E (for any subject S at any context C) relative to [x]. So, in turn, it follows that no claim of the form ⌜x *because* x⌝ will be true at any context, for any subject.

Now let’s consider a harder case. Representations are hyperintensional. We can represent difference where no difference obtains. I can represent [x] and represent [y], and yet it be the case that [x] = [y]. Suppose that [x] = [y]. Suppose, further that the relevant R-fact obtains ([[y] R [x]]). (For this to be the case, the obtaining of the R-fact between [y] and [x] must be consistent with [x] = [y]. That won’t be true of all accounts of the R-facts. But let’s suppose for present purposes that it is.) Suppose that S does not know that [x] = [y]. She represents there being two facts, [x] and [y]. Further S represents the relevant conceptual connections and interventional affordances to obtain between [y] and [x]. Now consider the proposition ⌜x *because* y⌝.

On hyperintensional accounts of propositions, x and y will be distinct propositions. Hence even if ⌜x *because* y⌝ is true at context C, this won’t be a reflexive instance of metaphysical explanation, since x and y are distinct, even though [x] and [y] are not distinct. On this way of proceeding, metaphysical explanations are never reflexive at contexts (at least for subjects like us), because propositions are individuated sufficiently finely as to line up with representations.[[19]](#footnote-19) If there are two representations, there are two propositions. So as long as what we just said about representing interventions is right, at least for subjects like us, metaphysical explanations will be irreflexive, at all contexts.

By contrast, suppose one adopts a much coarser-grained view of propositions on which, if [x] = [y], then x and y express the same proposition. Then any instance of ⌜x *because* y⌝ and ⌜x *because* x⌝, are the same proposition. Then if S represents [x] and [y] as we have suggested, and [y] plays epistemic role E relative to [x] at C, and if there is an R-fact, [[y] R [x]], then on the view we are articulating ⌜x *because* y⌝ is true at S’s context. But then ⌜x *because* x⌝ is also true at that context, and so metaphysical explanations are not irreflexive. Nevertheless, they certainly *appear* to be irreflexive. No subject like us will ever assent to ⌜x *because* x⌝ at a context. In this sense, we might say that metaphysical explanations are quasi-irreflexive.[[20]](#footnote-20) For our purposes it doesn’t really matter which option one chooses: for we are in the business of explaining why metaphysical explanations have, or appear to have, the formal features to which we attribute them. In either case, metaphysical explanations will appear to be irreflexive to subjects like us, and that will do, as far as we are concerned.

Let’s now turn to non-monotonicity. The first thing to note is that it does not follow that if a subject represents an interventional affordance between [y] and [x], she will also represent an interventional affordance between [y] and some arbitrary [j], on the one hand, and [x] on the other. She will only represent the world this way if she takes intervening on the plurality of [y] and [j] to be a way of intervening on [x]. Of course, the being-an-interventional-affordance-for relation is monotonic. If intervening on [y] is a way to intervene on [x], then intervening on [y] plus [j] is a way to intervene on [x]. But that’s only so if one’s intervention on the plurality of [y] and [j] involves intervening on [y]. As we will see, this is important. Notably, it doesn’t follow that any subject *represents* that intervening on [y] plus [j] is a way to intervene on [x]. After all, representations are not closed under entailment. Such a subject may well understand [x] in terms of [y], but not understand [x] in terms of [y] and [j]. If that is so, [y] and [j] do not jointly play epistemic role E relative to [x] for that subject at any context. Hence for that subject ⌜x *because* y and j⌝ is false at any context.

Suppose, however, that a subject *does* represent that intervening on [y] plus any arbitrary [j] is a way to intervene on [x], and does so because he represents that [y] is a way to intervene on [x]. This subject realises that the being-an-interventional-affordance-for relation is monotonic, and represents the world in accordance with this. This subject, then, may well both understand [x] in terms of [y], and understand [x] in terms of [y] and any [j]. Nevertheless, it seems to us, of the two interventional affordances—intervening on [y] to intervene on [x], and intervening on [y] and one of the assorted [j]s to intervene on [x]—for subjects like us, it will almost always be the case that only one such intervention will be more salient at any context: namely, intervening on [y] to intervene on [x]. After all, as we noted above, the plurality of [y] and [j] only affords a way to intervene on [x] if one intervenes on [y]: intervening on [j] alone will not intervene on [x],[[21]](#footnote-21) and intervening on [y] and [j] affords no more interventional power on [x] than just intervening on [y]. There’s no point in intervening on [j] since interventions on [j] play no role at all in intervening on [x]. Any subject who represents that intervening on [y] and [j] is a way to intervene on [x] only because intervening on [y] is a way to intervene on [x], will recognise that there is no point intervening on [j].

