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# Figuring out what we ought to do: the challenge of delineating priorities

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**Abstract**
This paper is concerned with the fine-grained representation of priorities in goal-oriented modal discourse. The question of how priorities are represented is evaluated in the context of the domain restriction approach to weak necessity (von Fintel and Iatridou 2008), which assumes a contextual split between primary and secondary priorities. It is argued that this approach is not complete without an elucidation of how the distinction between primary and secondary priorities is made, and that existing proposals do not provide an adequate characterization of this fine-grained distinction.

# Figuring out what we *ought* to do: the challenge of delineating priorities

Aynat Rubinstein[*]

## 1 Introduction

The ability to identify contextually-relevant priorities is a prerequisite for engaging successfully in goal-oriented (teleological) modal discourse. Not only do priorities change over time, under different circumstances, and for different individuals, it has also been argued that they come in two varieties in a given context—primary and secondary—even when the time, circumstances, and individuals in the context are kept constant. Motivation for positing a split between primary and secondary priorities comes from the domain of necessity modals, where it has been proposed that the strength of the necessity expressed by a teleological modal depends on the varieties of priorities it takes into account. The goal of this paper is to show that the basis of this important fine-grained distinction among priorities has not yet been adequately characterized in the literature.

In English, a strength difference is assumed to set apart modals like *have to* and *necessary* (*strong necessity modals*) from modals like *should* and *ought* (*weak necessity modals*). The source of the difference between strong and weak necessity modals is a topic of ongoing debate (Sloman 1970, Goble 1996, von Fintel and Iatridou 2005, 2008, Finlay 2009, 2010, Cariani 2009, Lassiter 2011, Charlow in press, Rubinstein 2012, Silk to appear). It does not seem to be a matter of variation along the dimensions provided by a standard quantificational possible-worlds semantics of modality (Kratzer 1981, 1991, 2012), namely quantificational force and contextually-determined modal flavor. The sentences in (1), for example, can both express the goal-oriented necessity of stopping for lunch in a context in which we are hungry and there is no other way to relieve our hunger.

(1)  a. It's necessary to stop for lunch soon.
     b. We ought to stop for lunch soon.

Both *necessary* and *ought* receive teleological (goal-oriented) or bouletic (desire-based) interpretations in these sentences, and both take the same priority into account, i.e., avoiding hunger.[1] Intuitively, these modals both express necessities. This is clearer perhaps in the case of *necessary*, but is typically assumed to be true of *ought* as well. Nevertheless, the modals *necessary* and *ought* are not synonymous. Setting aside differences in the range of modality types these particular modals can express, the standard assumption is that there is an asymmetric entailment relation between strong and weak necessity modals, a relation that gives rise to scalar inferences between them.

Within the Kratzerian quantificational approach to modality, von Fintel and Iatridou (2008) have proposed that differences in strength of necessity reflect a contextual distinction between primary and secondary priorities. In (1a), the priority to avoid hunger is a "primary" priority, whereas in (1b) this priority is only "secondary". They argue for a domain restriction approach to weak necessity, which involves granting weak necessity modals (and only them) access to primary as well as secondary priorities in the context.

The assumed distinction between priorities plays a central role in the domain restriction approach to weak necessity, but it has not been discussed at length or independently motivated. After presenting the formalization of this approach by von Fintel and Iatridou (2008) (Section 2), I lay out the challenge of distinguishing between priorities in teleological modal discourse in Section 3. I evaluate three proposals for how to make this distinction: one which relies on overt goal-setting adjuncts (Section 3.1), one which relies on conceptual differences between priorities (Section 3.2), and one which relies on the strength of personal preferences (Section 3.3). I conclude that these

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[1]Portner (2009) groups teleological, bouletic, and deontic modalities into a class called *priority modality*. The focus of this paper is on priority-type necessities of variable "strengths".

proposals are not successful in explaining the range of priorities that different necessity modals are sensitive to, and sketch an alternative approach to the split based on my own work (Section 4).

