

**What Normative Terms Mean
and Why It Matters for Ethical Theory**

by

Alex Silk

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Doctoral Committee:

Professor Allan F. Gibbard, Co-Chair
Professor Peter A. Railton, Co-Chair
Professor Eric P. Swanson
Assistant Professor Ezra R. Keshet

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ABSTRACT

What Normative Terms Mean
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by

Alex Silk

Co-Chair: Allan Gibbard

Co-Chair: Peter Railton

This dissertation is a study in how inquiry into the meaning of normative language can illuminate classic questions in ethics and metaethics.

Chapter 1 motivates and develops what I call *condition semantics* for normative terms. Much work in philosophy of language has focused on modeling our understanding of ordinary factual sentences like ‘The cat is on the mat’. Such sentences are standardly treated as describing possible worlds, or ways the world might be. But declarative sentences can distinguish among ways things might be more broadly. In conversation we coordinate not only our beliefs about the world, but also our plans, emotions, values, and feelings. I argue that, just as ordinary factual sentences distinguish among possible worlds (or test whether a possible world meets a certain condition), so do normative sentences distinguish among normative standards (or test whether a normative standard meets a certain condition). Normative sentences place conditions on normative standards, conditions normative standards must satisfy in order for them to be characterized by those sentences. The framework of condition semantics offers a perspicuous way of posing classic ethical and metaethical questions — e.g., concerning expressivism, cognitivism, relativism, realism, and judgment internalism. This can encourage clearer, better motivated answers and suggest new ways the dialectic may proceed.

Chapter 2 develops an account of the distinction between weak necessity modals like ‘ought’ and ‘should’, on the one hand, and strong necessity modals like ‘must’ and ‘have to’,

on the other. I argue that what makes weak necessity modals “weak” is that they express a kind of *conditional* necessity, necessity on the supposition that the “applicability conditions” of certain premises (norms, values, goals, etc.) are satisfied. The resulting analysis generalizes across readings of modals, elucidates a special role that ‘ought’ judgments play in conversation, deliberation, and planning, and captures a wide range of seemingly disparate linguistic phenomena. Clarifying the distinction between weak and strong necessity modals is not merely of linguistic interest. Greater sensitivity to differences among necessity modals can improve theorizing on broader philosophical issues. I consider three: moral dilemmas, supererogation, and judgment internalism.

Whereas Chapters 1 and 2 suggest ways in which philosophy of language can inform ethics and metaethics, Chapter 3 shows how insights from ethical theory can improve our understanding of natural language. It is common in ethics to distinguish what we objectively ought to do from what we subjectively ought to do — that is, what we ought to do given all the facts about the world, known and unknown, from what we ought to do given our evidence, limited as it invariably is. But at first glance it appears that the standard analysis for modals stemming from Angelika Kratzer implicitly assumes that we always ought to do what we objectively ought to do. I argue that, contrary to the standard semantics, relative deontic value between possibilities sometimes depends on which possibilities are live. I then develop an ordering semantics for modals and conditionals that captures this point. The linguist, like any other practicing scientist, often comes to the theoretical table with various implicit philosophical views. By locating these assumptions, the philosopher of language can free up the linguist and help expand the range of candidate theories.

CHAPTER I

Truth Conditions and the Meanings of Ethical Terms*

Abstract

This chapter motivates and develops what I call a *condition semantics* for moral terms. According to condition semantics, moral sentences conventionally distinguish among moral standards (or test whether a moral standard meets a certain condition) just as ordinary factual sentences conventionally distinguish among possible worlds (or test whether a possible world meets a certain condition). This point is captured formally within an extension of a familiar truth-conditional paradigm. The resulting analysis improves upon its main competitors: invariantism and contextualism. The framework of condition semantics also offers a perspicuous way of posing various classical ethical and metaethical questions — e.g., concerning relativism, expressivism, and judgment internalism. This can motivate clearer, better motivated answers and suggest new ways the dialectic may proceed.

1.1 Truth conditions in ethics and metaethics

Other things being equal, it would be nice to have a semantics that differentiates the truth conditions of (1) and (2).

*Forthcoming in Russ Shafer-Landau (Ed.), *Oxford Studies in Metaethics*, Vol. 8. For helpful discussion and comments, thanks to Matthew Chrisman, Jan Dowell, Billy Dunaway, Andy Egan, Dmitri Gallow, Dan Greco, Tristram McPherson, Sarah Moss, David Plunkett, Peter Railton, Dan Singer, Eric Swanson, and audiences at the University of Michigan Graduate Student Working Group and the Eighth Annual Wisconsin Metaethics Workshop. Thanks especially to Allan Gibbard for extensive discussion and comments on previous drafts.

- (1) Torturing babies for fun is wrong.
- (2) No more than four colors are needed to color a map in a plane so that no adjacent regions share the same color. (the Four Color Theorem)

On the face of it, (1) and (2) carry different information; as you know, (1) and (2) are about totally different things. Similarly, it is not counterintuitive that semantic competence with (1) requires a certain non-trivial ability; not just anyone counts as understanding (1).

Unfortunately, it is hard to see how we can capture these two intuitions if certain familiar positions about truth-conditional content and moral truths are right.

TRUTH-CONDITIONAL CONTENT

The semantic content of a declarative sentence is, or at least determines, its truth conditions (represented as a set of possibilities).

