

A semantic constraint on the logic of modal conditionals

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1 Introduction

Capturing the semantics of modal discourse (talk of what's necessary/possible or required/allowed) hardly seems possible without possible worlds.* And yet one of their most basic applications turns out to be irreparably flawed when it comes to certain modal conditionals. If we want to make amends, we have to fundamentally revise the semantics of modal conditionals.

My focus is on *deontic* logic, a special kind of modal logic about what laws/norms allow and require, be they traffic laws, moral laws, or health considerations. But the arguments carry over to bouletic modality, about what someone's desires allow and require, as well as circumstantial (or dynamic) modality, about what a given set of circumstances require. Conversational context decides various details about interpreting modal expressions (Kratzer 1977, 1981, 1991): whether the modal expression at hand is deontic, epistemic, bouletic, or some other; and if it is, say, an epistemic modal, whether the relevant epistemic background concerns my knowledge, or someone else's.

Three lead characters are featured: Symptom, Culprit, and Link. In their order of appearance:

- ▷ *Symptom* — a kind of conditional whose truth is guaranteed within the standard semantics: any conditional of the form *if p then it must be that p*; more generally, any conditional of the form *if p then it must be that q where q follows from p* is automatically true.
- ▷ *Culprit* — a long-standing tradition, a mainstay of possible worlds semantics: necessity, requirements are spelled out in terms of universal adherence to those requirements in a selected range of possible worlds—a requirement to eat vegetables in terms of vegetables being eaten across the worlds that count. *It must be that p* is true just in case in all possible worlds that count, *p* is true. (Which worlds count is an important issue taken up in Act I.)
- ▷ *Link* — a semantic expectation linking conditional and unconditional requirements. According to it, in worlds/situations in which I eat marshmallows, the conditional requirement *If you eat marshmallows, you must brush your teeth* functions the same way as the unconditional (or absolute) requirement *You must brush your teeth* would.

Act I: In working out a semantics for deontic modality (along with its bouletic and circumstantial cousins) we encounter Symptom, which has plagued deontic logic from its inception, but went largely unnoticed apart from Frank (1997), Jackson (1985), and Zvolenszky (2002). Symptom arises from the combination of just two features—Culprit and the non-negotiable assumption Link. To remove Symptom, Culprit has to go.

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Act II: Symptom makes relatively harmless solo appearances elsewhere. In the case of epistemic modality (about what's required by/consistent with someone's knowledge), it is associated with a dispensable culprit that is easily removed. One way to do this is by following Frank's suggestion—modal conditionals treated as doubly modalized—to improve on Kratzer's semantics (Frank 1997; Kratzer 1981, 1991). Certain conditionals related to *teleological* modality (about what someone's goals require/allow) also exhibit Symptom, but that is just what we expect of them (see von Stechow & Iatridou 2005 on so-called anankastic conditionals). So we can let them be, there is no need to look for a culprit to be removed.

Act III: Attempts at rescuing Culprit (by Jackson 1985, Geurts 2004) serve only to undermine it in the end, so alleviating Symptom still involves giving up on Culprit.

2 Symptom and deontic modality

Our troubles begin: *any conditional statement of the form if p then it must be that p is automatically true*, even though some instances of this schema are clearly false; witness the following:

- (1) A specific deontic background is assumed: Hungarian traffic laws. (*speed* is short for *exceed the speed limit*)
 - a. (As Carl rides along the M3 motorway headed for Besenyőtelek,...)
...if Carl speeds, then he must speed.
 That is, *...if Carl speeds, then traffic laws require him to speed.*
 - b. (As Carl rides along the M3 motorway headed for Besenyőtelek,...)
...if Carl blinks, then he must blink.
 That is, *...if Carl blinks, then traffic laws require him to blink.*

Both conditionals are naturally read as false. For clearly, Hungarian traffic laws do not condone, let alone require Carl's speeding, even if he happens to speed. And the same laws are altogether silent about blinking, even if Carl happens to blink.

A more general version:

Symptom: Any conditional statement of the form *if p then it must be that q* where *q* follows from *p* is automatically true.

There are plenty of counterexamples to this, too. In addition to the examples in (1), consider the following (assuming the same deontic background):

- (2) (As Carl rides along the M3 motorway headed for Besenyőtelek,...)
if Carl talks on his mobile then: he must have a mobile.
he must move his lips.
he must be awake.
he must be breathing.

