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Conditionals, Dispositions, and Free Will

1. INTRODUCTION

In Chapter 4 of his *Freedom of the Will: A Conditional Analysis*, Ferenc Huoranszki offers the following account advertised in the title of the book:

> Huoranszki's conditional analysis of free will
> *S*'s will is free wrt an unperformed action *A* iff
> S would have done *A*, if
> (i) *S* had chosen to perform *A*, and
> (ii) there is no change in *S*'s ability to perform *A*, and
> (iii) there is no change in *S*'s ability to make a choice about whether to perform *A*.[1]

Conditional accounts of free will—like G. E. Moore's, Thomas Hobbes' and David Hume's—echo a variant of clause (i) of this analysis. Why include the other two clauses—in particular, clause (ii)? It is here that a debate in metaphysics and the philosophy of language, about dispositions, will prove relevant and instructive, providing interesting parallels, conceptual clarifications, and also additional indirect support for Huoranszki's conditional account of free will.

About dispositions in a nutshell. Picture a slice of perishable chocolate cake: it has the disposition to spoil if left outside the refrigerator for a prolonged period. But as things stand, the slice never spoils, for I gobble it up as soon as it's purchased; still, while in existence, the slice retained this ever unactualized disposition of perishability. A highly influential account—defended, for example, by Gilbert Ryle, Nelson Goodman and W. V. Quine—has it that ascriptions of dispositions like perishability, water-solubility, fragility, and so on should be given a conditional analysis along the following lines:

[1] I use the standard abbreviations: 'wrt' stands for 'with respect to'; 'iff' for the biconditional connective 'if and only if'. For simplicity, the temporal qualification '*S*'s will is free at time *t*' is left implicit throughout in this as well as other definitions.

SIMPLE conditional account of disposition ascriptions
An object/person/substance *N* is disposed to *M* under *C* iff
N would *M* if
(I) it were the case that *C*.

That is, the slice of cake, while in existence, had the disposition to spoil under the condition of being left outside the fridge for a prolonged period just in case it would have spoiled had the condition obtained.

Notice that clause (i) of HUORANSZKI and clause (I) of SIMPLE are extremely similar: both provide an analysis in terms of a subjunctive conditional (past- or present-tense, respectively) of the form '*P* would have been the case, if it were the case that *C*' and '*P* would be the case if it were the case that *C*'.[2] In Section 4, we'll see that the similarities run deeper than that: the difficulties emerging in the context of giving a conditional account of dispositions point the way toward further reasons to include a clause parallel to HUORANSZKI's (ii) in the conditional analysis of disposition ascriptions. By way of stage setting, in Section 2, I will trace some of the reasons why Huoranszki departs from Moore's classic version of the conditional analysis of free will. In Section 3, I will give some preliminaries on conditional analyses of disposition ascriptions. Concluding remarks will follow in Section 5. Along the way, my aim is also to reconsider the role and interrelations of the various counterexamples to the sufficiency and necessity of the conditional analysis of disposition ascriptions; these constitute crucial clarifications not only for the dispositions debate but also for Huoranszki's arguments for his version of the conditional analysis of free will.

2. CONDITIONALS AND FREE WILL

In developing his own conditional analysis of free will, Huoranszki (2011: section 4.1) takes as his starting point Moore's classic proposal (1912: 220–221), reconstructing it along the following lines:

MOORE's conditional analysis of free will
S's will is free wrt an unperformed action *A* iff
(i′) *S* would have done *A*, if *S* had chosen to perform *A*,
(ii′) *S* could have chosen to make a choice about performing *A*,
(iii′) no-one can predict whether or not *S* chooses to perform *A*.

[2] Throughout, I am assuming in the background Lewis's (1973) possible worlds semantics for subjunctive conditionals, according to which, roughly, a conditional of the form *P* would be/would have been the case, if it were/had been the case that *C*' is true iff all *C*-worlds (world in which *C* is true) most similar to the actual world are *P*-worlds (Lewis 1973).

According to MOORE, (i')–(iii') are individually necessary and jointly sufficient for *S* to have free will with respect to performing an action. Of these, Huoranszki keeps (i'), finding fault with (ii') and (iii'). Clause (ii'), he argues, leads to an infinite regress and also fails to be a necessary condition for having free will (a point argued for in Chapter 3 of his book). Clause (iii'), he argues, is neither necessary nor sufficient for having free will to perform an action: Huoranszki is free to refuse a bowl of zucchini soup even though those who know him well can easily predict his refusal; meanwhile, the unpredictability of events (like various weather phenomena) gives no guarantee whatsoever that they are free to occur.

Huoranszki (2011: section 4.2) offers his own clauses (ii) and (iii), above, to provide what he considers an adequate conditional analysis of free will.[3] His clause (i) is the same as (i') in MOORE—we'll henceforth refer to it simply as clause (i).[4] But he thinks (i) by itself would be insufficient to define free will because of an objection of Keith Lehrer's (1968/1982): it is logically possible that the very act of choosing or not choosing *A* affects one's ability to perform the action in question. HUORANSZKI's clause (ii) is intended to block such a possibility. (HUORANSZKI's clause (iii) is intended to block yet another counterexample of Lehrer's which we won't discuss here.)

Let's spell out Lehrer's objection to clause (i) in four steps:

First step. It is logically possible that (1), (2) and (3) hold for some action *a*.

(1) *s* can perform *a* (in the sense of having free will wrt to *a*) only if *s* chooses to perform *a*.
(2) *s* doesn't choose to perform *a*.
(3) *s* would have done *a* if *s* had chosen to perform *a*.

Second step. From (1) and (2) the *modus tollens* inference schema, below, yields (4):

Modus tollens:
if *P* then *Q* (which is equivalent to *P* only if *Q*)
not *Q*
Therefore, not *P*

[3] Huoranszki's broader aim is to use the conditional analysis to expose a problem with Peter van Inwagen's Consequence Argument (discussed in Huoranszki's Chapter 2), according to which from determinism it follows that our actions are not up to us.

[4] For ease of exposition, whenever it's harmless in the context of the paper, I'll be deliberately "sloppy" in glossing over discrepancies like the following: (i') includes the conditional consequent while (i) doesn't.

(4) *s* cannot perform *a* (in the sense of having free will wrt to *a*).

Third step. (3) states that the action *a* satisfies clause (i).