If that is right, however, then even if some actual subjects both understand [x] in terms of [y], and understand [x] in terms of [y] and [j], at contexts like ours, the intervention that will be more salient, at any context, than the relevant competitors will be the intervention on [y], not the intervention on [y] and [j]. In turn, that means that at these contexts, it is a subject’s understanding of [x] in terms of [y] (and not in terms of [y] and [j]) that is more salient than the relevant competitors. Hence it is [y], and not [y] and [j], which plays epistemic role E relative to [x] at such contexts. Thus, at all those contexts ⌜x *because* y⌝ will be true, and ⌜x *because* y and j⌝ will be false. Hence, for subjects like us at our contexts, metaphysical explanations will be non-monotonic.

That brings us to the final formal feature with which we are interested: asymmetry. In what follows we countenance there being contexts at which metaphysical explanations are symmetrical. We even countenance there being some actual contexts like this. We take ourselves to be attempting to explain why it is almost always the case that, at contexts like ours, metaphysical explanations are asymmetric.

**3.3 Asymmetry and Salience**

Recall that it is not sufficient that S, at C, understands [x] in terms of [y]: it is also necessary that said understanding is more salient, at C, than the relevant competitors. We will appeal to the differential salience, to subjects at contexts, of understanding some fact in terms of another, to explain why metaphysical explanations are typically asymmetric for subjects like us. In this case, of the relevant competitors to understanding [x] in terms of [y], the one that is relevant to asymmetry is understanding [y] in terms of [x]. We will argue that, at contexts like ours, one of these understandings will *almost always* be more salient, and hence only one of these facts ([x] or [y]) will play epistemic role E relative to the other, at that context for that subject. In turn, we explain the differential salience of subjects’ understanding of [x] in terms of [y], compared to [y] in terms of [x], by appealing to differential saliences amongst interventional affordances, or conceptual connections, between [x] and [y]. Since understanding consists in the representation of interventional affordances and the encoding of conceptual connections, it is plausible that the differential salience of these representations will typically result in one of the competing understandings being more salient than the other.

Further, since which interventional affordance is more salient can, plausibly, differ across contexts, this, in turn, can explain why the direction of explanation between two facts can vary across contexts (as we will suggest it can). This also explains why, in general, metaphysical explanations at contexts like ours are asymmetric. This will be so as long as, in general, even where S both understands [x] in terms of [y], and [y] in terms of [x], one of these is more salient than the other. But that is what one would expect: it would be unusual for both to be *equally* salient at a context. We will begin by considering differential saliences of interventional affordances (§3.3.1) and proceed to consider differential saliences of conceptual connections (§3.3.2).

**3.3.1 Interventional Saliences**

In what follows we argue that in most contexts inhabited by subjects like us, for any pair of facts [x] and [y], one representation of an interventional affordance between those facts will be most salient. Consider the following claims:

1. Genghis Khan’s teeth are coloured *because* they are yellow.
2. Genghis Khan is in mental state M *because* he is in brain state B.
3. <Genghis Khan exists> is true *because* Genghis Khan exists.
4. {Genghis Khan} exists *because* Genghis Khan exists.

Let’s begin with (3) and (4). A limiting case in which one interventional affordance is salient at a context is a case in which only one interventional affordance is represented by the mental map of the subject. Cases such as (3) and (4) are, quite plausibly, like this for subjects like us. As Miller and Norton (2017) point out, subjects like us typically don’t take ourselves to be able to intervene on abstract objects such as propositions and sets. If that is so, then subjects like us will have mental maps that do not represent that intervening on the truth of <Genghis Khan exists> (or intervening on the existence of {Genghis Khan}) is a way of intervening on the existence of Genghis Khan. Quite likely, our mental maps only represent the kinds of interventional affordances with which we are familiar. Familiar interventions involve manipulating concreta and not abstracta.

Suppose this is so; or at least, suppose it is so for very many subjects like us. Then assuming such a subject has a mental map that represents an interventional affordance between, say, [Genghis Khan exists] and [{Genghis Khan} exists], that subject will represent that one can intervene on the former in order to intervene on the latter, and will not represent the converse affordance. The representation of that interventional affordance will be more salient, at a context, than any of the relevant competitors, since it is the only one that is represented to obtain between those facts.

