**Ditching Dependence and Determination: Or, How to Wear the Crazy Trousers[[1]](#footnote-1) [[2]](#footnote-2) [[3]](#footnote-3)**

**Abstract**

This paper defends Flatland—the view that there exist neither determination nor dependence relations, and that everything is therefore fundamental—from the objection from explanatory inefficacy. According to that objection, Flatland is unattractive because it is unable to explain either the appearance as of there being determination relations, or the appearance as of there being dependence relations. We show how the Flatlander can meet the first challenge by offering four strategies—reducing, eliminating, untangling and omnizing—which, jointly, explain the appearance as of there being determination relations where no such relations obtain. Since, plausibly, dependence relations just are asymmetric determination relations, we argue that once we come mistakenly to believe that there exist determination relations, the existence of other asymmetries (conceptual and temporal) explains why it appears that there are dependence relations.

**1. Introduction**

Flatlanders[[4]](#footnote-4) believe in modal covariation. That is, they believe that there exist the ‘traditional’ modal relations—necessitation and supervenience—which describe patterns of covariation across modal space. These traditional modal relations are non-symmetric, reflexive, and monotonic. Flatlanders don’t believe in *additional* modal relations which obtain between modally co-varying entities, and which outstrip the relations of supervenience and necessitation by being asymmetric, irreflexive, or non-monotonic. We will call these additional relations *D-relations* (for reasons that will become apparent). Since it is D-relations that are typically thought to furnish the world with relations of relative fundamentality, or ontological hierarchy, Flatland is aptly named. It is the view that everything that exists is fundamental.[[5]](#footnote-5)

Our aim is not to offer arguments in favour of Flatland. Rather, it is the relatively modest one of defending Flatland against what we call the objection from explanatory inefficacy. That objection is as follows.

Some instances of modal covariation appear to be trivial, and some do not. The number 2, and the singleton set {2} modally co-vary. But the existence of {2} is also necessitated by the existence of a man, Bert. Yet we are inclined to think that the former instance of modal covariation is non-trivial, and the latter trivial. In what follows we suppose that a modal covariation is trivial iff the covariation obtains between a thing and itself, or obtains between two things, at least one of which exists of necessity. It is straightforward to see why in the former case the covariation is trivial. In the latter case the thought is that a covariation between x and y is trivial if x exists of necessity, since in that case there is a modal covariation between x and absolutely anything else whatsoever. No explanation for such covariation is required. But some explanation *does* seem to be required for either the existence of, or the appearance of, non-trivial modal covariations. For notice that given the definition of triviality just provided, if 2 and {2} both exist of necessity then the modal covariation between them counts as trivial: yet that covariation certainly *appears* to be non-trivial. That appearance requires an explanation.

It is tempting, then, to posit a special *kind* of intimate connection between the co-varying entities. Call this putative connection *determination*. The idea is that the intimate connection between non-trivially modally co-varying entities consists in a relation of determination obtaining between these entities. More carefully, in what follows we will suppose that determination relations (if there are any) obtain between co-varying states of affairs, or facts (construed as worldly entities). Further, we suppose that determination relations are primitive. They outstrip the traditional modal relations insofar as determination relations are irreflexive and non-monotonic. So what distinguishes determination from the modal relations is that nothing determines itself (irreflexivity) and that relevance matters (non-monotonicity). Thus one might be inclined to say that x’s being maroon determines that x is red, but the existence of Bert does not determine that {2} exists.

Call the view that there are such relations, *Determination*, and the view that there are not, *Determination Eliminativism.* Flatlanders are Determination Eliminativists.

Those who defend Determination can explain the appearance of non-trivial modal covariations by noting that some modal covariations are indeed non-trivial. A modal covariation is non-trivial iff it is accompanied by a determination relation. Since determination relations can obtain between necessarily existing relata such as 2 and {2}, the defender of Determination can say that such modal covariations not only appear non-trivial, but in fact are. Flatlanders cannot explain the appearance of non-trivial modal covariations in this manner. According to the objection from explanatory inefficacy, there is no explanation to be had, for these appearances, which does not posit determination relations. As some explanation is required, Flatland ought to be rejected. This is part I of the objection from explanatory inefficacy.

According to part II of the objection, it not only seems as though some modally co-varying entities are intimately connected, but also as though they are *asymmetrically* connected. It seems as though one of the co-varying entities *depends* on the other. For instance, it seems as though the flower’s being blue depends on its being azure, and that the unicycle’s existence depends on its proper parts existing, and that the singleton set {Pascal} exists because Pascal does.

One way to explain these appearances is to suppose that some proper sub-set of the determination relations are *dependence* relations.[[6]](#footnote-6) Where determination relations are non-symmetric, non-monotonic, irreflexive relations, dependence relations are *asymmetric*, non-monotonic, irreflexive relations. Call the view that there are dependence relation, *Dependence*, and the view that there are not, *Dependence Eliminativism*. The defender of Dependence can explain why there appear to be dependencies by vindicating those dependencies: where there are such appearances, there are dependence relations obtaining between the relevant facts.

By contrast, Flatlanders are Dependence Eliminativists, and so cannot explain the appearances of dependencies in terms of the obtaining of dependence relations. According to Part II of the objection from explanatory inefficacy, there is no explanation for these appearances that does not appeal to dependence relations. Hence we ought reject Flatland.

Call the union of determination and dependence relations *D-relations*; call the view that there exist both determination and dependence relations *D-realism,* and the view that there exist neither relations, *D-eliminativism*. Flatlanders are D-eliminativists.[[7]](#footnote-7)

D-eliminativism is a view about ontology: it is the view that D-relations do not exist. Thus, claims about what metaphysically explains what (or what grounds what, or what depends on what), regimented in something like the form ‘x *because* y’,[[8]](#footnote-8) are false when uttered in the context of the ontology room, assuming that, when uttered there, their truth is are taken to imply the existence of the corresponding D-relations. Nonetheless, in ordinary English, some such claims might be true. This will be so if their truth does not require the existence of D-relations.[[9]](#footnote-9) For instance, it might be that ‘x is red *because* x is maroon’ is true in ordinary English, because being maroon necessitates being red and (perhaps) learning that something is maroon strikes beings like us as somehow explaining why that thing is red.[[10]](#footnote-10)

In §2 we focus on part I of the objection from explanatory inefficacy. We outline four strategies to which the Flatlander can appeal in order to explain the appearance of there being determination relations: reducing, eliminating, untangling and omnizing. In §3 we show how the Flatlander can do so. Then in §4 we show how she can respond to part II of the objection: explaining the appearance of there being dependence relations.

**2. Four Strategies**

In order to respond to part I of the objection from explanatory inefficacy, the Flatlander must explain why there are instances of non-trivial modal covariation when there are, or explain why it appears as though there are instances of non-trivial modal covariation when there are not. We prefer the second option, but in what follows we first briefly consider the first option.

