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## DISPOSITIONS AND MIMICKERS

**ABSTRACT.** In this paper I put forward a counterexample against Lewis's reformed conditional analysis of fragility and then refute a possible response by Lewis. And I go on to argue that Lewis can overcome the counterexample by excluding fragility-mimickers from the stimulus appropriate to the concept of fragility.

### 1. LEWIS'S REFORMED CONDITIONAL ANALYSIS OF DISPOSITIONS

Lewis's reformed conditional analysis of dispositions goes as follows:

RCA. Something  $x$  is disposed at time  $t$  to give response  $r$  to stimulus  $s$  iff, for some intrinsic property  $B$  that  $x$  has at  $t$ , for some time  $t'$  after  $t$ , if  $x$  were to undergo stimulus  $s$  at time  $t$  and retain property  $B$  until  $t'$ ,  $s$  and  $x$ 's having of  $B$  would jointly be an  $x$ -complete cause of  $x$ 's giving response  $r$ ,

where an  $x$ -complete cause is "a cause complete in so far as havings of properties intrinsic to  $x$  are concerned, though perhaps omitting some events extrinsic to  $x$ " (Lewis, 1997, p. 149).

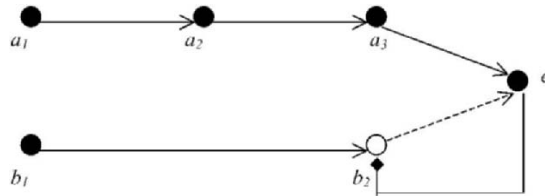
It appears that (RCA) allows an obvious counterexample. Here is one offered by Lewis (1997, pp. 145–146) himself. When a styrofoam dish  $S$  is struck, it makes a distinctive sound; the Hater of Styrofoam is within earshot of  $S$ ; when the Hater of Styrofoam hears the distinctive sound, he comes and tears  $S$  apart by brute force. Let  $B_s$  be an intrinsic property of  $S$  that would join with striking to make the distinctive sound. It is clear that if  $S$  were to be struck and retain  $B_s$ , then the striking and  $B_s$  would jointly be an  $S$ -complete cause of the breaking. Therefore, according to (RCA),  $S$  has the disposition to break in response to being struck. But we do not want to say that the styrofoam dish  $S$  is fragile.

Contrary to appearances, (RCA) is not troubled with the case of the styrofoam dish. On Lewis's view, it does not pose any threat to (RCA) because  $S$  indeed has the disposition to break in

response to being struck. This does not mean that *S* is fragile because fragility is not identical with the disposition to break in response to being struck. Lewis (1997, p. 145) says “there is a certain direct and standard process whereby fragile things most often (actually, nowadays, and hereabouts) break when struck, and the styrofoam dishes in the story are not at all disposed to undergo the process”.<sup>1</sup> For Lewis, *S* indeed has the disposition to break in response to being struck; yet, it is not fragile because it does not have the disposition to exhibit the manifestation (or response) appropriate to the concept of fragility by breaking through a certain direct and standard process in response to being struck.<sup>2</sup>

## 2. A PROBLEM WITH MIMICKERS

A fragile glass *G* is struck at a time  $t_1$ ; and a time bomb that is in the vicinity of *G* explodes at a time  $t_2$  shortly after  $t_1$ ; *G* breaks at a later time  $t_3$  not because it is fragile but because it is in the vicinity of the time bomb:<sup>3</sup>



The circle  $a_1$  represents the presence of the time bomb in the vicinity of *G* at  $t_1$ ;  $a_2$  represents the explosion of the time bomb at  $t_2$ ;  $a_3$  *G*'s being impacted by the explosion;  $b_1$  *G*'s being struck at  $t_1$ ;  $b_2$  fractures made by the striking being widespread over *G*;  $e$  *G*'s breaking at  $t_3$ .