Let’s also suppose the subject understands [{Genghis Khan} exists] in terms of [Genghis Khan exists], because the process that brought about the interventional representation was reliable, and appropriately ramified through the mental map, and any relevant conceptual connections were updated in this process. The subject’s understanding of the former in terms of the latter will be more salient than the subject’s understanding the latter in terms of the former, since the subject does not, in fact, understand the latter in terms of the former. That’s because the subject doesn’t represent there to be an interventional affordance that will allow an intervention on [{Genghis Khan} exists] to result in an intervention on [Genghis Khan exists], and hence the subject cannot have the right kinds of representations in her mental map, to constitute understanding [Genghis Khan exists] in terms of [{Genghis Khan} exists]. So, as a trivial matter, her understanding of [{Genghis Khan} exists] in terms of [Genghis Khan exists] if it is salient at all, at a context, will be more salient than the converse. Assuming that this understanding is more salient than any of the *other* relevant competitors, at any such context, it will be true that {Genghis Khan} exists *because* Genghis Khan exists, while the converse will be false.

It need not, of course, be that only one interventional affordance is represented to obtain between some pair of facts. Frequently, amongst subjects like us, our mental maps will represent both that one can intervene on [x] to intervene on [y] and *vice versa.* This leaves it open, as we noted earlier, that sometimes a subject will be such that their understanding is symmetrical: that subject both understands [x] in terms of [y], and understands [y] in terms of [x]. Nevertheless, if in almost all contexts, for subjects like us, one of these interventional affordances is more salient, then this will partly determine whether at C, it is S’s understanding of [x] in terms of [y] that is more salient, or *vice versa*. That, in turn, will partly determine (alongside the salience of other relevant competitors) which of these facts play epistemic role E for S at C relative to the other, and hence which claim of the form ⌜x *because* y⌝ is true at that context. To see this, consider (2):

(2) Genghis Khan is in mental state M *because* he is in brain state B.

There are surely subjects like us who represent both that one can intervene on [M] (the fact that Genghis Khan is in mental state M) to intervene on [B] (the fact that Genghis Khan is in brain state B), and that one can intervene on [B] to intervene on [M]. So in this case, the interventional affordances themselves will sometimes be represented as symmetrical. Given our account of understanding, then, there may very well be a subject that both understands [B] in terms of [M], and understands [M] in terms of [B]. Nevertheless, we think it likely that for subjects like us, at any particular context, either the former or the latter understanding will be more salient.

Suppose Genghis is in therapy: his violent streak and bloodlust are not serving him well. Even though he has populated a fair swathe of Mongolia, he has few friends, and his (very large) family do not appear to like him. His therapist (who is well ahead of her time) practices cognitive behavioural therapy. She tells him that he must change his pattern of thinking in order to change the state of the brain that constitutes his bloodlust. One day a brain scan (she is, remember, well ahead of her time) reveals that Genghis is in brain state B while in mental state M. The therapist tells Genghis that he is in brain state B *because* he’s in mental state M. The context in which Genghis and the therapist find themselves is one in which a particular intervention is most salient: that of intervening on Genghis’ mental states, in order to intervene on his brain states. So although both the therapist and Genghis might represent symmetrical interventional affordances between his brain states and mental states (we can suppose they do), one of those affordances is most salient in the context in which he is in therapy. The salience of that interventional affordance partly explains why it is that Genghis’ and the therapist’s understanding of [B] in terms of [M], is more salient at their contexts, than any relevant competitor, and in turn, explains why it is [M] that plays epistemic role E for the therapist (and Genghis) relative to [B], rather than the converse. In turn, this is why ‘Genghis is in brain state B *because* he’s in mental state M’ is true at their respective contexts of assessment, but the converse is false at those contexts.

Suppose that Genghis also visits his local pharmacologist (they call her a witchdoctor) with a view to using drugs to curb his bloodlust. She prescribes him a drug that will directly alter his brain states—those constitutive of his bloodlust. One day the witchdoctor (who also has excellent technology) sees that Genghis is in brain state B and mental state M. She asserts: ‘Genghis is in mental state M *because* he’s in brain state B’. At her context, a particular interventional affordance is most salient: namely intervening on Genghis’ brain states to intervene on his mental states. This particular affordance’s being salient is partly why Genghis’ (and the witchdoctor’s) understanding of [M] in terms of [B] is the most salient at their context. That, in turn, is why [B] plays epistemic role E, at that context, for the witchdoctor, relative to [M]. It is because the former fact plays epistemic role E at that context, for that subject, that her assertion of ‘Genghis is in mental state M *because* he’s in brain state B’ is true at that context, and also why the converse is false at that context. For at that context, it’s not the case that her understanding of [B] in terms of [M] is more salient than the relevant competitors, because the relevant interventional affordance between these facts is not the most salient.