## 2  Multiple Priorities and the Semantics of Weak Necessity Modals

In the semantics of modality developed by Kratzer (1981, 1991, 2012), necessity modals are analyzed as universal quantifiers over possible worlds. Their domain of quantification is contextually determined by *conversational backgrounds*: functions that map evaluation worlds or situations to sets of propositions. Sets of propositions determined by a *modal base* represent relevant circumstances or pieces of evidence; those determined by an *ordering source* represent relevant norms or priorities. The domain restriction approach to weak necessity developed by von Fintel and Iatridou (2005, 2008) operates within this framework.

> Our conception of weak necessity then makes [weak necessity modals] universal/necessity modals just as much as strong necessity modals are. What makes them weaker semantically is that they have a smaller domain of quantification: strong necessity modals say that the prejacent [the proposition embedded under the modal] is true in all of the favored worlds, while weak necessity modals say that the prejacent is true in all of the very best (by some additional measure) among the favored worlds.
> (von Fintel and Iatridou 2008:119)

In a context which determines a modal base $f$ and an ordering source $g$, the *favored worlds* are the worlds compatible with the modal base that are most highly ranked by the ordering source (i.e., for an evaluation world $w$, these are the $g(w)$-best worlds in $\bigcap f(w)$; von Fintel and Iatridou 2008:117). According to von Fintel and Iatridou (2008), a strong necessity modal makes a claim about all of these worlds, whereas a weak necessity modal only makes a claim about a subset of these worlds.[2]

It is often intuitively clear which "additional measure" is invoked in context to interpret a given weak necessity claim. Consider the scenario in (2), for example.

(2)   [There are four different ways to get from Cambridge to Amherst by car in about two hours: the turnpike, Route 2, Route 9, and a combination of Route 9 and the turnpike.]

In this scenario, any consideration above and beyond reaching Amherst could count as an additional measure in interpreting a weak necessity claim like *You ought to take Route 9*. Possible considerations would be avoiding toll roads, visiting Worcester on the way to Amherst, a superstition that nine is an auspicious number, and so forth. All of these additional measures characterize the subset of accessible Amherst-going worlds in which one takes Route 9. The fact that any consideration counts in principle as an additional measure is a point in favor of the domain restriction approach.

The two basic tenets of the domain restriction approach are thus (i) that weak necessity modals denote universal quantifiers, just like strong necessity modals, and (ii) that the domain of quantification of weak necessity modals is a subset of that of strong necessity modals. The result of shrinking the domain of a universal quantifier is weakening, since the universal quantifier is left downward monotone, or downward entailing in its restrictor argument. This analysis accounts directly for the scalar inferences that have been observed to relate strong and weak necessity modals (Horn 1972, von Fintel and Iatridou 2008, and references cited therein, fn. 3). As a way of formalizing domain restriction, von Fintel and Iatridou propose that there is a separate ordering source that weak necessity modals use, which contains the "additional measure" they are sensitive to. This separate ordering source is used to identify a subset of the favored worlds as the weak modal's quantification domain.

Weak necessity is expressed in English by designated lexical items (*ought* and *should*), but crosslinguistically, von Fintel and Iatridou (2008) show that a more compositional method is found

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[2]Kratzer (1981:312) analyzes the weakened necessity expressed by German *soll* in terms of domain restriction when she proposes that it requires a non-empty ordering source, unlike the stronger *muß*.

as well. In certain languages, the use of counterfactual morphology on a strong necessity modal results in the expression of weak necessity. In developing their analysis, the authors aim therefore for a compositional implementation that will be able to turn a strong necessity modal into a weak one by marking the former with counterfactual morphology. If strong necessity modals are normally sensitive only to one, primary, ordering source, how is it that they manage to "reach out" to a secondary ordering source in one particular morphosyntactic context?