Does *G* count as being fragile at  $t_1$  by Lewis's analysis? I am afraid not. *G* is struck and retains the causal basis for its fragility for a sufficient time. Therefore, the antecedent of the analysis of (RCA) for *G*'s fragility is satisfied. Note that *G* does not break through a direct and standard process,  $\langle b_1, b_2, e \rangle$ , “whereby fragile things most often break when struck” (Lewis, 1997, p. 145); instead, it breaks through an indirect and non-standard process,  $\langle a_1, a_2, a_3, e \rangle$ . This means that the consequent of the analysis of (RCA) for

$G$ 's fragility is not satisfied. Furthermore, even if we grant that  $\langle a_1, a_2, a_3, e \rangle$  were a "direct and standard" process, the consequent of the analysans of (RCA) would still not be satisfied. It should be noted that neither  $b_1$  nor the causal basis for  $G$ 's fragility is a cause of  $e$  since the process from the striking, i.e.,  $b_1$  is lately preempted by the process from the explosion of the time bomb. In consequence,  $b_1$  and the causal basis for  $G$ 's fragility are not jointly a  $G$ -complete cause of  $G$ 's breaking. Thus, the consequent of the analysans of (RCA) for  $G$ 's fragility is doubly unsatisfied. As a result, the analysans of (RCA) is not satisfied. It follows from this that  $G$ , which is fragile, does not count as such by Lewis's analysis.

One might object: "After all  $G$ 's causal basis is destroyed by the bomb at  $t_3$ . Therefore, we cannot say that  $G$  retains the causal basis for its fragility for a sufficient time. If so, the antecedent of the analysans of (RCA) for  $G$ 's fragility is not satisfied". But, this objection is misdirected since, as Paul (1998, p. 51) correctly points out, late preemption does not require that events in the preempted causal process leading up to the final effect be prevented. Suppose that we modify the case of the time bomb in such a way that the process  $\langle a_1, a_2, a_3, e \rangle$  trumps the process from  $b_1$  to  $e$ .<sup>5</sup> As with the original case,  $G$  is struck but its breaking is caused not by the striking, i.e.,  $b_1$  but by the explosion of the time bomb. In this case, however, there is no failure of intermediary events along the process from  $b_1$  to  $e$ : the actual process from  $b_1$  to  $e$  is a perfect intrinsic duplicate of the direct and standard process that, without the trumping process from  $a_1$ , would connect  $b_1$  to  $e$ . It follows from this that  $G$  retains the causal basis for its fragility until the last stage of the direct and standard process. Hence there is no such time  $t^*$  that if  $G$  were to be struck and retain the causal basis for its fragility until  $t^*$ , then  $G$  would break through a direct and standard process;  $G$  would invariably break through an indirect and non-standard process,  $\langle a_1, a_2, a_3, e \rangle$ . In consequence,  $G$  does not count as being fragile by Lewis's analysis. Moreover, even if we grant that  $\langle a_1, a_2, a_3, e \rangle$  were a "direct and standard" process,  $G$  would still not count as being fragile: there is no such time  $t^*$  that if  $G$  were to be struck and retain the causal basis for its fragility until  $t^*$ , then the striking and the causal basis would jointly be a  $G$ -complete cause of  $G$ 's breaking;  $G$ 's breaking would invariably be caused by the explosion

of the time bomb. So I conclude that the case of the time bomb is a *bona fide* counterexample to Lewis's analysis.

### 3. A WAY OUT

We have seen that the case of the time bomb serves as a counterexample to Lewis's analysis. Fortunately, however, there is a way out available to Lewis. Note that if  $G$  were to be struck in the absence of the time bomb, then the striking would cause it to break through a certain direct and standard process. This suggests that Lewis can overcome the case of the time bomb by excluding fragility-mimickers from the stimulus appropriate to the concept of fragility, where a fragility-mimicker is something like the time bomb that is extrinsic to a putatively fragile thing and would cause the thing to break through an indirect and non-standard process if the thing were to be struck.<sup>6</sup> On this proposal, we can say that  $G$  does not undergo the stimulus appropriate to the concept of fragility since a fragility-mimicker is operative in the vicinity of  $G$ . If so, Lewis's analysis is not in trouble with the fact that the consequent of its analysis for  $G$ 's fragility is not satisfied. Note that if  $G$  were to be struck and retain the causal basis for its fragility in the absence of fragility-mimickers like the time bomb, it would break through the direct and standard process from  $b_1$ ; moreover, the striking and the causal basis would jointly be a  $G$ -complete cause of its breaking. This means that, given that fragility-mimickers are ruled out from the stimulus appropriate to the concept of fragility,  $G$  counts as being fragile by Lewis's analysis.