To be clear: we think there are cases in which the direction of explanation varies across contexts. You might not think that this is such a case. We are not wedded to supposing it is. Perhaps the relevant R-fact, in this case, is in fact asymmetric (as necessitation would be). Or perhaps the R-fact is not asymmetric, but nevertheless all subjects like us in fact make the same explanatory judgements in this case. If so, we think, that will be because just one direction of understanding between the pair of facts is ever more salient than the relevant competitors, for subjects like us.

You might think this is a bad explanation. For you might be inclined to say that even if just one understanding of a pair of facts is ever the more salient, relative to the relevant competitors, for subjects like us, nevertheless, it just seems to you to be wrong to think that the direction of explanation could reverse, even for subjects at very different contexts. If you think this, then you think there are cases in which we are very disinclined to allow that there is *any* context at which the direction of explanation is the reverse of what we take it to be. While we could say that perhaps what is true for subjects like us is sometimes true for all possible subjects—namely that at all their contexts, the same understanding is more salient than any of the relevant competitors—this seems unlikely. Instead, we think this reticence (if we find it) can be explained by there being good evidence that in a range of cases, we find it very difficult to inhabit the perspective of another agent.

It has been shown that when it comes to explanations it is often difficult to get subjects to fully take into consideration the epistemic context—in particular the epistemic goals and the background knowledge—of other parties (Birch & Bloom, 2003). Indeed, we adjust explanations to take into account the perspective of the other party, but we frequently do so by assuming they have the same knowledge base as we do (Nickerson, 2001), which leads us to miscalculate the informational common ground between explainer and subject to whom the explanation is being offered (Clark, 1996). In fact, even when one has access to the other party in order to negotiate a common ground, this egocentrism bias still obtains (Clark, 1996).

The point here is that where subjects occupy a very different epistemic context from us, either by having radically different psychologies, or radically different goals, or by inhabiting a very different part of the world, it can be expected that we will find it difficult to imagine occupying that perspective. In may be that where we cannot imagine the direction of explanation going in the opposite direction, this is because it only does so at radically different epistemic contexts, contexts we cannot imagine inhabiting.

**3.3.2 Conceptual Saliences**

So far we have pointed to one kind of salience—interventional salience—that can (partly) determine whether it is a subject’s understanding of [x] in terms of [y], or the converse (if the subjects has both understandings), which is more salient at a context. That, in turn, determines whether it is ⌜x *because* y⌝, or ⌜y *because* x⌝, that is true at that context.

Understanding, however, is not just a matter of representing interventional affordances between facts. It is (at least sometimes) also a matter of representing conceptual connections between facts. Hence another potential source of salience for one understanding over another, at a context, is the differential salience of certain conceptual connections at that context. In what follows we will argue that, at least with regard to some pairs of facts, there are what we will call *conceptual asymmetries* between those facts. The kind of conceptual asymmetry we have in mind is an asymmetry of analysis, in which subjects like us tend to analyse the concept that is satisfied by one of the facts (or its constituents), in terms of the concept that is satisfied by the other fact. We will have more to say about what this analysis consists in shortly. Our claim is that at some contexts these conceptual connections are salient; when they are salient, the asymmetry of these conceptual connections can (partly) determine that one understanding is more salient than its competitors, at that context. Consider, for instance (1):

1. Genghis Khan’s teeth are coloured *because* they are yellow.

Plausibly, (1) is true, for subjects like us, and the converse is false. This is because understanding Genghis’ teeth being coloured, in terms of their being yellow, is more salient, compared to its competitors at most contexts like ours. That salience, in turn, might arise from an asymmetry of conceptual connections. For instance, suppose that colouredness and yellowness are conceptually connected, and suppose, further, that the connection is asymmetric in some manner (to be described below). Then suppose that in some, or perhaps many, contexts these conceptual connections are salient. Then this will tend to result in our understanding of colouredness in terms of yellowness being more salient at these contexts, than the relevant competitors.

As noted, the kind of conceptual asymmetry we have in mind is an asymmetry of analysis:[[22]](#footnote-22)

**Asymmetry of Analysis:** There is an asymmetry of analysis between concepts C and C\* iff C is partially analysed in terms of C\* but C\* is not partially analysed in terms of C.

