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Discussion note

Powers opposed and intrinsic finks

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Abstract: Philosophers disagree over whether dispositions can be intrinsically finked or masked. Choi suggests that there are no clear, relevant differences between cases where intrinsic finks would be absurd and those where they seem plausible, and as a result rejects them wholesale. Here I highlight two features of dispositional properties, which, when considered together, might provide an explanation for when dispositions can be subject to intrinsic finks and when not.

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A disposition is finkish if it is caused to disappear in just those circumstances that would normally see the disposition manifest. Lewis gives the example of a fragile glass protected by a sorcerer who has resolved to protect it by altering its fragile microstructure should it ever be struck (Lewis 1997, 147). A disposition is masked when some factor – the mask – inhibits the disposition's being manifested despite the paradigm stimulus conditions obtaining, but which does so without removing the disposition. For example, the potentially lethal effects of arsenic can be masked if, when one consumes arsenic, one also takes its antidote. Some philosophers think that finks and masks can be intrinsic to the object which possesses the disposition (Clarke 2008; Clarke 2010; Everett 2009; Fara 2008). Others deny this (Choi 2008; Choi 2011; Handfield 2008). According to the deniers, if an object which *prima facie* possesses disposition D also has an intrinsic property P which would cause disposition D to be lost if the stimulus conditions for D are realised, then instead of attributing to the object disposition D and explaining its lack of manifestation by appeal to the intrinsic fink P, we should simply deny that the object has disposition D. Similarly for masks: if an object *prima facie* possesses a disposition E and also possesses an intrinsic property Q which interferes with the manifestation of E then we should not say that the object has disposition E that is masked by intrinsic property Q, we should just deny the object has the disposition. The debate is not idle. Choi's recent proposal for distinguishing between dispositional and categorical properties relies on denying the possibility of intrinsic finks (Choi 2005). On the other hand, Smith's dispositionalist account of the ability to do otherwise (and the associated compatibilist defence of the Principle of Alternative Possibilities) (2003), and Martin & Heil's dispositionalist account of rule-following (1998), both rely on the possibility of intrinsic finks.

One of Clarke's examples of an intrinsic fink is as follows: suppose a man is strong and so possesses the power to lift heavy objects. He may subsequently gain an intrinsic property which saps his strength, but only when he

touches a heavy object (Clarke 2008, 513). His strength is a finkish disposition: in just those circumstances where it would be exercised, the (intrinsic) fink will operate to ensure it is lost before any lifting occurs. Clarke also gives the following example of an intrinsic mask: "Once when I was eight or nine, during a game of football (the American kind) with some friends, I took a handoff and quickly broke free of defenders. I ran as fast as I could toward the goal. Unhappily, before I reached it, I dropped the ball" (Clarke 2010, 153). The idea is that Clarke *was able* to score: he had the power or *disposition* to take the ball all the way if he tried. But he also had an opposing liability or *disposition*: the disposition to drop the ball when running. In the example, the latter disposition – one of his intrinsic properties – masked the former disposition.

Against the possibility of intrinsic finks and masks Choi has pushed a kind of *reductio*. If we accept the kind of examples presented by Clarke, which might at first seem plausible, we're forced to accept the existence of some absurd dispositions. For example, we'll be forced to accept that aluminium is disposed to rust and that healthy birds are disposed to fall out of the sky (2011, 306). Why? Well, says Choi, Clarke's strong man example works by assuming that the man possesses an intrinsic property which suffices for (because constitutive of) his being strong; by hypothesis, this intrinsic property is not lost when the strong man acquires the putative finking property and thus the strong man remains strong. By parity of reasoning we can point out that aluminium has the kind of microstructure in virtue of which metals are disposed to rust. It doesn't rust because when it is exposed to oxygen in the presence of moisture, the initial oxidation yields a thick, dense skin of aluminium oxide that protects the aluminium from any further oxidation. This latter property, the tendency to produce a protective layer of oxide, therefore, masks the aluminium's disposition to rust. Just as the strong man remains strong despite the presence of an intrinsic fink, so the aluminium remains disposed to rust despite the presence of an intrinsic mask. Similarly, a healthy bird has a property – its weight – which suffices for its being disposed to fall to the ground. The bird doesn't fall because it has the ability to fly, but this doesn't remove its weight, and so we should describe this as a situation where the bird's disposition to fall is masked by its ability (disposition) to fly.

Clarke resists this line of thought by denying that we need to give a uniform account of the above examples. Sometimes an object has a disposition D and an intrinsic property P which operates as an intrinsic fink or mask, as in Clarke's football example. In other cases, such as the aluminium or healthy bird case, the possession of an would-be intrinsic fink or mask causes the disposition to be lost altogether. Choi thinks that this response is

inadequate unless a principled way of distinguishing between the two types of case can be given and, he says, its "not clear at all" how such a distinction might be made (Choi 2011, 309).