The main idea von Fintel and Iatridou (2008) pursue to account for this fact is that modals are sensitive to a *sequence of ordering sources*, and that there is a bipartition (importantly, a bipartition that is provided by the context) between the sequence that strong necessity modals are sensitive to and the sequence that weak necessity modals are sensitive to. In this setup, if a grammatical operation "promotes" an ordering source from the secondary sequence to the primary sequence, a strong necessity modal would appear to be interpreted in the same way that a modal like *ought* is.[3] A more formal statement of the proposal is given in (3). It is the most detailed version of the proposal provided by von Fintel and Iatridou (2008), and thus the one I will refer to in this paper to discuss the problem of distinguishing between priorities.

(3)   The context provides for each modal, a modal base $f$ and a bipartitioned sequence of ordering sources $<< g_1, \ldots, g_i >, < g_{i+1}, \ldots, g_k >>$.

   - Strong necessity modals say that the prejacent is true in all worlds in
     $max_{g_i(w)}(\ldots(max_{g_1(w)}([\bigcap]f(w))))$.
   - Weak necessity modals say that the prejacent is true in all worlds in
     $max_{g_k(w)}(\ldots(max_{g_{i+1}(w)}(max_{g_i(w)}(\ldots(max_{g_1(w)}([\bigcap]f(w)))))))$.

   (von Fintel and Iatridou 2008:138, fn. 35)

There may be multiple ordering sources in the first section of the bipartitioned sequence ($g_1, \ldots, g_i$), and multiple ones in the second section as well ($g_{i+1}, \ldots, g_k$). The function $max_{g(w)}$ (for 'maximally good according to $g(w)$') retrieves worlds either from the set provided by the modal base $f(w)$ or, recursively, from the set of worlds that were found to be best according to a previously applied ordering source. Given a set of worlds and a set of propositions, the function outputs the subset of the worlds that are best according to the ideal represented by those propositions, as in (4). The "better than" relation between worlds, $\blacktriangleleft_A$, is based on Kratzer's (1981) standard definition in (5); a world $v$ is better than a world $z$ in terms of the ideal represented by $A$ if and only if $v$ comes at least as close to the ideal $A$ as $z$ does, but the reverse does not hold (i.e., $v \triangleleft_A z$ and it is not the case that $z \triangleleft_A v$).

(4)   For any set of worlds $X \subseteq W$ and set of propositions $A$:
      $max_A(X) = \{w \in X : \neg \exists w' \in X. w' \blacktriangleleft_A w\}$.
      (Following von Fintel and Heim 2009)
(5)   For all worlds $v$ and $z$ in $W$ and a set of propositions $A$:
      $v \triangleleft_A z$ iff $\{p \in A : p(z)\} \subseteq \{p \in A : p(v)\}$.

The formal analysis of weak necessity in (3) is indeed an analysis in terms of domain restriction. The function *max* uses the secondary sequence of ordering sources provided by the context to determine a domain of quantification for weak necessity modals that is a subset of the domain that strong necessity modals quantify over.

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[3] The alternative direction von Fintel and Iatridou (2008) mention is that of partial union of ordering sources. The idea would be that counterfactual marking triggers the union of the primary and the secondary ordering sources (presumably while keeping a copy of the former, in order to interpret non-counterfactual strong necessity modals correctly), but only propositions from the secondary ordering source that do not conflict with propositions in the primary ordering source would be added (ibid., p. 138). As the authors mention, this kind of union operation may not be deterministic, and so it is problematic. An operation of ordering source merger that seems more promising is investigated by Katz et al. (to appear), and thus it may be possible to pursue this direction further. Importantly, however, the representational issue of how to represent cascades of priorities, whether using multiple ordering sources or a single ordering source that is concocted in just the right way, is separate from the conceptual question I raise in the following section.

In the next section, I lay out the argument that this approach to weak necessity is not complete without an elucidation of the distinction between primary and secondary priorities.