Fourth step. An action like *a* shows clause (i) to be insufficient to define free will, for *a* satisfies (i) (according to (3) above), yet the subject in question does not have free will wrt to *a* (according to (4) above).

Huoranszki's (ii) serves to exclude actions like *a*, for which (1) holds. We have so far left as abstract what an action fitting *a*'s parameters would be. Lehrer offers a far-fetched example:

> Suppose that, unknown to myself, a small object has been implanted in my brain, and that when a button is pushed by a demonic being who implanted this object, I became temporarily paralyzed and unable to act. My not choosing to perform an act might cause the button to be pushed and thereby render me unable to act. (Lehrer 1968/1982: 44.)

In the context of dispositions (in Section 4), we'll encounter some more realistic examples that are analogous to this one, along with close parallels between the conditional analyses of free will and of disposition ascriptions.

We should note already that in his conditional analysis, Huoranszki proposes to construe freedom of the will as a special ability/unactualized power: the ability/power to act otherwise. Moreover, this very ability/power is featured in clause (ii), making the analysis nonreductive (a point that we will revisit in the last section).

How do dispositions come into this picture? There are various ways we might understand disposition ascriptions like the following: "Huoranszki is disposed to ride a bike"; "This piece of cake is perishable". We might take the first to mean, on the one hand, that Huoranszki is inclined/prone/has a tendency to ride a bike, or, on the other hand, that he has a power/ability to do so. Huoranszki is interested in this latter sense of 'is disposed to…' and other dispositional predicates ('is perishable/fragile/edible/lethal' etc.). Notice that this is a natural move, given that many claims about dispositions don't involve habit or recurrence: a cake's edibility does not mean it can be eaten more than once, a cup's fragility does not mean it can break more than once, and a poison capsule's being lethal doesn't mean it can kill more than once. We are thus looking at analyzing dispositional predicates in the sense of "a substance's, an object's, or a person's *power to behave in certain ways* in certain kind of circumstances, even if they *never* behave that way" (Huoranszki 2011: 60; emphases in the original). This is the sense of 'is disposed to' that we aim to capture via a conditional analysis.

If we construe dispositional predicates as referring to abilities/powers, and freedom of the will as the ability/power to act otherwise, then—unless there are reasons warranting special treatment for the latter—MOORE is a specific application of a general, conditional-based account of disposition ascriptions. In this case, an analog of Lehrer's counterexample to clause (i) should also arise for a conditional account of disposition ascriptions. According to Huoranszki (2011: 61–63), the conditional account of dispositions is indeed subject to a Lehrer-analog counterexample, which serves to point us in the right direction about how clause (i) should be supplemented: by including clause (ii) of HUORANSZKI.

Let's see how various counterexamples, the Lehrer-analog one included, have shaped the discussion about conditional analyses of disposition ascriptions. Setting right the roles and interconnections of the various counterexamples does, I think, shed light on the dispositions debate and carries ramifications for Huoranszki's line of argument for his own account of free will.

3. CONDITIONALS AND DISPOSITIONS: MASKS AND MIMICKS

It is widely assumed that all dispositional predicates can be understood as involving a condition of manifestation: for example, 'is perishable' is about being disposed to spoil under a certain condition, say, being left out of the fridge for an extended period. This way, all disposition ascriptions fall under the SIMPLE conditional analysis of dispositions, repeated here:

> SIMPLE conditional account of disposition ascriptions
> An object/person/substance *N* is disposed to *M* under *C* iff
> *N* would *M* if
> (I) it were the case that *C*.

A battery of counterexamples challenge this analysis from two directions.

Some counterexamples call into question whether the analysis provides *necessary* conditions: the first half of the biconditional in SIMPLE might be true while the second is false, showing that the truth of the second half is not necessary for the truth of the first half; call these anti-necessity T–F counterexamples. For a porcelain cup to be fragile—to be disposed to break when dropped, say—it is not necessary that the cup would break if dropped. This is shown by *masking cases*: if the fragile cup has suitable protective packaging, it remains fragile, yet it would not break if it were dropped and all other circumstances remained maximally similar to actuality (including the packaging). The packaging is an extrinsic feature that *masks* the cup's disposition to break (Johnston 1992: 233; see also Bird 1998).

Some counterexamples indicate that SIMPLE fails to provide *sufficient* conditions: the first half of the biconditional in SIMPLE might be false while the second half is true, showing that the truth of the second half is not sufficient for the truth of the first half; call these anti-sufficiency F–T counterexamples. A non-fragile object might be such that it would break when dropped. This is shown by *mimicking cases* (discussed also by A. D. Smith 1977: 441, 444):

> A gold chalice is not fragile but an angel has taken a dislike to it because its garishness borders on sacrilege and so has decided to shatter it when it is dropped. Even though the gold chalice would shatter when dropped, this does not make it fragile because something extrinsic to the chalice is the cause of the breaking. (Johnston 1992: 232.)

> When a styrofoam dish is struck, it makes a distinctive sound. When the Hater of Styrofoam hears this sound, he comes and tears the dish apart by brute force. So, when the Hater is within earshot, styrofoam dishes are disposed to end up broken if struck. (Lewis 1997: 153.)

Because of the angel, an extrinsic factor, the chalice *mimicks* the behavior of a fragile object without being fragile. Because of the Styrofoam Hater, an extrinsic factor, the styrofoam dish mimicks the behavior of an object disposed to break when struck, without having that disposition.

David Lewis (1997) appealed to intrinsic properties in his influential reformed analysis, which is thought to handle some of the counterexamples against SIMPLE. His justification was that plausibly, "dispositions are an intrinsic matter" (Lewis 1997: 147)—their causal bases are properties that are intrinsic to the object (Lewis 1997: 155); for example, a porcelain cup's fragility is due to its intrinsic properties, as is a gold chalice's non-fragility. (Lewis argues that without the intrinsicness restriction on properties, we would run into the problem that the chalice itself has the disposition to break.)[5] Below I have simplified Lewis's proposal along the lines of Sungho Choi – Michael Fara (2012: section 1.4):

[5] Lewis (1997: 155) offers an ordinary example of his own (an analogous line can be made about the porcelain cup with protective packaging):

> … to placate those who will not be convinced by fantastic examples, I offer the case of Willie. Willie is a dangerous man to mess with. Why so? Willie is a weakling and a pacifist. But Willie has a big brother—a very big brother—who is neither a weakling nor a pacifist. Willie has the extrinsic property of being protected by such a brother; and it is Willie's having the extrinsic property that would cause anyone who messed about with Willie to come to grief. If we allowed extrinsic properties to serve as causal bases of dispositions, we would have to say that Willie's *own* disposition makes him a dangerous man to mess about with. But we very much do not want to say that. We want to say instead that the disposition that protects Willie is a disposition of Willie's brother. And the reason why is that the disposition is an intrinsic property of Willie's brother. (Emphasis in the original.)