That is, *...if Carl talks on his mobile then traffic laws require him to have a mobile/move his lips/be awake/be breathing.*

(I formulated Symptom based on the modal notion of *ought to be/must be*, but there is also the issue of what an agent *ought to do*. Symptom would arise for the latter notion as well, see Jackson 1985: pp. 192-195.).

What gives rise to Symptom? It appears as soon as we assume two very basic components, neither of which has stirred much controversy. One of them is Culprit: the enduring, ubiquitous assumption that we represent *it is necessary/must/can/ought/have to be that p* based on whether *p* holds across the worlds that count. For example, the requirement to obey the speed limit is cashed out in terms of the speed limit being obeyed in every one of the worlds that count.

Culprit: For any modal modifier *m*, the meaning of *m(p)* is a function of *p* holding in the possible worlds that count:

- ▷ if *m* = *must/should/ought to/have to*, then *m(p)* is true just in case *p* is true in every one of the worlds that count.
- ▷ if *m* = *can be/might/may*, then *m(p)* is true just in case *p* is true in at least one of the worlds that count.

(On a side note: consider a true utterance of *You ought to take the train but you don't have to*. Examples like this indicate that the force of *ought* and *have to* cannot be identical; this issue is taken up in Sloman (1970) and von Fintel & Iatridou (2005); for the purposes of this paper, I gloss over the difference.)

The definition for Culprit does not attempt to analyze away modality; because modal notions like accessibility and closeness are needed to delineate the worlds that count:

Accessibility: Worlds count if they are accessible from the actual world based on some dimension of accessibility.

Examples:

- deontically accessible worlds: the law-abiding worlds (worlds that obey relevant laws of the actual world);
- epistemically accessible worlds: those consistent with what someone knows.

Closeness: Worlds count if they are closest to the actual world based on some dimension of closeness.

Examples:

- deontically closest worlds: the most law-abiding among the worlds (chances are the actual world is not included);
- bouletically closest worlds: those that fulfill most of the relevant desires.

Kratzer (1981, 1991) implements both accessibility and closeness in her doubly-relativized framework: the accessible worlds comprise the modal base out of which the closest worlds are selected by an ordering source. An example:

- (3) Carl should not exceed 130 km/h.

Here, the modal base includes worlds where relevant circumstances—Carl's riding along the motorway (as opposed to a town)—match those of the actual world; Hungarian traffic laws act as the ordering source: the more a world obeys the laws, the closer it is to the actual world.

We have so far seen two varieties of modal statements: absolute requirements of the form *it must/should (etc.) be that p*, and conditional requirements of the form *if p then it must/should be that q*. How do we parse and interpret conditional requirements? This was one of the first debates sparked by von Wright (1951)’s proposal that we treat deontic notions within a modal logic framework. Do we construe modal conditionals as $\Box(p \supset q)$ or as $p \supset \Box q$? Or do we assign them a structure that is altogether different—a dyadic operator $O(-/-)$ taking two arguments, one for the antecedent, one for the consequent (von Wright 1956, van Fraassen 1972, and Lewis 1974)? O stands for *ought* and obligation; $O(q/p)$ is read as *It ought to be that q given p*. The dyadic notation allows neutrality about the specific semantics and syntax of conditional requirements; I will adopt it for this reason, showing that Symptom arises independently of the specific syntax and semantics we assign to conditional requirements. I mentioned already that inducing Symptom takes two features: Culprit and ...

There is one very attractive link that suggests itself between absolute requirements and conditional ones:

Link: Conditional requirements are just like corresponding absolute requirements in worlds in which their antecedents obtain.

This is supposed to be at the foundation of the semantics for conditional requirements. Consider a garden-variety conditional unlike the Symptomatic conditionals in (1) and (2):

- (4) Deontic background: directions for getting to Besenyőtelek.
 If you are riding a motorbike from Budapest to Besenyőtelek, you should take the Fűzesabony exit off the M3 motorway.
 That is, *Directions to Besenyőtelek require you to take the Fűzesabony exit off M3 if you are riding a motorbike from Budapest to Besenyőtelek.*

Intuitively, (4) applies to Besenyőtelek-bound, motorbike-riding situations, requiring that in such situations one take the exit in question. Link has it that in these scenarios, the conditional requirement in (4) function the same way as the absolute requirement *You should take the Fűzesabony exit off the M3 motorway* would.