**2.1 Explaining Non-Trivial Modal Covariation**

Suppose the Flatlander holds that there are both trivial and non-trivial instances of modal covariation. How, then, could she explain why some instances of covariation are non-trivial, if not by appealing to determination relations? As we see it, her best option is to appeal to essences. To do so she must do two things. First, she must hold that essences are not reducible to patterns of modal covariation: what it is for an object to have a property essentially is not simply for that property to be had of necessity. Second, she must reject any contention that essences are connected with, or entail, Determination or Dependence. The non-modal view of essences according to which essential truths have their source in the identities of the objects they are about, has already been widely defended (by, *inter alia,* Fine (1994a)) and so we will simply suppose that such a view is available.

If there are essences, then the explanation for the existence of non-trivial modal covariation can appeal to essences. For instance, the non-trivial modal covariation between Socrates and his singleton set can be explained by the fact that it is of the essence of the singleton set to have Socrates as a member. Instances of trivial modal covariation are those in which there are no essential connections between the co-varying entities (i.e. no connections between the essences of those entities), and instances of non-trivial modal covariation are those in which there is some essential connection between the co-varying entities.

The suggestion, then, is that we mistake connections of *essence* for connections of *determination.* The mistake would be easy to make since essential connections are often though to be non-symmetric[[11]](#footnote-11) in the way determination relations are, and yet clearly essential connections embody a strong kind of relevance of one fact to the other, essentially connected, fact.

Indeed, it may be that this proposal can furnish the Flatlander with a response to part II of the objection from explanatory inefficacy. For while essential connections are, as a class, non-symmetric, clearly some instances of essential connection are not symmetric: while it is of the essence of {Socrates} that it has Socrates as a member, it is not of the essence of Socrates that he is a member of that set. Hence the Flatlander might suggest that where we find essential connections of a certain sort—namely those which do not hold symmetrically—we mistake these for relations of dependence. Thus the Flatlander can be a D-eliminativist and both explain *and vindicate* the appearances of non-trivial modal covariations, and can explain but not vindicate, the appearances of dependence relations, by appealing to essential connections.

So far so good; the question is whether it is plausible that essential connections are distinct from the D-relations. If not, the Flatlander cannot appeal to these connections.

What does it mean to say that it is of the essence of {Socrates} that it has Socrates as a member? Following Fine (1994a) we might appeal to real definitions and note that {Socrates}’s real definition includes Socrates. What it is to be the former is to have only the latter as a member. One version of this view appeals to something like conceptual connections.[[12]](#footnote-12) The idea is that there are two concepts, C and C\*, each of which have a modal profile, which specifies what would satisfy that concept across different worlds. Then one way for C and C\* to be conceptually connected is if something counts as satisfying C only if something counts as satisfying C\*. Then if there is something in the world, O, that satisfies C, and something in the world, O\* that satisfies C\*, it follows that O and O\* will modally co-vary.

Versions of this view, however, have not found many adherents.[[13]](#footnote-13) The objection to such views is that the mere fact that if there are things that fall under C and C\*, these things will modally co-vary, does not *explain* why the particular things that modally co-vary, do so. The explanation, it seems, goes the other way around: the things fall under those concepts because they modally co-vary in the way they do. Nothing in our *concepts* makes it the case that entities modally co-vary. We do not wish to take sides on this issue. Suffice to say, however, that few have been moved to think that the proffered explanation, here, is an explanation. So it would be better if the Flatlander could do better.

On another interpretation of the essentialist framework essences are features of objects, not concepts. Suppose this is so. Now the worry is that it will be difficult to cleave essence from determination. Essential connections between A and B look a lot like the obtaining of determination relations between A and B. If it really is part of the very nature of {Socrates} that it has Socrates as a member, then it is difficult to deny that the existence (and nature) of Socrates determines the existence (and nature) of {Socrates}. And if the essential connection between the two is not symmetric (as in this case), then it is difficult to deny that {Socrates} depends on Socrates.

We don’t want to press on this point too heavily: perhaps there is a way to spell out essential connections which makes it clear that there are no determination or dependence relations entailed by the obtaining of the essential connection. But rather than focus on this task, we aim to see whether there are other options that the Flatlander might pursue. In particular, our aim is not to focus on *vindicating* the existence of non-trivial modal covariation in the absence of D-relations, but, instead, on *explaining away* the appearance of there being such covariation.

That strategy has two parts: first, showing that there are no instances of non-trivial covariation; second, explaining why it seems as though there are. In what follows we outline four strategies to which the Flatlander can appeal to show that there are no instances of non-trivial modal covariation. We then turn, in §3, to show how with these strategies in hand, the Flatlander can also explain why there *seem* to be instances of non-trivial covariation.

**2.2 Explaining Away Non-Trivial Modal Covariation**

In what follows we aim to show that the Flatlander can deny that there are instances of non-trivial modal covariation by deploying four strategies. The four strategies are *eliminating*, *reducing*, *untangling* and *omnizing.* In every case in which there is an appearance as of a non-trivial modal covariation, the Flatlander will appeal to one of these strategies to show that no non-trivial covariation exists. It need not be that the same strategy works in all cases. The Flatlander can appeal to different strategies in different cases.

The Flatlander can *eliminate* one of the purportedly co-varying relata, leaving no covariation (trivial or otherwise); she can *reduce* one of the purportedly distinct relata to the other, leaving only a trivial covariation between a thing and itself; she can *untangle* the relata holding that, in fact, *no* covariation obtains between them, or she can *omnize* by holding that at least one of the relata exists of necessity (i.e. is omni-modal) and hence that the covariation is trivial.

For example, instead of saying that both chairs and atoms-arranged-chairwise exist, are distinct, and modally co-vary, the Flatlander ought to say either that chairs or atoms don’t exist (eliminating), that chairs are identical to atoms-arranged-chairwise (reducing), that there are no instances of modal covariation between chairs and atoms-arranged-chairwise (untangling), or that at least one of the chair and the atoms-arranged-chairwise exists of necessity (omnizing). On a piecemeal basis, (though typically not with a view to defending Flatland) these strategies have been pursued across a range of cases. Eliminativist strategies have been offered for determinables (Armstrong (1978, 1997), Gillett and Rives (2005), Heil (2003)), for composites (Brenner (2015, 2017), Horgan and Potrč (2000), Sider (2013)[[14]](#footnote-14)) and for constituted objects (Unger (1979)). Reductive strategies have been offered for determinables (Bigelow and Pargetter (1990), Clapp (2001), Rodriguez-Pereyra (2002), Antony (2003), Massin (2013)), for composites (Baxter (1988a, 1988b), Böhn (2009), Wallace (2011a, 2011b), Cotnoir (2013)[[15]](#footnote-15)) and for constituted objects (Quine (1953), Lewis (1971, 1986), Noonan (1993), Sider (2001)). Untangling strategies have been offered in relation to composites ((Cameron (2007), Parsons (2013), Saucedo (2011)), and for universals (Williams (2007)). Omnizing strategies have been offered for propositions (Williamson (2002)), sets (Williamson (2002), Linsky and Zalta (1994)) and in some cases for all entities (Williamson (2002), Linsky and Zalta (1994)).

In fact, we think, the Flatlander will need to appeal to more than one such strategy.