INTRINSIC-property-based conditional account of disposition ascriptions
An object/person/substance *N* is disposed to *M* under *C* iff
there is an intrinsic property *B* that *N* has such that *C* and *B* would jointly cause *N* to *M*, if
(I) it were the case that *C*, and
(II) *N* were to retain *B* for a sufficient time.

According to Michael Fara (2009), INTRINSIC …

> … avoids the problem of "mimicking"… It is true that the gold chalice, watched over by the destructive angel, would shatter if it were dropped. But the chalice has no intrinsic property which would contribute to causing the shattering—the angel alone would cause the chalice to shatter. (Fara 2009: section 2.3.)

Fara is suggesting that the chalice no longer presents an F–T counterexample given the amendments in INTRINSIC, because the second half of the biconditional in INTRINSIC comes out false (as does the first half): no intrinsic property of the chalice contributes to causing the shattering.[6]

We might, however, think it is unclear that INTRINSIC avoids the chalice counterexample. For we might reason: the chalice does have an intrinsic property *p* giving rise to the chalice's extreme garishness, and *p* causes the angel's wrath, in turn causing the shattering of the chalice; and with *p*, we can make the second half of the biconditional true, bringing back the original F–T problem the chalice had presented for SIMPLE. I find this objection to Fara compelling; it draws support from two considerations.

First, just one paragraph later, Fara points out that the T–F masking counterexample with the packaged porcelain cup remains unresolved by INTRINSIC, for the biconditional's first half remains true (the cup is still fragile/disposed to break when dropped) while the second half is still false:

> the cup does have an intrinsic property which would join with the dropping in causing it to shatter *if the packing were absent*. But since the packing *isn't* absent (and wouldn't be absent if the cup were dropped), the [second half of the biconditional], in this instance, is false. (Fara 2009: section 2.3; emphases in the original.)

[6] Fara's is a far more plausible take on Lewis's example of Willie protected by the brother who is dangerous to mess with (in the previous footnote): the second side of INTRINSIC comes out false the same way as the first if we substitute "Willie is disposed to be dangerous under the condition of being messed with"; for there is arguably no *intrinsic* property of Willie's to fit the analysis. Willie's case, formerly a counterexample to SIMPLE, is no longer such. (But even if we were to accept this, the chalice case would still remain a counterexample to INTRINSIC.)

But if an extrinsic factor like the packaging material remains in place when evaluating the subjunctive conditional (because the conditional's antecedent instructs us to consider worlds in which there is no departure from the actual world except for the cup being dropped, so all worlds under consideration retain the packaging), making the biconditional's second half false, then in the chalice example, we likewise have no grounds for excluding the vengeful angel's presence from the worlds under consideration (angelless worlds would constitute a gratuitous departure from actuality), and, in all such worlds, the chalice does break (thanks to the angel), so the second half of INTRINSIC comes out true, contrary to Fara's point that it is clearly false. The chalice example does, after all, remain an F–T anti-sufficiency counterexample.

Second, the following quote from a substantially revised version of Fara (2009) discusses the second mimicking case about the styrofoam dish, reversing Fara's previous verdict: the new version claims that the styrofoam example (along with other mimicking cases) remains unresolved by INTRINSIC:

> [INTRINSIC] doesn't avoid the problem of mimickers. The styrofoam dish, if struck, would break by the mimicking operation of the Hater of Styrofoam. Note that, if struck, the dish would retain for a sufficient time an intrinsic property, say, the microstructure responsible for its distinctive sound and, further, this intrinsic property would be a cause of the breaking. The prediction by [INTRINSIC] is therefore that the styrofoam dish is disposed to break when struck, which might be claimed to be counterintuitive. (Choi–Fara 2012: section 1.4.)

The reason why Choi and Fara think the styrofoam example remains a problem for INTRINSIC parallels exactly the objection I had formulated about the chalice: given the presence of the Hater of Styrofoam, there is some intrinsic property of the styrofoam dish giving rise to the sound that the Hater loathes and causing the dish to break (at the hands of the Hater), say Choi and Fara; given the presence of the vengeful angel, there is some intrinsic property of the chalice that inspires the angel's wrath, causing the chalice to break (given the angel's intervention), say I.

So far, compared to SIMPLE, INTRINSIC hasn't made any headway on the counterexamples (coming up in Section 4); before moving on to Lehrer-analog counterexamples with which INTRINSIC does help, let us take a closer look at the counterexamples now on the table.

Just how common are masking and mimicking cases? Certainly, the mimicking examples about angelic wrath over a chalice and about the Styrofoam Hater both seem rather exotic. Fara (2005: 76, 81) mentions mimicking cases in passing only, but stresses that masking cases need not be extraordinary:

> It is worth noticing that masking is a commonplace phenomenon: dispositions of objects are being masked all the time. I'm disposed to go to sleep when I'm tired; but this disposition is sometimes masked by too much street noise. Cylinders of rubber are disposed to roll when placed on an inclined plane; but this disposition can be masked by applying a car's break. A piece of wood in a vacuum chamber is no less disposed to burn when heated than is its aerated counterpart (if dispositions are intrinsic properties, then this has to be granted); but wood won't burn when heated in a vacuum. The masking of dispositions is such a humdrum occurrence that any adequate account of disposition ascriptions must accommodate it. (Fara 2005: 50.)

Notice a key conceptual connection between the mimicking and masking cases discussed above: they are two sides of the same coin in that the fragile cup with protective packaging has its fragility masked, meanwhile, because of the packaging, the cup mimicks non-fragility. And because of the angel's wrath, the gold chalice mimicks fragility, meanwhile, its non-fragile nature is masked by the angel's wrath. Mimicking cases, then, are no more exotic than masking cases. For numerous scenarios in which a disposition is masked, a corresponding opposite disposition is being mimicked and *vice versa*: toxicity/malleability masked amounts to non-toxicity/non-malleability mimicked and *vice versa*; toxicity/malleability mimicked amounts to non-toxicity/non-malleability masked and *vice versa*. So if masking cases are commonplace, as Fara suggests, then so too are mimicking cases.