We take concepts to be constituents of thoughts, where said thoughts can be expressed using terms and expressions in a public language. Roughly following Chalmers and Jackson (2001) and Chalmers (2012), we take the content of a concept to be determined by what a suitably idealised and reflective subject would be disposed to say about the extension of that concept when considering various epistemically possible scenarios. What individuals know (and know *a priori,* according to Chalmers and Jackson) is a set of what they call *application conditionals*: conditionals that give the extension of a concept, conditional on some hypothetical scenario obtaining. So, application conditionals take the form: if things are like *this* (insert sufficiently rich description, D) then the extension of C is E, and so on for each description, D1…Dn of the ways things hypothetically might be.

In effect, then, each application conditional specifies the intension of a term, conditional on some hypothetical scenario actually obtaining. Call each of these a *conditional intension*. According to this view, there need be no way of offering a neat conceptual analysis of a concept, C, of the form ‘x satisfies C iff…’ where we specify the necessary and sufficient conditions for something to satisfy C. Rather, we can think of the *set* of application conditionals as exhausting the content of the concept—where the set of application conditionals for some term is a set of conditional intensions for that term, of which just one is its ‘real’ intension, namely the one which is conditional on the hypothetical scenario that in fact obtains—and then take the best way of systematising those conditionals as providing an analysis of the concept. An asymmetry of analysis between concepts C and C\* occurs, then, iff the best systematisation of the application conditionals for C includes C\* but not *vice versa*.

For instance, suppose there is a concept khandescendant. Each application conditional for khandescendant tells us what its extension is, conditional on some different hypothetical scenarios obtaining. Suppose the best systematisation of the complete set of application conditionals is something like: a khandescendant is any person who is a descendant of Genghis Khan. Thus, the best systematisation of khandescendant appeals to the concept Genghis Khan. If we wanted to say what is in common between the extension of khandescendant relative to different hypothetical scenarios, and the extension of Genghis Khan, the best way to spell this out would be to say that, in each case, something falls under khandescendant just in case it is a descendant of something which falls under Genghis Khan. Once we notice that, however, we can further notice that the analysis is asymmetric. While khandescendant is analysed in terms of Genghis Khan, the reverse is (it seems) not the case. Whatever exactly the analysis of Genghis Khan, it seems unlikely that it will mention khandescendant. Hence, there is an asymmetry of analysis of the concepts khandescendant and Genghis Khan.

Our contention is that where there are such conceptual asymmetries, and where, at a context, an asymmetric conceptual connection is salient, this will contribute to a particular understanding being most salient at that context. Let’s go back and revisit some of examples from earlier:

1. <Genghis Khan exists> is true *because* Genghis Khan exists.
2. {Genghis Khan} exists *because* Genghis Khan exists.

In both of these cases there is, quite plausibly, an asymmetry of analysis in the concepts involved. That is, it seems plausible that the systematisation for the application conditionals in question will be such that the analysis of the concept <Genghis Khan exists> is true and the analysis of the concept {Genghis Khan} exists each include the concept Genghis Khan exists, but not *vice versa.*

In §3.1 we argued that it is likely that a subject S’s coming to understand [x] in terms of [y] involves S representing not only new interventional affordances between [x] and [y] but also (often) new conceptual connections between the concepts that the representations of those facts satisfy, or fall under. So, for instance, in the preceding case the representation of [<Genghis Khan exists> is true] and [{Genghis Khan} exists] and [Genghis Khan exists] each fall under three concepts: the former falls under the concept <Genghis Khan exists> is true, the second falls under {Genghis Khan} exists and the latter falls under Genghis Khan exists. Moreover, subjects who possess all of the above concepts will analyse <Genghis Khan exists> is true and {Genghis Khan} exists in terms of Genghis Khan exists. There are then two possibilities.

First, subjects might not represent interventions on [<Genghis Khan exists> is true] and [{Genghis Khan} exists] as a means to intervene upon [Genghis Khan exists] (because e.g., these are abstract objects which subjects take themselves to be unable to intervene upon directly). In this case, the understanding of [<Genghis Khan exists> is true] and [{Genghis Khan} exists] in terms of [Genghis Khan exists] will be most salient for those subjects, and the explanations asymmetric. Alternatively, subjects might represent interventional affordances in both directions, and with equal salience. In these cases we think the explanations will still be asymmetric (in at least the vast majority contexts like ours) due to the asymmetries of the conceptual connections between <Genghis Khan exists> is true, and {Genghis Khan} exists and Genghis Khan exists. In particular, the asymmetry here (at least for subjects like us) is that we analyse the former two concepts in terms of the latter. That asymmetry, then, makes the understanding of [<Genghis Khan exists> is true] and [{Genghis Khan} exists] in terms of [Genghis Khan exists] the most salient, all else being equal. Hence at our contexts [Genghis Khan exists] plays epistemic role E relative to [{Genghis Khan} exists] and that is why, at contexts like ours, ‘{Genghis Khan} exists *because* Genghis Khan exists’ is true, and the converse is false.