## 3  The Challenge of Distinguishing between Primary and Secondary Priorities

The success of the domain restriction approach depends on an ability to make finer-grained distinctions than are standardly assumed between modal conversational backgrounds. Following Kratzer (1981, 1991, 2012), it is standardly assumed that conversational backgrounds are individuated based on the type of information they contain: epistemic backgrounds represent the available evidence, deontic backgrounds represent the relevant rules, bouletic backgrounds represent someone's personal desires, teleological backgrounds represent priorities that are relevant, and so forth.

In the analysis of necessity modals envisaged by von Fintel and Iatridou (2008), context is required to provide each of these backgrounds in two varieties. For example, it is assumed that some teleological backgrounds are primary (these a goal-oriented instance of *have to* is sensitive to, as well as goal-oriented *ought*), and others are secondary (only goal-oriented *ought* takes these into account).

Without a criterion for determining the division between primary and secondary backgrounds, however, the meaning difference between *ought* and *must* cannot be captured by the analysis as it has been presented. Let's see why.

Let $f(w)$ be a set of propositions given by a circumstantial/factual modal base $f$ in a world $w$, and $g_1$ and $g_2$ two teleological ordering sources, such that $g_1$ is primary and $g_2$ is secondary. Suppose further that there are two propositions, $p$ and $r$, that represent all the salient priorities in $w$, and that neither is entailed by the propositions given by the modal base. Moreover, suppose $q$ is a necessity given these priorities (that is, in all accessible worlds in which $p$ and $r$ are true, $q$ is also true). If $r$ is included in a secondary ordering source, as in (i) below, the context supports a weak necessity claim *ought q* according to the domain restriction analysis. If instead $r$ is included in a primary ordering source, as in (ii) or (iii), the context supports a stronger necessity claim, *have to* $q$.[4] Which of these contextual representations of the priorities (among others that are theoretically possible) is to be assumed?

(i)  Context provides $f, g_1(w) = \{p\}$, and $g_2(w) = \{r\}$, supporting a weak necessity.

(ii)  Context provides $f, g_1{}'(w) = \{p, r\}$, and $g_2{}'(w) = \emptyset$, supporting a strong necessity.

(iii)  Context provides $f, g_1{}''(w) = \{p \cap r, p\}$, and $g_2{}''(w) = \emptyset$, supporting a strong necessity.

To make the dilemma a bit more concrete, consider the weak necessity claim *You ought to take the turnpike*. This statement is true in the scenario of driving to Amherst in (2), if alongside the priority of getting to Amherst ($p$-worlds), a secondary priority is taken into account that you drive 65 miles per hour the whole length of the way without breaking the law ($r$-worlds). Once this secondary consideration has been raised in a conversation, as in (6), *ought* can pick up on it very easily.

(6)  [You ask about ways to get to Amherst, driving.]

You:  I'm driving to Amherst. Are the different roads there all equally quick?
Me:  No, the turnpike is the fastest.
You:  I see.
Me:  You {$^?$have to, ought to} take the turnpike.

The final sentence in the exchange is true if I use a weak necessity modal, which suggests a contextual representation of the relevant priorities as in (i) above. The sentence is false if I use a

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[4]In (ii), neither priority takes precedence over the other, whereas a representation like (iii) reflects a cascading of the priorities such that the consideration represented by $p$ is more important, or takes precedence over, the consideration represented by $r$.

strong modal, implying that (ii) or (iii) are not possible representations of the context. Evidently, then, *have to* does not have access to both *p* and *r* in this scenario, and the question is why not.

What prevents the additional measure that *ought* has access to from entering and being part of a primary teleological ordering source? What is the criterion for membership in a primary ordering source that rules *p* in and keeps *r* out? Obviously, freely associating the contextually salient priorities to either primary or secondary backgrounds is problematic.