I want to suggest that there is a view of the nature of dispositions which provides just such a principled way of distinguishing these cases. Two things characterise the view. The first is that the event types typically given as the stimulus conditions (e.g. dropping, striking, being put in water, etc) and the manifestation type (e.g. breaking, dissolving, burning) are not fine grained enough to individuate a dispositional property. That is, a canonical disposition description such as 'is disposed to break when struck' does not succeed in singling out a unique disposition. In addition to the stimulus and manifestation, a set of circumstances is needed to fully define a disposition. The second is the idea that the "strength" of the modal connection affirmed between the stimulus and the manifestation might vary across different dispositions. I will aim to motivate these two points before outlining how they provide a resolution to the problem Choi raises.

The following example motivates the first point: Ally works as a physical metallurgist and part of her job involves sorting metal rods based on whether they are disposed to break when dropped. More specifically, Ally is concerned with what happens when the rods are dropped from heights of around 1.5m, and she wants to know if the rods ever break into multiple pieces (this is what's important given the purposes the rods are to be put to). There are, however, other contexts where Ally is concerned with much the same behaviour in response to much the same stimuli. Ally might decide to sort the items in her kitchen into those which are disposed to break (into multiple pieces) when dropped (from heights of roughly 1.5m – the height she's likely to drop something from) and those which are not. In each case Ally uses the phrase "is disposed to break when dropped" and in each case she means the same by "dropping" and the same by "breaking."

Nevertheless, Ally would not for one minute think that the metal rods which she puts on the "no disposition pile" in the lab would also belong on the "no disposition pile" in her kitchen. This is because all her testing in the lab takes place at extremely low temperatures of between 10-20 Kelvin. If a metal rod on the "has disposition" pile in the lab was moved into Ally's kitchen, and Ally sorted it, she'd put it on the no disposition pile. But of course, she would know perfectly well that the rod still had – there and then – the disposition she attributed to it in the lab. If Ally said "this is not disposed to break when dropped" and was subsequently challenged, it being pointed out to her that back in the lab she said the rod was so disposed, she would rightly point out that what she meant then was *disposed to break when dropped in extremely low temperatures* and what she means now is *disposed to break when dropped in household temperatures*. In other words, Ally is

simply ascribing different properties: in the lab she is ascribing the property *is disposed to break when dropped in temperatures of between 10-20 Kelvin*; at home Ally is ascribing (something like) the property *is disposed to break when dropped in temperatures typical of London*. This straightforward explanation relies only on the plausible assumption that the dispositions in question are intrinsic properties (which is not to be committed to the thesis that all dispositions are intrinsic).

That each disposition is partly defined by a set of circumstances is not a new idea. Both Prior (Prior 1985, 6–10) and Cross (Cross 2005, 324) have discussed it. However, I want to be clear about the purpose of introducing these – as we might call them – *definitional circumstances*. First, the purpose is not to do with the move from conventional disposition ascriptions (e.g. 'fragile') to canonical disposition ascriptions (e.g. 'is disposed to break when dropped'). The example above makes exclusive use of (fairly specific) canonical disposition ascriptions: "is disposed to break (into two) when dropped (from a height of 1.5m)." Second, the point is prior to any problems that may arise for particular analyses or accounts of the dispositions ascribed. It is not, in other words, motivated by the problems of finks, masks and mimics.

My introducing of a set of definitional circumstances is thus to be distinguished from those writers who introduce a set of circumstances into the analysis of dispositions in order to solve the problem of finks, masks or mimics. Fisher (2013)[1] introduces his notion of *auspicious circumstances* for just this purpose; similarly, Choi has his "ordinary conditions" (2008), Malzkorn his "normal conditions" (2000, 457), while Lewis suggests listing a complete set of exclusions (1997). That is not the envisaged purpose of *definitional circumstances*. Rather, the point is that *we do not even have a property to analyse* until the definition has been completed by some set of circumstances.

One distinctive feature of Fisher's view, despite (at least initially) being motivated by the desire to avoid finks and masks, is his insistence that the auspicious circumstances cannot be derived from the stimulus and the manifestation. The following example is a retelling of one Fisher uses to make this point (2013, 448): Suppose a factory worker is given a collection of objects, each of which is disposed to break when struck, and tasked with wrapping them in protective foam packaging. A vandal who comes across the packaged objects, but who is short on time, might try to smash them without removing the packaging. Upon trying, she finds that while the tall thin ones (the vases) do not break, the others do (they've been badly packaged). The worker is correct when he thinks to himself that each of the objects is disposed to break when struck, and the vandal is correct

[1] I thank an anonymous referee for bringing Fisher's paper to my attention.

when she judges that the vases are not disposed to break when struck. As with the Ally example, there is no mystery here: the worker ascribes *the disposition to break when struck and not protected by foam packaging*, the vandal ascribes *the disposition to break when struck when protected by foam packaging*. That some of the objects possess one but not the other shows that both are valid dispositions.