NECESSARY MORAL TRUTHS

If the proposition expressed by a moral sentence like (1) is true (false) at all, it is true (false) necessarily — i.e., true (false) at all possible worlds.

MORAL INVARIANTISM

Moral sentences semantically express (or determine) ordinary possible worlds propositions and are interpreted with respect to an invariant moral view or standard, namely, the correct one.

It follows from these claims that a moral sentence like (1) has the set of all possible worlds as its truth conditions. Assuming that mathematical truths like (2) are necessary truths, the truth conditions of (1) and (2) will be equivalent. Similarly, the above positions seem to imply that semantic competence — of the sort that requires an ability to correctly distinguish among possibilities — with moral sentences requires no more than an ability to “divide” the space of possibilities into W and \emptyset . (More on this requirement for semantic competence below.) I am not endorsing these familiar positions just yet. The point here is simply that these ways of thinking which we may be drawn to adopt — and which often *are* adopted — lead to a puzzle. We will be revising them in due course. (For concreteness I will tend to couch our

discussion in terms of specifically moral language, though much of it applies to normative language more generally.)

This puzzle is, of course, a familiar one from possible worlds semantics, often known as *the problem of logical omniscience*. (By calling it a “problem” I am not suggesting that progress has not been made on it.) But it seems particularly problematic in the moral case. If the problem of how (2) and ‘ $2 + 2 = 4$ ’ say the same thing is a real problem, the problem of how (1) and (2) say the same thing is even worse.

A number of options are available in reply. First, one might deny that there is a puzzle: “Sure,” one might say, “(1) and (2) have the same truth conditions, but this isn’t a problem since they express different propositions.” One might cash out this sort of reply in terms of structured propositions, impossible worlds, or a model theory that treats propositions as primitives. Or one might employ a Stalnakerian diagonalization strategy and say that though (1) and (2) semantically express the same proposition, and have the same truth conditions, we reinterpret them as having relevantly different asserted contents in conversation. For the moment I want to put these responses to the side.¹ It will be instructive to examine whether we can find a theory that differentiates the truth conditions of sentences like (1) and (2). So let’s assume as a working hypothesis there *is* a puzzle — that, other things equal, it would be preferable to distinguish the truth conditions of (1) and (2).

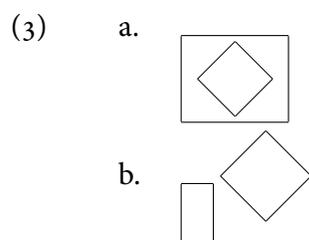
Granting that there is a puzzle, one might respond by giving up NECESSARY MORAL TRUTHS. One might do so by denying that moral sentences are true or false. But this is a high cost; even contemporary heirs of emotivism grant that moral sentences have truth values. Instead one might say that though moral sentences like (1) have truth values, their truth values vary across possible worlds. But this is also a tough bullet to bite. It seems eminently plausible that no matter how the world might be or might have been, if anything is right or wrong at all, torturing babies for fun couldn’t not have been wrong. At least some moral truths seem to be necessary.² (Moving to epistemically possible worlds won’t help: For all I know, no matter how the world could have been, torturing babies for fun couldn’t not have been wrong. The reader may feel free to substitute her favorite candidate necessary moral truth.)

¹For one thing, there is as yet no consistent theory of structured propositions (for recent discussions see CROSS 2001a,b, DEUTSCH 2008). For worries with the propositions-as-primitives and impossible worlds approaches, see, e.g., CRESSWELL 2002. I return to diagonalization and the impossible worlds approach in §1.2.

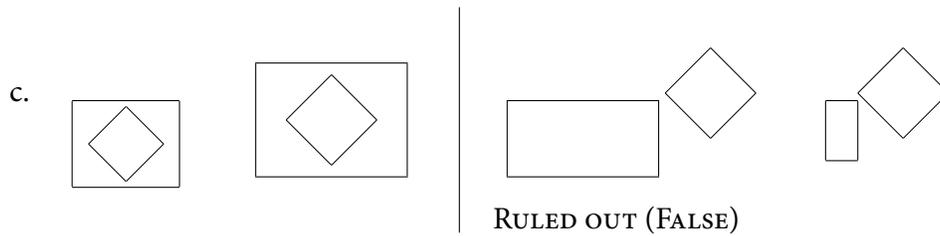
²*Cf.*, e.g., MOORE 1903: 9; GIBBARD 2003: 30; PARFIT 2011a: 129, 2011b: 307, 489–490, 517–518.

Alternatively, one might respond by denying TRUTH-CONDITIONAL CONTENT. But this is also a tough bullet to bite. Even if propositions need to be individuated more finely than by their truth conditions, it is uncontroversial that propositions at least determine truth conditions. This is all we need to get our puzzle going.

With that said, a brief motivation of the picture of content I have in mind may be in order. I am sympathetic with the standard view of (semantic and mental) content according to which contents function to *distinguish among possibilities*. Semantic competence with a sentence — knowing a sentence’s conventional meaning (or at least its conventionally proffered content) — requires having a certain capacity: a capacity to correctly divide the space of possibilities, to correctly rule out a certain set of possibilities from some domain. Equivalently, it requires having the ability, when given a possibility or circumstance, to tell whether the sentence is true or false in it.³ (Even if this is not the only requirement for semantic competence, it is surely an important one.) For a simplistic example, being semantically competent with ‘The diamond is inside the box’ requires having the following sort of capacity: a capacity to know that it is true if shown a picture like (3a); to know that it is false if shown a picture like (3b); and to correctly rule out a certain subset of situations from a domain, as in (3c).