This concludes our discussion of the mismatch problem. We have argued that we can make sense of the formal features of those propositions that are, from our context of assessment, metaphysical explanations—irreflexivity, non-monotonicity, and asymmetry—by appealing to nothing more than features of our epistemic context. As we noted earlier, that doesn’t mean that the hybrid theorist will always want to appeal to this explanation: sometimes she might also appeal to features of the R-relations that back these explanations. Our aim has just been to show that even without those resources, the hybrid theorist can respond to the mismatch objection.

In this section we have suggested that the hybrid theorist ought to respond to the charge that there is a mismatch between the formal features of the R-relations that back metaphysical explanations and the formal features of those metaphysical explanations with which we are acquainted by pointing out that, relative to an epistemic context, not every R-relation will back a metaphysical explanation. Only when [x] and [y] are appropriately R-related, *and* a subject *understands* [x] in terms of [y], *and* that understanding is most salient among the relevant competitors, will it be true, relative to that subject’s epistemic context that x *because* y. We have then noted that *from our epistemic context* metaphysical explanations are always, or almost always, irreflexive, non-monotonic and asymmetric. No doubt some readers will be sceptical of the particular reasons we have given for why this is the case. Still, we hope to have shown convincingly that it is a mistake to think that the formal features of metaphysical explanations must find their origin in the R-relations which back them. We also hope to have shown that there are abundant resources by which these formal features might be accounted for by other means.

We now turn to the objection from the wrong kind of structure.

**4. The Objection from the Wrong Kind of Structure**

The objection from the wrong kind of structure, recall, is the objection that without an ontological hierarchy (e.g., without asymmetric grounding relations) all we have to back metaphysical explanations are modal correlations, and correlations are not the right kind of relation to back explanations. This objection is not without force. Consider the following two purported metaphysical explanations:

1. {2} exists *because* 2 exists.
2. {2} exists *because* 3 exists.

(5) strikes us as true—and hence a metaphysical explanation—whereas (6) strikes us as false, and thus not a metaphysical explanation. Although {2} and 3 exist at exactly the same possible worlds (all worlds, we are supposing), this modal correlation seems to be just that—a correlation. {2} and 2, on the other hand, seem intimately connected, and it is this intimate connection that explains why (5) is true.

The objection rests on three key premises. First, without ontological hierarchy, all modal correlations are mere correlations akin to the correlation between {2} and 3. Second, if all modal correlations are mere correlations, then all purported metaphysical explanations—that is, all claims of the form ⌜x *because* y⌝, involving appropriately modally correlated facts (i.e., facts which bear the R-relation) are on par with (6) and thus those claims are false, and hence are not metaphysical explanations at all. Third, it is not the case that all claims of the form ⌜x *because* y⌝, where [x] and [y] are appropriately modally correlated facts, are false and hence are not really metaphysical explanations at all.

Despite its initial plausibility the argument is not sound. The first premise is certainly false, and the second implausible.

**4.1 The Right Structure without Ontological Hierarchy**

Why is it false that, without ontological hierarchy, all modal correlations are mere correlations? Because there is at least one coherent view on which there is no ontological hierarchy and yet {2} and 2 are not merely modally correlated. That view is symmetrical roughland. A symmetrical roughland world, recall, is one on which there are symmetrical grounding relations between facts. Which facts symmetrically ground which is an open question, but quite plausibly the symmetrical grounding relations hold only between *some* modally correlated facts, just as causation only holds between some temporally correlated facts. Thus, the symmetrical roughlander can, and we think ought, say that a symmetrical grounding relation holds between [{2} exists] and [2 exists], but not between [{2} exists] and [3 exists]. Given this, and given the view of metaphysical explanation laid out in §2, (5) is true in our context so long as [2 exists] plays the right epistemic role in relation to [{2} exists], whereas (6) is false, regardless of any epistemic considerations.

The contention that a hierarchical ontology is required for facts to be more than merely modally correlated is, therefore, simply mistaken. (One might, of course, maintain that symmetrical roughland does not give us the right kind of structure for other reasons—e.g. because it does not give us the required irreflexive, non-monotonic, and asymmetrical structure—but that is just the mismatch problem all over again.)