Not all possible examples work this way. Consider a cup made of melamine resin: a kind of hard plastic that is considerably less breakable than glass or porcelain, but which is still somewhat breakable. Suppose that a melamine cup is such that it would survive some (regular, household-style) dropping events but not all of them. Then the melamine cup is neither fragile nor non-fragile: it is both false that if it were dropped it would break and that if it were dropped it wouldn't break. The cup is *in-between with respect to fragility*. Now imagine a scenario in which our vengeful angel specializes in the melamine cup, making sure it breaks when dropped. This is a case of fragility mimicked without non-fragility being masked. Imagine another scenario in which partial protective packaging is put on a porcelain cup, so it doesn't become non-fragile but about as sturdy as a melamine cup. Then the porcelain cup's fragility has been masked without non-fragility being mimicked.

(Another example of in-between status: suppose Huoranszki owns a trekking bike, which he rides around the city, and a road bike for countryside outings. It is not the case that Huoranszki is disposed to take his trekking bike when riding a bicycle; nor is it the case that he is disposed to not take his trekking bike when riding a bicycle. For this disposition–opposite disposition pair, he has neither. Huoranszki is *in-between with respect to taking his trekking bike when he goes for a bicycle ride*.)

These sorts of examples do not undermine the point I have been making, for two reasons. On the one hand, the examples discussed in the dispositions debates aren't like the in-between cases. Indeed, to get a really compelling masking case, it helps to go all the way: mask fragility in such a way that the object *never* breaks. And the same goes for mimicking cases: a truly striking example has an extremely sturdy, clearly non-fragile object (like the gold chalice) that mimics fragility due to an extrinsic factor like the vengeful angel. On the other hand, there are still plenty of pairs of dispositions and their opposites for which the conceptual connection I have been describing is in place and that suffices for my point that masking and mimicking cases do, to a large extent, overlap. To underscore this point about how common it is that masking cases are at once mimicking cases of the opposite disposition and *vice versa*, consider that more specific conditions of manifestation alter in-between status: our melamine cup is disposed to break when dropped from a sufficient height, say 20 meters, and it is not disposed to stay intact when dropped from 20 meters. And Huoranszki is disposed to take his trekking bike when riding a bicycle in town, and he is disposed to leave his trekking bike at home when riding a bicycle out of town. In what follows, I will focus on examples of disposition ascriptions in which the subject has in-between status with respect to neither the disposition in question nor its opposite.

That mimicking and masking cases go hand in hand indicates a further connection between the counterexamples: in the dispositions literature, *the anti-necessity T–F counterexamples about a disposition (fragility, toxicity, malleability) masked are at once anti-sufficiency F–T counterexamples about an opposite disposition (non-fragility, toxicity, non-malleability) mimicked, and the other way round.*

In the light of this, it is curious that Fara (2009: section 2.3) sees an asymmetry between the two types of cases with respect to INTRINSIC, which, according to him, "avoids the problem of 'mimicking'" but "does not help with the problem of masking". After all, if INTRINSIC stumbles on the packaging material masking fragility (a T–F counterexample), then it also stumbles on the packaging material mimicking non-fragility (an F–T counterexample). And if INTRINSIC successfully handles the chalice case as one in which fragility is mimicked (an F–T counterexample), it would at once handle a case of non-fragility being masked (a T–F counterexample). After all (reverting, for simplicity, to SIMPLE for a moment), being disposed to *b* if *d* is analyzed as *b*-ing if *d* were the case, while the opposite disposition—being disposed to not-*b* if *d*—is analyzed as not-*b*-ing if *d* were the case (substitute, say, 'break' for *b* and something like 'being dropped' for *d*); now, for INTRINSIC (and also for SIMPLE), we can produce substitution pairs that differ only in that one has *b* throughout in place of *M*, while the other has not-*b*, while the two substitution instances are alike in truth value and describe

the exact same scenario (for example, fragility masked/non-fragility mimicked or fragility mimicked/non-fragility masked).[7]

Someone might object that the symmetry I'm drawing between masking and mimicking cases relies on there being, for each dispositional predicate of the form 'disposed to *M* under *C*' a dispositional predicate of the form 'disposed to not-*M* under *C*', an unwarranted assumption. To this objection I have four responses. First, even if fragility/non-fragility were an isolated pair of dispositions for which we could reformulate a mimicking case as a masking case, one could no longer claim that INTRINSIC successfully handles mimicks but not masks, as Fara (2009) does; after all, *some* scenarios would be at once masking cases of one disposition and mimicking cases of the opposite disposition. Second, whatever metaphysical reasons someone might have for denying that for every disposition there is an opposite that is also a disposition, the burden of proof is on her side to show this; and even if she managed to show this, it is unclear if such a metaphysical claim about dispositions would cast doubt on the *ascription of* a negative disposition. Third, the metaphysical project just mentioned is complicated by the fact that formulating the positive/negative disposition distinction is nontrivial given that not breaking when dropped seems equivalent to *remaining intact* when dropped. Then it is not at all obvious which of this pair would be the positive and which the negative disposition: the disposition to break (that is, the disposition not to remain intact) or the disposition to remain intact (that is, the disposition not to break). One option that suggests itself is that positive dispositions, unlike negative ones, are about undergoing some sort of drastic change (like dissolving, shattering) when the condition of manifestation obtains. (Defining what counts as drastic change and what doesn't is already nontrivial.) But it is not obvious that this will work either, given examples like being heat resistant or sound proof, which seem like clear candidates for dispositions, yet objects that have them remain (largely) unchanged when the manifestation conditions obtain. Fourth, it does seem perfectly clear that for a broad range of dispositional predicates, their opposites *are* dispositional predicates also (fragility, malleability, water-solubility, to name but a few); if so, then if masking cases aren't exotic then mimicking cases aren't either; at the very least, many mimicking cases aren't as outlandish as the angel and styrofoam examples might lead us to believe.