Fisher thinks the above point should lead us to accept that the canonical form of disposition ascriptions involves three-parameters (instead of the (perhaps) more usual two):

(**Three Parameter View**) Object O is disposed to {M} when {S} in {C}

But as Fisher himself states, we could just as easily incorporate the circumstances into either the stimulus or the manifestation, as in the following:

(**Two Parameter – Stimulus**) Object O is disposed to {M} when {S in C}

I do not know which scheme is best, although I'm sympathetic to Fisher's preferred three-parameter view. Still, my point does not require me to take a stand on this issue. What's important is the claim that the disposition is not fully specified until a set of circumstances – which are not a function of the stimulus and the manifestation – have been added to the definition.

The above view of dispositions can of course of challenged and I have not presented a full defence of the view. My contention is just that *if* such a view is accepted it helps in the dispute between Clarke and Choi. Let us turn to see how. Consider the bird example. What we don't want to say, Choi thinks, is that the bird is disposed to fall down but that this disposition is masked by the bird's wings or the bird's ability to fly. I agree that this would be strange. One reason for this, I want to suggest, is that it is natural to read Choi as taking the two dispositions he mentions to be employing the same set of definitional circumstances. Choi, of course, does not say anything about definitional circumstances. Indeed, the example is described so vaguely – we're not told the stimulus conditions of either disposition – that we might question its usefulness on this point alone. But let us take the example as seriously as possible. Suppose we render the disposition to fall as follows:

(**FALL**) The bird is disposed to fall down [manifestation] when not supported by a hard surface [stimulus] in circumstances with features X, Y, Z [definitional circumstances].

We're told the bird is flying, and that seems to be significant for Choi, so to fill in the stimulus conditions with "not supported by a hard surface" seems reasonable. If Choi was envisaging *the disposition to fall down* as a conventional disposition, then the circumstances with features X, Y, Z would be what Choi would call the "ordinary conditions" for the disposition to fall down (2008, 813). But how Choi treats these circumstances is

irrelevant for my purposes. For my purposes it's only important there is some set of definitional circumstances. Moreover, because these definitional circumstances do not play the role of solving the problem of finks, masks and mimics, I do not need to maintain that they could be specified in such a way as to rule out finks, masks and mimics. I can thus leave aside the precise details for how features X, Y, Z are determined. Now, Choi says that the bird doesn't have this disposition because of its wings and its ability to fly. The bird's ability to fly, of course, can also be understood in dispositional terms:

> (**FLY**) The bird is disposed to fly [manifestation] when it tries to [stimulus] in circumstances with features P, Q, R [definitional circumstances].

Again, if Choi thinks that this disposition is a conventional ability, then he will identify circumstances with features P, Q, R with the disposition's "ordinary conditions." But again, this does not affect the point I'm making. The important point is this: if Choi's claim of absurdity is to stick, then the definitional circumstances for **FALL** either need to be the same as, or need to be a proper subset of, those for **FLY**. This is because Choi is claiming that it's absurd to think of the bird as disposed to fall *precisely because of its ability to fly*: precisely because it would fly, if it were put to the test. The circumstances under consideration, therefore, are all possible flying situations. This is where the absurdity comes from: there are no possible falling-cases which aren't also flying-cases, and so the putative disposition to fall is, if you like, always overridden by the bird's ability to fly. If we drop this assumption, it becomes evident that there are many dispositions to fall that it is far from absurd to attribute to the bird. The bird, for example, probably has the following two dispositions:

> (**FALL-VACUUM**) The bird is disposed to fall [manifestation] when not supported by a hard surface [stimulus] in a vacuum [definitional circumstances].
> (**FALL-HIGH**) The bird is disposed to fall [manifestation] when not supported by a hard surface [stimulus] and located at a height of between 10–20km above ground level [definitional circumstances].

Here we have two different ways of filling out the incomplete disposition ascription "is disposed to fall down when not supported by a hard surface." As with the Ally example, combining a different set of circumstances with the same stimulus and manifestation types results in a different disposition being ascribed. And while the bird (plausibly) does not have the disposition that Choi means to ascribe to it, the bird does has both of the above dispositions. On the basis of this we might suggest the following way of distinguishing those cases where we have an intrinsic fink and those where we don't: if the definitional circumstances for two opposing dispositions are the same, or if one is a proper subset of the other, then it will be absurd to attribute both dispositions to an object and, as a result, it will be incorrect to think of one intrinsically finking the other.

Unfortunately, due to the second point mentioned above – the variable modal strength of dispositions – things are not so simple.