Consider, first, untangling. The untangling strategy will work for *some* cases of apparent non-trivial modal covariation. For instance, one might deny that parts and wholes modally co-vary: perhaps one can have the same object made of entirely different parts, and one can have the same parts arranged the same way, composing some different object. But it is implausible to deny that there is an instance of covariation between, say, an entity’s been maroon, and its being red. Untangling, in this case, involves maintaining that there are worlds in which entities are maroon, but not red. Likewise, it is implausible that one can untangle singleton sets from their members, insofar as this would involve holding that there are worlds in which the member exists, but the set does not, or worlds in which the set exists but the member does not.

Suppose we combine untangling with omnizing. Can we accommodate the remaining cases? Consider a particularly powerful omnizing strategy according to which everything exists of necessity (Williamson (2002)). Call this the *encompassing* omnizing strategy. Then consider the covariation between individuals and their singleton sets, and between true propositions and the things those propositions are about. In neither case does it seem plausible to reduce one relatum to the other,[[16]](#footnote-16) nor to eliminate one of the relata. Nor does it seem remotely plausible to untangle the relata. If, however, Socrates and his singleton set both exist of necessity, then their modal covariation is trivial, though of course it may well appear to be non-trivial (and that appearance is in need of an explanation). Likewise, if propositions, and what they are about, exist of necessity, then this instance of modal covariation is trivial, though there remains the question of how to explain the appearance as of there being instances of non-trivial modal covariation between true propositions and what those propositions are about.

Adopting encompassing omnizing combined with untangling does not, however, resolve all cases. Consider the modal covariation between red and maroon. We have already seen that it is implausible to deny this covariation. What of omnizing? Omnizing allows us to show why the correlation is trivial: in any world with maroon, there is red, since both properties exist of necessity. But what of modal covariation of the following kind: necessarily, for any x that instantiates maroon, x instantiates red. The omnizing strategy is of no help here. The fact that red and maroon exist of necessity does nothing to explain why, necessarily, maroon things are red. Here, it seems, an appeal to reduction or elimination is required. Then the Flatlander can hold that redness does not exist (eliminating) though determinate colour shades do, or that redness is identical to some disjunction of determinate shades (reducing). In either case there is no non-trivial modal covariation to be explained.

Even with all four strategies at her disposal the Flatlander still needs to explain why it *seems to be the case* that there are instances of non-trivial modal covariation when there are not. Where she eliminates, she needs to explain why the eliminated entities seem to exist whenever certain other entities exist. Where she untangles, she needs to explain why the entities in question seem to co-vary. And where she reduces or omnizes she needs to explain why a trivial correlation appears to be non-trivial. It is to these explanatory challenges that we now turn.

**3. Explaining the Appearance of Determination**

The Flatlander faces the following objection: according to her there are no instances of non-trivial modal covariation. Yet there *seems* to be such covariation. The Flatlander owes us an explanation for why that is. Sometimes (where the Flatlander untangles or eliminates) that explanation will focus on explaining why we mistakenly suppose there to be non-trivial covariation where no covariation obtains, and sometimes (where the Flatlander reduces or omnizes) it will focus on explaining why an instance of trivial covariation appears to be non-trivial. What, exactly, is in need of explanation in this latter case? It is that there appears to be a special *kind* of intimate connection between the co-varying entities: or, as we might say, there is an appearance of there being a determination relation. It is this appearance that we now attempt to explain.

Before we do so, however, we should say something about our general strategies here and in §4. In what follows, (§3), we will appeal to languages, sentences, sub-sentential expressions, and terms. While we do not presuppose a compositional semantics as such, we do suppose that in some general sense sub-sentential expressions are *parts* of sentences, and that the meanings of sentences and the meanings of sub-sentential expressions are connected, at least insofar as the meanings of sentences supervene on the meanings (and arrangements) of the sub-sentential expressions. Then in §4 we appeal to concepts, where we suppose, very broadly, that concepts are *constituents* (i.e. *parts*) of thoughts. We also make free use of the notions of conjunction and disjunction.

One might worry, though, that the Flatlander has no right to these notions given that she denies the existence of D-relations, since many defenders of D-realism suppose composition, conjunction and disjunction to be D-relations. But it does not follow that because D-realists construe this notion in this way, so must the Flatlander.

Consider, first, expressions. The Flatlander can surely say that the meanings of sentences supervene on, or are necessitated by, the meanings of the sub-sentential expressions, without thereby being committed to the claim that the meanings of the sub-sentential expressions *determines* the meanings of the sentences, or the claim that the meanings of the sentences *depends* on the meaning of the sub-sentential expressions. For instance, the Flatlander might say that the meanings of sentences can be reduced to the meaning of their sub-sentential expressions plus the order thereof. Or she might say that the meaning of a sentence *just is* the plurality of meanings of its constituent sub-sentential expressions and their arrangement, in the way that defenders of composition as identity think that wholes are identical to their parts, (plus their arrangement) jointly. In either case it might certainly be apt to say, in ordinary English, that the meaning of the sentence depends on the meaning of its constituents, but, according to the Flatlander, that won’t be because there is a dependence or determination relation between the sentence and its sub-sentential constituents.

Further, the Flatlander need not deny that there are mereological relations. She need not claim that there are neither parts nor wholes, nor composition relations. She is committed to two claims: (a) insofar as there is a composition relation, it is not a determination relation and (b) insofar as parts and wholes modally co-vary, they do so in a trivial manner. Perhaps wholes just are identical to their parts jointly, (reduction) and thus the composition relation is simply the identity relation. Perhaps the arrangement of the parts does not necessitate the existence of the whole (or *vice versa*) (untangling), in which case there is no determination of the whole by the parts (or *vice versa*). Perhaps there are parts but no wholes or wholes, but no parts (elimination), and thus there is no composition relation. The Flatlander can make use of any of these strategies, though no doubt reduction or untangling make for easier work in the context of compositional semantics.

That brings us to logical relations such as disjunction and conjunction. To be sure, some who posit D-relations have understood disjunction and conjunction in terms of these relations obtaining between conjuncts or disjuncts, on the one hand, and the conjunction or disjunction, on the other hand. But clearly if this were the only way to understand conjunction and disjunction we would have a very easy argument in favour of D-realism. We suggest the Flatlander should treat conjunction, disjunction (and other logical connectives) as just that: connectives defined truth-functionally. Earlier in the paper we noted that D-Eliminativism is an ontological view that does not entail the falsity of claims of the form ‘x *because* y’. Likewise, D-Eliminativism does not entail the falsity of claims of the form ‘x and y’ or ‘x or y’. In both cases this is because those claims can be true without it being the case that there is a D-relation obtaining between the relevant facts.

Bearing this in mind, let’s see how the Flatlander can explain the appearance of there being determination relations. To do so, begin by introducing an austere language: a language that is sufficiently expressive that it allows us to describe the minimal supervenience base in as *compact* a way as possible by employing expressions from as small a number of families of expressions as is possible (see Chalmers (2012)). Roughly, one can think of microphysical expressions, phenomenal expressions, macro-physical expressions and mathematical expressions as different families of expression. Since the austere language must include microphysical expressions it will not include macro-physical expressions, because—according to the Flatlander, at least—we do not need both of these families of expressions in order to describe the minimal supervenience base. So it will not include ordinary proper names of individuals, natural kind terms, artefact terms or constructions from such terms. Call the truths expressed in this language the austere truths. Call non-austere truths any truths expressed in a language that is distinct from the austere language. According to the Flatlander, the austere truths entail *all* the truths (here we suppose that *P* entails *Q* just in case, necessarily, if *P* is true then *Q* is true.