If the first premise of the objection is false, then the objection fails. Still, anyone who rejects symmetrical roughland (and any view like it) faces a variant of the wrong kind of structure argument, and must deal with the other premises. Thus, for example, flatlanders, who *do* commit to nothing beyond mere modal correlations, must deny one of the other two premises, or deny that the argument is valid. We take up this task now.

**4.2 Distinguishing True Claims of the Form** ⌜**x *because* y**⌝ **from False Ones**

Let us start with the third premise. It certainly seems to be the case that not all claims of the form ⌜x *because* y⌝ are false. Indeed, (5) seems true, as do (1) - (4) and many more claims besides. We don’t wish to deny that some such claims are true. But we do wish to point out that those claims are being evaluated at a particular context—ours—and so the third premise should read,

It is not the case that all claims of the form ⌜x *because* y⌝ where [x] and [y] are appropriately modally correlated facts are false, *relative to our epistemic context*.

Thus stated, the premise is true. The second premise contains the same ambiguity. For the sake of consistency it should therefore read,

If all modal correlations are mere correlations, then all claims of the form ⌜x *because* y⌝ where [x] and [y] are appropriately modally correlated facts are on par with (6) and are therefore all false *relative to our epistemic context*.

Thus stated, however, the premise is not plausible, particularly in light of our discussion earlier in the paper. While it is true that we cannot distinguish the true and the false claims of the form ⌜x *because* y⌝ simply by looking at the R-facts that back those claims, the flaw in the objection is the supposition that this is the only way we *could* distinguish between them. We have argued that the epistemic roles played by facts relative to other facts, at contexts, also factor into whether a claim of the form ⌜x *because* y⌝ is true at an epistemic context. Thus, we agree that something more than a mere modal correlation between facts is needed for there to be a metaphysical explanation at a context. However, we disagree that that further thing has to be something which gives rise to ontological hierarchy.

Although it may not be *obvious* that ontological hierarchy is needed to differentiate between true and false claims of the form ⌜x *because* y⌝ (like (5) and (6)), there are good reasons to think it is required. Indeed, the flatlander faces the not insubstantial challenge of saying why [2 exists] plays the relevant epistemic role for us with respect to [{2} exists], at our contexts, and *mutatis mutandis* for other cases.

We think the flatlander can meet the challenge, at least to some extent, by appealing to the various machineries we outlined in §3: the representation of interventional affordances and conceptual connections between facts. We think it pretty likely that even if [{2} exists] and [3 exists] were R-related (as necessitation-based theorists will contend) there is an explanation for why agents like us are disinclined to say that [{2} exists] *because* [3 exists] (or *vice versa*)*.* In particular, it seems very plausible that subjects like us, at our contexts, will not represent there to be an interventional affordance between these facts. Nor, we think, will the relevant kinds of conceptual connections obtain between the concepts that express these facts. In particular, if we return to consider the conceptual asymmetries to which we appealed in §3, we can see that not only is there no such asymmetry present in this case, but, in addition, there appears to be no symmetrical conceptual connection present either: we do not analyse either concept in terms of the other.[[23]](#footnote-23) Jointly, these two observations constitute its being the case that subjects like us do not understand [{2} exists] in terms of [3 exists] or *vice versa:* our mental maps simply do not represent these facts to be connected in any of the ways that constitute understanding. Hence it follows that for subjects like us (and perhaps many more subjects besides) ‘{2} exists *because* 3 exists’ is false at our contexts, as is the converse claim.

**5. Conclusion**

In this paper we have argued that two important arguments in favour of a hierarchical ontology over a non-hierarchical ontology—the *mismatch objection* and the *wrong kind of structure objection*—are not persuasive.

The mismatch objection states that without a hierarchical ontology there would be a fatal mismatch between the formal features of metaphysical explanations on the one hand, and the relations in the world that back those explanations on the other. We have shown that this objection relies on the unwarranted assumption that the formal features of metaphysical explanation fully derive from the formal features of the relations that back them, rather than (at least in part) facts about the subjects who engage with those explanations.

According to the wrong kind of structure objection, true claims of the form ⌜x *because* y⌝ must be backed by something more than mere modal correlations to distinguish them from false claims, and that without ontological hierarchy that is impossible. We have shown that there straightforwardly *can* be relations that outstrip mere modal correlations without ontological hierarchy. Symmetrical grounding relations are a clear example. Furthermore, even without symmetrical grounding, it is far from clear that the only way to differentiate the true claims of the form ⌜x *because* y⌝ from the false is by the relations that back them. The epistemic roles that facts play can also help to explain why some claims of the form ⌜x *because* y⌝ are true and others false.