We should not confuse Link with the syntactic rule (or derivation) of Detachment, which parallels Link: for worlds in which our premises include some conditional requirement and its antecedent, we can derive an absolute requirement involving the consequent:

$$\frac{O(q/p), p}{\therefore O^*(q)} \quad (\text{Detachment})$$

$O^*(-)$ is the one-place *ought* operator for absolute requirements (of course, we could define it in terms of the two-place O as $O(-/A \supset A)$).

According to Jackson, “[d]etachment is plausible. If it ought to be that Attila goes to jail given that he has raped and pillaged, and he has raped and pillaged, then it ought to be that Attila goes to jail.” (Jackson 1985: p. 191) Tomberlin (1989: p. 110) concurs: such inferences have to be valid “...for statements of conditional obligation to play a genuine role in the normative guidance of conduct”. Still, it is important to distinguish Detachment from Link because the latter is even more general. For example, in van Fraassen (1972)’s framework, Detachment cannot be derived (see Tomberlin 1989); nonetheless, he adheres to the semantic expectation (see van Fraassen (1972: p. 421)).

Here is how Symptom is induced by Link and Culprit. Consider a Symptomatic conditional that is intuitively false and yet Link and Culprit together guarantee its truth:

- (5) Deontic background: again, directions for getting to Besenyőtelek.
 If you are riding a motorbike from Budapest to Besenyőtelek, you ought to ride a motorbike.
 That is, *Directions to Besenyőtelek require you to ride a motorbike if you are riding one from Budapest to Besenyőtelek.*

The evaluation of the plausibly true (4) and the plausibly false (5) starts out the same way: Link instructs us to look at Besenyőtelek-bound, motorbike-riding situations; the result we want: in every such situation,

- i. *You ought to take the Fűzesabony exit off M3* is true, and
- ii. *You ought to ride a motorbike* is false.

But Culprit thwarts this combination. Recall that for (i), all possible worlds (situations) that count have to be ones in which the Fűzesabony exit is taken to get off the M3. The situations that count are ones where directions to get to Fűzesabony are followed (or followed more than in the other situations under consideration). The all-important question is: which of two ways do we go—Exclusive or Inclusive?

Exclusive approach: Restrict our attention to only those scenarios that satisfy the conditionals' antecedent—riding a motorbike from Budapest to Besenyőtelek—and disregard situations that involve say, an Eger to departure, or a car ride, rather than a motorbike ride; or

Inclusive approach: Look more broadly at situations of all sorts—Eger and Budapest departures alike—as long as they are situations in which the driving instructions are followed.

The Exclusive approach does deliver (i): in every one of the situations in which the driving directions are followed, the Fűzesabony exit is taken off the M3. But the Inclusive approach is out: if we consider a broader range of “directions-abiding” situations, including ones with people approaching Besenyőtelek from Eger, then in those situations, following directions involves avoiding the M3 motorway altogether. That in turn would make it so it's no longer true that in every situation that counts, the Fűzesabony exit is taken off M3. So *You ought to take the Fűzesabony exit off M3* comes out false by Culprit, making (4), which should have been true, come out false. Foundering on garden-variety conditionals like (4) in this way is unacceptable given Link. Our only option therefore is the Exclusive one which, however, fails to deliver (ii): every situation in the restricted range of worlds that count involves riding a motorbike, so by Culprit, *One ought to ride a motorbike* is true. (5), along with other Symptomatic conditionals is true then. Could we perhaps retain both approaches and apply the Inclusive one to Symptomatic conditionals while keeping the Exclusive one for garden-variety conditionals like (4)? I will revisit this possibility (independently suggested by Jackson 1985 and Geurts 2004) towards the end of the paper, showing that it is tantamount to giving up Culprit.

Why worry about being saddled with Symptom? Logicians have tried not to:

A [...] point of criticism concerns the formula $O(B/B)$. This is almost always true...
 ‘Rightly understood’ of course, it is true; if we have put ourselves in a situation in

which a certain ideal can no longer be attained, then doing the best one can will involve not attaining that ideal. No use crying over spilt milk. (van Fraassen 1972: p. 437)

I wondered about the normative status of unalterables. Sometimes it seemed to me that it would be best to say that if a state of affairs is unalterable for a person at a time, then that state of affairs has no normative status for the person at the time. ... My impression then (and now) is that the cost of [the resulting] complexity exceeds the alleged benefit of getting a more intuitive truth value assignment for unalterables. I prefer to say that whatever is unalterable for a person at a time is therefore, somewhat degenerately, obligatory. There is no need to be concerned about all the obligations thereby induced. Since these things occur in every world accessible to the relevant individuals, it will be impossible for them to fail to fulfill these obligations, no matter what they do. (Feldman 1990: p. 329)

