

# Dispositions

Disposition is a term used in metaphysics usually to indicate a type of property, state or condition. Such a property is one that provides for the possibility of some further specific state or behaviour, usually in circumstances of some specific kind. Terms such as causal power, capacity, ability, propensity, and others, can be used to convey the same idea.

The general criterion for something to be a disposition is that the appropriate kind of behaviour, the so-called manifestation, need not be actual. Hence, something can be disposed to break though it is not broken now. The disposition is thought to be a persisting state or condition that that makes possible the manifestation.

Because dispositions make other events or properties possible, they are often understood in relation to counterfactual conditional sentences. Something being fragile is somehow related to the conditional that if it is dropped, it will break. The antecedent of the conditional identifies the stimulus for the disposition. The consequent identifies the manifestation of the disposition.

Philosophers are increasingly interested in dispositions because many properties seem to be essentially dispositional in nature. Thus, to say that something is soft means that it is disposed to deform when put under pressure. It is difficult to identify a property that does not have some dispositional aspect. Even the fundamental properties of physics, such as spin, charge and mass, appear to be dispositional. This has led some to the conclusion that all properties are dispositions, or at least that they bestow dispositions. In the philosophy of mind, many mental ascriptions carry dispositional implications. For example, to have a belief is to be disposed to behave in an appropriate way in certain circumstances. There are a number of philosophical problems that arise about dispositions, however. Are they real properties in their own right or are they in some way derived from other elements? How are dispositions distinguished from other things? What is the precise relation a disposition bears to its manifestation?

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## **1 The criterion of the dispositional**

Whether all properties are dispositional, only some of them, or none of them, can only be answered once the criterion for being a disposition is settled. This has become a complicated and highly controversial issue, however.

At one point it was thought that dispositions contrasted with occurrences or events. Mainly this was through the influence of Ryle's ideas in the philosophy of mind (Ryle 1949). Ryle tried to analyse mental phenomena in terms of dispositions to behave (see RYLE, G. §2). He claimed that to have a disposition was not to be in a state

or to have something happening now. Rather, it was to be bound or liable to be in a state, or to undergo a change, when some other condition was realised. A disposition was not an occurrence but was something that issued in occurrences. Thus, someone may be a smoker but that does not entail that they are smoking now. Statements that ascribe dispositions are thus hypothetical and usually testable. The hypothetical can be articulated in conditional, 'if ..., then ...' statements.

Since Ryle, however, it has become more common to speak of dispositions being contrasted with categorical properties. This is largely because of a rejection of Ryle's claim that to have a disposition was to be in no state. Ryle's form of behaviourism was motivated by a desire to eliminate the myth of the Cartesian inner ego. His strategy was to show that mental ascriptions were dispositional and did not therefore involve inner states of any kind. Armstrong found this an incredible theory of mind, however, and disagreed in particular with Ryle's account of dispositions (see ARMSTRONG, D.M. §2). Any hypothetical that followed from a disposition ascription had to be made true by some standing condition of the person or object to which the ascription was made. Armstrong referred to this standing condition as the categorical basis of the disposition. The subsequent debate has concentrated on the putative contrast between categorical and dispositional properties.

Ryle came closest to holding what is now known as the basic conditional analysis of disposition ascriptions, which means that ascribing a disposition is asserting nothing more than the truth of a conditional. The analysis is controversial because it has proved difficult to find an exact relationship to conditionals that holds of all and only disposition ascriptions. As a criterion of the dispositional, the conditional analysis has been attacked from two opposite directions. From one direction, it has been argued that although disposition ascriptions entail conditionals, so do non-disposition, or categorical, ascriptions. From the other, it has been argued that while non-disposition ascriptions fail to entail conditionals, disposition ascriptions equally fail. The general problem is, therefore, that whatever relation holds between dispositions and conditionals arguably holds equally between non-dispositions and conditionals.

That all property ascriptions entail conditionals is an argument advanced by Mellor (1974), though it appears earlier in Popper (1959). The argument is that even the paradigmatic categorical property ascription, triangularity, can be shown to entail the conditional 'if the corners were counted correctly, then the result would be three'. There have been various attempts to undermine this case by showing that the conditional differs significantly from those that are entailed by ascriptions of genuine dispositions. It has been alleged that the 'correctly' must refer to the result of the counting process for the conditional to be true for everything that is triangular. In that case, however, the conditional will be trivial, which those conditionals entailed by genuine disposition ascriptions are not. A response to this is that the conditional could still be true even if 'correctly' referred to the method of counting. Although circumstances are imaginable where the correct method of counting does not produce the correct result, because of some systematic deception for instance, the correct method of testing a genuine disposition may also fail to produce the correct result in some circumstances.