On my proposal, Lewis's response to the case of the styrofoam dish should be reinterpreted. As we have seen in Section 1, Lewis takes it that the styrofoam dish  $S$  does not count as being fragile by his analysis because it does not break through a direct and standard process – it does undergo the stimulus appropriate to the concept of fragility, yet it does not exhibit the manifestation appropriate to that concept. Now that we rule out fragility-mimickers from the stimulus appropriate to the concept of fragility, we have to say that  $S$  does not actually undergo the stimulus appropriate to the concept of fragility since a fragility-mimicker, i.e., the Hater of Styrofoam is operative in the vicinity of  $S$ . If  $S$  were to undergo that stimulus and retain

*B*s, then it would not break because there would be no fragility-mimickers like the Hater of Styrofoam in the vicinity of *S*. This means that the styrofoam dish *S* does not count as being fragile by Lewis's analysis.

We have seen that the case of the time bomb serves as a counterexample to Lewis's analysis and that Lewis can overcome it by excluding fragility-mimickers from the stimulus appropriate to the concept of fragility. It is remarkable that we can draw the same conclusion for every ordinary dispositional concept. Take the example of toxicity. It is an easy step to construct a similar case against Lewis's analysis of toxicity to the case of the time bomb; and, Lewis can overcome it by excluding toxicity-mimickers from the stimulus appropriate to the concept of toxicity. Thus, for every dispositional concept *D*, Lewis has to exclude *D*-mimickers from the stimulus appropriate to *D* or else his analysis would suffer from a counterexample.

Lewis might respond that my conclusion is right but not interesting because the detailed specification of the stimulus appropriate to an ordinary dispositional concept affords "no lesson about dispositionality in general" (Lewis, 1997, p. 146).<sup>7</sup> But I am afraid that this response is misleading. Once Lewis is ultimately aiming at providing an adequate analysis of an ordinary dispositional concept, he would have to give an at least rough outline of what the stimulus appropriate to the dispositional concept is like. Moreover, he cannot dismiss my conclusion as belonging to the pragmatic topic of what qualifications individual dispositional concepts impose on their respective stimuli because it does not depend on the peculiarities of individual dispositional concepts but is general in character.<sup>8</sup>

#### NOTES

<sup>1</sup> Similar ideas can be found in (Smith, 1977, pp. 444-445; Prior, 1985, pp. 9-10; Prior, Pargetter and Jackson, 1982, p. 252).

<sup>2</sup> Lewis does not explicitly state that *S* is not fragile. He (1997, pp. 145-146) says: "Are they [styrofoam dishes] fragile? To say so would be at best a misleading truth, and at worst an outright falsehood; and I have no idea which". In my opinion, however, Lewis is unnecessarily cautious here because he has every reason to say that it is an outright falsehood to say that *S* is fragile. Lewis (1997, pp. 138-139, 147) subscribes to the Intrinsic Disposition Thesis that "if two things

(actual or merely possible) are exact intrinsic duplicates (and if they are subject to the same laws of nature) then they are disposed alike". Let "S\*" denote a perfect intrinsic duplicate of *S* within earshot of which there is nothing like the Hater of Styrofoam. It is clear that *S\** is not fragile. But, according to the Intrinsic Disposition Thesis, *S* and *S\** have all their dispositions in common. From this we can conclude that *S* is not fragile, either. This means that, given that Lewis accepts the Intrinsic Dispositions Thesis, he had better state that *S* is not fragile. This point has been brought to my attention by an anonymous referee.

<sup>3</sup> Diagram conventions: filled circles represent events that occur, unfilled circles represent events that do not occur, arrows represent stimulatory connections, and dots inhibitory connections.

<sup>4</sup> This objection has been brought to my attention by Alexander Bird.

<sup>5</sup> For trumping preemption, see (Schaffer, 2000).

<sup>6</sup> Lewis (1997, p. 145) makes a similar claim about dispositional antidotes: he excludes antidotes from the stimulus appropriate to the concept of poison. For more details about dispositional antidotes, see (Bird, 1999; the author, forthcoming).

<sup>7</sup> I thank an anonymous referee for raising this issue.

<sup>8</sup> I thank Alexander Bird, Inkyo Chung, and an anonymous referee for their comments which have resulted in substantial improvements.

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