There has not been much discussion of this question in the literature, but two ideas, one linguistic and one conceptual, have been entertained. The first is that priorities that are expressed overtly in the linguistic signal are treated as primary priorities for purposes of interpreting teleological modal claims. The second idea is that there is a conceptual difference between goals and sub-goals, and that this difference determines the cutoff point between primary and secondary conversational backgrounds. I discuss these two ideas in turn in Sections 3.1 and 3.2, concluding that neither one offers a viable basis for distinguishing between priorities in the way that explains strength differences among necessity modals. In Section 3.3 I show that a third option, relating to the strength of the preferences for the speaker who utters the modal claim (or attitude holder more generally), is problematic as well.

## 3.1  Too Much or Too Little Overt Linguistic Material

In the case of teleological backgrounds, von Fintel and Iatridou (2008) make provisions for priorities expressed overtly, in rationale clauses or in antecedents of anankastic conditionals. They assume that the proposition designated by an *(in order) to* adjunct or an *if you want to* conditional makes it into a primary teleological ordering source, while propositions that describe ways of achieving the designated priority are mapped into a secondary ordering source (ibid., p. 119). Rationale clauses also play a similar role in Finlay's (2009, 2010) comparative probabilistic analysis, where they are used to determine domains of quantification for strong necessity modals, and probability spaces for the interpretation of weak ones.

The idea that goal-setting adjuncts determine the content of primary ordering sources is at best a partial response to the problem of distinguishing between priorities, since it leaves open how propositions are assigned to ordering sources in the absence of overt goal-setting expressions. In ordinary conversation, where conversational backgrounds are typically implicit and are left for the conversational participants to infer, there would have to be more general principles governing where one conversational background ends and another begins.

Setting aside cases in which a goal-setting adjunct is not provided, I will argue that even when it is present it is incorrect to assume that the proposition expressed by the adjunct determines the content of the primary teleological ordering source. The first problem is that strong necessity modals can, in certain contexts, take into account both the overtly expressed priority and a subsidiary consideration which relates to how this priority can be achieved. And second, a weak necessity modal can, in certain contexts, rely just on the overtly expressed priority, without taking any additional consideration into account (while a strong necessity modal is unable to pick up on the relevant priorities in the same context).

Examples of the first kind are ones in which an overtly specified priority provides *too little information* for a strong necessity claim. The Chinese train example in (7), attributed to Wolfgang Klein, is one such case.[5] In this scenario, taking the Chinese train is not a necessary condition for reaching Vladivostok, because the Russian train goes there too. However, it is a necessary condition for reaching Vladivostok *comfortably*.

(7)  [Two trains serve the city of Vladivostok: a Russian train and a Chinese train. The Chinese train is much more comfortable.]

  To go to Vladivostok, you {have to, ought to} take the Chinese train.

The *to*-infinitive overtly specifies only the primary priority of going to Vladivostok. Nevertheless, von Stechow et al. (2006:169) point out that speakers sometimes judge the necessity claim as

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[5]See von Stechow et al. (2006:168-169).

true even if the modal in the main clause is a strong necessity modal like *have to*. This means that a subsidiary priority (in this case, the priority of comfort) can affect the interpretation of a strong necessity modal even when the modifying rationale clause does not express this priority.

The discussion in the literature following von Stechow et al. (2006) has treated differences in intuitions about (7) as a point of variation between *speakers* of English. I believe it is more plausible that different *contexts* prompt speakers to reach different conclusions about the conversational parameters the modals are based on.[6] While the judgment that the strong version of (7) can be heard as true is controversial, it is possible to increase the acceptability of this sentence by manipulating the context in a particular way. Consider the following elaboration:

(8)   You:  I'm planning to take a train to Vladivostok.
      Me:   Listen, I took the Russian train last year and the conditions on board were horrible.
      You:  Wow. And you, unlike me, usually don't care about comfort.
      Me:   I didn't mind it too much, but I know you will.
            To go to Vladivostok, you have to take the Chinese train.

