

DISPOSITIONS AND TRICKS

GABRIELE CONTESSA
DEPARTMENT OF PHILOSOPHY
CARLETON UNIVERSITY

ABSTRACT. According to the Simple Conditional Analysis of disposition ascriptions, disposition ascriptions are to be analyzed in terms of counterfactual conditionals. The Simple Conditional Analysis is notoriously vulnerable to counterexamples. In this paper, I introduce a new sort of counterexample to the Simple Conditional Analysis of disposition ascriptions, which I call ‘tricks’. I then explore a number of possible strategies to modify the Simple Conditional Analysis so as to avoid tricks and conclude that, in order to avoid tricks, the associated counterfactual should be evaluated at the closest possible world(s) at which the manifestation of the (alleged) disposition does not obtain.

1. INTRODUCTION

According to the Simple Conditional Analysis, (overt) ascriptions of (sure-fire, single-track) dispositions are equivalent to counterfactual conditionals, or, more precisely:

The Simple Conditional Analysis: $D_{(T \rightarrow M)}(x) \Leftrightarrow [T(x) \Box \rightarrow M(x)]$,

(where ‘ $D_{(T \rightarrow M)}(x)$ ’ stands for ‘ x is disposed to M when T ’, M is the *manifestation* of the disposition in question and T is its *trigger*, so that, in English (or something close enough), the above biconditional reads ‘ x is disposed to M when T if and only if, if it were the case that T , x would M ’). So, for example, according to the Simple Conditional Analysis, the hot coffee in my mug is disposed to cool down when left on the counter if and only if, were it left on the counter, it would cool down.

The Simple Conditional Analysis is notoriously vulnerable to counterexamples.¹ The standard counterexamples to the Simple Conditional Analysis fall into two broad categories. The counterexamples in the first category describe scenarios in which something interferes with an object’s being disposed to M when T so that, even if the disposition ascription is true, the associated counterfactual is nevertheless false. These counterexamples include the ones that are usually classified as *masks*, *reverse-finks*, and *antidotes*. For example, a fragile vase carefully packed in bubble wrap is an example of masking. The vase is disposed to break when dropped

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¹ See, e.g., (Smith, 1977), (Johnston, 1992), (Martin, 1994), and (Bird, 1998). For a number of attempts to salvage the Simple Conditional Analysis from the standard counterexamples, see, e.g., (Lewis, 1997), (Malzkorn, 2001), (Gundersen, 2002), (Choi, 2008), (Steinberg, 2010), and (Contessa, 2013). For a number of different approaches to the analysis of disposition ascription, see, e.g., (Fara, 2005), (Manley and Wasserman, 2008), and (Vetter, 2014).

and yet, if it were to be dropped, the bubble wrap would prevent it from breaking. The bubble wrap, however, does not “rob” the vase of its fragility—it merely “masks” it, so the disposition ascription is true but its associated counterfactual is false.

The counterexamples in the second category, on the other hand, describe scenarios in which something interferes with an object’s *not* being disposed to M when T so that the disposition ascription is false even if its associated counterfactual conditional is true. This second category of counterexamples includes those counterexamples that are typically classified as *finks* and *mimics*. Consider, for example, a regular wooden box that has been booby-trapped. In and of itself, the box is not disposed to explode when opened and yet, were the box to be opened, it would explode.

In this paper, I discuss a third category of counterexamples, which I call ‘*tricks*’. Like the counterexamples in the second category, tricks target the right-to-left direction of the biconditional but, unlike those counterexamples, tricks do not involve any external interferences. In §2, I introduce the notion of tricks and then, in §3, I explore some possible ways to modify the Simple Conditional Analysis so as to avoid them.

2. TRICKS

Hot liquids are disposed to cool down when left at room temperature,² so, if I were to leave this mug of hot coffee on the kitchen counter, the coffee would eventually reach room temperature. But what if, after putting the mug of hot coffee on the counter, I were to utter the word ‘Abracadabra!’? Presumably, the coffee would still cool down as it would have done anyway. This means that, on the Standard Semantics for counterfactual conditionals, the following counterfactual is actually true of the hot coffee in my mug:

The Tricky Conditional: If someone were to utter the word ‘Abracadabra!’, then the coffee would cool down.