The general problem is that the conditionals that are entailed by the property ascription often need to be qualified. It might be said that any such conditionals that are entailed hold not in all but only in ideal conditions for the disposition. Hence a match is disposed to light when struck but only in the presence of oxygen. Oxygen, and any other such factors, will be part of the ideal conditions for the disposition to be manifested so any

conditional associated with a disposition ascription will be true only when such conditions are assumed. This shows how difficult it is to distinguish fragility and triangularity, as there could again be ideal conditions for counting the corners of a triangle.

The problem of identifying a characteristic relation holding between disposition ascriptions and conditionals leads some to reject conditional entailment as a criterion of the dispositional. If dispositions are actual properties, then they exist independently of their manifestations and may still be there even if they are never manifested. Martin (1994) produced the notion of a 'finkish' disposition to illustrate this. Dispositions can be gained or lost over time. Paper, for example, can become brittle with age. This suggests the theoretical possibility of a disposition that can be lost, without manifesting, whenever it is tested. A finkish disposition is one where the test itself takes away the disposition. Something could have a disposition, therefore, though it is never manifested when tested. Alternately, there could be a reverse finkish case where a disposition is absent but is gained whenever it is tested for. The finkish cases seem to destroy the connection between dispositions and conditionals because when the disposition is possessed, the associated conditional will be false. When the disposition is not possessed, the associated conditional will be true.

Lewis (1997) objected to Martin, however, that the case defeats only the basic conditional analysis. In its place he put a reformed conditional analysis. This includes the idea of there being a causal base for the disposition that is possessed at the time it is tested and retained until at least the point that the disposition is manifested. That such a causal base is possessed can be built into the antecedent of the conditional and such a conditional would thereby always truly follow from a disposition ascription. Whether this is the case, and whether the reformed analysis is immune to all further counterexamples, remains controversial.

Molnar (2003) has argued further for a divorce of dispositions from conditionals. If dispositions are taken as real properties in their own right, which is a metaphysical assumption, then it makes perfect sense to allow a disposition that is randomly manifested or another that is continuously manifested. In these cases it is hard to find any non-trivial conditional that could be said to follow from the disposition ascription. Molnar argues that it has been an error to concentrate on conditional entailment as the distinguishing mark of the dispositional. Instead, he draws attention to directedness or intentionality as the mark of the dispositional, which Place has also supported (in Armstrong, Martin and Place 1996). Dispositions are directed towards their manifestations yet exist independently of those manifestations, in this view. A power is always a power *for* some specific behaviour or manifestation, for example, solubility is directed towards its manifestation of dissolving. This would mean that Brentano was wrong to think of intentionality as the mark of the mental (see BRENTANO, F.C. §3). Rather, it is the mark of the dispositional. Mental dispositions would still be intentional but, controversially, Molnar thinks that there is also physical intentionality in the world.

## **2 The ontology of disposition**

There are various questions concerning the ontology of dispositions. What in the world are they? Do they cause their manifestations or does something else? Are dispositions an irreducible kind? Are all properties dispositional, only some of them, or none?

If some form of the conditional analysis is correct, then according to the reductionist interpretation dispositions are not properties in their own right. The conditional analysis arguably shows that there is nothing more to a disposition than the truth of a conditional, of which the antecedent and consequent may be events or states but the disposition itself is not. As a metaphysical class of existents, dispositions will have been reduced away. Armstrong thought that any such conditional required a truthmaker and that every disposition must have a categorical basis in virtue of which any such conditional is true. This suggests another possible reduction of dispositions, however, to categorical properties. Armstrong's position is that although there is a perfectly respectable sense in which we can say that there are dispositional properties, they do not have an irreducible existence. Rather, if there are categorical properties plus the laws of nature that govern the causal relations between those properties, then having a categorical property would thereby endow something with dispositions. This is a position that has been called categorical monism or just categoricism. The position says that all genuine properties are categorical and no property is irreducibly a disposition.