The fact that the addressee's comfort is assumed by both interlocutors to play a role in the deliberation seems to be relevant for licensing the strong necessity claim (see Section 4). This subsidiary priority is clearly in the background when the speaker insists that the Chinese train is necessary, i.e., that it is the only option available given the two priorities that were raised.

Next, I turn to examples in which the overtly specified proposition provides *too much information* for a strong necessity claim, because it specifies all the priorities that a following weak necessity modal picks up on. These examples are problematic for the idea that weak necessity modals are sensitive to unspoken priorities, i.e., priorities that are not expressed in rationale clauses or other goal-setting adjuncts. Consider (9) in the Vladivostok scenario.

(9)   To go to Vladivostok comfortably, you ought to take the Chinese train.

This sentence can be used very naturally to single out the Chinese train as the necessary mode of transportation, even if getting to Vladivostok and doing so comfortably are the only considerations assumed to govern your choice of train. There is no implication that additional preferences are at play.

Similar examples in the scenario of driving to Amherst are given in (10). These are all examples of weak necessity claims in which an overt rationale clause mixes the primary and the secondary priorities that *ought* is sensitive to.

(10)  [There are four different ways to get from Cambridge to Amherst by car.]
      a. To get there going 65 mph all the way (legally!), you ought to take the turnpike.
      b. To get there from the north, you ought to take Route 2.
      c. To get there on a road with a lucky number, you ought to take Route 9.

These examples are problematic for the linguistic approach to individuating priorities. If, in order to accommodate data like (9)-(10), secondary ordering sources are allowed to be empty when *ought* is used, we lose the ability to distinguish between weak and strong modals in any principled way; given this assumption, there should be no difference between a strong necessity claim and a corresponding weak necessity claim in which the secondary source of priorities is empty. Yet the choice between *ought* and *must* in a sentence like (9) is intuitively meaningful even if no additional priorities are relevant beyond those stated in the rationale clause.

Alternatively, under the assumption that *ought* requires a non-empty secondary ordering source in order to be used felicitously, (9)-(10) would be predicted to be true only if there is some other salient priority which can be retrieved from the context, above and beyond those expressed in the *(in order) to* adjuncts in those sentences. This is too strong. One can truthfully utter (9) even if only

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[6]Thus, even speakers that reject the strong *have to* in the Vladivostok scenario are likely to use it in other contexts in which the facts themselves do not license a strong necessity claim, e.g. *You have to see this movie* or *You absolutely have to read this book!* (Angelika Kratzer, p.c.).

comfort is believed to govern your choice of train. Similarly in the other examples, no consideration above and beyond driving quickly, arriving from the north, or driving on a road with a luck number are relevant for the weak necessity claims in (10).

I conclude from this discussion that designated goals in construction with weak necessity modals are not always supplemented by additional unspoken priorities. From the perspective of the modal, I conclude that goal-oriented *ought* is not always sensitive to preferences above and beyond those stated in a modifying rationale clause.

## 3.2 Conceptual Distinctions are Unreliable

In light of the problems facing the linguistic approach to the primary-versus-secondary split among priorities, one might take a more conceptual approach. In the deontic domain, for example, there has been an intuition that weak necessity modals are sensitive to rules one might call "soft": rules that can be ignored without leading to severe consequences (Bybee et al. 1994:186). A corresponding distinction in the teleological domain could be made between important and less important goals, or goals and different ways of achieving them. This way of explaining the split among contextually determined priorities is suggested in the following note by von Fintel and Iatridou (2008:119-120, fn. 11).

> It should be noted that the choice of what is a primary ordering source and what is a secondary ordering source is presumably not an accident. In the goal-oriented case we have the designated goal and measures of ways of achieving it, in the epistemic case we have hard and fast evidence and guesswork based on unreliable assumptions about the normal course of events, and in the deontic case we have strict laws and less sanctionable codes of behavior.