Consider the eliminativist strategy. The eliminativist says that there is no modal covariation because one of the purportedly co-varying entities does not exist. Why does it *seem* as though there are distinct co-varying relata? Because we mistakenly take claims in the non-austere language which are about eliminated entities strictly and literally, when they should merely be understood loosely; or because we mistakenly take false claims about eliminated entities to be true due to their being almost as good as true in light of reliably tracking truths in the austere language.[[17]](#footnote-17) [[18]](#footnote-18) There appear to be distinct co-varying entities because sentences in the non-austere language include terms and expressions not in the austere language. Thus its sentences *appear* to quantify over entities that are not in the minimal supervenience base. Given that claims in the non-austere language seem to be true (due to their being loosely speaking true or almost as good as true), it is easy to mistakenly suppose that non-austere truths are made true by entities that are distinct from those in the minimal supervenience base. There are, of course, many other options the Flatlander might pursue here. Our goal is not to defend any particular one, but rather to illustrate how such a response might go. Generally speaking, if we mistakenly believe that eliminated entities exist whenever certain other entities do, and we do so in a reliable manner, then we will also mistakenly believe the eliminated entities modally co-vary with those other entities.

Something else remains to be explained, however, namely that there appears to be a determination relation obtaining between the apparently co-varying relata. It seems as though something’s being maroon determines its being red, and that the arrangement of the chair-parts determines that there is chair. But what explains this appearance of determination if only one of the apparently co-varying relata exists? The explanation of the appearance lies in the fact that truths in the non-austere language are entailed by truths in the austere language. So the way things are, in the minimal supervenience base, entails that certain non-austere sentences are true. But this is not determination between distinct relata (chairs and their parts; redness and maroon) since when the eliminativist strategy is deployed there are no such distinct relata. Nevertheless, having mistakenly supposed that there are distinct relata, the fact that the austere truths entail the non-austere truths gives rise to an appearance of determination between apparently co-varying relata.

Moving on, let’s consider the reductionist strategy. Where the Flatlander embraces a reductionist strategy she will explain the appearance of modal covariation by embracing these instances of covariation, but maintaining that they are instances of trivial covariations between a thing and itself. Still, the Flatlander needs to explain why we mistakenly suppose there to be distinct relata where only one relatum exists, and she needs to explain why these apparently distinct relata appear to non-trivially co-vary. The reductionist can begin by offering a similar explanation to the eliminativist regarding why we are inclined to think that there are two relata: namely by appealing to features of austere and non-austere languages.

Terms in the non-austere language which the eliminativist takes to fail to refer, the reductionist will take to refer to entities in the minimal supervenience base.[[19]](#footnote-19) However, because those terms do not appear in the austere language, and feature in true existence claims it is again easy to mistakenly suppose that non-austere truths are made true by entities that are distinct from those in the minimal supervenience base. (Since, for example, the term ‘table’ does not appear in the austere language, it is quite natural to infer that the austere language does not quantify over tables, and thus that tables must be distinct from their parts.) The reductionist can then supplement this account by noting that we (or at least some of us) are inclined to suppose things like Statue and Lump (a particular statue, and the particular lump of clay that makes it up) to be distinct because they appear to have different *de re* modal properties and persistence conditions. It seems as though Statue can exist without Lump but not *vice versa.*

One way for the reductionist to explain this appearance as of distinctness is to appeal to both modal and temporal counterpart theory. She can then say that there is a single short-lived entity which can be picked out both by the names ‘Statue’ and ‘Lump’, such that those two names have associated with them different modal and temporal counterpart relations. In virtue of that, it can be that, *qua* Statue, the object has temporal/modal counterparts that, *qua* Lump, are not temporal/modal temporal counterparts and *vice versa*. If *qua* lump the object has lump counterparts that are not statue counterparts this will make it true that the lump exists when the statue does not, despite it not being true that there are two distinct objects. Yet this truth explains why it may seem as though there are two objects, not one.

Can the reductionist explain the appearance of determination relations? Yes. In part, her explanation will be similar to that of the eliminativist. The reductionist thinks that two sentences in the non-austere language—e.g., ‘that is a statue’ and ‘that is a lump’—are made true by the same thing(s) in the minimal supervenience base. She thinks that the same austere truths entail both these truths. Since there is just one thing that is both a lump and statue, it’s no surprise that, having mistakenly supposed there to be two things, it will seem as though there is an intimate connection between these things.[[20]](#footnote-20) After all, there is really just one thing, picked out using different expressions.

Why, though, might we come to think that this intimate connection is a determination relation? Well, if x and y are distinct, but intimately connected, and if x is described in the austere language, and y in the non-austere language—or, if x is described in a more austere language than is y—we might make the understandable mistake of believing (perhaps tacitly) that we read relative fundamentality from the kind of language we use in our descriptions of phenomena. We might believe that, or it might *seem* that, if we use fundamental physics to describe one phenomenon (x) and some non-austere language to describe another phenomenon (y) that x is more fundamental than y. If, in addition, manipulating x is a way of manipulating y—which it must be, if x and y are identical—then it will likely seem as though x determines y.

That brings us to the final two strategies: untangling and omnizing. Where untangling occurs the Flatlander might (with some force) question whether it really *does* seem impossible for the purportedly modally co-varying entities to ‘come apart’ across modal space (for example, whether it seems impossible for some atoms-arranged-chairwise to exist without a chair also existing).[[21]](#footnote-21) The Flatlander can suggest that while cursory consideration suggests that the covariation obtains, upon careful consideration the appearance vanishes. So there is no robust appearance in need of explanation. Where omnizing occurs the Flatlander can suggest that it requires sophisticated arguments to see why one of the relata exists of necessity. Hence she can maintain that until one engages with such arguments it is very likely that one will mistakenly suppose there to exist non-trivial modal covariation in these cases.

Of course, one might object that this does not really solve the problem, since there are appearances as of determination that we have not really explained. Though the covariation between 2 and {2} is between necessarily existing relata, and hence is trivial, so too is the covariation between 2 and {79}. Yet the former, but not the latter, appears to be non-trivial. In what follows (§4) we attempt to explain the appearance as of dependence obtaining between distinct relata. We will suggest (§4.2) that one explanation for the appearance as of dependence relations namely an appeal to what we call Conceptual Asymmetry, can also serve as an explanation of the appearance as of some non-trivial connection obtaining between trivially modally covarying entities. Hence it is to this account that we will turn.

**4. Explaining the Appearance of Dependence**

Not only does it seem to many as though there is a relation of determination between certain modally co-varying entities, it also seems as though that determination relation is asymmetric. It seems as if there is a relation of dependence between the co-varying entities. According to part II of the objection from explanatory inefficacy, the Flatlander cannot explain these appearances.[[22]](#footnote-22)

In what follows we offer a perfectly general sort of explanation for the appearance of dependence. According to that explanation, having already mistakenly come to suppose that there exist determination relations, we then mistake the presence (or appearance) of certain asymmetries, for the presence of asymmetries in determination, and hence for dependence relations.