If we go all the way and claim that for all disposition ascriptions there is a corresponding ascription of the opposite disposition, then we may still think that

[7] There are two further options for substitution pairs (for the examples that aren't in-between dispositions): the case of an ordinary porcelain cup gives rise to two true biconditionals, one with both halves true, T–T (… disposed to break when dropped…), the other with both halves false F–F (…disposed not to break when dropped…). The same holds for the case of an ordinary gold chalice, except the "…disposed to break…" biconditional yields F–F, while the "…disposed to not break…" biconditional yields T–T.

there are two separate types of problems that the chalice and the packaged cup present. But crucially, the philosophically interesting dimension of difference between them is not that

- the chalice presents a mimicking case while the packaged cup presents a masking one; or
- the chalice presents an anti-sufficiency counterexample while the packaged cup presents an anti-necessity one; in other words,
- the chalice presents an F–T counterexample while the packaged cup presents a T–F one.

The reader might wonder if such basic points—about logical and conceptual connections between the masking and mimicking cases—are worth making. But when considering the dispositions debate (as we have done), it becomes clear that these points have fallen into disregard and iterating them clarifies matters. We will shortly recognize their relevance in the context of Huoranszki's appeal to the analogy between the analysis of free will and that of disposition ascriptions.

We have so far considered two conditional analyses of disposition ascriptions, SIMPLE and INTRINSIC, and found that neither can handle the cases with the chalice, the styrofoam cup or the packaged cup. In the next section we will consider yet another pair of counterexamples to SIMPLE, and uncover parallels between the free will and the dispositions debates.

4. CONDITIONALS AND FINKISH DISPOSITIONS: FREE WILL REVISITED

In the previous section, we came to the conclusion that what are called masking and mimicking cases are quite commonplace. For over half a century, another pair of unusual-seeming counterexamples has received extensive attention in the dispositions literature: examples of so-called finkish dispositions, due to C. B. Martin (his examples appeared in print much later, in 1994). A finkish disposition "would straight away vanish if put to the test… A finkishly fragile thing is fragile, sure enough, so long as it is not struck. But if it were struck, it would straight away cease to be fragile, and it would not break" (Lewis 1997: 144).

Let's say that a wire is live when it is disposed to conduct electricity, and dead when it is not so disposed. Now consider a *dead wire that is finkishly dead*: its deadness "cops out" or finks out precisely when its condition of manifestation—being touched by a conductor—occurs:

> The wire … is connected to a machine, an *electro-fink*, which 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 … by making the wire live for the duration of the contact. In the absence of contact the wire is dead. … In sum, the electro-fink ensures that the wire is live when and only when the conductor touches it. (Martin 1994: 2–3; emphasis in the original.)

Call this the *electro-fink case*.

Consider also a *live wire that is finkishly live*: with the electro-fink operating in reverse cycle, "the wire is dead when and only when a conductor touches it" (Martin 1994: 3). Call this the *reverse-cycle electro-fink case*.

The electro-fink and the reverse electro-fink examples have it in common that they involve wires with dispositions that disappear just as their manifestation conditions obtain. These examples aren't as exotic as they might first seem: George Molnar (1999) draws attention to the fact that reverse electro-finks are quite common, in the form of fuses—metal bits that melt in order to interrupt excessive electric current.

And the electro-fink and similar examples bring us right back to an exact parallel to Lehrer's counterexample to clause (i) of the conditional analysis of free will. Huoranszki (2011: 61, 63) discusses Goldman's (1970: 199–200) example of a finkishly non-soluble sugar cube whose non-solubility "finks out", making it water-soluble all of a sudden when the cube is immersed in water. Then the following is true of the cube, *c*: "If *c* is not immersed in water, it is not soluble" or, equivalently, "*c* is soluble only if it is immersed in water", or, equivalently, "If *c* is soluble, then it is immersed in water". As far as appearances go, the cube behaves just like a soluble sugar cube, yet it is not soluble. Let us see how the Lehrer-analog objection to the SIMPLE analysis of disposition ascriptions goes, formulated in terms of the electro-fink case:

First step. (1′), (2′) and (3′) hold for the electro-fink case's finkishly dead wire *i*.

(1′) *i* is live iff it is touched by a conductor; this has two parts:
  (1′a) *i* is live only if it is touched by a conductor.
  (1′b) *i* is live if it is touched by a conductor.
(2′) *i* is not touched by a conductor.
(3′) If *i* were touched by a conductor, it would conduct electricity.

Second step. From (1′a) and (2′), the *modus tollens* inference schema yields (4′):

(4′) *i* is not live.

Third step. (3′) states that *i* satisfies the left hand side of SIMPLE.

Fourth step. An object like *i* shows SIMPLE's clause (I) to be insufficient to define disposition ascriptions, for *i* satisfies (I) (according to (3′) above), yet *i* is not live (according to (4′) above). Hence *with the electro-fink case, for the dispositional predicate 'is live', we have a Lehrer-analog anti-sufficiency F–T counterexample to the SIMPLE conditional analysis of disposition ascriptions.*

Let's say that quasi-mimicking/-masking a property involves mimicking/masking a property when the object's realization conditions don't obtain without mimicking/masking it when the realization conditions do obtain.

The wire *i* quasi-mimicks being live when it is actually dead. Just as the finkishly non-soluble sugar cube described above quasi-mimicks being soluble. To put it differently, *i*'s being a dead wire is quasi-masked when it is touched by a conductor. And the sugar cube's non-solubility is quasi-masked when it is immersed in water. This sounds very much like the chalice and the styrofoam examples we considered above as mimicking cases. Indeed, the electro-fink and the mimicking cases are similar apart from one key respect: the gold chalice and the styrofoam cup are fragile all along, before and after the manifestation condition for fragility—being dropped or struck—transpires; by contrast, the wire *i* is dead before being subjected to the electro-fink and live after. Hence, *with the electro-fink case, for the dispositional predicate 'is dead', we have a Lehrer-analog anti-necessity T–F counterexample to the SIMPLE conditional analysis of disposition ascriptions.*

The reverse electro-fink case involves a live wire (a fuse!) whose disposition is removed—quasi-masked—by the reverse electro-fink. This bears similarity to masking-type cases like the packaged porcelain cup, the key difference being that the cup remains fragile when surviving the drop in one piece, while the reverse-electro-finked wire stops being live as soon as a conductor touches it. Notice, though, that (just as before) the reverse-electro-finked wire can also be construed as an object that quasi-mimicks being dead.