While there is most certainly a connection between how strict a rule is and how strong the necessity is to follow it, the suggested conceptual classification of rules and other priorities cannot be the basis for identifying the content of secondary ordering sources in general.

The main argument against a conceptual distinction between priorities is that, under certain circumstances, even relatively "soft" or insignificant priorities can feed strong necessity claims. (8) above is a relevant example, since added comfort is arguably not a strong reason for ruling out what certain people would take to be a perfectly good way of achieving the primary priority of reaching one's destination. Similarly in (11), purchasing new shoes seems to be a way of achieving happiness for the speaker, and hence is arguably only a secondary priority conceptually.

(11)    i have to get those shoes, i keep seeing them everywhere and they're so tempting!!![7]

Such examples show that priorities that might be classified as secondary on conceptual grounds nevertheless function as primary priorities in certain contexts. It is thus difficult to maintain a two-way distinction between primary and secondary priorities along the lines suggested in the quote above (e.g., by distinguishing goals from ways of achieving them).

This challenge is exacerbated in the setup in (3), if the ranking of all $g_k$ ordering sources is assumed to reflect conceptual differences between the propositions in each one. How is $g_1$ to be distinguished from $g_2$ in the primary sequence? How are $g_{i+1}$ and $g_{i+2}$ to be distinguished in the secondary sequence? The prospects of making these distinctions on conceptual grounds seem grim, since the number of distinctions that need to be made is potentially very big, and could vary from context to context.

## 3.3 Strong Preferences, Weak Necessities

A final idea I will consider is that the split between primary and secondary priorities is correlated with an intuitive difference between strong and weak preferences.

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[7]`http://www.sterlingstyle.net/2010/08/earth-angel.html`. Last accessed July 31, 2012.

There are many ways that speakers put the preferences they have for themselves into words. The two I will consider here are exemplified in (12); they include expressions like *such-and-such would be nice*, as in (12a), and self-oriented directives, as in (12b).

(12)   [Driving to Amherst.]
   a.   You: Avoiding toll roads and big cities would be nice.
        Me: OK then, you ought to (/$^?$have to) take Route 2.
   b.   You: No toll roads and big cities please!
        Me: OK then, you have to (/$^?$ought to) take Route 2.

Although the speaker expresses a preference for avoiding toll roads and big cities in both cases, the strength of the bouletic/teleological necessity that the addressee makes based on this preference is different in each one. *Ought* is felicitous and leads to a true statement in (12a), but it is too weak following the directive in (12b). *Have to*, on the other hand, is felicitous and leads to a true statement in (12b), but it is too strong and therefore infelicitous in the first dialog.

Intuitively, there is a difference in how strong the speaker's preference is in these two cases. We might say that the preference is "weak" in the first dialog, and "strong" in the second. Another way to express this intuition is that in the first case the speaker comes across as being less committed to the preference, in the sense that she would give it up if it conflicts with another preference, or if it is directly argued against. In the second case, it is understood that she would not retract the preference. One might wonder, therefore, whether the contrast in (12) is simply a reflection of a qualitative difference between "strong" and "weak" preferences of a relevant individual.

By considering what happens when the priorities of the conversational participants clash, we can see that the level of personal commitment to a priority is not the correct characterization of the difference between primary and secondary priorities (or ordering sources). Consider the yoga scenario below.

(13)   [A friend and I are deciding what to do together after a doctor's appointment that I have. We've narrowed down the options to yoga and a play. At the doctor's office, I get a physical.]

   Doctor (to me; friend is in the room, listening): You are not in good shape. Don't skip those yoga classes!

   Me (to friend): News flash... I have to go to yoga.

The priority in this scenario is voiced forcefully by an authoritative speaker, in an imperative, and we see that it is strong enough to license a *have to* claim in (13). However, the fact that the doctor is strongly committed to the priority she voices is not what licenses the strong necessity based on this priority; the addressee's (presupposed) position seems crucially to matter too. Whereas a cooperative patient would say (13), a patient who is known to be skeptical of doctors' orders would only say the weaker claim in (14).[8]

(14)   Me (to friend): I really should go to yoga.