³See, e.g., LEWIS 1970, CRESSWELL 1978, STALNAKER 1984, 1999, among many others. I do not speak to Davidsonian versions of truth-conditional semantics here. In what follows I will often speak of “knowing what an expression means,” or “understanding an expression,” or “being semantically competent with an expression.” If one wishes to eschew complications from “knowing what/how” and “understanding” talk, one may construe my discussion in terms of one important component of semantic competence. Our question is what the conventional contents of moral expressions are, at the relevant level of abstraction, where these contents serve as a rational reconstruction or model of speakers’ dispositions to interpret moral language; they represent one important component of what is grasped by language users, under certain idealizations, who are semantically competent with this fragment of the language. (By ‘conventional’ I mean, to a first approximation, “not calculable from the Cooperative Principle and the conversational maxims.”) Thanks to Sarah Moss for discussion.



It may turn out that the problems facing truth-conditional pictures of content are too great. For now, though, let's take it as our starting point, for it will help bring into relief important issues about the meanings of moral terms, issues which are independent of the possible worlds framework. We will end up revising the standard picture anyhow. So for the moment let's suppose that propositions determine truth conditions, which are represented by a set of possibilities, and let's see where this takes us. (All I need is this determination relation, though for simplicity I'll often identify propositions with their truth conditions.) If one likes, one can treat my inquiry as a conditional: *If it's right to think of meaning and content as determining truth conditions in roughly this way, what implications does this have for our understanding of the meanings of ethical terms?* As we will see in §1.3, approaching the semantics of ethical terms from this perspective will suggest a new, illuminating way of understanding various classic metaethical questions and positions. But I'm getting ahead of myself.

This leaves us with MORAL INVARIANTISM. On the face of it, MORAL INVARIANTISM seems attractive. By treating the moral standard relevant for interpretation as determined by and invariant across possible worlds, it seems to capture the objective purport of moral language, or how the "moral order... is... part of the fundamental nature of the universe (and... of any possible universe in which there were moral agents at all)" (Ross 1930: 18). And by treating moral sentences as expressing ordinary possible worlds propositions, it can make use of the powerful resources of truth-conditional semantics. Nevertheless I think we should reject MORAL INVARIANTISM.

There are good reasons to think we should not build substantive normative assumptions about what the correct moral theory is into the meanings of moral terms. For example, suppose classical utilitarianism is correct, and (1) is true iff torturing babies for fun does not maximize overall pleasure. Even if she is fully informed about all the non-normative facts, the non-utilitarian could coherently disagree with these "truth conditions" while knowing

what (1) means. Instead she might think that (1) is true iff torturing babies for fun does not maximize one's self-perfections.

This point — that we should not build substantive normative views into our semantics for moral terms — is not a new one: Though it is sometimes underappreciated in metaethics,⁴ it has a rich history in philosophy of language and semantics. For example, here are Stalnaker and Lewis:

[O]ne can and should answer questions about the semantics and pragmatics of constructions involving the words *good* and *right* without solving philosophical problems about the nature of morality. (STALNAKER 1988: 151)

The semantic analysis tells us what is true (at a world) under an ordering. It modestly declines to choose the proper ordering. That is work for a moralist, not a semanticist. (LEWIS 1978: 85–86)

And slightly modifying a point of Kaplan's in a related context: If we avoid confusing substantive normative and metaphysical matters with phenomena of the semantics of moral terms, “the result can only be healthy for all... disciplines” (1989: 537). We can put the condition as follows: *The meanings of moral expressions do not presuppose some particular view on how to live.*

As our discussion of the role of content suggests, MORAL INVARIANTISM fails to capture what is said or conventionally communicated in speakers' utterances of moral sentences, and what it takes to be semantically competent with a moral expression, to know what a moral expression means. We said that being semantically competent with a sentence requires, perhaps among other things, being able to divide in the right way the alternative possible ways the world might be or might have been. But if certain moral claims are necessarily true (if true) or necessarily false (if false), then “understanding” such claims involves trivially “distinguishing” among worlds, either ruling them all out or ruling none out.

But how can we reject MORAL INVARIANTISM while accepting a truth-conditional picture of content? How can we accept that the semantic (conventional) content of (1) is (or determines) its truth conditions while denying that the conditions in the world that would have

⁴Though certain expressivists, as I understand them, have also urged as much (e.g., GIBBARD 1990b, 2003).

to obtain for (1) to be true constitute (or determine) the content of (1)? I suggest that it is the phrase “conditions *in the world*” that is an important source of our confusion. Distinguish the following three questions:

EXTENSIONALITY

What property (or properties), if any, do all and only wrong actions (necessarily) have?

GROUNDING

What, if anything, grounds the fact that wrong actions are wrong? Fundamentally, what, if anything, makes it the case that wrong actions are wrong?

SEMANTICS

Given a moral sentence ϕ , what would the correct moral view have to be like for ϕ to be true?

