A Problem for Martin's Argument

ABSTRACT: C. B. Martin's argument concerning finkish dispositions seeks to refute the simple conditional interpretation of disposition ascriptions by means of a counterexample. Hence, the argument must assume, if only hypothetically, that the simple conditional interpretation as well as its implications are adequate. One implication of this interpretation is that to have a disposition is the same as to manifest the disposition if put to the test. For example, "the wire is live" just means "if touched by a conductor, then electrical current flows from the wire to the conductor". Accordingly, being live depends not only on the internal structure of the wire but, in addition, on its relation to other entities. It depends on the existence of a conductor and the existence of an agent who is capable of touching the wire by means of that conductor. But this means that, according to the simple conditional interpretation, dispositions are extrinsic rather than intrinsic properties. Yet Martin's argument presupposes that dispositions are intrinsic. The argument claims that a dead wire connected to the electro-fink remains dead, and this assumption must be justified on the basis of the intrinsicness of dispositions. It follows that Martin's argument cannot refute the simple conditional interpretation, because it cannot maintain that a dead wire connected to the electro-fink remains dead. I argue furthermore that, on the presupposition of the simple conditional interpretation, it does not make sense to speak of finkish dispositions. (*3615 words*)

1. *Martin's finkish scenario*

Dispositions are manifest only when certain conditions obtain. This conditionality of dispositions suggests a conditional interpretation of disposition ascriptions, an interpretation based on the "if-then"-relation. According to the simple conditional interpretation, the sentence "The piece of sugar is soluble", for example, must be understood in the sense of the conditional "If the piece of sugar is put into water then it dissolves". Some philosophers, however, think that this interpretation and many other conditional interpretations have been refuted by C. B. Martin's argument concerning finkish dispositions.[1] In my opinion, this is not the case.

---

[1] David Lewis for example says that the 'simple conditional analysis has been decisively refuted' by Martin's argument. See Lewis 1997, p. 143.

Martin sketches the following scenario:[2] Assume that the expression "The wire is live at t" must be understood in the sense of "If the wire is touched by a conductor at t then electrical current flows from the wire to the conductor at t". And assume that this interpretation must be expressed as "Necessarily, the wire is live at t if and only if it is true that if the wire is touched by a conductor at t then electrical current flows from the wire to the conductor at t", or formally as

(C) $\Box$(x)(t)(x is live at t if and only if it is true that if x is touched by a conductor at t then electrical current flows from x to the conductor at t)

Note that the corresponding interpretation of the expression "x is dead at t" must be expressed as

(C_{neg}) $\Box$(x)(t)(x is dead at t if and only if it is not true that if x is touched by a conductor at t then electrical current flows from x to the conductor at t)

Now, suppose a device, called *electro-fink*, such that it

"[…] can provide itself with reliable information as to exactly when a wire connected to it is touched by a conductor. When such contact occurs the electro-fink reacts (instantaneously, we are supposing) by making the wire live for the duration of the contact."[3]

Suppose furthermore that the wire is dead at t_0 and that it is connected to an electro-fink at t_1. Based on these assumptions, Martin claims that the wire is '*ex hypothesi*' dead at t_1. Yet, according to (C), the wire is live at t_1. Due to the electro-fink, it is true that if the wire is touched by a conductor at t_1, then electrical current flows from the wire to the conductor at t_1. It follows that the truth of "if x is touched by a conductor at t then electrical current flows from x to the conductor at t" is not logically sufficient for the truth of "x is live at t" and that, therefore, (C) cannot express an adequate interpretation of "x is live at t", nor (C_{neg}) an adequate interpretation of "x is dead at t". This argument, if decisive, refutes various conditional interpretations of disposition ascriptions.[4]

Martin's scenario presents a counterexample to the simple conditional interpretation. It is a scenario in which the simple conditional interpretation fails, because this interpretation

---

[2]   See Martin 1994, pp. 2f.
[3]   Ibid., p. 2f.
[4]   Martin's argument has influenced the recent discussion on dispositions considerably. See, among other authors, Bird 1998, Choi 2006, Clarke 2008, Fara 2005, Gunderson 2002, Hauska 2008, Lewis 1997, Manley/ Wasserman 2007, Malzkorn 2000, Molnar 1999, Mumford 1999, 1998 and 1996, and Place 1999 and 1996.

attributes a disposition to an entity that does not have that disposition. And it therefore proves (or at least seems to prove) that the simple conditional interpretation is inadequate.