This is because, on the Standard Semantics for counterfactual conditionals, the Tricky Conditional is (non-trivially) true if and only if some possible world at which someone utters the word ‘Abracadabra!’ and the coffee cools down is closer to the actual world than any possible world at which someone utters the word ‘Abracadabra!’ but the coffee does *not* cool down (see (Lewis, 1973b)). Since the coffee in my mug would have cooled down anyway, this condition is clearly met and the counterfactual comes out true on the Standard Semantics.

The problem, of course, is that, according to the Simple Conditional Analysis, if the Tricky Conditional is true, so is the disposition ascription ‘The coffee in the mug is disposed to cool down when someone utters the word ‘Abracadabra!’’, but, pre-theoretically, we assume that the coffee in the mug has no such disposition—it would have cooled down anyway!

² For the sake of simplicity, here, I will assume that classical thermodynamics is strictly true, which means that the laws of nature are such that the hot liquid and the air surrounding it will always eventually reach a state of thermal equilibrium in which the air will be imperceptibly warmer than it was initially and the hot liquid significantly colder than it was initially. However, this assumption is, however, far from controversial (see, e.g. (Sklar, 1993) and, more specifically, (Callender, 2001)).

This is far from an isolated case. The recipe for generating more and more tricks is extremely simple to follow. First, pick some event that is about to occur anyway to play the role of the (supposed) manifestation of your bogus disposition. Then, choose some causally unrelated,³ nomically possible event to act as the (supposed) trigger of your bogus disposition and, *voilà*, you have a new trick.⁴

But do tricks really belong to a third category of counterexamples to the Simple Conditional Analysis or do they belong to the same category as mimics and finks? I don't think such questions have a definitive answer. The way we determine whether certain counterexamples are cases of finking or mimicking is, I think, by determining whether they are relevantly similar to prototypical cases of finking or mimicking one finds in the literature, such as the above-mentioned case of the booby-trapped box. Ultimately, it is a question of whether a certain way of classifying the counterexamples to the Simple Conditional Analysis is more philosophically enlightening.

However, I think that, in this case, the benefits of classifying tricks into one category and mimics and finks into another outweigh the costs—tricks do not seem to be sufficiently similar to prototypical cases of mimicking or finking for it to be fruitful to classify them together. What the three sorts of counterexamples have in common is that they are all counterexamples to the right-to-left direction of the Simple Conditional Analysis—in all cases we have a false disposition ascription whose associated counterfactual happens to be true. However, the similarities between mimics and finks, on one side, and mimics, on the other, seem to end there. In the case of mimics and finks, the truth-value of the disposition ascription and that of its associated counterfactual diverge as a result of some external interference creating the illusion that a certain object has a disposition it does not, in fact, have. If nothing interfered with the relevant object's behaviour, the object would never display the behaviour in question. In the case of tricks, on the other hand, the problem stems from the fact that the relevant object would display the relevant behaviour *anyway*—the issue is that the would-be trigger of the bogus disposition has nothing to do with the occurrence of the behaviour in question. So, while

³A causally unrelated event, in this context, is one that would not directly or indirectly interfere with the occurrence of the event acting as the manifestation of the bogus disposition)

