

Inferential Constraint and *If* ϕ , *ought* ϕ Problem

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(1) isn't trivially true. On many occasions of use, one might judge it false.

(1) If John is stealing, he ought to be stealing.

Yet, the following standard assumptions render it *trivially* true: (i) A modal quantifies over a (contextually restricted) domain of possibilities; (ii) a conditional's antecedent is a restrictor on a modal's domain. (i) is orthodoxy. (ii) is the well-established "restrictor account" of conditionals (3; 4; 5). In combination, they generate a problem: conditionals of the form *if* ϕ , *must/ought* ϕ are trivially true (2; 7). *John ought to be stealing* is true just in case John is stealing in all the worlds in *ought*'s domain; since its antecedent restricts the domain of *ought* in the consequent, all of the domain worlds are ones in which John's stealing, so trivially, in all of them John's stealing.

Extant solutions, I argue, are inadequate. Indeed, any account that relies on a specific analysis of conditionals or the interaction between conditionals and modals, is insufficiently general, as a version of the problem arises even outside conditionals. I propose instead that the solution lies in the inferential evidence requirement (IER) encoded in deontic modals. My account relies on no particular assumptions about the semantics of conditionals, and so is compatible with a variety of accounts, including the restrictor account.

Extant Solutions. Kratzer posits a covert (epistemic) modality in (1) and argues that it, rather than the overt *ought*, is restricted by the antecedent (3; 4). (1) is interpreted as conveying that *given that John's stealing, it must be that he ought to be stealing*.

But the *if*-clause cannot *always* restrict only the covert modal; *oughts* of conditional obligation require a restricted reading:

(2) If you speed, you ought to pay the fine.

An adequate account thus has to predict that the (overt) modal in the consequent sometimes receives a restricted, and sometimes unrestricted reading. The answer cannot be ambiguity, for (1) has no trivial reading.

An alternative response posits *Diversity condition* (2; 1):

[Diversity:] *ought* ϕ presupposes that the modal background entails neither ϕ nor $\neg\phi$.

Diversity could block the trivial reading of (1) by either forcing the doubly-modalized disambiguation, or triggering domain expansion to satisfy the presupposition. However, it overgenerates, predicting (3) is infelicitous (2; 7):

(3) The Dalai Lama is even-tempered, so if he is angry, he ought to be. (Adapted from (7).)

If *ought*'s domain is unrestricted by the antecedent, the conditional is false (given a plausible ordering source): the ideal worlds are ones in which nothing warranting the Dalai Lama's anger occurs, and he isn't angry.

Abandoning the restrictor account doesn't help either: any account must predict that sometimes we witness exclusively restricted, and sometimes exclusively unrestricted readings. Furthermore, no explanation that relies on a particular analysis of conditionals will be sufficiently general. The puzzle has non-conditional analogues:

(4) John's stealing. He ought to be stealing.

Here we can't appeal to double modalization to block restriction, nor can *Diversity* explain its absence, as it once again overgenerates:

(5) The Dalai Lama is only angry if he has a good reason to be; and he is angry! So, he ought to be angry.

And yet, *ought* sometimes must be restricted by the content in the preceding sentence:

(6) John was speeding. (So,) he ought to pay the ticket.

Proposal. Following (6), I argue that deontic modals require that the prejacent is justified by inferential evidence. This assumption is most strongly supported by the infelicity of deontic modals under inversion exclamatives (IE), which require that the evidence for their content be direct (6): (7) can be felicitously uttered if the speaker sees a car driving at high speed, or is told it goes 200mph; not so if they simply inferred it goes fast by learning it belongs to a collector of fast cars.

(7) Wow, does that car go fast!

Deontic (end epistemic) *must* is infelicitous under IEs, suggesting it encodes IER; *ought* patterns the same:

- a. # (Wow,) *must* Sue be the murderer! (6)
- b. # (Wow,) *must* you not murder!
- c. # (Wow,) *ought* you not murder!