Clearly, any counterexample is a counterexample to the simple conditional interpretation only with regard to a scenario in which disposition ascriptions are understood as according to that interpretation. In order to prove that the simple conditional interpretation is inadequate, Martin must therefore assume, at least hypothetically, that the simple conditional interpretation is adequate. His argument thus seems to work with the following seven premises:

P1:   A wire is live at t if and only if it is true that if the wire is touched by a conductor at t then electrical current flows from the wire to the conductor at t. And a wire is dead at t if and only if it is not true that if the wire is touched by a conductor at t then electrical current flows from the wire to the conductor at t

P2:   At t_0, the wire is dead

P3:   At t_1, the wire is connected to an electro-fink

P4:   The electro-fink ensures that a wire connected to that device is instantaneously live if touched by a conductor

P5:   At t_1, the wire is untouched by a conductor

P6:   At t_1, the wire is dead

P7:   Dispositions are intrinsic

Premises P1, P3 and P4 imply that the wire is live at t_1, whereas premise P6 says that the wire is dead at t_1.

In order to solve this contradiction at least one of these seven premises must be rejected. However, the premises themselves do not tell us which one to reject. Any one might be the faulty one. To justify the rejection of a particular premise, it must be shown that all other premises are beyond doubt or less plausible candidates for rejection. Martin suggests to reject P1 and thus to give up, or at least to modify, the conditional interpretation at issue. In my view, the faulty premise is not P1 but P6 and P7. As I wish to show in what follows, given P5, premise P6 is unjustifiable, and given P1, premise P7 is false.

2.   *Untouched dead wires*

What reason do we have to believe that the untouched wire is dead at t_1? How do we justify P6 given P5? Clearly, we must show that what P6 claims is true. We must show that at t_1 the wire does not have the disposition of being live. But how do we show this? There are, as far as I can see, only two possibilities. The first is to put the wire at t_1 to the relevant test. And the second is to infer P6 from some already established premise or premises. Of course, the

first possibility presupposes that dispositions are manifest only when the entity in question – the entity that has the disposition – is put to the test. But this is a generally acknowledge characteristic of dispositions. Dispositions are regarded as properties that are manifest only when certain conditions obtain, namely the conditions constituting the relevant test and triggering the disposition's manifestation. The first possibility requires moreover a test for untouched dead wires. Which one is that test?

The test for dead wires is the same as the test for live wires. We need only one test to decide whether a wire is live or dead. This is because any wire passing that test is live, whereas any wire that does not pass the test is not live, i.e., dead. It seems furthermore obvious to me that the test for live wires consists in touching the wire by a conductor and in seeing that electrical current flows from the wire to the conductor. After all, this is simply what we actually do when establishing that a wire is live. We touch it by a conductor and we see that electrical current flows from the wire to the conductor. However, if the test for live wires consists, among other things, in touching the wire, and if the test for dead wires is the same as the test for live wires, then it follows that there is no test that would allow us to establish that an untouched wire is dead. There is no test for untouched dead wires, because we cannot do both at the same time touch and not touch the wire.

Hence, in order to show that what P6 claims is true, we must infer P6 from some already established premise or premises. This is what Martin does. He justifies P6 on the basis of P2, i.e., on the basis of the assumption that the wire is dead before being connected to the electro-fink. Martin does not explicitly state this justification, but it clearly follows from the way he presents his argument.

The justification of P6 on the basis of P2 requires to assume that a dead wire connected to the electro-fink does not change its dispositions. It requires to assume that a dead wire remains dead when connected to the electro-fink. But this additional assumption must be justified as well.

3. *Dispositions and intrinsicness*

How do we justify that a dead wire connected to the electro-fink remains dead? There seem to be only two possibilities. The first is to maintain that dispositions are intrinsic properties and that the electro-fink does not bring about any change in the wire itself. And the second is to connect at least once one dead wire to the electro-fink and to put it to the relevant test.