⁴Philosophers working on dispositions have sometimes noted a closely related problem for the Simple Conditional Analysis (see, e.g., (Choi, 2008, p. 839) (Gundersen, 2002, p. 393), (Gundersen, 2004, p. 10)). This closely related problem is a consequence of the fact that the Standard Semantics assumes Strong Centering (i.e. the thesis that no possible world is as close to the actual world as the actual world itself), which means that Conjunction Conditionalization (i.e. $(A \wedge C) \supset (A \Box \rightarrow C)$) is a theorem. So, on the Standard Semantics, any counterfactual whose antecedent and consequent are both actually true is itself true. Some think that this is a counterintuitive consequence of the Standard Semantics (see, e.g., (Fine, 1975) and (Bennett, 1974)) and some even suggest that, to avoid such a consequence, we should reject the Standard Semantics in favor of an alternative semantics (for a number of proposals. see (Penczek, 1997), (Gundersen, 2004), (McGlynn, 2012); see (Walters, n.d.) for a critical discussion of these proposals). In light of this, one might be tempted to blame the existence of tricks on the Standard Semantics rather than on the Simple Conditional Analysis. However, tricks do not actually rely on Conjunction Conditionalization, for the antecedent of the conditional need not be actually true for there to be a trick. In the case of tricks, while the consequent needs to be actually true, the antecedent may be actually false—all that matters is that the antecedent describes a nomically possible event that is causally unrelated to the event described by the consequent. Although this might seem to be a minute difference, it is in fact critical, for, as we shall see below, this means that alternative semantics that avoid Conjunction Conditionalization do not necessarily avoid tricks.

there are some very general similarities between tricks and mimics and finks on the other the two sorts of counterexamples seem to be sufficiently different for it to be fruitful to distinguish between the two. Moreover, attempts to salvage the Simple Conditional Analysis that deal with mimics and finks successfully do not seem to be able to handle tricks, which seems to suggest that we might be dealing with a completely different sort of counterexample.⁵

Be that as it may, in what follows, I assume that tricks are indeed a special sort of counterexample, and I examine a few possible strategies to deal with them. In order to focus on this new class of counterexamples, I assume (without argument) that all of the counterexamples belonging to the other two classes of counterexamples can be successfully dealt with by some suitable modification of the Simple Conditional Analysis.

3. FIXES

The easiest strategy to deal with tricks would seem to be to simply add a qualifying clause such as ‘(as a result of T)’ to the consequent of the associated counterfactual:

The Easy Fix: $D_{(T \rightarrow M)} \Leftrightarrow [T \Box \rightarrow (M \text{ (as a result of } T))]$.⁶

Although the coffee would indeed cool down if I were to utter the word ‘Abracadabra!’, it would not do so *as a result of* my uttering those words. The coffee would have cooled down anyway.

The problem, however, is that, as much as it might seem to us that we have an intuitive understanding of the qualifying clause ‘as a result of T ’, it is not entirely clear how to unpack its meaning. In particular, the phrase seem to be conveying a causal connection between T ’s obtaining and x ’s M -ing, so, by adding it, we might be getting ourselves from the frying pan of analyzing disposition ascriptions into the fire of analyzing causal concepts.

An even more serious worry is that, if what we are looking for is an *analysis* of the disposition ascription ‘ x is disposed to M when T ’, then we need to ensure that, by employing the phrase ‘as a result of T ’, we are not tacitly smuggling any dispositional concepts into our *analyses*, thereby rendering our analysis circular. And the best way to do so is to offer an explicit analysis of ‘as a result of T ’ that does not rely on dispositional concepts.

So, how should our qualifying clause be spelled out? At first, it might be tempting to put forward the following suggestion:

The Less-Easy Fix: $D_{(T \rightarrow M)} \Leftrightarrow [(T \Box \rightarrow M) \wedge (\neg T \Box \rightarrow \neg M)]$.

It should be obvious that the Less-Easy Fix takes care of our coffee case. Sure, if someone were to utter the word ‘Abracadabra!’, the coffee would cool down, but, if no one were to utter those words, the coffee would cool down as well, so while the first counterfactual in the right-hand side of the Less-Easy Fix is true, the second

⁵ For example, the analysis of disposition ascriptions defended in (Contessa, 2013), which is one of the few attempts to salvage the Simple Conditional Analysis that explicitly tackles mimics, does not seem to be able to handle tricks. On the other hand, the solution to the problem of mimics suggested in (Lewis, 1997) would seem to be analogous to the solution that I call the Easy Fix and seems to suffer from the same problems, so, I think, it would not be an effective solution to either problem.

⁶ Note that, for the sake of simplicity, in what follows, I omit the ‘(x)’s from the predicates ‘ $D_{(T \rightarrow M)}(x)$ ’ and ‘ $M(x)$ ’.

one is false, which means that both the *analysans* and the *analysandum* are false. So far, so good.