A difficulty for categoricism, however, is that the notion of the categorical is perhaps as obscure, if not more so, than that of a disposition. Rarely has the precise nature of the categorical been spelled out while the theory of dispositions has received great attention and development in recent years. Categorical means simply unconditional. In that sense, however, dispositions are categorical. Dispositions can be possessed unconditionally as it is only their manifestations that are typically conditional on what else happens. Furthermore, if categorical really does contrast with the dispositional then does that mean that a categorical property is intrinsically powerless and disposed to do nothing? That would seem to be Armstrong's position, which makes categorical properties endow powers only with the assistance of external laws of nature. If such laws are contingent, then the causal role of a property would also be contingent. This means that the same property, in other possible worlds, could have a different causal role from that which it has in our world, yet remain the very same property. This is a view that some find unacceptable. It is also regarded as problematic that categorical properties can be real while not being intrinsically causal. Such properties would violate the Eleatic stranger's reality test, from Plato's *Sophist*, which states that something is real only when it can make a causal difference to the world. A final difficulty for categoricism is that it commits to there being a categorical basis for each disposition. This claim is in doubt, particularly at the sub-atomic level where there are properties which appear to be dispositional yet for which there is no available categorical basis.

There is a position that can be called property dualism, which allows that there are dispositions as an irreducible class but that there are also irreducible categorical properties. Prior (1985) and Molnar (2003) adopt such a position. There are two main problems with it. First, it relies on finding a reliable distinction between the dispositional and categorical, which as we have seen above is difficult. Molnar tries to argue that the non-dispositional properties are mainly the spatial properties of location and orientation. But this means he has to argue that although they are not causally powerful, they are nevertheless causally relevant and thus satisfy the Eleatic stranger's reality test. The second problem with dualism is that we require an account of how dispositional and categorical properties relate. If one is to say that dispositions have categorical bases, yet are distinct from their bases, then one has to face the question of whether the disposition or its categorical basis is the cause of the manifestation, when the appropriate conditions are realised. Either answer raises difficulties, as does the compromise that both the disposition and its basis cause the manifestation together.

A third main position can be called pan-dispositionalism, which is the view that all properties are dispositional. Shoemaker (1980) reintroduced this view in modern times. The position has the advantage of allowing all properties to be intrinsically powerful. The Eleatic stranger's test is thereby passed. The causal role of a property is essential to it and cannot vary across possible worlds. Some see this as implying that the laws of nature are metaphysically necessary but another interpretation is that they are metaphysically redundant. Nor is there any problem of explaining a relation between dispositions and non-dispositions.

Among the difficulties of this position, however, there is an alleged regress. A disposition is a disposition to do something else. But if all properties are dispositional, then this something else must also be dispositional. A disposition is always, therefore a disposition to a further disposition, which in turn is a disposition to a further disposition. This has produced the charge that nothing ever passes from potency into actuality.

Despite their diversity, categoricalism, dualism and pan-dispositionalism all remain live options, each with its advantages but also considerable disadvantages. There is a further question of whether the three ontologies exhaust the possibilities.

### **3 The work that dispositions can do**

Although the two issues discussed so far – concerning the criterion of the dispositional and the ontology of dispositions – are interesting philosophical puzzles in their own right, there is another reason why dispositions have attracted so much attention. Dispositions are seen by some as being at the centre of a systematic metaphysics. The idea is that if there are real dispositions in the world, then they would explain many other difficult metaphysical issues. From a theory of dispositions, for instance, one might be able to generate theories of causation, laws of nature, properties, modality, events and perhaps more besides. If such a project is ultimately successful, then the world is just a world of dispositions or powers, leaving us with a single-category ontology.

A dispositional theory of causation would be the view that causation occurs when dispositions manifest themselves. As causes are usually complex, then typically effects would be a result of many dispositions working with each other, or sometimes against each other. Causation would then take on some of the features of dispositionality. A cause disposes or tends towards a type of effect, which would explain how there can be general causal truths even if there is not a corresponding constant conjunction. That smoking causes cancer, for instance, would not require that everyone who smokes gets cancer, but only that smokers are disposed to get cancer. Dispositionality involves a connection between phenomena that is more than purely contingent as everything in a world of dispositions is not 'loose and separate', to use Hume's (1748: 74) phrase. Yet a dispositional connection is also less than necessary. It involves only a tending towards an effect, one that can always be prevented or interfered with by other factors. The manifestation of dispositions is a highly context-sensitive matter, for it depends on what else is operative at the same time. Hence, even if one particular thing successfully caused another, by manifesting one of its dispositions, it still did not necessitate its effect. It only disposed towards that effect and could have been prevented from producing it, even if it was not in fact

prevented.