Yet this is not a feature of modals in general: ability modals (*can*), future indicative (*will*), and subjunctive (*would*), all embed under IEs (6).

Intuitively, if considerations K justify ϕ , then ϕ is the ideal option *because* of K : were it not for K , ϕ wouldn't be ideal. I characterize this by comparing how things stand with respect to ϕ 's ideality (relative to some modal background and ordering source), holding fixed justificatory considerations K , and how once we relax this assumption.

[Justification.] A set of premises K justifies $[\phi]^c$ relative to a world of evaluation w , a modal background σ , and an ordering source g ($K \models_{w,\sigma,g} [\phi]^c$) just in case:

- (i) $\bigcap K \neq \emptyset$, $\bigcap K \cap [\neg\phi]^c \neq \emptyset$, and $\sigma \subseteq \bigcap K$;
- (ii) $Best(w, (\sigma + ([\neg\phi]^c \cap \bigcap K) \cup \sigma + ([\phi]^c \cap \bigcap K)), g) \subseteq [\phi]^c$; and
- (iii) $Best(w, (\sigma + ([\neg\phi]^c \cap \bigcap K) \cup \sigma + ([\phi]^c \cap \bigcap K)), g) \models [\phi]^c$.

where $\sigma + p$ is the minimal expansion to a body of information allowing for some p -worlds: i.e., lifting the commitment (if any) to the negation of p .¹

Unpacking: where K is a set of considerations entailed by the modal background σ , which doesn't itself settle the prejacent, we check whether minimally expanding σ to lift the commitment to the prejacent or its negation (if any), but keeping the commitment to K —by adding nearby prejacent-and- K - and non-prejacent-and- K -worlds—secures that all ideal worlds are prejacent-worlds; but that minimally expanding σ to lift the commitment to the prejacent or its negation (if any), *and* to K —by adding nearby prejacent-and-*non- K* -, and non-prejacent-and-*non- K* -worlds—admits at least some non-prejacent-worlds among ideal. If so, K justifies ϕ relative to σ (and w and g). That is, assuming K , the prejacent is deontically necessitated; not so without the assumption.

Deontic *must* requires there are contextually relevant considerations bearing on the prejacent, and asserts they justify it.²

[*must*.] Where $Best(w, \sigma, g)$ is the domain of ideal worlds determined by the contextually supplied modal base f , and ordering source g in c, w , and K a set of contextually relevant considerations in σ , such that $\bigcap K \neq \emptyset$, $\sigma \subseteq \bigcap K$, $\bigcap K \models [\phi]^c$ and $\bigcap K \not\models [\neg\phi]^c$:

$[\textit{must } \phi]^{c,w} = 1$ iff $K \models_{w,\sigma,g} [\phi]^c$.

If you were caught speeding, “You must pay the fine” is true (in c, w) just in case paying is ideal, holding the relevant circumstances fixed (while allowing both paying and not-paying is possible), but not if we lift the commitment to those circumstances (while still allowing that both paying and not-paying is possible). A plausible candidate for such contextually relevant circumstance is that you were speeding.

Solution. My account predicts (1) can be false. The antecedent entails the prejacent, and so cannot justify it. Nor is it guaranteed that there is another justification for it in the context. This means (1) won't be trivially true on either the singly- or doubly-modalized restrictor account: since it is not sufficient for the domain to be restricted to ϕ -worlds for *ought* ϕ to be true, we don't validate *if* ϕ , *ought* ϕ regardless of the restriction. Indeed, the prediction is born out on *any* strict conditional account of conditionals combined with my analysis of deontic necessity modals.