We begin by introducing the various moving parts we will need (§4.1) in order fully to explicate our view (§4.2).

**4.1 The Moving Parts**

Our account appeals to two kinds of asymmetries: temporal asymmetries and conceptual asymmetries. In order to put those notions to work we need to spell out each, beginning with temporal asymmetry. We suppose that a phenomenon is temporally asymmetric iff that phenomenon behaves differently along one direction of the temporal axis than the other. Hence causation is temporally asymmetric on the assumption that causes typically precede their effects. Further, let us say the following:

**Mere Appearance of Temporal Asymmetry:** A phenomenon, P merely appears to be temporally asymmetric iff (a) P appears to be temporally asymmetric and (b) P is temporally symmetric.

So for instance, suppose that causation is in fact symmetrical: it is like glue that connects temporally separated events, such that there is no fact of the matter regarding which event is cause, and which effect (there is simply mutual gluing, if you will). But suppose that due to certain features of our psychological orientation, we use ‘cause’ to refer to the earlier event, and ‘effect’ to refer to the later event, and so mistakenly come to suppose that causation is asymmetric.[[23]](#footnote-23) Then there is a Mere Appearance of Temporal Asymmetry. We will appeal to mere appearances of temporal asymmetry in our explanation of the appearances of dependence relations in §4.2.

That brings us to another kind of asymmetry: conceptual asymmetry. There is a family of conceptual asymmetries, and in what follows we will be interested in only two members of this family. The first is an Asymmetry of Containment, according to which (roughly) *however things turn out to be*, *actually*, the class of things across all possible worlds that fall under one concept is a proper subset of the class of things that fall under another. The second is an Asymmetry of Analysis according to which (roughly) one concept is partially analysed in terms of another, but not *vice versa*. Before we can carefully spell out these asymmetries we must first make explicit some assumptions and explain some technical machinery.

Firstly, in what follows we assume that a fairly tight connection obtains between concepts, and terms and expressions. We take concepts to be constituents of thoughts, where said thoughts can be expressed using terms and expressions in a public language, and therefore we move fairly freely between talk of some concept, C, and what satisfies that concept, and talk of some term ‘C’ that expresses that concept in public language, and the extension of ‘C’. Since the extension of ‘C’ is just whatever satisfies C, we will sometimes also talk about the extensions of concepts, by which we just mean whatever satisfies the concept.

Second, 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. In this, we roughly follow Jackson and Chalmers (2001) and Chalmers (2012), who suppose that when given sufficient information about a hypothetical scenario, subjects are in a position to identify the extension of a concept under the hypothesis that the scenario in question obtains. What individuals know (and know *a priori,* according to Jackson and Chalmers) 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.

(It is worth noting that the best ways of systematising some phenomenon are often thought to require some notion of naturalness or joint carving (Lewis (1983), Sider (2011)). If only D-realists can appeal to naturalness or joint carving then the Flatlander is in trouble. One need not, however, posit D-relations in order to make sense of naturalness or joint-carving. The Flatlander might say that the way the austere language ‘carves’ the world is more natural than the way the non-austere language does and so objects and properties quantified over in the austere language are more natural than those that are not. From this, it does not follow that we ought identify the perfectly natural with the fundamental, or think that the less natural *depends* on the natural.)

Such a systematisation might be neat and short, but it need not be; moreover, the analysis might be tacit in the sense that the individual whose concept it is might not be able to produce the analysis, despite the fact that the analysis is tacitly present in their set of application conditionals. So, for instance, the extension of ‘water’ will vary depending on which hypothetical scenario we take to obtain: if the watery stuff in the lakes and oceans is H2O, then that will be the extension of ‘water’, and if something else is in the lakes and oceans, then that stuff, whatever it is, will be the extension of ‘water’. For simplicity, henceforth we will talk about the application conditionals for a term, where by this we mean the application conditionals for the concept expressed by that term. With all this in hand, we can outline the two forms of conceptual asymmetry.

Each conditional intension is a function from possible worlds to extensions. Thus, for every conditional intension there is an associated set of extensions, each of which contains what the intension picks out at a different possible world. We can then say that a conditional intension, I, of a term, T, overlaps a conditional intension I\*, of T\* iff the hypothetical scenario upon which each intension is conditional is the same, and the set of extensions associated with I overlaps the set of extensions associated I\*. So, for instance, conditional on the hypothetical scenario that the wet potable stuff in the lakes is H2O, the intensions of ‘water’ and of ‘H2O’ overlap since given that intension, the terms have the same set of extensions. Conditional on the hypothetical scenario that the wet potable stuff in the lakes is XYZ, the intensions of ‘water’ and of ‘H2O’ do not overlap, since given that intension, those terms do not have overlapping sets of extensions.

Further, call all of the application conditionals for any term, T, the *complete set* of application conditionals for T. The complete set of application conditionals for T is the set of conditional intensions: that is the set of epistemically possible intensions for T. Now consider the set of extensions of T corresponding to each of these intensions. Take the union of *all* of these sets of extensions. That is, take the union of the set of extensions of T given conditional intension I1, and the set of extensions of T given conditional intension I2, and so on for every conditional intension in the set. Call this union of all of these sets of extensions the ‘*ultimate’* set of extensions, or just the ‘ultimate extension’ for short. The ultimate extension of T is not the set of all of T’s extensions, or its intension. Consider ‘water’. The extension of ‘water’ is, in every world, H2O. But its ultimate extension includes XYZ, since under the hypothetical scenario in which XYZ is the wet potable stuff in our lakes, the intension of ‘water’ conditional on that hypothetical scenario, would include XYZ. So, the ultimate extension of a term is simply *all* of its epistemically possible sets of extensions, given all of its conditional intensions.

With the notions of an ultimate extension and complete set of application conditionals in play, we can outline the first way in which concepts can be asymmetrically connected. Just as we can say that two intensions overlap if the sets of their possible extensions overlap, so too we can say that two complete sets of application conditionals (i.e. sets of conditional intensions) for T and T\* overlap, if the ultimate extension of T overlaps the ultimate extension of T\* (i.e. if the epistemically possible extension of T overlaps that of T\*). What this means is that, for every epistemically possible way things might (actually) be, the set of extensions of T overlaps the set of extensions of T\*. Further, we can say that the set of application conditionals for T is *contained in* the set of application conditionals for T\* iff the ultimate extension of T is a subset of the ultimate extension of T\*. Finally, let us say that the set of application conditionals for T is *properly contained in* the set for T\* iff the ultimate extension of T is a proper subset of the ultimate extension of T\*.

**Proper Containment:** the set of application conditionals for T is *properly contained in* the set for T\* iff the ultimate extension of T is a proper subset of the ultimate extension of T\*.