There would be a consequence for such a dispositional theory of causation on other matters such as modality, for instance. Some people think that there is a distinct notion of natural possibility, that is separate from and more restricted than the notion of pure logical possibility. There is, however, some scepticism that possibility should be divided up in any such way or that natural possibility can be given any meaningful sense. According to the present theory, however, natural possibility is grounded in the natural tendencies of things: what the real dispositions are within nature. So grounded, natural possibility is also a distinct kind of possibility, concerning what in the world is possible given how things are disposed, which is thus far more restricted than the broader and more permissive logical possibility.

As well as causality and modality, properties could also be explained in terms of dispositions, it has been argued. Shoemaker has articulated the view that properties should be understood as clusters of causal powers. Even a paradigmatically categorical property, such as sphericity, could be understood in terms of dispositions. Among other things, something that is spherical is disposed to roll in a straight line down an inclined plane. The category of properties might then be reducible to that of dispositions. If one could also defend the controversial view that particulars are bundles of properties, then even those would be ultimately understood as clusters of powers.

It has further been ventured that dispositions can explain what are known as the laws of nature (see LAWS, NATURAL). The laws would be the general truths about the ways types of things are naturally disposed to behave. That massive bodies attract, for instance, quite clearly admits of a dispositional interpretation. One view would see the dispositional account as meaning that laws are reductively explained in terms of dispositions, while another explanation would be eliminativist about laws. The argument for eliminativism would be that contingent laws of nature were required only on the assumption that the world's properties were intrinsically causally inert, which categoricists believe. If, however, properties are instead causally active and powerful, as the dispositionalist is likely to think, laws of nature thus become surplus to ontological requirements. The world would be regular and orderly because of the dispositional properties themselves. Laws would not be needed in addition and, as things are usually only admitted into our basic ontology if they do work, they could be dispensed with.

Philosophers are interested in dispositions primarily because of the work that they can do in providing us with accounts of the mind, and wider metaphysical phenomena such as causation and laws. Much of the work remains to be done, however, and perhaps we will be able to judge the success or failure of the dispositional ontology only when we have seen all the detail of those accounts.

See also: Behaviourism, analytic; Counterfactual conditionals; Indicative conditionals; Laws, natural; Properties; Causation

## References and further reading

\*Armstrong, D. M., Martin, C. B. and Place, U. T. (1996) *Dispositions: a Debate*, T. Crane (ed.), London: Routledge. (Debate between three different views on the ontology of dispositions.)

Ellis, B. (2001) *Scientific Essentialism*, Cambridge: Cambridge University Press. (Presents a wide-ranging view of nature based on there being active causal powers in the world.)

Hume, D. (1748) *An Enquiry Concerning Human Understanding*, in *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*, L. A. Selby-Bigge (ed.) 3<sup>rd</sup> edn rev. P. H. Nidditch, Oxford: Clarendon Press, 1975. (This remains the most famous and influential attack on the reality of dispositions or powers; yet some have more recently seen in it a hidden realism about powers.)

\*Lewis, D. (1997) 'Finkish Dispositions', in *Papers in Metaphysics and Epistemology*, Cambridge: Cambridge University Press, 1999, 133-51. (An attempt to repair the conditional analysis of dispositions.)

\*Martin, C. B. (1994) 'Dispositions and Conditionals', *Philosophical Quarterly*, 44: 1-8. (Introduces the controversial case of finkish dispositions, thereby challenging the conditional analysis.)

\*Mellor, D. H. (1974) 'In Defence of Dispositions', in *Matters of Metaphysics*, Cambridge: Cambridge University Press, 1991, 104-22. (Argues that the dispositional is just as metaphysically respectable as the categorical.)

\*Molnar, G. (2003) *Powers: a Study in Metaphysics*, Oxford: Oxford University Press. (A defence of dualism that also offers intentionality as the mark of the dispositional.)

Mumford, S. (1998) *Dispositions*, Oxford: Oxford University Press. (Defends the dispositional-categorical distinction as a purely conceptual rather than ontological one.)

Mumford, S. (2004) *Laws in Nature*, London: Routledge. (Argues that laws of nature are eliminable in favour of dispositionally empowered properties.)

\*Popper, K. (1959) *The Logic of Scientific Discovery*, London: Hutchinson (Argues in Appendix X that all properties are dispositional.)

\*Prior, E. (1985) *Dispositions*, Aberdeen: Aberdeen University Press. (Develops a systematic dualist stance.)

\*Ryle, G. (1949) *The Concept of Mind*, London: Hutchinson (Examines the concept of a disposition and presents the basic conditional analysis.)

\*Shoemaker, S. (1980) 'Causality and Properties', in *Identity, Cause, and Mind*, Oxford: Oxford University Press, 2003. (An influential view of properties that is the modern origin of pan-dispositionalism).