In defusing these two objections we hope to have shown that there is promise still for ontology without hierarchy.

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1. See Bøhn (2018), Morganti (2009), Raven (2016) and Trogdon (2018a). [↑](#footnote-ref-1)
2. See Schaffer (2009), Rodriguez-Pereyra (2015) and Jansson (2017). [↑](#footnote-ref-2)
3. See Rodriguez-Pereyra (2015) and Jenkins (2011). [↑](#footnote-ref-3)
4. The representational conception is adopted by, *inter alia*, Audi (2012) Trogdon (2018b), Norton & Miller (2017), Shaheen (2017), Rodriguez-Pereyra (2015) and deRosset (2013). [↑](#footnote-ref-4)
5. We use corner quotes here to signify that ⌜x *because* y⌝ is a *kind* of sentence, where x and y are variables that range over sentences. We will speak of ‘an instance of ⌜x *because* y⌝’ when we intend to talk about a particular instance of the schema. We will simply speak of ⌜x *because* y⌝ in order to talk about all instances of the schema. [↑](#footnote-ref-5)
6. The non-representational view corresponds to Salmon’s (1984) *ontic* conception of causal explanation. Trogdon (ms:2) characterises this as the “ontic view of metaphysical explanation according to which some metaphysical explanations are portions of the grounding structure of the world. In this case we can speak of grounds themselves as being metaphysical explainers, and a gloss of this view of metaphysical explanation is that metaphysical explanation (or perhaps a type of metaphysical explanation) just is grounding.” [↑](#footnote-ref-6)
7. Nothing, however, hangs on this choice, and everything we say can be translated into a worldly conception of metaphysical explanation. But we cannot defend that claim here. For more on this see Norton (ms). [↑](#footnote-ref-7)
8. Despite this use of these terms being non-standard, it is common in this literature (see for example, the references in footnote 4.). [↑](#footnote-ref-8)
9. Here, and in what follows, ‘[x]’ is to be read as ‘the fact that x’. [↑](#footnote-ref-9)
10. Audi (2012:104) claims that “[t]he reason we must countenance grounding is that it is indispensible to certain important explanations.” Kovacs (2017) critically discusses this line of argument. [↑](#footnote-ref-10)
11. The view owes its name to Bennett (2011). See also her (2017). [↑](#footnote-ref-11)
12. Though see Norton (ms) and Miller (ms) for more on this. [↑](#footnote-ref-12)
13. Though see Duncan, Miller and Norton (2018) for an attempt to do so. [↑](#footnote-ref-13)
14. For a defense of this view, inspired by Price’s (2007) and Braddon-Mitchell’s (2017) symmetrical accounts of causation, see Miller (ms). [↑](#footnote-ref-14)
15. The dimension we have in mind here is akin to Wilsch’s (2015; 2016) *axis of fundamentality*, except that the symmetrical roughlander will deny that facts towards one end of the axis are more fundamental than facts towards the other. [↑](#footnote-ref-15)
16. Interventionist accounts of causation itself have been provided by Pearl (2000), Woodward (2003) and Menzies (2007), among others. [↑](#footnote-ref-16)
17. And hence, in most cases, the concepts that the facts themselves, satisfy. [↑](#footnote-ref-17)
18. What we have provided, of course, is not a precise and comprehensive account of the salience in question. However, it should to be enough for the purposes of the present paper. Our goal here, after all, is not to defend a fully worked out hybrid theory, but rather to show that hybrid theorists have the resources to deal with the mismatch and wrong kind of structure objections. [↑](#footnote-ref-18)
19. See Duncan, Miller and Norton (2017) for a discussion of hyperintensionality and metaphysical explanation. [↑](#footnote-ref-19)
20. See Jenkins (2011) for a view of this kind. [↑](#footnote-ref-20)
21. There might be some cases in which intervening on [j] is a way to intervene on [x]. In general, though, this won't be the case, and that is sufficient for our purposes. [↑](#footnote-ref-21)
22. See Duncan, Miller, and Norton (2018:§4.1) for discussion of this and another kind of conceptual asymmetry, which we think also bears upon the asymmetry of metaphysical explanation. [↑](#footnote-ref-22)
23. As with our other examples, one might disagree. For instance, one might think that [{2} exists] is analysed in terms of [3 exists]. In that case, however, we think one will also likely have the intuition that {2} exists *because* 3 exists. [↑](#footnote-ref-23)