EXTENSIONALITY is a substantive normative question. It is a question of what the correct normative ethical view is. For example, if classical utilitarianism is correct, all wrong actions have the property of not maximizing overall happiness. By contrast, GROUNDING is, plausibly, a metaphysical question. What grounds the wrongness of torturing babies for fun may be that the action instantiates a certain natural property — per the reductive or non-reductive naturalist — or some irreducibly normative non-natural property — per the non-naturalist. For example, according to certain forms of metaethical constructivism, the wrongness of an agent’s torturing babies for fun is grounded purely by properties concerning that agent’s evaluative attitudes. EXTENSIONALITY and GROUNDING are thus substantive normative and metanormative questions. But they are not, strictly speaking, semantic questions, questions relevant in our theorizing about conventional natural language meaning. Semantic competence with normative terms like ‘wrong’ does not require that one have an answer, let alone the correct answer, to these questions.

Instead, I suggest that — as the name suggests — it is SEMANTICS that is the properly semantic question, a question of the conventional meaning of ‘wrong’. Semantic competence with an ordinary factual sentence requires knowing how the world would have to be for the sentence to be true. Semantic competence with a *de se* factual sentence requires knowing when and where one would have to be located in the world for the sentence to be true. And,

by extension, semantic competence with a moral sentence — knowing what a moral sentence means — requires knowing how things would have to be morally for the sentence to be true, or what the correct moral view would have to be like, for the sentence to be true. If knowing a sentence’s meaning requires being able to distinguish possibilities in the right way, it is plausible that knowing a moral sentence’s meaning requires being able to correctly distinguish certain moral possibilities. (Again, this is not to deny that there are other aspects of the conventional and non-conventional meaning, broadly construed, of moral terms.) This suggests that we individuate the truth conditions of moral sentences more finely than by their possible worlds truth conditions. Following the lead of Stalnaker, Lewis, and Kaplan, we should replace MORAL INVARIANTISM with

MORAL NEUTRALITY

Moral terms must be interpreted with respect to some moral standard or other, but their meanings do not presuppose some particular view on how to live.

AS MORAL NEUTRALITY suggests, the sorts of truth conditions that reflect what it takes to know what a moral sentence means are conditions on how things might be morally. By contrast, what conditions must obtain *in the world* for a moral sentence to be true is a substantive issue. (I use ‘substantive’ broadly to describe first-order normative issues and non-semantic metanormative issues.) Failure to distinguish the semantics and metaphysics of moral talk, or distinguish semantically relevant truth conditions from substantive normative and metaphysical grounding conditions, has contributed to the confusion over the broader metaethical implications of accepting — and reaping the compositional benefits of — a truth-conditional semantics.⁵

We now have the resources to outline the form of a response to our initial puzzle. MORAL NEUTRALITY, unlike MORAL INVARIANTISM, does not render the semantically relevant truth conditions of (1) and (2) equivalent, even when conjoined with NECESSARY MORAL TRUTHS and our truth-conditional picture of content. Even if, as a normative or metaphysical matter, some moral sentences like (1) are true in all possible worlds, those sentences need not be true according to all moral standards or views on how to live (*cf.* n. 11). Just as knowing what ‘Grass is green’ means requires being able to rule out worlds in which grass isn’t green

⁵The problem is pervasive. See, e.g., BLACKBURN 1984: 194–195, 1998: ch. 4; SCHROEDER 2011: 5–6.

(regardless of whether or not the actual world happens to be one of them), knowing what (1) means requires being able to rule out moral standards according which torturing babies for fun isn't wrong (regardless of whether or not the correct moral standard happens to be one them).

This response brings a number of questions in its wake. For one, how are we to cash out MORAL NEUTRALITY? We will address this question in §1.2, but first I would like to address three concerns.

Worry: The problem of logical omniscience is, as noted above, a general problem. It also arises, arguably, in the case of names, natural kind terms, mathematical expressions, etc. Should we think that invariantism for all these types of expressions is incorrect too? Why not think that solutions to the problem of logical omniscience in these other domains will carry over to provide a successful alternative treatment of moral terms?

Reply: Nothing in what I have said here requires that all instances of the problem of logical omniscience be handled in the same way. I see no a priori reason to think that moral terms, names, etc. should all be treated uniformly. After all, they are a pretty multifarious lot. Perhaps they should all be given a non-invariantist semantics of the sort I will defend in §1.2, but perhaps not. In the case of moral terms, such a semantics, I will argue, improves upon its most prominent alternatives. Whether it improves upon *all* alternatives obviously waits to be seen.

Worry: Even if we should not build substantive assumptions about which normative ethical theory is correct into the semantics, the meanings of moral terms might still presuppose some particular view on how to live. Why can't the advocate of MORAL INVARIANTISM say that moral terms are interpreted with respect to the correct moral theory, *whatever it is*? The description 'the correct moral theory, whatever it is' would pick out some particular moral view, but would not build in any substantive assumptions about which one it is.

Reply: To say that moral terms are interpreted with respect to "the correct moral theory, whatever it is" supports MORAL NEUTRALITY, not MORAL INVARIANTISM. For it effectively treats the meaning of a moral sentences as, in some sense (see §1.2), a function from moral standards to truth values. Compare: The meaning of an ordinary factual sentence like S 'Grass is green' does not presuppose some particular view on which world is actual. Though S is, in a certain sense, interpreted with respect to "the actual world, whatever it is," this is just

to say that the meaning of S is a function from worlds to truth values; knowing what S means requires knowing that *if* such-and-such world is actual, S is true (false). Similarly, knowing what a moral sentence like (1) means requires knowing that if such-and-such moral standard is the correct one, (1) is true (false). But this is just what MORAL NEUTRALITY says.⁶

Worry: If moral terms are interpreted with respect to a varying moral standard, does this imply that there are no absolute, objective moral truths? Or that moral matters are merely “matters of taste”? Or that moral disagreement is “faultless”?