On the standard view, dispositional properties affirm a modal connection between a set of stimulus conditions and a manifestation type. The strength of this modal connection can vary – or at least, that is the view of many philosophers. For example, when an object is soluble, we might think that it will (almost) always dissolve when the stimulus conditions are realised. On the other hand many writers have identified dispositions that are not like this: the irascible man is disposed to get angry when provoked, but he may count as irascible even if he only gets angry, say, half of the time. This kind of view is implicitly endorsed by Clarke when he says that an object could possess a disposition to M when S and yet *it not be likely* that the object M-s when conditions S obtain (2008, 512). Choi, who analyses dispositions using a single counterfactual, cannot admit anything but necessitation as the modal strength: if object O is disposed to M when S, then, for Choi, O *would (definitely)* M *if* S *were* to occur. In all possible S-cases, M would occur. For conventional dispositions, Choi limits the focus to all possible S-cases which are also "ordinary" for the disposition in question (2008, 806ff). But still: once we have ordinary circumstances together with S, we must have the result M. If O doesn't M in all S-cases, then Choi denies the object has the disposition. On Choi's view, then, if an object *prima facie* has two dispositions, D and E, which have incompatible manifestation types, and if the stimulus condition and definitional circumstances of E overlap the stimulus conditions and definitional circumstances of D respectively, then the object can at most have one of the dispositions.

The fact that Choi does not accept any variation in modal strength, however, does not mean that Clarke cannot appeal to this purported feature of dispositional properties in order to distinguish between the two kinds of case. Consider the following question: could both **FALL** and **FLY** be true of the same bird at the same time (assuming, as above, that features P, Q, R are the same as features X, Y, Z)? The answer depends on the modal strength of the two dispositions. If, as Choi thinks, **FLY** is only true if the bird would (definitely) fly in all the bird-is-unsupported-in-environment-of-P-Q-R-cases, then there is no room for **FALL** to be true. But as soon as we allow a weaker modal connection, a positive answer is possible. Not any old combination would work, however. If you required that the bird fly in, say, 90% of possible cases in order for it to count as having the disposition described in **FLY**, then **FALL** could not be true unless it required only that the bird fall in 10% or less of all the possible cases.

Perhaps then we need the following: if the definitional circumstances for two opposing dispositions are the same, or if one is a proper subset of the other, *and if both dispositions have a high modal strength*, then it will be absurd to attribute both dispositions to an object (and a fortiori one will not intrinsically fink the other). This would explain Choi's case: both the disposition to fall and the ability to fly plausibly have a high modal strengths and so, given that the bird does fly in the relevant cases, we should not attribute to it the disposition to fall. This model also makes sense of Clarke's American football example. It's plausible to think that we might attribute the disposition to take the ball all the way to someone even if, in all the relevant possible situations, that person succeeds only in, say, 30% of such cases. Why? Well, one of the primary purposes of dispositional properties is to classify objects. If scoring a touchdown is a relatively rare thing, such that even the best players score only some of the time, then the disposition to take the ball all the way will be attributed at a much lower threshold (and be no less useful for that). Similarly for dropping the ball. Perhaps someone counts as disposed to drop the ball when running if they drop it in 20% of all possible running situations. Suppose, then, that we flesh out the two dispositions Clarke attributes to his younger self as follows:

> (**TAKE**) The disposition to take the ball all the way [manifestation] when one tries [stimulus] in a game of youth football [definitional circumstances].
> (**DROP**) The disposition to drop the ball [manifestation] while running [stimulus] in a game of youth football [definitional circumstances].

If both dispositions have a relatively low modal strength, then both can be possessed at the same time even though the definitional circumstances for each are the same. Once this is allowed, one will operate as an intrinsic mask to the other in those cases where there is some causal interference between them. So for example, it would be natural to think of **DROP** as a potential mask to **TAKE** because the stimulus conditions for **TAKE** are *trying to take the ball all the way*, which will invariably involving *running*, the stimulus for **DROP**. So **DROP** may very well manifest as a result of **TAKE** being manifested; when it does so it will mask **TAKE**. But because Clarke need not succeed every time in taking the ball all the way in order to count as having the disposition described by **TAKE**, we need not deny he has such a disposition. Thus we can affirm that Clarke has both of these dispositions and we can make sense of the idea that one might mask the other.

The inclusion of cases where one disposition's definitional circumstances is a subset, rather than identical to, the other disposition's definitional circumstances is intended to accommodate the following kind of scenario. Suppose Clarke had the following disposition:

(**DROP'**) The disposition to drop the ball [manifestation] while running [stimulus] in a game of youth football occurring in the rain [definitional circumstances].

Clarke is only disposed to drop the ball in the rain. But all of the rain cases are included in the definitional circumstances for **TAKE**, so the latter might still be masked by **DROP'**. There is much more to be said. But the above provides a sketch of how we might distinguish, in a principled way, cases where intrinsic finks and masks are possible and those where it is not.

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