Notably, while overlap and containment are not asymmetric relations, proper containment is. If the complete set of application conditionals for T\* properly contain the set for T then the set for T does not properly contain the set for T\*. Thus one kind of conceptual asymmetry is a conceptual asymmetry of containment, where, for two terms T and T\*, the ultimate extension of one properly contains the ultimate extension of the other. Why should this be relevant? Well, in effect, if the ultimate extension of T\* properly contains that of T, then the set of epistemically possible extensions of T is properly contained in the set of epistemically possible extensions of T\*. That is, conditional on any hypothetical scenario whatsoever, the intensions of T and of T\* are such that the set of extensions of T, (given that intension) is properly contained in the set of extensions of T\* (given that intension). Or, to put it another way, *however things turn out to be,* the set of extensions of T\* properly contains that of T. This is a strong kind of conceptual asymmetry which is captured by the following:

**Conceptual Asymmetry (Containment):** There is a conceptual asymmetry between T and T\* if the ultimate extension of one properly contains the ultimate extension of the other.

This is not, however, the only variety of conceptual asymmetry. Next we outline another kind of conceptual asymmetry that arises not in virtue of the connections between application conditionals and their extensions, but instead, between the *systematisation* of those conditionals (i.e. the conceptual analysis of the concepts). Recall that this systematisation need not be neat, or easy to come by, and might be largely tacit. Nevertheless, since competent users of concepts are adept at working out the extension of a term conditional on a hypothetical scenario obtaining, we can safely say that we have some access to such a systematisation. Then we will say the following:

A term T is *partially analysed* in terms of a term T\* iff the analysis of T uses T\*.

For instance, suppose there is a concept *walkwater*. Each application conditional for ‘walkwater’ tells us what its extension is, conditional on various different hypothetical scenarios obtaining. The complete set of application conditionals yields the ultimate extension of ‘walkwater’: its extension according to the union of all of its conditional intensions. Suppose the best systematisation of the complete set of application conditionals is something like: walkwater is any location that is within walking distance of water. So ‘walkwater’ has an extension only in worlds in which ‘water’ does. (Of course, *which* extension each has, will vary depending on which hypothetical scenario is in question, and hence which conditional intension we are considering.) Yet it is not the case that the application conditionals for ‘walkwater’ and ‘water’ overlap, since relative to any application conditional, (any conditional intension) the extension of ‘walkwater’ is disjoint from the extension of ‘water’ (since even in cases where there is some water that is walking distance from some other water, ‘walkwater’ picks out the location, not the water itself). Yet there is a clear sense in which despite this, the best systematisation of ‘walkwater’ will appeal to ‘water’. That is the sense in which ‘walkwater’ is partially analysed in terms of ‘water’. If we wanted to say what is in common between the extension of ‘walkwater’ relative to different hypothetical scenarios, the best way to spell this out would be to say that in each case, something falls under ‘walkwater’ just in case it is within walking distance of water (or something that falls under ‘water’).

Once we notice that, however, we can further notice that the analysis is asymmetric. While ‘walkwater’ is analysed in terms of ‘water’, the reverse is (we assume) not the case. Whatever exactly the analysis of ‘water’, it seems unlikely that it will mention ‘walkwater’. We will say that there is an *asymmetry* in the analysis of C\* and C iff C is partially analysed in terms of C\*, but C\* is not partially analysed in terms of C.

**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.

Then we can say the following:

**Conceptual Asymmetry (Asymmetry of Analysis):** There is a conceptual asymmetry between concepts C and C\* if there is an Asymmetry of Analysis involving C and C\*.

To say that there is an Asymmetry of Analysis between ‘water’ and ‘walkwater’ is not to say that the concept of water is simpler than that of walkwater, or that it is conceptually prior to it (though perhaps each is true). It is simply to say that, given the best systematisation of the relevant application conditionals, there is an asymmetry of analysis between ‘water’ and ‘walkwater’.

In what follows we appeal to Conceptual Asymmetry (Containment), Conceptual Asymmetry (Asymmetry Of Analysis) and the Mere Appearance Of Temporal Asymmetry to explain why there appear to be dependence relations.

**4.2 Mistaking One Asymmetry for Another**

In what follows we argue that the Flatlander can explain why apparent non-trivial modal covariation seems to involve the dependence of one relatum on the other, in terms of either conceptual asymmetry or the mere appearance of temporal asymmetry.

First, let’s turn to the mere appearance of temporal asymmetry. Return to the reductionist strategy we considered in §3. There, we noted that the reductionist can explain why we might be tempted to think that there are two relata instead of one, by noting that a single entity can be associated with different modal/temporal counterpart relations via different linguistic conventions. Even though, according to the reductionist, there is a single object which is both a statue and a lump, ordinary claims of the form ‘the lump existed at t’ and ‘the statue did not exist at t’ can come out as true if the object in question has a lump counterpart that exists at t, and fails to have a statue counterpart that exists at t.

But now we can notice something interesting. As it happens, it is frequently the case that an object has, at earlier times, lump counterparts that are not statue counterparts, but does not have statue counterparts that are not lump counterparts. That’s because the way statues typically come into existence is, to put it informally, by sculptors taking a lump of clay and moulding it, so that there comes into existence an object which is both a lump and a statue. The same is intuitively true of composites and parts. It is frequently the case that an object that is both a composite and a plurality of parts has earlier plurality-of-parts temporal counterparts that are not composite temporal counterparts, but fails to have earlier composite temporal counterparts that are not plurality-of-parts temporal counterparts. In both cases this makes true the ordinary claims that the lump pre-exists the statue, and the plurality of parts pre-exist the whole.

Moreover, this Mere Appearance of Temporal Asymmetry is perceptually salient. It *perceptually* seems to us as though the lump comes into existence before the statue. It is this perceptual salience that explains why the apparent temporal asymmetry so powerfully induces in us the appearance of dependence. (Contrast this with a case in which before t, the disjunction P or not P is true, but is true because not P is true. Then suppose that after t, P is true. There is a temporal asymmetry here: in all such cases that are like this, the disjunction is true before the (relevant) disjunct is true. Yet we are not inclined to think that P’s truth depends on the truth of P or not P. The crucial difference, though, is that the disjunction is not perceptually salient. What is salient is an absence of P, followed, at t, by a presence of P.)

Thus not only do there appear to be distinct objects that modally co-vary, there *appear* to be relations of temporal asymmetry between said objects. Given that there is already an appearance of determination between the relevant facts, the existence of the Mere Appearance of Temporal Asymmetry on top of the appearance of determination engenders the appearance of dependence. That is because perceptually salient temporal asymmetries typically suggest the presence of some sort of diachronic dependence between the entities in question. So these are cases in which it seems as though one of the apparently distinct relata, depends on the other. These, however, are cases in which not only are there times at which it seems as though only *one* of the apparently distinct relata exists, there are also times at which it seems as though *both* relata exist.

But if one relatum seems to depend on the other, an appearance generated by the Mere Appearance of Temporal Asymmetry, it will be natural for it to seem as though one relatum depends on the other synchronically, at a time at which both exist. After all, if lumps temporally precede statues, and hence statues diachronically depend on lumps, and if sometimes lumps and statues exist at the same time, it seems natural to suppose the statues synchronically depend on lumps. So once it seems as though there are distinct, non-trivially modally co-varying relata (i.e. that there are determination relations) and it comes to seem as though those relata are asymmetrically temporally related, it will be natural for it to seem as though one of those apparently distinct relata depends on the other. That we are inclined to think that the dependence is synchronic (as well as diachronic) will issue from the fact that there are times at which both relata exist.