Those familiar with the literature on the counterfactual analysis of causation, however, have probably already noticed that the Not-As-Easy Fix analyzes disposition ascriptions in terms of *counterfactual dependence* (where E counterfactually depends on C if and only if $[(C \Box\rightarrow E) \wedge (\neg C \Box\rightarrow \neg E)]$) and this should be cause for concern, for the project of analyzing causation in terms of counterfactual dependence is itself subject a wide array of counterexamples.⁷ And, sure enough, trouble is just around the corner.

To see why, consider the case of Leo the Chameleon. Leo is disposed to turn red when sitting on a ripe tomato, but he is also disposed to turn red when sitting on a ripe strawberry.⁸ Now, the problem is that, if Leo is currently sitting on a ripe strawberry, then, according to the Less-Easy Fix, he cannot be disposed to turn red when sitting on a ripe tomato, for, although it is true that, were he to sit on a red tomato, he would turn red, it is not the case that, were he *not* to sit on ripe tomato, he would not turn red. This is because, of course, when Leo is sitting on the ripe strawberry, the counterfactual ‘If Leo were not sitting on a ripe tomato, then he would not turn red’ is false, for the closest possible world at which Leo is not sitting on a ripe tomato (i.e. the actual world) also happens to be a world in which Leo has already turned red.⁹ So, this means that, according to the Less-Easy Fix, when Leo is sitting on a red strawberry, he loses his disposition to turn red when sitting on a ripe tomato, which seems to be inconsistent with our pre-theoretical intuitions about cases such as this.

One might be tempted to solve this problem by weakening the second conjunct of the Less-Easy Fix:

The Less-Easy Fix Redux: $D_{(T\rightarrow M)} \Leftrightarrow [(T \Box\rightarrow M) \wedge \neg(\neg T \Box\rightarrow M)]$.

However, even this proposal works in the coffee case but does not work in the chameleon case. Since Leo is currently sitting on a ripe strawberry, the second conjunct of the right-hand side of the biconditional is false, for the actual world is presumably the closest world at which he is not sitting on a ripe tomato and at that world Leo has already turned red, as he is sitting on a ripe strawberry.

In order to handle both problems, we have to turn to a slightly more complicated proposal:

The Even-Less-Easy Fix: $D_{(T\rightarrow M)} \Leftrightarrow [T \Box\rightarrow (M \wedge \neg(\neg T \Box\rightarrow M))]$.

On this proposal, the negated counterfactual that was the second conjunct of the right-hand side of the previous proposal is evaluated at the closest possible worlds at which the trigger condition obtains. This seems to take care of both the coffee case and the chameleon case. Consider the coffee case first. If I were to utter the word ‘Abracadabra!’, the coffee would cool down; however, in those

⁷ For a seminal paper trying to analyze causation in terms of counterfactual dependence, see (Lewis, 1973a). For an excellent collection of more recent papers on the topic, see (Paul et al., 2004).

⁸ Leo is, of course, just a fictional chameleon, for the actual relationship between skin pigmentation of chameleons and their environment is much more complex than this toy example suggests.

⁹ Or, if one rejects Strong Centering in favour of *Weak Centering* (i.e. the thesis that no possible world is closer to the actual world than the actual world itself), the closest possible worlds at which Leo is not sitting on a ripe tomato happen to include the actual world, where Leo is already red.

counterfactual circumstances, had I not uttered those words, the coffee would have cooled down anyway. For the sake of clarity, let me spell out things in more details in terms of possible worlds. To evaluate the right-hand side of the Even-Less-Easy Fix, we first “travel” to the closest possible worlds at which someone utters the word ‘Abracadabra!’ and check whether the coffee cools down at all of them and then, *from each of those worlds*, we “travel” to the closest possible worlds (i.e. the worlds that are closest to the possible world to which we have just “travelled”) at which no one utters those words and check if the coffee still cools down at all of those worlds. Since the coffee does indeed cool down at all those worlds, the negated counterfactual (i.e. ‘If no one uttered the word ‘Abracadabra!’, then the coffee would cool down’) is true at the closest possible world(s) at which someone utters ‘Abracadabra, coffee, cool down!’. This makes the whole *analysans* false, which means that, according to the Even-Less-Easy Fix, the coffee does *not* have a disposition to cool down when someone utters the word ‘Abracadabra!’, which is the result we were looking for.

