

DISPOSITIONS ARE CAUSES

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IN his article 'Are Dispositions Causes?' (ANALYSIS, Vol. 29 (1968), pp. 45–7) Roger Squires attacks the argument I put forward to show that dispositions are states with causal powers in *A Materialist Theory of the Mind* (Routledge, 1968) Ch. 6, Section 6. Since I am not satisfied with the way I presented the argument there, I should like to re-state it, and, in the course of doing this, try to answer Mr. Squires' objection.

I shall present my argument in three main steps.

1. If we consider the attribution of (say) brittleness to a particular piece of glass then one outstanding feature of the attribution is that it licenses certain *conditionals*. If the glass remains unbroken, the conditionals will be 'counter-factual'. If the glass had been struck, it would have broken. Such conditionals, it is generally assumed, are (a) capable of truth and falsity; (b) are *contingently* true or false. (The consequences of denying either of these assumptions will be explored shortly.) The contingent truth of 'If the glass had been struck, it would have broken' is not, however, secured simply by the falsity of the antecedent. The antecedent does not merely 'materially imply' the consequent. (Which is not to deny, and neither is it to assert, that some more complex analysis in terms of the material conditional can be given of such propositions.)

It seems obvious, furthermore, that for every true contingent proposition there must be something in the world (in the largest sense of 'something') that makes the proposition true. For consider any true contingent proposition, and imagine that it is false. We must automatically imagine some difference in the world.

Again, if a contingent proposition that contains a restriction to times up to time t is false, but another proposition exactly similar to the first, except that its restriction is to times after t , is true, then there must have been some change in the world at t .

Not all glass is brittle. Consider, therefore, a piece of originally unbrittle glass, that, at t , becomes brittle but still does not break. The counter-factual 'If this glass had been struck *before* t , it would have broken' is false. The counter-factual 'If this glass had been struck *after* t , it would have broken' is true. Now there must have been some change in the glass at t to account for the difference in truth-value of these two contingent propositions. What can the nature of this change be? The only possible alternatives seem to be (a) the glass has acquired, or lost,

some actual, categorical, property; (b) the glass has acquired, or lost, some potentiality which is not an actual, categorical, property of the thing.

I shall now offer arguments against (b) being a real possibility. It is important to see just what (b) involves.

If we say that what makes the first proposition false and the second proposition true is that the glass has acquired, or lost, some potentiality that is not an actual, categorical, property then we are committed to an ontology of potentialities. In Quine's phrase, we are committed to quantifying over potentialities. Things such as pieces of glass have, or can have, extra properties over and above their categorical properties.

But it seems that it is impossible that the world should contain anything over and above what is actual. For there is no mean between existence and non-existence. We can talk intelligibly, and sometimes truly, about possibilities, whether logical, or, as in this case, empirical. But this cannot entail that there are such entities as possibilities. If, *per impossibile*, a thing could have a potentiality over and above its categorical properties, the potentiality would be an actuality—and so not a potentiality. (*Cf.* 'If the merely subsistent really subsists, then it exists—and so does not merely subsist.')

Again, if a thing's potentialities are something over and above its actual, categorical, properties; and if it is a *contingent* fact that a piece of glass, say, has the potentialities it has; then, given that *actual* happenings are as they are in the world, there would have to be different logically possible scenarios with respect to the *unexercised* potentialities of things. For instance, there would be the following different possibilities with respect to so-called "brittle" glass. (i) Such glass remains brittle at the times it remains unstruck. (ii) Such glass loses its brittleness at the times it remains unstruck. (iii) Such glass not only loses its brittleness but becomes elastic at the times it remains unstruck. Yet in each case the actual, categorical, properties of the glass might remain exactly the same.

But it cannot be accepted that there are really three distinct possibilities here. It is not simply that we would be unable to determine which of the three possibilities holds: the whole notion of unexercised potentialities varying independently of the categorical properties of a thing seems an unintelligible one.

If the arguments are accepted, then the only alternative is to say that when a piece of glass becomes brittle then it is *entailed* that the glass acquires, or loses, some actual, categorical, property.

Going back now to the assumptions on which this argument was based, it might be denied that counter-factuals like 'If this piece of glass had been struck, it would have broken' are really *contingent* truths at all. This would be maintained by anybody who held that laws of nature are not contingent but necessary. But it seems clear that this will not affect

the conclusion of the argument. If it is a necessary truth that this glass would have broken if struck, it must be a necessity that flows from some property of the glass. And this property must be an actual property of the glass.