Still, Jackson is right:

... ‘It ought to be that there are spies and I catch some given there are spies’ strikes us as false, as does ‘It ought to be that there are spies given there are spies’. (The fact that some theories of conditional obligation would make the latter true is an *objection* to them...) (Jackson 1985: p. 181; emphasis in the original)

Our account allows $O(A/A)$, as well as $O(\sim A/A)$ to be sometimes true and sometimes false... this seems right. ‘It ought to be that I tell the truth given I tell the truth’ seems true, while ‘It ought to be that Hitler exterminated millions of Jews given he exterminated millions of Jews’ seems false. By contrast, the standard view makes $O(A/A)$ always true. (Jackson 1985: p. 191)

An adequate account of deontic conditionals cannot afford maintaining the unintuitive truth-value assignments to Symptomatic conditionals—Symptom has to go then; Link is much too fundamental to be dispensable; so Culprit is the odd one out. And life without Culprit is livable. True, we can no longer analyze *It must be that p* in terms of possible worlds making *p* true, but it is unclear that necessity and requirements need an analysis in the first place. Maybe we could simply posit the requirements of a possible world (laws, obligations, duties, desires, etc.) the same way we posit its goings-on (motorbike rides, excursions to Besenyőtelek, vegetable consumption, etc.). Elsewhere (Zvolenszky 2002) I recommend this alternative but won’t dwell on it here.

3 Epistemic and teleological modalities

Why haven’t logicians and linguists recognized the gravity of the problem at hand? Building up an analogy will help explain:

Mischievous elves visited my household; they were struck by a similarity among three of my appliances: the reflective glass front shared by my television, my oven, and my microwave, and decided to carry the resemblance one step further: by making sure that the glass front stays fixed, unopenable on each appliance. With the TV, the elves did not have to do a thing, the glass was unopenable to begin with. With the microwave, the elves Scotch-taped it shut. With the oven, they decided on a more permanent solution: they welded the door shut.

Consider a symptom that thanks to the elves is now multiply instantiated around my apartment: appliance fronts do not open. In particular, the symptom is instantiated by my TV, oven, and microwave. Despite the presence of the symptom, all is well with the TV: the reflective front has always been unopenable. With the microwave, the symptom signals a problem, but one that can be easily fixed—I simply remove the culprit: the Scotch tape. With the oven, things are far more complicated: to remove the culprit and make the welded door openable again, I will likely have to call an expert and pay heaps for repairs, replacement parts. A seemingly innocuous symptom—an unopenable front—that signaled no flaw in my TV, was easily fixed on my microwave, turns out to be a costly, complicated affair for my oven.

With respect to Symptom, various stripes of modality are like my various appliances:

- ▷ *epistemic modality* (about knowledge) is like my Scotch-taped microwave. Symptom arises in Kratzer (1981, 1991)’s framework; it is unwelcome but can be fixed easily with the help of a double modalization maneuver Frank recommends in her dissertation (Frank 1997). (The double modalization proposal also goes by the label ‘nested modality’.)
- ▷ *conditionals related to teleological modality* (about goals) are like my TV. Symptom arises, but there is nothing wrong with the fact that it does. No need to fix what isn’t broken.
- ▷ *deontic, bouletic and circumstantial modality* (about norms/desires/circumstances) are like my oven. Symptom has to go and removing it is costly—as we have already seen, it amounts to removing a basic tenet of possible worlds semantics: Culprit.

Epistemic modality is special in that the Detachment schema (described earlier in connection with Link) does not seem plausible for one sort of reading—about knowledge available to a subject:

- (6) premise 1: If this is the M3 motorway then I must (given what I know and given my goal to get to Besenyőtelek) stay on it until the Fűzesabony exit.
 premise 2: This is the M3 motorway (whether or not I know it).
 conclusion: I must (given what *I* know) stay on this road until the Fűzesabony exit.

This should constitute invalid reasoning—given the two premises, situations in which I am somewhere in Eger could well be consistent with what I know (because for all I know, I could be in Eger), despite the fact that I am not in fact in Eger but on the M3; and in such situations, given the knowledge I have about driving directions, I do not take the Fűzesabony exit (since from Eger, the directions tell me to avoid M3); so the conclusion does not follow.