That is the first component of our explanation for the appearance of dependence. This account, however, will only explain the appearance of dependence in some cases. In other cases a similar explanation is required, except that there, the explanation will appeal to conceptual asymmetries. The idea is that the presence of a relevant conceptual asymmetry explains why it seems as though there is a dependence relation. So, for instance, the complete sets of application conditionals for the terms ‘azure’ and ‘blue’ overlap, and the former is contained in the latter: relative to any application conditional that specifies some hypothetical scenario, the set of things in the extension of ‘azure’ will be a subset of the set of things in the extension of ‘blue’. Further, the complete set of application conditionals for ‘blue’ properlycontain the complete set of application conditionals for ‘azure’. It is this kind of conceptual asymmetry, i.e. Conceptual Asymmetry (Containment)which, we argue, explains the appearance of dependence between the properties *blue* and *azure*.

At this point we should return to our earlier concern: explaining why some non-trivial modal covariations between necessarily existing relata appear trivial, and some do not. Consider, for instance, the modal covariation between 2 and {2}, and between Pascal and {Pascal}. The omnizing strategy we have so far recommended delivers the result that these covariations are trivial, but does not seem to explain why they *seem* to be non-trivial. Here, we think, the Flatlander can appeal to an Asymmetry of Analysis obtaining between the concepts involved. The relationship between ‘{Pascal}’ and ‘Pascal’ is conceptually asymmetric in virtue of an Asymmetry of Analysis. That’s because, plausibly, ‘{Pascal}’ is asymmetrically analysed in terms of ‘Pascal’. For it seems likely that the systematisation of the application conditionals for these terms will be such that the analysis for ‘{Pascal}’ mentions ‘Pascal’ while the analysis for ‘Pascal’ does not mention ‘{Pascal}’. If so, the analysis is asymmetric. *Mutatis mutandis* for 2 and {2}.

So the role of appealing to an Asymmetry of Analysis, here, is not simply to explain why an apparent determination relation appears to be asymmetric, and hence to be a dependence relation. The role is also to explain why what is in fact a trivial modal covariation appears to be non-trivial, by noting that there is this relation of Asymmetry of Analysis between the relevant concepts. The idea is that the presence of this Asymmetry of Analysis generates the appearance of there being some special connection between the trivially modally covarying entities, and, further, generates the appearance of that of that connection being one of dependence. It generates the appearance of there being a special, asymmetric, connection between the trivially modally covarying relata because the concept associated with one relatum, is asymmetrically analysed in terms of the concept associated with the other relatum. So given the presence of a modal covariation between said relata, it is then very natural to mistakenly suppose that given the asymmetry of analysis between the two concepts in question, then there is a special asymmetric connection between those very relata.

We will say something similar about the trivial modal covariation between propositions, conceived of as necessarily existing entities, and states of the world. Still, as noted earlier, one might worry that omnizing propositions does not resolve a related issue. Even if <Grass is green> exists of necessity, and hence trivially modally covaries with various states of the world, the proposition is not true of necessity. Hence there appears to be a non-trivial modal covariation between the *truth-values* of propositions and the obtaining of certain worldly states of affairs.

One view appeals to the Asymmetry of Analysis to explain the appearance of non-trivial covariation. On that view, there is no relatum, *a true proposition*, which non-trivially modally covaries with a state of the world. For truth is not a genuine property of propositions. There are just propositions, and states of the world, and since propositions exist of necessity, that modal covariation is trivial. There appears to be a non-trivial modal covariation because of an Asymmetry of Analysis: we asymmetrically analyse <Grass is green> in terms of grass being green. What it is to be the proposition that <Grass is green>, rather than some other proposition, is asymmetrically analysed in terms of grass being green. And, again, this Asymmetry of Analysis results in us mistakenly supposing there to be a special, asymmetric, connection between the relata in question, where no such connection obtains.

At this point it is worth clarifying just what it is that we are, and are not, attempting to do by appealing to conceptual connections. Our aim, in appealing to conceptual asymmetries, is *not* to explain why certain claims of the form ‘x *because* y’ are true, by appealing to conceptual explanations (as in e.g., Schnieder (2006)). Rather, our aim is to explain why there is an *appearance* of dependence present when we judge that ‘x *because* y’ (we remain neutral on whether ‘x *because* y’ is true in such cases).

A second option involves rejecting the omnizing strategy but maintaining that there is no non-trivial covariation here because there are not distinct relata. On the possible worlds approach to propositions, propositions just are sets of possible worlds (or sets of centred worlds) where the proposition is true. Hence the proposition <Grass is green> *just is* the set of worlds in which grass is green. So the answer to the question, ‘Why is <Grass is green> true in w?’ is that w is a member of the set of possible worlds which is the proposition <Grass is green>. So there aren’t two entirely distinct things, true propositions, on the one hand, and worldly states of affairs on the other. Instead worldly states of affairs are proper parts of propositions. Then so long as the D-eliminativist has an account the relation between wholes and parts, which does not appeal to D-relations, she can put that account to work in this context. Finally, another tweak on such a view would be to hold that propositions are entities comprised of worldly states of affairs in a structured manner. Then the proposition <Grass is green> is a structured set of all possible states of affairs of there being green grass. Then, once again, there being green grass at some world, and the proposition being true at that world, involves nothing more than the former being a proper part of the latter.

Is there, though, any evidence to suggest that the presence of temporal or conceptual asymmetries could account for the appearance of dependence? One might think that the case is stronger when it comes to temporal asymmetries. After all, it seems plausible that if there appears to be a temporal asymmetry, and hence a diachronic dependence between x and y, that it might be easy to mistake that (apparent) diachronic dependence for synchronic dependence when x and y exist synchronically. It is, however, less clear that we will mistakenly make inferences from features of the conceptual connections between the terms/concepts, to features of the things in the world that those terms/concepts pick out. Yet, it seems, this is precisely what we in fact do, if our account is right.

We think this inference (likely sub-personal) is not so very unlikely as it might seem. To be sure, there is no direct empirical evidence (that we know of) that individuals infer, from an asymmetric connection between their concepts, to an asymmetry in the world. (That’s because, as far as we know, no one has tested this hypothesis.) But there is a huge volume of evidence that the way in which individuals use language and concepts affects the way they view and understand the world, and, in particular, that at least some of our perceptions of the world are shaped by the semantic categories of natural language. For instance, there are robust findings that the colour terms individuals deploy affect their colour perception. First, cross-linguistic differences have been found in subjective colour similarity judgements (Robertson et al. (2005), Robertson et al. (2000), Pilling et al. (2004)). If two colours are called by the same name in a language, speakers of that language will judge the two colours to be more similar than those who speak languages that use different names for each. Further, these differences in similarity judgments can be disrupted by direct verbal interference (Pilling et al. (2003)), suggesting that linguistic representations are involved in these kinds of colour judgments.