Reply: No such conclusions follow from anything said thus far. MORAL NEUTRALITY is a soberly semantic thesis. A semantics is supposed to capture, at the relevant level of abstraction, an expression’s conventional meaning. Building the correct moral standard into the conventional contents of moral terms fails to capture what it takes to be semantically competent with them. One cannot avoid the “core questions” in metaethics simply by denying MORAL INVARIANTISM.⁷ Ethicists and metaethicists can still examine questions like the following: Are there any normative reasons that all agents have? What natural or non-natural property, if any, do all and only things that are N (for some normative predicate ‘ N ’) necessarily have? If there is such a property, is it reducible? Do normative facts hold independently of the evaluative attitudes of the agents to whom they apply? For all I have argued there may be independent support for all sorts of normatively and metaphysically robust ethical and metaethical positions. But such support will need to be just that: *independent* (of semantics). Plausibly the meanings of moral terms do not presuppose verdicts on such lofty issues. At minimum, the way the semantics and other areas interact is going to be more complicated than we might have initially thought.

As we will see in §1.3, delineating issues often conflated in metaethics under the general heading of “meaning” will have significant payoffs. Among other things, it will suggest an alternative way of capturing the putative objective purport of moral language. More generally, it will help us articulate certain classical metaethical questions in a more perspicuous way, and clarify what is at stake in the dialectic between overall metaethical theories. Before addressing these issues, let’s see if we can make MORAL NEUTRALITY more precise.

⁶Thanks to Jan Dowell for pressing me on this issue. As we will see in §1.2, I take the intuitions motivating this reply as favoring a non-contextualist implementation of MORAL NEUTRALITY.

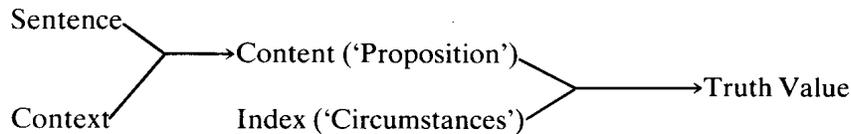
⁷This is contrary to the view expressed in SCHROEDER 2010: 9, 13, 153, 211.

1.2 Contextualism and condition semantics

Here, again, is our conclusion to be explained: Moral terms are interpreted with respect to some relevant moral standard but do not themselves presuppose some particular view on how to live. But what is the “relevant moral standard”?

Two familiar answers suggest themselves. To set the stage, let’s briefly get some terminology on the table. On a broadly Kaplanian view there are two senses of the “meaning” of an expression: its *character* and its *content* (KAPLAN 1989). *Character* is a function from contexts of use to contents and is constant across all literal uses of an expression; it represents an expression’s linguistic meaning, or what you know when you know what an expression means. *Content* is (or at least determines) an intension, a function from *indices* — or, in Kaplan’s terminology, “circumstances of evaluation” — to extensions. (More on “indices” below.) The content of a predicate is a property, and the content of a sentence is a proposition. The semantic content of a sentence is, roughly, what is conventionally communicated by the sentence in the relevant context, as determined by the language’s composition rules. The *context* includes parameters that determine content from character, fixing the reference

Figure 1.1: Context-index semantics (from LEWIS 1980: 96)



of indexicals and other deictic expressions. The *index* includes parameters of evaluation that determine extension from content (e.g., the truth-value of a proposition). The index consists of those features of context that can be shifted by operators in the language (e.g., modals, attitude verbs). For Kaplan, the index is just a possible world, or perhaps a world-time pair. The extensions of expressions are thus defined relative to points of evaluation, consisting of context and index.

For example, in a context c where Sara is speaker, the sentence S ‘I like brownie sundaes’ expresses the proposition, or conventionally carries the information, that Sara likes brownie sundaes. Supposing Sara actually likes brownie sundaes, the proposition expressed by S in

c is true in the actual world. But considering a possible world u in which Sara does not like brownie sundaes, the proposition expressed by S in c is false when evaluated at u . (In set-talk: the actual world, but not u , is in the proposition expressed by S in c .) This is all more-or-less standard fare from Kaplan (*cf.* STALNAKER 1970, KAMP 1971, LEWIS 1980).

This context-index framework (or “double indexing semantics,” as it is sometimes called) suggests two familiar answers to the question — call it ‘COORDINATE’ — of what moral standard is “relevant” for the interpretation of moral terms: (a) that it is supplied from the context, and (b) that it is supplied from the index. Call a view according to which the relevant standard is supplied from the context *contextualism*. Call a view according to which the relevant standard is supplied from the index *condition semantics*. (Reasons for this name will become evident below. For those familiar with the recent literature on contextualism and relativism about epistemic modals and predicates of personal taste,⁸ it might seem that what I am calling ‘condition semantics’ is often called ‘relativism’. However, as I will suggest in §1.3, relativism is better understood as a particular type of condition semantics, one that takes a stand on certain further issues that are orthogonal to the points at issue between contextualism and condition semantics considered in this section. To make terminological matters worse, many positions in the ethics and metaethics literatures described as versions of “moral relativism” are really instances of contextualism on the current taxonomy.)