We can fix the argument by replacing premise 2 with *I KNOW that this is the M3 motorway*. It is this idea that is exploited by Frank (1997: Section 2.2.3). In effect, we can think of her alternative account as one that makes room for the Inclusive approach, a move that would have been implausible for deontic modality (given Link and Detachment), but is plausible for epistemic modality. Frank suggests that we combine Kratzer (1991)’s treatment of modals and conditionals. Let’s look at an epistemic reading of a Symptomatic conditional:

- (7) Epistemic background: information I have about my whereabouts and about Hungarian geography.

If this is the M3 motorway, then it must be the M3 motorway.

That is, *If this is the M3, then I know that it is the M3.*

(7) is not the least bit trivial—figuring out that I’m on the M3 (and figuring out any truth about the world, for that matter) constitutes substantive knowledge. Yet it is only in passing that Kratzer (1991: p. 645) notes that her account (along with others) makes (7) true. On Kratzer’s theory as well as Frank’s version, we start out with a modal base comprising the epistemically accessible worlds (those compatible with what I know); in some, the road in question is M3, in others it isn’t. The antecedent restricts the modal base to just those worlds where the road in question is M3. It is here that Frank departs from Kratzer: instead of checking if *This is M3* (part of the consequent) is true in every world of the modal base (which it is), Frank suggests that we evaluate *This must be M3* with respect to each world in the modal base. That involves checking for each world the worlds epistemically accessible from it. And at this point, we are free to include epistemically accessible worlds in which the road in question is not M3. This way, we can avoid making the Symptomatic conditional (7) automatically true. Frank’s solution is a natural extension of Kratzer’s theory; it is easy to implement—like removing Scotch tape.

Teleological modality: let us switch the deontic background for (5) (about obeying instructions) to a teleological one (about obtaining goals):

- (8) Teleological background: the goal is to get to Besenyőtelek.

If you are riding a motorbike to Besenyőtelek, you must ride a motorbike.

That is, *Given your goal of reaching Besenyőtelek, you are required to ride a motorbike if you in fact are riding one to get there.*

This does not ring true because there are many optional details in the course of realizing a goal—hopping on a motorbike or taking a car; wearing sunglasses or not wearing any. Just because Carl happens to ride a motorbike, does not make his doing so a requirement given his target destination. This suggests that teleological modality belongs in the welded-oven group along with deontic modality. But notice that the following anankastic conditional does ring true (the ‘anankastic’ label signaling inevitability):

- (9) If you want to get to Besenyőtelek by motorbike, you have to ride a motorbike.

A related sentence on which von Fintel & Iatridou (2005) (see especially p. 17) base their account of anankastic conditionals like (9) likewise seems true; uninformative, but true all the same:

- (10) To get to Besenyőtelek by motorbike, you have to ride a motorbike.

When it comes to (9) and (10) then, Symptom is present but spells no trouble, and just like my TV, needs no fixing.

The fact that Symptom isn’t bad news elsewhere does not make it better news for deontic, bouletic and circumstantial modality. Given that arriving at Symptom takes only Culprit and Link, we cannot expect any easy fixes such as switching to another account of conditionals, or changing a rule of inference. Yet deontic paradoxes far less problematic than Symptom have gotten all the attention. There isn’t enough space here to compare Symptom with the Good Samaritan and Gentle Murder paradoxes, and the syntactic rule of Detachment with Entailment. I hope to do that elsewhere.

4 Symptomatic relief

Frank (1997: Section 4.2–3) offers a way of blocking Symptom—at the price of generating a different though related symptom I discuss in Zvolenszky (2002).

(11) If Annie Hall is making a U-turn, then she should not be making a U-turn.

This cannot be represented as true in Frank’s framework, yet it seems exceedingly plausible to someone who thinks that every driving maneuver of Annie Hall’s constitutes a traffic violation. More generally, on Frank’s proposal, every conditional of the form *if p then it must be that p* and *if p then it must be that not-p* comes out false (See Jackson 1985: p. 191. for more counterexamples).

For reasons that are parallel, Jackson (1985)’s as well as Geurts (2004)’s accounts amount to giving up on Culprit in the end. This serves to reinforce my conclusion, rather than deflecting it. Recall the debate over adopting the Exclusive approach (which retains restrictions to conditional antecedents when evaluating the second half of modal conditionals) or the Inclusive approach (which removes the restriction). In effect, both Jackson and Geurts propose that we keep the Exclusive approach to handle garden-variety conditionals, and alongside it, retain the Inclusive approach to make Symptomatic conditionals false. Jackson and Geurts do this by distinguishing two possible readings of deontic conditionals, recommending the Exclusive approach for one reading, the Inclusive one for the other. Before addressing why neither account rescues Culprit, I will briefly outline each.