It has also been denied that counter-factuals are in fact truths at all. J. L. Mackie, for instance, has contended that they are condensed *arguments*. (See his 'Counterfactuals and Causal Laws' in *Analytical Philosophy*, First Series, ed. R. J. Butler, Blackwell 1962.) Asserting our counterfactual, Mackie holds, is equivalent to putting forward an argument of the following sort: (1) All pieces of glass that are of the sort X and are struck, break; (2) This piece of glass is of the sort X; (3) It is struck [a premiss of the argument known or believed to be false]; *therefore* (4) It breaks. But, according to Mackie, in putting forward this argument (2), along with (1), is actually asserted to be true. But (2) attributes some actual, categorical, property to the piece of glass ('It is of the sort X'). So Mackie's view also demands that the brittle piece of glass be brittle in virtue of some actual, categorical, property of the glass.

2. The argument now enters its second phase. Our contention so far is that attribution of a disposition to a thing entails the presence, or absence, of some actual, categorical, property of that thing. It has not shown that the disposed thing must be in some actual *state*. Given the argument so far, the categorical property might be some merely relational or purely negative characteristic of the thing that has the disposition. But I think that dispositional attributions make a theoretical claim that cannot be satisfied by such relational or merely negative characterization.

What argument can be offered for this? All I can do is to ask the reader to consider cases. Suppose that a piece of glass is hit, which causes it to break. But suppose that the breaking has nothing to do with the special nature of the object. Suppose, for instance, that almost anything solid hit in just that way, or in that sort of environment, would break. Surely we would not say that the glass had to be brittle? We might perhaps attribute some more general disposition to the object. But this disposition would be linked with some non-relational characteristic possessed by all, or almost all, solid objects. Suppose, again, that all that was in common among all so-called "brittle" things was the absence of some positive non-relational characteristic. Would we still want to treat this breaking when struck as a disposition? Would we not rather treat *absence* of liability to break when struck as the disposition? (I feel less sure about this exclusion of negative characteristics than about relational ones. The whole distinction between positive and negative characteristics is a tricky one.)

If this has been correct, attribution of brittleness entails that the

brittle thing is in a certain sort of state. It is this state that, if and when the glass is struck, actually brings about the breaking in conjunction with the triggering cause.

3. So far, perhaps, Mr. Squires might accept my conclusions, even if not my arguments. But I shall now argue, what he certainly denies, that it is linguistically proper to *identify* brittleness with that state of the brittle thing that, if the object is struck, causes it to break. It is linguistically proper, I assert, to say that brittleness *is* a certain sort of bonding of the molecules of the brittle object. In this I think I am following the way scientists are prepared to speak.

Squires produces an argument against me. Suppose that a disposition is identified with some state of the disposed thing. Suppose also that, at a certain time, the disposition is unmanifested. Must not the currently inactive state have a disposition to bring about the appropriate manifestation in appropriate conditions? But then, by parity of argument, this new disposition will have to be identified with some further state of the object, and so *ad infinitum*. Thus, Squires argues, the attribution of a disposition will commit us *a priori* to postulating an infinite number of states in the object that has the disposition. He rightly regards this conclusion as unacceptable.

I do not think that there is a vicious regress here. The cardinal point to note is that, when the disposition of the individual piece of glass is identified with some state of the piece of glass, that state is conceived of as a state *of a certain sort*. It is as a state of a certain sort that it is a potential causal factor in bringing about the manifestation of the disposition. Now if it is then asked 'What state constitutes the potentiality of that state to act as it is capable of acting?' can we not answer 'that same state itself'? It has that potentiality because it is the state of the sort that it is. Its disposition to bring about certain results in certain circumstances is identical with—itself. There is a regress, but it is virtuous, not vicious. It is like: if p, then it is true that p, and then it is true that it is true that p... and so on. I conclude that the logical identification of dispositions with states of the disposed thing can be maintained.

However, while I think the identification can be made, I must confess that I am not sure that it *has* to be made. It might be that, while allowing that attribution of dispositions entails attribution of states of a certain sort to the objects that have the dispositions, nevertheless, we can, if we want to, still make a verbal distinction between the disposition and the state. But at least there seems to be no objection to making the actual identification, and I am inclined to think that, very often at least, it is the natural way of talking.