The debate over COORDINATE has centered around the problem of disagreement, the problem of accounting for how speakers uttering moral sentences ϕ and $\neg\phi$, respectively, count as disagreeing, rather than, e.g., as making consistent claims about their respective moral standards. I would like to put this way of approaching COORDINATE to the side. (For one thing, I take it that a semantics need only focus on accounting for inconsistency or contradictoriness rather than disagreement, a plausibly pragmatic notion, but no matter: It is contentious whether either side has a distinct advantage in stating a notion of disagreement that accounts for all the data anyway.⁹) Instead I would like to revive the debate over COORDINATE by turning to a different issue, one more neatly tied to the semantics of normative language: How do contextualism and condition semantics fare in their respective abilities to

⁸See, e.g., DEROSE 1991, EGAN ET AL. 2005, LASERSOHN 2005, EGAN 2007, MACFARLANE 2007, STEPHENSON 2007b, YALCIN 2007, VON FINTEL & GILLIES 2008, DREIER 2009.

⁹See, e.g., MACFARLANE 2007, VON FINTEL & GILLIES 2008, DREIER 2009.

capture what you know when you know what a moral sentence means, or what is required for being semantically competent with a moral sentence? On my preferred understanding of contextualism and condition semantics, both are moved by MORAL NEUTRALITY;¹⁰ however, they intend to capture it in different ways. These differences generate different accounts of the contents of moral sentences. In the remainder of this section I will argue that, in light of our above discussion about the role of content in semantic theorizing, condition semantics's account of the contents of moral sentences better captures what we know when we know what moral sentences mean than contextualism's. (Again, I want to emphasize that we are considering specifically truth-conditional aspects of meaning, as described in §1.1. Given our purposes, I leave open whether the arguments below generalize to motivate condition semantics for personal taste predicates, epistemic modals, vague terms, etc.; however, I am inclined to think they do.)

Start with contextualism. According to contextualism, moral terms are interpreted with respect to a contextually relevant moral standard, where which particular moral standard is relevant varies across contexts. ' ϕ is wrong' is context-sensitive, expressing different propositions in different contexts, even if ϕ contains no context-sensitive items itself. Roughly, (1) is true at a point of evaluation — a context-index pair — iff torturing babies for fun is wrong according to the relevant moral standard of the context.¹¹

Does this contextualist proposal capture what you know when you know what (1) means? Or what you believe when you believe what (1) says? Start with mental content. Is believing

¹⁰Pace DREIER 1990, 2009, which views the main motivation (of at least contextualism) as being to explain judgment internalism.

¹¹As is standard in descriptive semantics, the analyses given here and below are not intended to provide individuals who do not understand ethical terms with such an understanding; rather they are models, at the relevant level of abstraction, of speakers' dispositions to interpret moral language (*cf.* n. 3). Even so, the standard frameworks of ordering semantics and premise semantics (e.g., LEWIS 1973, VELTMAN 1976, KRATZER 1981, 1991) suggest a number of ways of giving an illuminating, non-trivial characterization of what it is for an action to be wrong according to a moral standard. One option is to treat a moral standard as a set of propositions P whose truth is required by morality, on some view of what morality requires, or as a set of propositions that describe some putative moral ideal (e.g., propositions like that no murders occur, that overall average happiness is maximized, that each individual maximizes her own self-perfections, etc.). To a first approximation, ' ϕ is wrong' would mean that $\neg\phi$ follows from every maximally consistent subset of P . Equivalently, the semantics could be couched in terms of orderings induced by P (LEWIS 1981). I continue to talk of "moral standards" simply for heuristic purposes. Jumping ahead, whereas the contextualist would treat P as supplied by the context, the condition semanticist would treat it as supplied by the index.

that torturing babies is wrong a state of mind about one's moral standards? It seems not. Assume that believing what a sentence *S* says is a matter of believing the proposition expressed by *S*. First, if I ask you why to believe that torturing babies is wrong, I am asking for considerations regarding the action of torturing babies, not considerations regarding your, or whomever else's, moral views about torturing babies.

Second, suppose you offer George, your pet chimpanzee, a brightly colored plant to eat. Having grown up in the great outdoors, George recognizes that the plant is poisonous and recoils. You say:

(4) George knows he shouldn't eat the plant.

This seems true. But, contrary to the contextualist, it is implausible that (4) is true only if George knows that his eating the plant is incompatible with his, or anyone else's, normative views. (Obviously I am generalizing to types of normative language beyond the narrowly moral.) He's just a monkey. He might barely know he exists. Similarly, suppose you encourage Gabriel, your infant brother, to put his fingers into the electrical outlet. Gabriel, smart chap that he is, recoils; his mother has repeatedly scolded him not to do so. You say:

(5) Gabriel knows he shouldn't put his fingers into the outlet.

This seems true; you are attributing a certain normative belief to Gabriel. But it is implausible that (5) is true only if Gabriel has a belief about his, or anyone else's, normative views. After all, he's just a baby.¹²

In these ways contextualism seems to have trouble capturing what your state of mind is when you have a normative belief. It is (6c), not (6b), with which (6a) has an important semantic connection (though this is not to say they are equivalent).

- (6)
- a. Sara thinks torturing babies for fun is wrong.
 - b. Sara thinks torturing babies for fun is wrong according to her.
 - c. According to Sara's moral views, torturing babies for fun is wrong.