We can now see that David Lewis's proposed INTRINSIC (replacing SIMPLE) is, by adding clause (II), *custom tailored to handle the electro-fink and reverse electro-fink cases*. Here is why. Clause (II) specifies an additional subjunctive antecedent: for an object/substance/person *N* and for an intrinsic property of *N B*, "if *N* were to retain *B* for a sufficient time". This clause takes care of the electro-fink case precisely because in actuality, the wire in question *doesn't* retain its disposition of being dead when touched by a conductor; and if one thinks (along with Lewis) that dispositions are an intrinsic matter, then she expects that the wire has *some* intrinsic property responsible for its deadness, a disposition that the wire would lose when it is touched by a conductor. This way, a scenario most similar to actuality in which (I) holds is one in which (II) does not obtain. By considering

scenarios most similar to actuality in which both clauses obtain, we are looking at a different set of possible worlds than before, and in none of those worlds is the wire electro-finked. The reverse electro-fink case is handled in much the same way for the very same reason: the situations most similar to actuality in which the reverse-electro-finked live wire is touched by a conductor, are ones in which (II) does not obtain; the wire does not remain live; worlds most similar to the actual one in which both (I) and (II) obtain form a different set, none of whose members feature the reverse electro-fink on the wire.

At this point, we have come back to the connection between free will and dispositions: recall that Huoranszki (2011: 61) views accounts of dispositions as analyzing powers/abilities, and being free to act otherwise as a specific application of that analysis to a special power/ability. Further, Huoranszki, below, suggests that problems with SIMPLE indicate why MOORE's clause (i) should be supplemented with clause (ii):

> [Lehrer's] objection is correct exactly because the simple conditional analysis [of free will] is mistaken. The analogy between the Lehrer-Goldman debate about the analysis of our ability to perform an actually unperformed action on the one hand and the problem of finkish dispositions on the other is the key to understand how the original Moorean analysis can be revised and made correct. As [examples about finkish dispositions show], the [SIMPLE] conditional analysis fails *because how objects (or agents) would behave in specific circumstances is not sufficient to grant them a power or ability.* Our definition must also include a clause saying that they do not lose or acquire that ability when the circumstances in which the disposition is about to become manifest obtain. (Huoranszki 2011: 63; my emphasis. Zs. Z.)

I am sympathetic to Huoranszki's final conclusion. Moreover, I think it carries interesting implications for the dispositions debate for reasons that are considerably more decisive than what is given in this passage: I will spell them out at the end of this section.

I disagree with Huoranszki on an intermediate step, italicized above. It should read: "how objects would behave in specific circumstances is *neither necessary nor sufficient* to grant them a power or ability". After all, the electro-fink case (as well as its reverse counterpart) can be construed simultaneously as anti-sufficiency as well as anti-necessity counterexamples. And even if we don't call a wire's being dead a disposition (a questionable assumption to begin with, as I argued in the previous section), one of the finkish dispositions—the reverse electro-fink case with the live wire turning dead when touched by a conductor—is still an anti-*necessity* counterexample to SIMPLE.

In addition, calling for a supplementary condition to MOORE's (i) in the way that Huoranszki does in this passage is not an ordinary case of a definition being too broad, suffering from insufficiency, in need of being narrowed by one

or more additional conditions—along the lines of first "defining" 'zucchini' too broadly as a type of summer squash but (since the condition is satisfied by various squashes that aren't zucchini, such as the acorn squash) subsequently narrowing it by adding conditions like 'cylindrical in shape' or 'usually green'. Using this model for what clause (ii) is doing ignores the fact that the second half of the biconditional in Huoranszki does not merely list narrowing conditions: instead, it consists of a *past subjunctive conditional whose antecedent is being supplemented with additional conditions* (similarly to the move from Simple to Intrinsic). But that does something other than narrowing the second half of the biconditional: it narrows it in some respects and broadens it in others (similarly to when we added clause (II) to Simple). This is also shown by the fact that in the case of finkish dispositions, adding an analog of Huoranszki's clause (ii) to Simple would *simultaneously* take care of both the anti-sufficiency and the anti-necessity counterexamples, both the electro-fink and the reverse electro-fink case:

Nonreductive conditional account of disposition ascriptions
An object/person/substance *N* is disposed to *M* under *C* iff
N would *M* if
(I) it were the case that *C*, and
(II′) *N* were to retain its disposition to *M* when *C* for a sufficient time.

Here is why Nonreductive is not simply further narrowing the right hand side of Simple. With respect to the disposition of being live, the electro-finked dead wire *i* no longer presents an anti-sufficiency F–T counterexample because we are considering only those (counterfactual) scenarios in which *i* is touched by a conductor (by I), and the *electro-fink* no longer interferes with *i*'s *originally dead* disposition (by II′); the biconditional's second half claims that, among these situations, the scenarios most similar to the actual world all have *i* conducting electricity. Crucially, the set of most similar worlds is not a *narrowing down*, a *subset* of the set selected by (I) alone (as in Simple). And, with respect to the disposition of being live, the reverse-electro-finked live wire *i′* no longer presents an anti-necessity T–F counterexample, because we are considering only those (counterfactual) scenarios in which *i′* is touched by a conductor (by I), and the *reverse electro-fink* no longer interferes with *i′*'s *originally live* disposition (by II′); and among those, the scenarios most similar to the actual world all have *i′* conducting electricity. As before, crucially, the set of most similar worlds is not a *narrowing down* or a *subset* of the set selected by (I) alone (as in Simple).

NONREDUCTIVE is special in that the analysis in the second half itself includes the very disposition to be analyzed.[8] HUORANSZKI is another instance of a nonreductive analysis in which the very ability to perform an actually unperformed action, *the ability/power to act otherwise*, is featured in the analysis. Huoranszki (2011: 68–71) considers this nonreductive feature of his proposal; we'll do the same in the upcoming section. Beforehand, let's consider how NONREDUCTIVE (inspired by HUORANSZKI's clause (ii)) clarifies some of the issues surrounding the analysis of disposition ascriptions.

Notice that NONREDUCTIVE does not resolve the scenarios with the packaged porcelain cup, the styrofoam cup or the golden chalice: as things stand, all three remain counterexamples.[9] In this respect, just like INTRINSIC, NONREDUCTIVE seems custom tailored to handle the finkish cases.[10] Clearly, those who want to defend this account have to say something further about these outstanding problem cases. Why think NONREDUCTIVE is a step in the right direction then? Problems arising in connection with a recent proposal that received considerable attention—Michael Fara's (2005) so-called habitual analysis, which aimed to counter the weak points of INTRINSIC—confronts problems that make the inclusion of something like (II′) seem highly attractive.