Consider now the chameleon case. Leo is sitting on a ripe strawberry and has turned red. However, it is still the case that, were he to sit on a ripe tomato, he would also turn red. Moreover, in the counterfactual circumstances in which Leo is sitting on a ripe tomato and is red, it is *not* be the case that, had he not been sitting on a ripe tomato, he would have been red anyway. To see why, it might be helpful to spell out things in terms of intra-world travel once again. To evaluate the relevant counterfactual, we first “travel” to the closest possible world(s) at which Leo is sitting on a ripe tomato and check whether he turns red at all of them. Then, *from each of those worlds*, we “travel” to the closest possible world(s) at which Leo is *not* sitting on a ripe tomato and check if he turns red *at all of those worlds* anyway. Since Leo does not turn red *at all those worlds* (for, at some of them, he’s sitting on a ripe banana and he’s yellow, at others, he’s sitting on a ripe plum and he’s purple, etc.), the negated counterfactual (i.e. ‘If Leo had not been sitting on a ripe tomato, he would have turned red’) is false at the closest possible worlds at which Leo is sitting on a red tomato and, therefore, according to the Even-Less-Easy Fix, Leo does have a disposition to turn red when sitting on a red tomato, which is the result we were trying to obtain.

Unfortunately, however, the Even-Less-Easy Fix has its share of problems. Suppose, for example, that Leo is now in a world where everything is painted red. While the closest possible worlds at which he is sitting on a ripe tomatoes are worlds at which Leo turns red, they would seem to be also worlds at which it is true that, had he not been sitting on a red tomato, Leo would still have been red, for Leo is disposed to turn red whenever he is sitting on something red and everything in those worlds is painted red. So, according to the Even-Less-Easy Fix, in the red world, Leo is not disposed to turn red when sitting on a red tomato, which, pre-theoretically, would seem to be incorrect.

Let’s now turn to another proposal:

The Penultimate Fix: $D_{(T \rightarrow M)} \Leftrightarrow [\neg T \Box \rightarrow (T \Box \rightarrow M)]$.¹⁰

¹⁰ This proposal is adapted from (McGlynn, 2012). McGlynn’s proposal is meant to be part of an alternative semantics for counterfactuals that does not entail Conjunction Conditionalization. While his proposal seems to succeed in this respect, it does not avoid tricks, which seems to show that tricks are not merely a consequence of the fact that Standard Semantics entails Conjunction Conditionalization.

On this proposal, the associated counterfactual should be evaluated at the closest possible world(s) at which its antecedent is false. Unfortunately, this proposal does not seem to work either. To see why, consider again my mug of coffee sitting on the counter. Now, let's "travel" to the closest possible worlds where I do not utter the word 'Abracadabra!' and evaluate the associated counterfactual at those worlds. The problem is, of course, that the associated counterfactual is still going to be true at all those worlds, for, at those worlds, it would still be true that, were I to utter those words, the coffee would cool down. In fact, if we assume Strong Centering, the closest possible world at which I do not utter those words is the actual world, and so, on the coffee case, this proposal should deliver the same verdict as the Simple Conditional Analysis.

Let me now turn to one last proposal:

The Ultimate Fix: $D_{(T \rightarrow M)} \Leftrightarrow [-M \Box \rightarrow (T \Box \rightarrow M)]$.¹¹

According to the Ultimate Fix, we should evaluate the associated counterfactual at the closest possible world(s) at which the consequent of the associated counterfactual is false. While superficially similar to the Penultimate Fix, this proposal is actually quite different and it allows us to avoid all counterexamples into which we have run so far (and, hopefully, all other potential counterexamples as well).