More tellingly, these sorts of differences have been found not just in subjective judgements, but also in objective colour discrimination and performance. For instance, Winawer et al. (2007) tested Russian and English speakers on the discrimination of different shades of blue. Russian speakers make an obligatory categorical distinction between light and dark shades of blue: there is, in fact, no word for just plain blue as there is in English. So while English speakers can linguistically distinguish light from dark blues, Russian speakers cannot avoid distinguishing them. This seems to require Russian speakers to habitually make use of this distinction even when performing a perceptual task that does not require language, as witnessed by the fact that Winawer et al. found that Russian speakers were faster to discriminate between two shades of blue if they fell into different linguistic categories in Russian, than if they were from the same category. This category advantage was eliminated by a verbal, but not a spatial, dual task. By contrast, English speakers tested on the identical stimuli did not show any category advantage. These results demonstrate that categories in language can affect objective performance of basic perceptual colour discrimination tasks. That is to say, the way things seem to subjects is affected by the linguistic and conceptual categories that they deploy.

There is, more generally, some evidence that we are apt to infer from features of our representations of a phenomenon, to features of the phenomenon itself. For instance, there is evidence that the way linguistic communities speak about time, and write and read language, is correlated with the way that they conceptualise time (Boroditsky (2008), Boroditsky, Fuhrman, and McCormick (2010)). This suggests that there is relation between the way in which a language is represented in written form, the metaphors speakers of the language deploy, and the way in which speakers represent the temporal dimension. So, we think, it is plausible that if there are asymmetric connections between certain terms or concepts, that it may seem to us as though the things that fall under those terms or concepts are also asymmetrically connected: i.e., connected by dependence relations.

**5. Conclusion**

We set out to show that the Flatlander can meet the objection from explanatory inefficacy: that she can explain why there appear to be both determination and dependence relations. We hope to have gone some way towards that end.

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1. Karen Bennett calls the view we consider ‘crazypants’ (Bennett, 2011); however, in British English the expression would be ‘crazy trousers’. So we are inclined to wear crazy trousers, not crazy pants (since the latter would require wearing crazy underwear). With special thanks to Jonathan Tallant for suggesting we write a paper defending the wearing of crazy trousers. [↑](#footnote-ref-1)
2. With thanks to Mike Raven, attendees of the 2016 Australian Metaphysics Conference (Kioloa Coastal Campus), and anonymous referees from this and other journals for helpful comments on earlier versions of this paper. [↑](#footnote-ref-2)
3. This research is supported by an Australian Research Council (ARC) Future Fellowship (FT170100262) awarded to Kristie Miller. [↑](#footnote-ref-3)
4. The view owes its name to Bennett (2011). See also her (2017). [↑](#footnote-ref-4)
5. Or, alternatively (perhaps), that everything that exists is neither fundamental nor non-fundamental. [↑](#footnote-ref-5)
6. See Schaffer (2009), Cameron (2008), Audi (2012a), Rodriguez-Pereyra (2005) and Raven (2012) for discussions of ground thought of as a dependence relation. Perhaps all synchronic dependence relations are relations of ground, or perhaps there are some such relations that are not relations of ground. Nothing we say hangs on this. [↑](#footnote-ref-6)
7. One could choose to use terminology differently: some think that some instances of modal relations—namely the non-symmetric instances—are dependence relations. Nothing hangs on our use of terminology here. [↑](#footnote-ref-7)
8. Also sometimes known as grounding claims. [↑](#footnote-ref-8)
9. Indeed, many so-called operationalists about grounding take the view that grounding claims are properly regimented in terms of a sentential operator. (See Fine (2012), Correia (2005), Dasgupta (2014) and Litland (2013).) Operationalists see grounding as a non-truth-functional sentential connective, which takes arguments/sentences on either side. Operationalists often remain neutral about the truth conditions for such claims. Others have attempted to provide truth conditions that do not appeal to dependence relations. [↑](#footnote-ref-9)
10. Norton and Miller (2017) defend a view of roughly this kind. [↑](#footnote-ref-10)
11. See Fine (1994b) and Barnes (forthcoming). [↑](#footnote-ref-11)
12. See Schnieder (2006). [↑](#footnote-ref-12)
13. See Liggins (2016). [↑](#footnote-ref-13)
14. Van Inwagen (1990) and Merricks (2001) apply this strategy, though only selectively. Both deny the existence of most ordinary composite objects (like tables and chairs). [↑](#footnote-ref-14)
15. Though note that identity is understood in non-standard ways on some of these views (e.g., Baxter (1988a, 1988b)) and therefore may or may not be able to do the work required by the Flatlander. See Carrara and Lando (2016) for discussion. [↑](#footnote-ref-15)
16. Though see Forrest (2002) and Maddy (1990) for views to the contrary. [↑](#footnote-ref-16)
17. Both responses are derived from existing eliminativist explanations for common belief in the existence of eliminated entities. An example of the first strategy is Van Inwagen (1990:108-114); an example of the second is Merricks (2001:172). [↑](#footnote-ref-17)
18. Alternatively, one could maintain that claims in the non-austere language arestrictly and literally true, but that they do not (despite appearances) carry any ontological commitment to entities outside of the minimal supervenience base (e.g., Horgan and Potrč (2000, 2006), Azzouni (2017). Thanks to an anonymous referee for suggesting this response. [↑](#footnote-ref-18)
19. Notice that nothing we say here requires that expressions in the non-austere language *mean* the same thing as the relevant expressions in the austere language. Our claim is merely that certain austere truths entail certain non-austere truths. At most, it follows that the non-austere expressions have the same truth-values, but it does not follow that they have the same meanings. [↑](#footnote-ref-19)
20. In the case of composition, it has been pointed out by Sider (2011:79) and Cameron (2014) that even if composites are identical to their proper parts (jointly) this is not sufficient to explain why the properties of composite objects necessarily co-vary with certain properties of *individual* proper parts, and so reductionism fails to explain all of the modal covariation. For example, why is it that, necessarily, the location of my right arm is a proper subregion of the location of my whole body? It looks like D-relations are needed to explain this (*cf*. Cameron, 2014: 97).

    This is not an objection we can address in detail here. Suffice to say, we do not find it to be anywhere near decisive. Under composition as identity the question of why my right arm (if it is still attached!) must be located at a proper subregion of the location of my body reduces to the question of why my right arm must be located at a proper subregion of where my body parts are collectively located (since my body = my body parts, taken together). And since composition as identity can be applied to locations too, this further reduces to the question of why, necessarily, the location of my right arm is one of the locations of my body parts (since the location of my body = the location of my body parts). But the answer to that question doesn’t seem to us to require D-relations. If my right arm is one of my body parts (by stipulation), and each body part has a location, then it follows analytically that the location of my arm must be one of the locations of my body parts. Insofar as my arm is one of my body parts, then, of necessity, it is located at one of the location of my body parts. Still, clearly more would need to be said here. [↑](#footnote-ref-20)
21. See Cameron (2007) for discussion along these lines. [↑](#footnote-ref-21)
22. Miller and Norton (2017), for instance, take this to be the principal explanatory task for those who reject Dependence. [↑](#footnote-ref-22)
23. Braddon-Mitchell (2017) discusses such a view, as does Price (2007). [↑](#footnote-ref-23)