Whether one can represent or take a certain perspective on normative standards is independent of whether one can *have* a normative standard. Call this point 'FIRST-ORDER STATES OF

¹²Cf. YALCIN 2007: 997.

MIND’.

Return to linguistic content. Consider the context-dependency of words like ‘I’ and ‘every’. Knowing the linguistic meaning of ‘I’ requires being able to say, given a context of utterance c , that ‘I’ picks out the speaker of c . Knowing what ‘I like brownie sundaes’ means requires knowing, given a context c , that the speaker of c likes brownie sundaes. If you don’t know who the speaker is in the context, you don’t know what was said, or what proposition was expressed. You don’t know what possibilities have been ruled out, and whether your information state is compatible with the possibilities that have not been ruled out. Similarly with quantifiers. Knowing what ‘Everyone likes brownie sundaes’ means requires knowing that, given a context c , for all x in the relevant domain specified by c , x likes brownie sundaes. If you don’t know what the contextually relevant domain is, you don’t know what proposition was expressed (every human being? every child?). You don’t know whether your information state is compatible with the possibilities that have not been ruled out. The same goes for other types of context-sensitive expressions — e.g., demonstratives, gradable adjectives, relational expressions (‘enemy’, ‘local’), neutral modal verbs (‘can’, ‘must’), adverbial quantifiers (‘usually’, ‘occasionally’) — but you get the idea.

Does the same hold with moral terms? It seems not. Suppose the contextually relevant moral standard for the interpretation of (1) is Sara’s. Intuitively, it doesn’t seem that knowing what (1) says in this context involves an ability to rule out the following possibilities: those in which torturing babies for fun isn’t wrong according to Sara. By contrast, knowing what ‘I like brownie sundaes’ says when uttered by Sara does seem to involve an ability to rule out the following possibilities: those in which Sara doesn’t like brownie sundaes.

This point is suggestive but perhaps not decisive. We saw that with context-dependent items like ‘I’ and ‘every’, among others, we can only retrieve the intended truth conditions given certain contextual cues; the semantic interpretation of such items is incomplete in an important sense. Is there a similar semantic incompleteness with moral terms? It seems not. I can determine the intended truth conditions of a sentence like (1) even if I have no idea who the speaker is or what the context is like. Similarly, consider (7).

(7) Nathan should be here by now.

I don’t know what (7) says unless I know what flavor of modality ‘should’ expresses. Is

‘should’ to be given an epistemic reading? A deontic reading? But once I know that the context determines, say, a particular type of deontic reading — and I know the referents of ‘here’ and ‘now’ — I seem to know precisely what (7) says. And I know whether my information state is compatible with the possibilities it doesn’t rule out. Call this point ‘SEMANTIC COMPLETENESS’.

In these ways, the meanings of normative terms do not pattern with the meanings of context-dependent expressions. Knowing what ‘wrong’ means does not require knowing that, given a context c , ‘wrong’ picks out those actions that are wrong according to the relevant standard of c .¹³

It is beyond the scope of the present chapter to demonstrate clear disanalogies between moral terms and every kind of context-sensitive expression. But, first, my goal here is to help build a good inductive case that moral terms are not context-sensitive in the sense at issue. What is lacking is a contextualist analysis that meets all of the challenges canvassed. In certain semantically relevant respects, moral terms behave quite unlike pure indexicals, demonstratives, nominal and adverbial quantifiers, relational expressions, gradable adjectives, and (neutral) modal auxiliaries, all generally accepted as types of context-sensitive expressions. This gives us reason to investigate whether any non-contextualist analyses fare better. Second, the arguments presented here provide a case against moral terms being context-sensitive in a *lexically specific* way. This leaves open whether moral terms are context-sensitive in the broader sense concerning the conversational, discourse-level standard-setting discussed in LEWIS 1979b. Ultimately I think that condition semantics for moral terms integrates better with this type of pragmatic picture of conversation. But that is a topic for another paper (see SILK 2012c).

These same phenomena that the contextualist has difficulty capturing support condition semantics. First let’s clarify the rough-and-ready explication of condition semantics

¹³The contextualist might respond by treating the semantic content of a moral claim as a set of contexts, rather than as a set of worlds or indices (see SCHLENKER 2003, ANAND & NEVINS 2004, SHARVIT 2008; though cf. VON STECHOW 2003).

(i) $\lambda c . \llbracket \phi \rrbracket^{c, w_c}$

On this analysis, the content of (1) is the set of contexts such that torturing babies for fun is wrong according to the relevant moral standard of that context. There may be reasons for introducing this kind of context shifting into the semantics. But insofar as doing so effectively integrates moral standards into the semantic content in the same way as worlds, this type of analysis appears to be structurally isomorphic to condition semantics.

from the beginning of this section. We started with a standard view of content according to which contents function to distinguish among possibilities. An ordinary factual sentence, on this view, places a condition on possible worlds; it describes what property a world must have for it to be characterized by that sentence. But as we noted in our discussion of problems facing MORAL INVARIANTISM, sentences do not always simply characterize ways the world, narrowly construed, might be. Sentences can distinguish among ways things might be, broadly understood — for example, regarding how things might be morally, or what the correct moral view(s) might be. Condition semantics captures this feature of moral thought and talk. According to condition semantics, sentences (in context) place conditions on various sorts of items, conditions that the items in question must satisfy in order for them to be characterized by those sentences — hence ‘condition semantics’. Moral sentences place conditions on, or express properties of, moral standards just like ordinary factual sentences place conditions on, or express properties of, possible worlds. Just as ordinary factual sentences test whether a possible world meets a certain condition, moral sentences test whether a moral standard meets a certain condition. (If condition semantics is correct for predicates of personal taste, epistemic modals and adjectives, vague predicates, etc. — again, a point I leave open here — we would likewise understand sentences containing these expressions as placing conditions on standards of taste, credal states, standards of precision, etc.)