Jackson (1985: p. 187–188) thinks that requirements are to be interpreted relative to alternatives (see also Sloman 1970). For absolute requirements, this means the following. *It ought to be that I tell the truth* is construed as *It ought to be that I tell the truth out of {I tell the truth, I do not tell the truth}*, which is true if and only if the closest worlds in which I tell the truth are better than the closest worlds in which I don’t. With respect to conditional requirements, Jackson has two choices: $O(q/p)$ is read as either *It ought to be that q out of {q, ~q}*, or as *GIVEN p, it ought to be that q out of {q, ~q}*. The difference between the two options is crucial: the first proposes to include non-*p* alternatives (in accordance with the Inclusive approach); the second excludes them (in accordance with the Exclusive approach). Jackson thinks the first option is plausible for Symptomatic conditionals like (1), (2) and (5), while the second is needed for ordinary conditionals like (4) and (11) (see Jackson 1985: p. 191).

Geurts (2004) points out that if we treat if-clauses as quantifier restrictions (following Kratzer 1991), then we get distinct readings depending on whether the if-clause restricts an overt or a covert quantifier. Consider the two truth-conditionally different readings of the following conditionals with the adverbial quantifier *often*:

(12) If Beryl is in Paris, she often visits the Louvre.

(a) *Overt reading*: Often, if Beryl is in Paris she visits the Louvre.

(the if-clause restricts the domain of the overt ‘often’, which quantifies over trips to Paris)

▷ true if, say, Beryl has made 4 trips to Paris, and on three of those trips, she visited the Louvre once, and on the fourth trip she did not go to the Louvre at all.

(b) *Covert reading*: If Beryl is in Paris, she visits the Louvre often.

(the if-clause restricts the domain of a covert quantifier over trips to Paris, whereas *often* quantifies over events more finely grained than trips, say days within a given trip.)

- ▷ (b)'s truth requires that Beryl make multiple, frequent visits to the Louvre every time she goes to Paris.

Geurts thinks that this sort of ambiguity is quite general and sometimes two structurally identical conditionals each have a single natural reading that is distinct from the other's: one is overt, the other, covert. Indeed, this is his diagnosis for Symptom (although his sole motivation for positing the ambiguity for modal conditionals is that he can thereby avoid Symptom without touching Culprit; that's putting the cart before the horse). He thinks that the natural reading of the ordinary conditional (4) is the overt one (as the Exclusive approach would have it), whereas for the Symptomatic conditionals (1), (2) and (5), the covert one (as the Inclusive approach would have it).

Whether we go Jackson's or Geurt's way, the issue is: what kind of account would capture the *right* reading for the Symptomatic conditionals, which call for the Inclusive approach, while retaining the plausible Exclusive approach to get the *right* reading of garden-variety conditionals? By positing an ambiguity, Jackson and Geurts have not improved the situation yet. All they have done is secure two readings for conditionals across the board: one that is plausible, and one that is (99 percent of the time) wide of the mark. Jackson and Geurts want more than room for ambiguity—for each conditional, they are aiming to deliver the intuitively plausible reading and that one only. Their goal is to capture the following contrast between (4) and (5): in Besenyőtelek-headed, motorbike-riding situations, driving directions do issue an instruction to take the Fűzesabony exit (hence the expectation that (4) be true), but don't impose any requirement about riding a motorbike (hence the expectation that the Symptomatic conditional (5) be false). But to formulate this very pair of points, Jackson and Geurts need to make independent appeal to the status of the conditionals in question, *determining independently of Culprit whether the conditionals are supposed to hold or not*. This relegates Culprit to the status of an afterthought stripped of its intended explanatory value. Both Jackson's and Geurt's accounts end up appealing to considerations that Culprit should have helped avoid; and once those considerations are allowed in after all, they obviate the need for Culprit, making it functionally inert.

Imagine a man deeply attached to his pocket watch, a family heirloom that has always been on the erratic side. The man is relieved when he gets himself a cell phone with a reliable clock function. He continues wearing his pocket watch however, and out of habit, he even checks the time on it; but every time he does that, he would also glance on his cell phone to double check the time and in case of disagreement, would always go by the verdict of his cell phone. On Jackson's and Geurt's accounts, keeping Culprit within the semantics of modal conditionals would mean relegating it to the status of the pocket watch as a time-telling device.

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