Habitual claims—like "Mary smokes when she gets home from work" or "Huoranszki rides a bike to work"—"have something to do with what is *normally, or typically, or generally* the case" (Fara 2005: 64). Nonetheless, Fara insists that we shouldn't analyze them in terms of conditionals with an adverbial prefix like "Normally, if Huoranszki goes to work, he rides a bike".

> Fara (2005) proposes that instead of using conditionals to give an analysis of dispositions we should use what he calls *habituals*. Habituals are a commonplace device for characterizing how an object habitually behaves. [Huoranszki rides a bike

[8] Bird (1998) and Molnar (1999) are prominent proponents of nonreductive analyses of disposition ascriptions.

[9] After all, the chalice and the styrofoam cup actually retain their nonfragility (and the packaged cup its fragility), and are *actually* dropped, yet in the actual world, they break (don't break). So the counterfactual's antecedent conditions hold for the actual world while the consequent doesn't. This is not surprising given that clause (II′) of NONREDUCTIVE (in parallel with INTRINSIC) is custom-tailored to handle cases in which a disposition is lost/gained precisely when the realization condition is about to obtain. This is a feature that the finkish examples have but the cup examples lack.

[10] Of course, these sorts of problems don't arise in the context of the free will debate, in which mimick-type cases don't seem to be possible, and—depending on what we think about free will being compatible with some forms of the ability to act otherwise being masked—masking-type cases might not arise either. Fara (2008)—unlike Huoranszki (if I understand him correctly)—does think the ability to act otherwise can be masked without removing the ability.

to work], for example, is true even if, occasionally [Huoranszki rides the tram to work]. In this sense, we can think of habituals as expressing universal generalizations that tolerate exceptions. (Choi–Fara 2012: section 1.4.)

Fara's HABITUAL analysis of disposition ascriptions
An object/person *N* is disposed to *M* when *C* iff
(I′) there is an intrinsic property that *N* has in virtue of which it *M*s when *C*.

HABITUAL is custom-tailored to handle the masking cases: the porcelain cup is fragile even when on occasion it is packaged. It has an intrinsic feature in virtue of which it usually breaks when dropped. Fara takes this to be the analysis' selling point: "The best reason to prefer the Habitual Account is that it can solve the problem of masking" (Fara 2005: 71). HABITUAL adopts from Lewis (1997) the inclusion of an intrinsic property. The account is successful at handling all counterexamples to SIMPLE that we have discussed: the angel's presence around the gold chalice is exceptional; in the majority of the relevant scenarios (actual and counterfactual) in which the chalice is dropped, it doesn't shatter, making the habitual "The chalice shatters when dropped" false despite the exceptions. Moreover, the chalice's not breaking is a matter of its intrinsic features, so the disposition ascription "The chalice is fragile/disposed to shatter when dropped" is false according to HABITUAL, just as we wanted. Parallel explanations make "The styrofoam cup within earshot of the Styrofoam Hater is fragile", "The electro-finked wire is live" likewise false, and "The reverse-electro-finked wire is live" true. All promising results so far. But HABITUAL faces profound problems.

Juhani Yli-Vakkuri (2010) forcefully argues that despite Fara's insistence that his is a non-conditional analysis, HABITUAL is logically equivalent to a *ceteris paribus* conditional analysis like the following:

Ceteris Paribus (CP) conditional analysis of disposition ascriptions
An object/person/substance *N* is disposed to *M* under *C* iff
ceteris paribus N would *M* if
(I) it were the case that *C*.

The idea is that an object is disposed to break when dropped just in case, other things being equal, the object would break if dropped. Such a modification of SIMPLE is supposed to exclude exactly those cases that are counterexamples to SIMPLE: masking, mimicking, electro-fink and reverse electro-fink cases. But the move to CP renders the analysis vacuous, claim C. B. Martin (1994: 5–6) and Yli-Vakkuri (2010: 664–665). For the way to understand CP is that it is supposed to exclude all cases that are counterexamples to SIMPLE. But what such cases have in common is no more than that they are counterexamples to SIMPLE. So if Yli-

Vakkuri is right that HABITUAL reduces to CP, then the former is just as vacuous as the latter.

There are two further considerations of my own that also point in the direction that HABITUAL is ultimately vacuous: Fara's remarks about the context sensitivity of HABITUAL on the one hand, and about so-called entrenched finks on the other. We'll consider these in turn.

First, Fara (2005: 74–76) imagines that the porcelain cup is an extremely valuable museum piece that specialists have carefully packaged; suppose the packaging is invisible. A vandal is determined to break the cup, does not know about the packaging, and deploys all manners of destruction but does not succeed. Exasperated, he says

(5) The damn cup just doesn't break when struck!

The museum specialists respond:

(6) Oh, but it *does* break when struck (that's why we protected it in the first place).

How can both the vandal's and the specialists' utterance be true? Fara's response: "the cup does have an intrinsic property—say its weak molecular bonding—in virtue of which, if the *museum specialists* were to utter (6), *they* would speak truly" (Fara 2005: 76; emphases in the original). Meanwhile, Fara is suggesting that in the context of the vandal's utterance, this particular property will not make the second half of HABITUAL true, nor will any other intrinsic property of the cup's. But why exactly is that the case? Fara gives no explanation apart from saying that (5) in the vandal's mouth seems true and that context dependence can allow for (5) and (6) being simultaneously true, in the same way that two people can simultaneously make true utterances by one saying "I am happy" and the other "I'm not happy". But that does not *explain* how the vandal's utterance comes out true rather than false according to HABITUAL.