Martin assumes that dispositions are intrinsic properties. This assumption, although not explicitly stated, is clearly entailed in his remarks concerning the change of dispositions.[5]

---

[5]   See Martin 1994, pp. 1f and 4f.

However, if the intrinsicness of dispositions is indeed a further premise of Martin's argument, then the argument contradicts itself. The argument turns out to be self-contradictious in the sense that one of its premises contradicts an implication of another of its premises. In particular, P7 contradicts an implication of P1. As explained above, the argument must assume, at least hypothetically, that the simple conditional interpretation is adequate. And if this interpretation is adequate then its implications must be adequate as well. Yet the simple conditional interpretation implies the extrinsicness of dispositions.

According to the simple conditional interpretation, a wire is live at t (i.e., a wire has the disposition of being live at t) if and only if it is true that if the wire is touched by a conductor at t, then electrical current flows from the wire to the conductor at t. And a wire is dead at t (i.e., a wire does not have the disposition of being live at t) if and only if it is not true that if the wire is touched by a conductor at t, then electrical current flows from the wire to the conductor at t. To have the disposition of being live is therefore the same as to manifest that disposition if put to the relevant test. And not to have the disposition of being live (i.e., to have the disposition of being dead) is the same as not to manifest that disposition if put to the test. Furthermore, the manifestation of the disposition of being live does not depend only on the wire itself but, in addition, on whether or not the wire is touched by a conductor. It depends on the existence of some further entities, in particular on the existence of a conductor and on the existence of an agent who is capable of touching the wire by that conductor. But this means that, according to the simple conditional interpretation, dispositions are extrinsic rather than intrinsic properties. Usually, intrinsic properties are characterized as properties that are had by an entity in virtue of the way that entity itself is, whereas extrinsic properties are characterized as properties that are had, at least partly, in virtue of something else.

Some philosophers consider dispositions to be intrinsic properties.[6] They think that whether an entity has a disposition depends entirely on the intrinsic properties of that entity. And they would therefore say that the solubility of a piece of sugar, for example, depends on the molecular structure of sugar but not at all on something outside of that piece of sugar. In my opinion, this view is mistaken. The molecular structure of sugar is of course a reason for the solubility of a piece of sugar, but it is not the only one. Another reason is the presence of water. And yet another one is the existence of an agent who is capable of putting the piece of sugar into water (or at least the existence of some natural event that may have the effect that the piece of sugar comes into contact with water). In fact, the presence of water is a necessary, whereas having the appropriate molecular structure is merely contingent. There is a possible world in which sugar is soluble but in which sugar does not have a molecular structure at all, because it is not composed of molecules, nor of atoms, but of some amorphous stuff. In contrast, there is no possible world in which sugar is soluble despite the fact that there is no water. This is because being soluble is, according to the simple conditional interpretation, the

---

[6]   See for example Johnston 1992, p. 234, Lewis 1997, pp. 147f., or Molnar 1999, p. 3.

same as to dissolve if put into water. Of course, there might be some other liquid, say XYZ, in which sugar dissolves. But in this case sugar is not (water-) soluble but XYZ-soluble.[7]

Martin's argument thus proves to have an inbuilt contradiction. It assumes, at least implicitly, both the intrinsicness and the extrinsicness of dispositions. In order to solve this problem, either the assumption of the simple conditional interpretation or the assumption of the intrinsicness of dispositions must be dropped. However, to drop the former assumption makes it impossible to refute the simple conditional interpretation by means of a counterexample. Any counterexample is a counterexample to the simple conditional interpretation only in a scenario in which disposition ascriptions are understood as according to that interpretation. If Martin's argument is supposed to be an argument against the simple conditional interpretation, then it must accept, although merely hypothetically of course, that dispositions are extrinsic properties.

