

DISPOSITIONS ALL THE WAY ROUND

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Simon Blackburn has argued that science finds only dispositional properties. If true, this is surprising: we think of the world as containing categorical properties too. But Blackburn thinks that our difficulties go further than this: that the idea of a world containing just dispositional properties is not simply surprising, but incoherent. The problem is made clear, he argues, when we have a counterfactual analysis of dispositions, and then understand counterfactuals in terms of possible worlds.

To conceive of all the truths about a world as dispositional is to suppose that a world is entirely described by what is true at *neighbouring* worlds. And since our argument was *a priori*, these truths in turn vanish into truths about yet other neighbouring worlds, and the result is that there is no truth anywhere.¹

Blackburn here raises a *logical* objection to the idea of a world that is characterized entirely by dispositional truths; and similar arguments have been raised by other authors.² Is the idea of such a world really incoherent? I argue not; or at least, not for the reasons that Blackburn gives.

The truths that obtain in a world may be thought of as properties of that world. Then to think of a world all of whose truths are determined by what happens at neighbouring worlds is to think of a world that has only relational properties. And to think that every world is like this, is to think that there is a network of worlds all of which have only relational properties. So we can start to think about whether the picture is coherent by asking whether we could coherently suppose there to be a class of objects with purely relational properties. We surely can. Thus consider the class of four objects, A, B, C and D, entirely characterized by the following sentences:

A is directly to the left of B, and directly above C
B is directly to the right of A, and directly above D
C is directly to the left of D, and directly below A
D is directly to the right of C, and directly below B

To help us think about it, we can provide a model with a set of points easily enough:

¹(Blackburn 1990) p. 64. I follow Blackburn in speaking as though modal realism were true, assuming that the argument can be translated over into a more plausible framework.

²(Campbell 1976) pp. 93-4; (Foster 1982), pp. 67-72; (Robinson 1982) pp. 114-5. I am not sure whether these arguments are quite the same as that given by Blackburn. They are certainly very similar.



But this is just an aid; there is really nothing more to A, B, C and D than that given by the descriptions. So do not think that in describing them I have helped myself to the non-dispositional notion of a point.

Can we now make a similar move to provide ourselves with a set of worlds each of whose truths is determined by what happens at neighbouring worlds? I'm not sure whether we can. But in fact we don't need to. There is a mistake in Blackburn's formulation of the problem which makes the idea of a purely dispositional world seem stranger than it need. Blackburn says that on a possible worlds account counterfactuals are made true by what happens at neighbouring worlds. That isn't quite right, at least not as 'counterfactual' is normally understood in the philosophical literature. $P \Box \rightarrow Q$ will be true at a world w if both P and Q are true at w ; in this case what goes on in other worlds is beside the point. It is only counterfactuals with unactualized antecedents—counterfactuals that really are counter to fact—that are made true by what happens at neighbouring worlds; or, to put the point in terms of dispositions, it is only unmanifested dispositional properties that are made true in this way. No one who thinks that all properties are dispositional properties need think that they are all unmanifested. Indeed it seems very implausible that they would be. Of course, if all properties are dispositional, the manifestation of a disposition must itself result in the obtaining of another dispositional property; but that is quite a different matter.

So can we provide a model of a class of possible worlds whose contingent natures are characterized entirely by dispositional sentences? I think we can. We are working with a counterfactual analysis of dispositions. Let us suppose that how things stand contingently can be captured by just four dispositional sentences and their negations, which are analysed as follows:

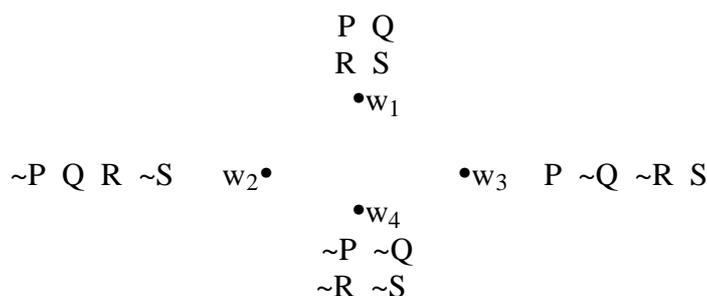
$$\begin{array}{l}
 P \text{ =df } R \Box \rightarrow S \\
 Q \text{ =df } S \Box \rightarrow R \\
 R \text{ =df } P \Box \rightarrow Q \\
 S \text{ =df } Q \Box \rightarrow P^3
 \end{array}$$

³In the light of C. B. Martin's examples of finkish dispositions, any plausible counterfactual analysis of dispositions will have to be more sophisticated than this. I hope that the central features of the account sketched here will remain when we substitute the more sophisticated counterfactuals. For the problem see (Martin 1994); for possible recasting of the dispositional analyses see (Mumford 1996), and (Lewis 1997), though both of these work on the assumption that dispositions are grounded in causal bases. Note that on Mumford's proposal dispositions are taken merely to *entail* counterfactuals, rather than being analyzed in terms of

Let us assume that similarity is given by the agreement over the four sentences; the greater the agreement, the greater the similarity. Thus P, Q, R, S and $\sim P$, $\sim Q$, $\sim R$, $\sim S$ are maximally different.⁴ Then there are only four possible worlds that are consistent with these definitions:⁵

- w_1 at which P, Q, R and S are true
- w_2 at which $\sim P$, Q, R and $\sim S$ are true
- w_3 at which P, $\sim Q$, $\sim R$, and S are true
- w_4 at which $\sim P$, $\sim Q$, $\sim R$, and $\sim S$ are true

Again, a model might make this easier to think about. w_1 is equally similar to w_2 and w_3 , and more similar to either of them than to w_4 ; w_2 is equally similar to w_1 and w_4 , and more similar to either of them than to w_3 ; and so on. Then the distance on the page between the following points can be thought of as roughly proportional to similarity between possible worlds:



them. The idea is that an analysis would make dispositional properties reducible to non-dispositional properties. The current approach shows that this need not be the case; it is possible to analyze dispositional properties as counterfactuals relating other dispositional properties.