Second, Fara (2005: 76–78) makes a distinction between transient versus entrenched finks. A transiently finkish wire is attached to the electro-fink only "temporarily, or rarely, or sporadically". Fara gives two examples of entrenched finkishness:

> Imagine that the copper wire, when placed in the circuit, is immediately attached to the [reverse electro-] fink, perhaps as a safety precaution… We might say that being attached to the fink is a "way of life" for the wire. This would be a case of *entrenched finkishness*. … If being attached to such a device is a way of life for the wire, then it seems absurd to say that the wire is disposed to conduct electricity when touched by a conductor…

> [s]uppose a sturdy wooden barrel, which we might ordinarily describe as being disposed to roll when pushed, is nailed to the floor of a seafood restaurant, to add to the restaurant's nautical décor. We can imagine that the barrel has been on display in the restaurant for several years, and that it regularly resists attempts of drunken patrons to roll it by pushing. Again, it seems clear that this barrel, unlike most others, is *not* disposed to roll when pushed; instead it is disposed to stay perfectly still when pushed, as the unsuccessful attempts of the drunken patrons attest. (Fara 2005: 77–78; italics in the original, my underlining. Zs. Z.)

The underlined parts highlight Fara's appeal to what he considers decisive linguistic intuitions to the effect that the wire with the entrenched reverse-electro-fink is not disposed to conduct electricity, and that the nailed-down barrel is not disposed to roll when pushed, so (7) is false.

(7) The barrel is disposed to roll when pushed.

Fara claims that HABITUAL yields just this verdict: despite intrinsic features of the wire and the barrel, the right hand side of the biconditional comes out false due to the enduring extrinsic finks—because the wire's *not* conducting electricity is not an exception but the rule for that particular wire (given the entrenched fink); and because the barrel's *not* rolling is likewise not an exception but the rule for that particular barrel.

I see a problem with Fara's take on the cases of entrenched finkishness. It is unclear that HABITUAL makes the barrel's immobility unexceptional; that depends on what the range of relevant scenarios is among which immobility is unexceptional. But as we saw in the previous paragraph, utterances of disposition ascriptions are context-sensitive, so we can imagine, besides the false utterance Fara is highlighting, a true utterance of (7) in the case of entrenched finkishness (the same way we had imagined the vandal and the museum specialists). So somehow the range of relevant scenarios in the two contexts has to be such that immobility is exceptional in the case of the true utterance but unexceptional in the case of the false one. There is, however, no guidance whatsoever from HABITUAL as to how we might achieve this other than by fiat: for each utterance, the range, whatever it is, has to be such that the truth value comes out right. But that is just as vacuous as saying that an utterance is true when it's true and false when it's false.

In sum, there are several reasons to think HABITUAL is vacuous. The account can accommodate any intuition (putative or real) about utterances involving disposition ascriptions; but such extreme flexibility breeds lack of explanatory power.

The possibility of entrenched finkishness has implications that go beyond HABITUAL. Recall that it had seemed as though INTRINSIC was making headway

with the finkish cases even if not the others (the chalice and the packaged cup). But if we grant the intuitions Fara is appealing to in the entrenched finkishness cases—admitting that (7) is false when said about a barrel whose "way of life" is being nailed down in a restaurant—then we have undermined INTRINSIC. For the very idea behind INTRINSIC had been that disposition ascriptions are an intrinsic matter and extrinsic features, whether they be transient or entrenched, make no difference to what dispositions the object in question does or doesn't have. This way, what hope of progress INTRINSIC brought relative to SIMPLE is tarnished.

To be sure, NONREDUCTIVE is still susceptible to counterexamples like the chalice and the packaged porcelain cup. Yet in the light of the shortcomings of various reductive analyses of disposition ascriptions (SIMPLE, INTRINSIC, HABITUAL), NONREDUCTIVE is showing renewed promise: at the very least, it can handle finkish cases across the board, be they transient or entrenched.

5. WHY NONREDUCTIVE DOESN'T MEAN NONSTARTER

Is a nonreductive analysis of free will such as HUORANSZKI worth having? Huoranszki (2011: section 1.4) gives an affirmative answer, claiming that the reference to ability retention in clause (ii) …

> …is innocent and does not make our analysis viciously circular. The second occurrence of the ability in the analysans stipulates only that whatever the analysandum refers to will not be altered by the circumstances that the analysans specifies. And this can be included in the specification of the circumstances among which the ability would become manifest without making the analysis uninformative. (Huoranszki 2011: 68.)

Shortly after, Huoranszki claims that a nonreductive analysis is the only one worth having, and suggests that the reasons for this are illuminated by the problems that reductive analyses of disposition ascriptions encounter:

> My version of the conditional analysis does not aim to provide a reductive analysis of the abilities relevant for freedom of the will. In fact, I do not think that any such analysis is worth seeking or can be given. To see why, let me compare again my analysis of free will to the analysis of dispositions. A reductive analysis of dispositions would require that we analyze the meaning of every power which can be (truly) ascribed to an object in terms of occurrent and/or categorical properties. However, I doubt that any such analysis is possible at least for two reasons. (Huoranszki 2011: 69.)

Huoranszki's second reason is that in spelling out the appropriate manifestation conditions for a dispositional notion like fragility (a kind of power), we inevitably resort to including powers in our analysis. For example, it won't do to say that a fragile object is one that would break if it were struck; we need to say something like "if it were struck *by a hard object*". Such an analysis of fragility is illuminating even though it involves hardness (another power). We can appreciate this point even more if we consider in-between objects like the neither fragile nor non-fragile melamine cup which does have more specific dispositions, like being disposed to break when dropped with a certain minimum speed/from a certain minimum height, etc.

Part of Huoranszki's first reason is that accounts in terms of intrinsic properties (like INTRINSIC and HABITUAL) are problematic because it is doubtful that every disposition is intrinsic.[11] The intuitions surrounding entrenched finkishness cases—(7) being false—provide further support for this claim.

I concur with Huoranszki's conclusion: it is unlikely that disposition ascriptions are susceptible to a reductive analysis. But the reasons I spelled out in this paper are distinct from Huoranszki's. When it comes to disposition ascriptions, we can hope to handle finkish cases along the lines of INTRINSIC. Masking and mimicking cases—related in a crucial way that is not usually recognized in the literature—might move us towards HABITUAL. But then we are faced with cases of entrenched finkishness undermining not only HABITUAL but also casting doubt on what INTRINSIC had achieved. The way out seems to take us in the same nonreductive direction that Huoranszki's clause (ii) does.[12]

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[11] The other part of Huoranszki's first reason is this: an analysis in terms of the internal structure of an object can hardly avoid mentioning dispositions: "it seems that an internal structure can 'realize' a disposition only if the *structure itself* has certain dispositional features" (Huoranszki 2011: 69; emphasis in the original); an analysis like INTRINSIC does not, in the end, present a reductive, disposition-free alternative then.

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