We also explain the intuitively restricted reading, without specific assumptions about conditionals. In conditional obligations, e.g., (2), given plausible assumptions about the context, the antecedent proposition—that the addressee speeds—*can* serve as justification for the prejacent of the modal in the consequent. Suppose the ordering source ranks worlds in which you speed and pay as worse than ones in which you don't speed, but better than ones in which you speed and don't pay. On the restrictor account, *ought*'s modal background

¹Formally: where σ is a modal background and p a proposition, $\sigma + p = \sigma$ if $\sigma \cap p \neq \emptyset$, else $\sigma + p = \sigma \cup \bigcup_{w' \in \sigma} Closest(p, w')$, where $Closest(p, w)$ is the set of most similar p -worlds to w , determined by contextual similarity in the usual way. Roughly, this delivers the most similar set of worlds to the one characterized by the original commitments that doesn't rule out p .

²Here, I'll assume the same clause for *ought*, as the differences are inessential for the main point. I discuss them at length in the paper.

is restricted to the worlds in which you speed. Further, that you speed is a contextually relevant circumstance, entailing neither the prejacent nor its negation. Given the ordering source, holding fixed that you speed,³ the ideal worlds will be ones in which you pay. But expanding to include nearby worlds in which you neither speed nor pay will include some of those among the ideal. The prejacent is justified, and so, (2) is true.

On a doubly-modalized restrictor account, the conditional is true just in case the *ought* claim is true in all the worlds in the covert modal's (restricted) background. All those are ones in which you speed. That you're speeding is explicit, and true throughout the covert modal's background, so plausibly, it will be included in the overt modal's background (in each of those worlds). Indeed, it is difficult to explain why it wouldn't be. But if so, the reasoning goes as before. The restricted reading is emulated.

We also capture (3) straightforwardly, regardless of the assumptions about conditionals. The antecedent entails the prejacent of the modal in the consequent, so cannot justify it: that he is mad doesn't in itself justify the Dalai Lama's anger. But, given that he is never mad without a reason, once we restrict the modal background to worlds in which he is mad, all those are ones in which there is a reason for anger. So, assuming the restrictor account, the background circumstances in the (restricted) modal background will entail that there's a reason to be mad. This (given plausible assumptions about the ordering source) justifies the prejacent. Suppose the ordering source specifies as ideal that there's no reason to be mad, and that one is mad just in case there's a good reason to be. Holding fixed that there's a reason to be mad, but lifting the restriction to include the closest worlds in which the Dalai Lama isn't mad (though there's a good reason to be), the ideal worlds would be ones in which he is mad. Yet, revising the modal background to include nearby worlds in which there's neither a reason to be mad, nor is the Dalai Lama mad, would no longer treat worlds in which he is as ideal. The prejacent is thus justified, and (3) true: if the Dalai Lama is mad, then he ought to be, since there's some good reason for him to be mad.

On a doubly-modalized account, the antecedent restricts the covert modal's background. By hypothesis, all the worlds in thus restricted background are ones in which the Dalai Lama is mad and there's a good reason for him to be. So, in each of the worlds in this background there is a contextually relevant circumstance that bears on the prejacent and, if included in the deontic modal's background (in that world), would justify the prejacent. Again, it would be difficult to explain why it *wouldn't* be included. And if it is, the reasoning goes as before: given the same assumptions about the ordering source, the prejacent is justified, so (3) is true. The interpretation is that if the Dalai Lama is mad, he ought to be, since there must be a good reason for him to be mad. The prediction doesn't rely on the antecedent restriction carrying over to the overt modal's background; what matters is that the justificatory circumstance does.

Since my explanation is independent of a particular account of conditionals, it automatically extends to non-conditional counterparts. The reasoning is the same as in the conditional case. Further, since IER is encoded in a range of other (but not all) modalities, my explanation will generalize across modalities that pattern with deontic modals, while also predicting trivial readings where they do in fact arise. Where they do arise, I argue, this is either due to a lack of IER, or due to the nature of the justification the particular flavor of modality requires.

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³Strictly: holding fixed that you speed but allowing both nearby possibilities in which you pay and ones in which you don't (though you speed), if none are already included.