⁴Not in general a good way of measuring similarity between worlds in the light of the result in (Miller 1974) and (Tichy 1974); but I don't think that this result provides a worry for the use that is made of the method here.

⁵Proof: there are 16 apparent possibilities described by combinations of the four sentences P, Q, R and S, and their negations. Classify these according to how many negations their descriptions contain. Thus P, Q, R, $\sim S$ is a one negation world, and so on. Then:

(i) all four one-negation worlds are inconsistent with the definitions, since any three non-negated sentences will entail the fourth.

(ii) four of the six two-negation worlds are inconsistent with the definitions: P, Q, $\sim R$, $\sim S$, since P and Q entail R; P, $\sim Q$, R, $\sim S$, since P and R entail S; P, $\sim Q$, R, $\sim S$, since R and P entail Q; $\sim P$, $\sim Q$, R, S, since R and S entail P.

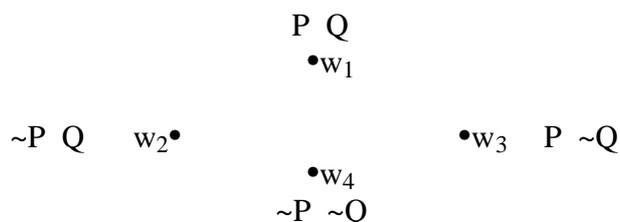
(iii) all four three-negation worlds are inconsistent with the definitions: $\sim P$, $\sim Q$, $\sim R$, S since it is not true that the closest Q world is a P-world (which is what S requires): given that $\sim P$, Q, $\sim R$, $\sim S$ is inconsistent with the definitions (by reasoning parallel to that used here), there are two closest Q-worlds, $\sim P$, Q, R, S and P, Q, R, S; and in the first of these P is false. Similar reasoning applies to the other three three-negation worlds

It should be clear that this model is consistent on a standard possible worlds account of counterfactuals. Thus $\sim P$ will be true at w_2 , since the nearest R-world (i.e. w_2 itself) is not an S-world; Q will be true at w_2 , since the nearest S-world (i.e. w_1), is an R-world; and so on. Moreover, each of the truths is a contingent truth: for each sentence there is a world at which it is true and a world at which it is false. So we have what we were looking for: a class of worlds in which the only contingently true sentences are dispositional sentences (or compounds of them). But that does not lead us to incoherence, nor does it mean that there is no truth anywhere; only that the total class of truths supervenes on the facts about the total class of worlds. (Note though that not every truth in a world is determined by the truths in *other* worlds. In particular, the truth of P, Q, R and S at w_1 does not depend on the statements true at w_2 and w_3 . These are manifested dispositions, and are made true by the statements true at w_1 .)

It might be thought that a problem with this model is that the counterfactual analyses are circular: for instance, P is defined in terms of R, which is defined in terms of P. The point becomes even more clear if we think that contingent propositions that are true in exactly the same possible worlds are identical. Then P will be identical to S, and Q to R, our definitions will collapse down to:

$$\begin{aligned} P &=_{df} Q \quad \Box \rightarrow P \\ Q &=_{df} P \quad \Box \rightarrow Q \end{aligned}$$

and we can give the simple model:



The definitions are indeed circular; the question is whether this is a problem. Clearly we cannot think that we come to understand the meaning of P by employing our prior grip on the notion of Q, and that we understand Q by employing our prior grip on P. We will rather have to think that, in Stephen Yablo's phrase, we understand the terms involved by *solving* the definitions, in much the same way that we solve a set of simultaneous equations.⁶ The worry that remains is whether or not there is a unique solution. Now if these

⁶(Yablo 1993) p. 151. An alternative solution is to think that the dispositional sentences are merely equivalent to counterfactuals, without being analyzed in terms of them.

were dispositions involving our ordinary common sense notions, this would be a very real worry. We want to be able to distinguish dispositional claims involving, say, fragility and impenetrability, from those involving, say, beliefs and desires; if an account could give us no idea of which we were talking about, it would be no good. But if, as in the case Blackburn imagines, the dispositions involved are supposed to be the fundamental properties of physics, then it is not so clear that we can make sense of the idea that there are alternative solutions to the definitions; or, which might be to say the same thing in other words, it is not clear that physics can do any more than characterize the world up to structural isomorphism.⁷ These are very hard questions that cannot be pursued here. Certainly, as remarked at the outset, if physics showed us that there were only dispositional properties, this would be surprising. Perhaps it would be so surprising that, using our ordinary concepts, we should find it hard to get our minds around the idea. We should, however, be used to such difficulties by now. Twentieth century physics has been full of things that it is hard to get our common sense minds around. It would be quite another matter if we could show that the ideas were actually inconsistent. There might still be ways of showing this to be so.⁸ But I hope that I have shown that the considerations raised by Blackburn do not do so on their own.⁹

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⁷Compare Paul Benacerraf's remarks about mathematics in (Benacerraf 1965).

⁸Helen Beebe raised the worry that the counterfactuals I give are bound to involve backtracking, and no true dispositions would involve that. I find it hard to assess this idea at the level of generality at which I have rested. It would require that the counterfactuals involve (or entail) temporal claims; and it is not obvious to me that they must. But at the very least it will provide a constraint on any attempt to flesh out the kind of structure that I have given.

⁹Thanks to Simon Blackburn, Tim Crane, Lloyd Humberstone, Rae Langton and Michael Smith.

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