Our initial difficulty was to justify the assumption that the untouched wire is dead at t_1. We have seen that the only justification for this assumption open to Martin's argument is to claim that a dead wire connected to the electro-fink remains dead. And I have assumed that this further claim must be justified either on the basis of the intrinsicness of dispositions or by way of connecting at least once one dead wire to the electro-fink and by putting it to the relevant test. Now, if for the sake of Martin's argument the assumption of the intrinsicness of dispositions must be abandoned, then the only remaining possibility is to connect at least once one dead wire to an electro-fink and to put it to the test. If the test turns out negative, then we may conclude that a dead wire remains dead. However, given Martin's scenario, we know *ex hypothesi* that the test is going to be positive. We know that if the wire is put to the test and thus touched by a conductor then, due to the working of the electro-fink, electrical current will flow from the wire to the conductor. But this means that we cannot know, on principle, whether a dead wire connected to the electro-fink remains dead or not.

3. Conclusions

A first conclusion to be drawn is that Martin's argument cannot refute the simple conditional interpretation of disposition ascriptions. This is, in my opinion, a welcome conclusion, since the simple conditional interpretation is no doubt intuitively plausible. But there are further conclusions to be drawn.

Provided that the simple conditional interpretation is adequate, my considerations show that we cannot know, on principle, whether a dead wire connected to the electro-fink remains dead. But if we cannot know this, then it does not make sense to attribute to that wire the disposition of being dead. In other words, to speak of finkish dispositions – of dispositions

---

7   For a defense of the view that at least some dispositions are extrinsic see McKitrick 2003.

that 'would straight away vanish if put to the test'[8] – turns out to be unintelligible. In the case of Martin's thought experiment, the finkish disposition is considered to be the wire's disposition of being dead at t_1. It is claimed that the untouched wire connected to the electro-fink has the disposition of being dead but that, due to the working of the electro-fink, this disposition disappears (is not manifest) as soon as the wire is put to the test. Yet, again, provided that the simple conditional interpretation is adequate, it does not make sense to say that the untouched wire is dead. Nor does it make sense to say that it is not dead.

One might wonder, however, why the electro-fink makes it impossible to know whether a dead wire connected to that device remains dead. In my opinion, this is because the electro-fink makes the passing of the test for live wires to depend also on whether the wire is put to that test. In Martin's words, the electro-fink makes 'the activating conditions for the manifestation' of the disposition of being live 'causally necessary and sufficient' for the wire's having that disposition.[9] This feature of the electro-fink has the peculiar effect that there is actually no point at all of putting a wire connected to an electro-fink to the test. We know solely on the basis of Martin's scenario and, therefore, *ex hypothesi* and *a priori* that such a wire is going to pass the test. But this means that, in the end, the electro-fink has the effect that the test for live wires, when applied to a wire connected the electro-fink, becomes pointless. Or if you look at it from the point of view of the wire: The electro-fink has the effect that a dead wire connected to that device is sealed off from the test in the sense that we cannot find out whether or not the wire remains dead once it is connected to that device. The electro-fink makes the wire, so to speak, 'dead-proof'.

5.   Possible objections

It might be objected that my critique of Martin's argument presupposes a conditional interpretation of dispositions ascriptions, because I assume that the test for live wires consists in touching the wire by a conductor and in seeing that electrical current flows from the wire to the conductor. But why should I not be entitled to criticize Martin's argument on the basis of an interpretation of disposition ascriptions that Martin's argument seeks to refute?

Or it might be claimed that there are several tests that allow us to establish whether a wire connected to the electro-fink is dead or not. One test consists in touching the wire by a conductor and in seeing that electrical current flows from the wire to the conductor. But another test consists in verifying that the wire has free electrons and that it is connected to a working power source. And it might be argued that this is relevant because, in order to establish that a dead wire connected to the electro-fink remains dead, we could use the second test instead of the first. However, this objection assumes that the second test allows us to

---

[8]   See Lewis 1997, p. 144.

[9]   See Martin 1994, p. 4.

establish whether or not the wire is dead at t_1. It therefore presupposes that "dead at t_1" is understood as according to the simple conditional interpretation. Otherwise premise P6 could not lead to a contradiction to premise P1. But this means that the objection must assume the equivalence of these tests. It must assume that it is true, at least with regard to the actual world, that if a wire has no free electrons at t or if it is not connected to a working power source at t, then it is not true that if the wire is touched by a conductor at t then electrical current flows from the wire to the conductor at t, and *vice versa*. Yet, if these tests are equivalent, then the second test is not going to establish that the wire is dead at t_1. Due to the working of the electro-fink, it is going to establish that the wire is live at t_1.