Consider the coffee case first. The coffee is going to cool down at the actual world. So, to evaluate the associated counterfactual, we have to "travel" to the closest possible worlds at which the coffee does not cool down. Presumably, these are worlds at which the coffee is not in a mug sitting on the counter but is in a container that keeps it warm, such as a carafe with a warmer.¹² At those worlds, the counterfactual 'If someone were to utter the word 'Abracadabra!', then the coffee would cool down' would, obviously, be false. So, according to the Ultimate Fix, the coffee does not have the disposition to cool down when someone utters the word 'Abracadabra!'. According to the Ultimate Fix, however, the coffee still has the disposition to cool down when left at room temperature. For, even at the closest possible worlds at which the coffee is kept in a heated container, it is true that, if one were to leave the coffee at room temperature, the coffee would cool down.

Consider now the Leo-in-the-red-world case. Leo is currently red. However, the closest possible worlds at which Leo has not turned red are, presumably, worlds at which there is some non-red object and Leo is sitting on it and, as a result, he has turned some colour other than red. Now, *at those worlds*, it is true that, if Leo were to sit on a ripe tomato, he would turn red. So, according to the Ultimate Fix, even in the red world it is true that Leo is disposed to turn red when sitting on a ripe tomato, which is the result that we were hoping to obtain.¹³

¹¹ Or, more precisely (and temporarily re-introducing the variables), $D_{(T \rightarrow M)}(x, t) \Leftrightarrow [(\Diamond_N \neg M(x, t^*) \wedge \Diamond_N T(x, t)) \wedge (\neg M(x, t^*) \Box \rightarrow (T(x, t) \Box \rightarrow M(x, t^*)))]$, where $t^* \geq t$ is the time at which we would expect the disposition to manifest itself if it were triggered at t and ' \Diamond_N ' is interpreted as 'it is nomically possible that'. For the sake of simplicity, I will leave these further specifications aside in what follows.

¹² Here, I am assuming that nomically possible worlds at which the coffee does not cool down because it is inside such a heated container are closer to the actual world than any nomically impossible worlds at which it does not cool down because, say, the laws of thermodynamics do not hold. I take this to be a fairly uncontroversial assumption.

¹³ I leave it to the reader to check that the Ultimate Fix handles the case of Leo sitting on a ripe strawberry in a similar way and with equally positive results.

It is worth noting that, in those cases in which a disposition does not manifest itself, the Simple Conditional Analysis and the Ultimate Fix will always deliver the same verdict, for, if the manifestation condition does not actually obtain, then the associated counterfactual will be simply evaluated at the actual world (at least if we assume Strong Centering). So, in the vast majority of cases, the Simple Conditional Analysis can be seen as a limit case of the Ultimate Fix and, since most cases in which we evaluate disposition ascriptions are usually cases in which their manifestation hasn't obtained (or, at least, it hasn't obtained yet), the Ultimate Fix also provides us with a plausible explanation of why we might be initially tempted to think that the Simple Conditional Analysis is all we need. In the case of tricks, however, the two analyses deliver different verdicts to the detriment of the Simple Conditional Analysis.

4. CONCLUSIONS

In this paper, I have introduced the notion of a trick and argued that tricks are a new sort of counterexamples to the Simple Conditional Analysis. Tricks exploit the fact that, if the consequent of a counterfactual is actually true, then one can pick almost any antecedent to form a true counterfactual. This means that we would be able to truly ascribe all sorts of bogus dispositions to objects, such as my coffee's supposed disposition to cool down when someone utters the word 'Abracadabra!'. I have then considered a few possible ways to modify the Simple Conditional Analysis so as to handle tricks and I have eventually settled for a proposal according to which the *analysans* consists of a counterfactual whose antecedent is the negation of the manifestation of the (alleged) disposition and whose consequent is the counterfactual that the Simple Conditional Analysis associates with the disposition ascription. According to this solution, thus, the disposition ascriptions are analyzed in terms of a counterfactual nested in another counterfactual. This means that, in order to evaluate a disposition ascription, we need to evaluate its associated counterfactual at the closest possible worlds at which the manifestation of the alleged disposition does *not* (currently) occur. In most standard cases, the actual world is the closest such world. However, in the case of tricks, the associated counterfactual needs to be evaluated not at the actual world but at the closest possible worlds at which the consequent of the associated counterfactual is not (currently) true.

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