The choice of modal in (13)-(14) does not depend on how strong the speaker's preference is that the addressee go to yoga (this preference is strong in both cases). Neither does it depend on how strongly the addressee prefers to go to yoga: I could accept the doctor's orders despite personally preferring to go to the play over exercising. What matters is whether or not there is successful uptake of the imperative: if there is, the priority it expresses becomes mutually presupposed by the speaker and the addressee (following Portner's 2004, 2007 analysis of imperatives). A strong necessity claim with a deontic flavor is then felicitous and true. This approach to weak necessity is presented in the following section and motivated in detail in (Rubinstein 2012).

## 4  Conclusion

In this paper, I described the domain restriction approach to weak necessity and argued that it is not complete without an explanation of how priorities are divided up in a context into primary and

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[8]I thank an anonymous PLC reviewer for this observation.

secondary ordering sources.

In developing the domain restriction approach, von Fintel and Iatridou (2008) assume that a bipartition on ordering sources is provided by the context. The first *i* ordering sources in the sequence are split off from all the rest, and only weak necessity modals take into account ordering sources from the second section of the bipartition. The challenge for this approach is to explain what features of the context define the cutoff point between primary and secondary ordering sources. For any salient priority in the context, what is the criterion that determines whether it belongs in an ordering source on the primary side of the bipartition or in one on the secondary side?

Using weak and strong necessity modal as probes, I argued that overt rationale clauses do not reliably brand priorities as primary or secondary. Sometimes they express both primary and secondary priorities; other times they express just a subset of the primary priorities. Most of the time there are no direct linguistic cues to rely on at all. Attributing the divide to a conceptual distinction between goals and ways of achieving them, or to a distinction between weak and strong personal preferences was also shown to be problematic.

What then determines whether or not a given priority has the status of a primary priority in a given conversational context? Resolving this question in appropriate detail is not possible in such a short paper, but I would like to end the paper with a sketch of where I believe the answer is to be found.

The idea, motivated in detail in (Rubinstein 2012), is that understanding certain aspects of modal strength requires sensitivity to presuppositions about collective commitment in a conversation. Contextually salient priorities can be shown to come in two kinds, corresponding to the primary and secondary priorities that figure in the analysis of weak necessity surveyed here: primary priorities are ones that are presupposed to be collectively committed to, and secondary ones are presupposed not to be collectively committed to. The relevant notion of commitment can be appreciated by observing the effects of contextual manipulations on the use weak and strong necessity modals in the following two elaborations of the Vladivostok scenario (presented in (7) above).

(15) [Babushka is preparing to take the Trans-Siberian train from Moscow to visit her daughter in Vladivostok.]
Babushka: I want the trip to be pleasant.
Daughter: To get here comfortably, you have to (/ought to) take the Chinese train.

(16) [At the train station, Babushka asks the clerk about the trains to Vladivostok.]
Babushka: I want the trip to be pleasant.
Clerk: To get there comfortably, you ought to (/have to) take the Chinese train.

In both scenarios, Babushka publicly commits to wanting a comfortable train ride. But the identity of her interlocutor seems to have an effect on whether or not this desire ends up being collectively committed to. Babushka's daughter can more easily accept her mother's desire as a reason for ruling out the option of the Russian train. Accordingly, it would be somewhat artificial of her to use a weak necessity modal in her response in (15); *ought* would be too weak in this case (and also in (8)). The clerk, on the other hand, would be more hesitant to rule out options for Babushka, and more comfortable letting her call the shots. A strong necessity claim from the clerk in (16) would be too strong.

If this explanation is on the right track, it amounts to a new organizational principle of the modal backgrounds that are available to participants in teleological modal discourse.

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