It might also be claimed that, given Martin's scenario, we know that the untouched wire connected to the electro-fink is dead because we know that it was dead before being connected to that device and because we can see that the electro-fink has not yet reacted. But this view assumes that dispositions are intrinsic, whereas Martin's argument must, at least hypothetically, assume that dispositions are extrinsic.

Or it might be maintained that it is at least highly plausible that a dead wire connected to the electro-fink remains dead because nothing happens to the wire, whereas there is no obvious reason why the wire should not remain dead. But it is not true that nothing happens to the wire. The wire is connected to an electro-fink, and this is a significant change because the electro-fink ensures that the wire is not dead but live when touched by a conductor.

Another objection might point out that Martin does not work with premise P4 but with premise

P4': The electro-fink ensures that a wire connected to it is instantaneously live *when and only when* it is touched by a conductor

And it might be claimed that this is relevant because, given P4', we may infer that at t_1 and at any time after t_1 the wire is dead when untouched. Accordingly, we know that the wire is dead at t_1 precisely because of the working of the electro-fink and, therefore, *ex hypothesi* indeed. However, P4' entails the questionable assumption that a dead wire connected to the electro-fink remains dead. To say that the electro-fink ensure that the wire is live when and only when touched by a conductor means to say that at all other times – and in particular at t_1 – the wire is dead.

Or, finally, one might want to defend finkish dispositions by abandoning Martin's assumption that the electro-fink turns the wire *instantaneously* live when put to the test. For, if there is a time between the touching of the wire and its turning live during which the wire is dead, and if that time allows us to establish that the wire is dead, then we know that a dead wire remains dead once it is connected to the electro-fink. However, with regard to this different scenario, there is nothing finkish about the wire's disposition of being dead. The disposition does not 'straight away vanish if put to the test'.

REFERENCES

Bird, Alexander, (1998) "Dispositions and Antidotes", *The Philosophical Quarterly* 48, pp. 227-234.

Choi, Sungho, (2006) "The Simple vs. Reformed Conditional Analysis of Dispositions", *Synthese* 148, pp. 369-379.

Clarke, Randolph, (2008) "Intrinsic Finks", *The Philosophical Quarterly* 58, pp. 512-518.

Fara, Michael, (2005) "Dispositions and Habituals", *Noûs* 39, pp. 43-82.

Gunderson, Lars, (2002) "In Defense of the Conditional Account of Dispositions", *Synthese* 130, pp. 389-411.

Hauska, Jan, (2008) "In Defense of Causal Bases", *Australasian Journal of Philosophy* 86, pp. 23-43.

Johnston, Mark, (1992) "How to Speak of the Colors", *Philosophical Studies* 68, pp. 221-263.

Lewis, David, (1997) "Finkish Dispositions", *The Philosophical Quarterly* 47, pp. 143-158.

Manley, David/ Wasserman, Ryan, (2007) "A Gradable Approach to Dispositions", *The Philosophical Quarterly* 47, pp. 68-75.

McKitrick, Jennifer, (2003) "A Case for Extrinsic Dispositions", *Australasian Journal of Philosophy* 81, pp. 155-174.

Malzkorn, Wolfgang, (2000) "Realism, Functionalism and the Conditional Analysis of Dispositions, *The Philosophical Quarterly* 50, pp. 452-469

Martin, C. B., (1994) "Dispositions and Conditionals", *The Philosophical Quarterly* 44, pp. 1-8.

Molnar, George, (1999) "Are Dispositions Reducible?", *The Philosophical Quarterly* 49, pp. 1-17.

Mumford, Stephen, (1999) "Intentionality and the Physical: A New Theory of Disposition Ascriptions", *The Philosophical Quarterly* 49, pp. 215-225.

___(1998) *Dispositions*. Oxford: Oxford University Press.

___(1996) "Conditionals, Functional Essences and Martin on Dispositions", *The Philosophical Quarterly* 46, pp. 86-92.

Place, Ullin T., (1999) "Intentionality and the Physical: A Reply to Mumford", *The Philosophical Quarterly* 49, pp. 225-231.

___(1996) "Intentionality as the Mark of the Dispositional", *Dialectica* 50, pp. 91-120.