We noted in §1.1 that semantic competence with an ordinary factual sentence like ‘The diamond is in the box’ requires being able to say, given some situation w , whether the diamond has the property of being inside the box in w . This motivated the view that ‘The diamond is in the box’ has as its content a certain set of possible circumstances, those in which the diamond is in the box. For the condition semanticist, the picture is precisely parallel. Semantic competence with a moral sentence requires being able to correctly say whether, for any relevant moral standard i , if things are *that way* morally, or if *that* is the correct moral view, then the sentence is true. The contents of moral sentences give a rule for selecting a subset of moral standards from some domain — in the case of (1), a rule for selecting those moral standards according to which torturing babies for fun is wrong. So, if the standard possibility-distinguishing view of content is roughly on the right track, condition semantics seems to be its natural heir in the case of moral terms.

Condition semantics captures these points formally by interpreting moral terms with

respect to a parameter of the index, rather than a parameter of the context. For the contextualist (and the invariantist), the index consists of a world parameter, and perhaps also a time parameter. However, there is nothing inherent in the Kaplanian framework that requires this restriction. As even Kaplan and Lewis acknowledge, the index can consist of any parameters that can be shifted by expressions that operate on content.¹⁴ For the condition semanticist, the index also includes a parameter i that ranges over moral standards. Indices are thus treated as pairs $\langle w, i \rangle$ of a world w and moral standard i . (I will systematically ignore times.) The contents of sentences and attitudes are treated as sets of $\langle w, i \rangle$ pairs, rather than as sets of worlds, as per the invariantist and the contextualist. (I will continue to call such contents ‘propositions’ for the moment, but we will return to this in §1.3.) The extension of an expression — e.g., the truth value of a sentence — is determined with respect to a context and a $\langle w, i \rangle$ pair, which is the index. Just as ordinary factual sentences denote truth values with respect to a world of evaluation, so, on this picture, do moral sentences denote truth values with respect to a moral standard (and world). (If one likes, the values “true” and “false” can be understood simply as characterizing sets in the usual way.) We can represent the truth conditions of (1) roughly as follows, in equivalent function- and set-talk (see n. 11).

- (8) a. (1) is true in c at $\langle w, i \rangle$ iff torturing babies for fun is wrong according to i in w
 b. $\{ \langle w, i \rangle : \text{torturing babies for fun is wrong according to } i \text{ in } w \}$

Though moral sentences — unlike simple, ordinary factual sentences — have truth conditions that need not place non-trivial conditions on the world parameter, they have truth conditions just the same.

Two points of clarification. First, condition semantics is not simply a kind of “centered worlds” semantics. Centered content is typically understood in terms of self-location. But distinguishing among moral standards does not seem to be reducible to distinguishing among where one might be located in the world. We must distinguish individuals from the moral standards they might accept.¹⁵

Second, we can now give a more precise analysis of what a “moral sentence” is. Al-

¹⁴LEWIS 1980: 84–87 and KAPLAN 1989: 502, 511, 511n.35 are particularly forthright on this point. So, *pace* BJÖRNSSON & FINLAY (2010: 11, 25), there is nothing “radical” in a relativist semantics as such.

¹⁵*Pace* suggestions in EGAN ET AL. 2005, EGAN 2007, STEPHENSON 2010, WEATHERSON 2008. Thanks to Allan Gibbard for pressing me on this point.

though all propositions may be treated as sets of world-moral standard $\langle w, i \rangle$ pairs, not all propositions will interestingly depend on the value of moral standard parameter. Morality-*independent* propositions are sets of $\langle w, i \rangle$ pairs such that if one pair is in the set, so is every pair with the same world coordinate. Ordinary factual sentences like ‘Sara likes brownie sundaes’ express morality-independent propositions. Morality-*dependent* propositions, like (1), are sets of $\langle w, i \rangle$ pairs that are not morality-independent propositions. *Moral sentences*, we might say, are those sentences that express morality-dependent propositions. (So, on this semantic characterization, not all complex sentences containing moral terms will be “moral sentences” in this sense.) Though this is certainly not the only difference between moral and non-moral language, moral sentences, unlike non-moral sentences, place non-trivial conditions on the moral standard parameter.

Condition semantics is an improvement. First, it improves on MORAL INVARIANTISM and captures the intuitions from the beginning of §1.1. Moral sentences won’t be necessary in the sense of being “true at all indices.” (1) has non-trivial content: it is false with respect to moral standards which permit torturing babies for fun; it rules out those moral standards which do not prohibit torturing babies for fun. We can now see that there is something problematic in the contextualist’s response to our puzzle in §1.1. Our goal, in part, was to show that moral sentences non-trivially distinguish among possibilities. Since our contextualist treats contents as ordinary sets of worlds, she has to find a non-empty set of worlds to rule out. She does so via the assumption that the contextually relevant group might have different moral views in different worlds. (1), for example, would rule out those worlds in which the contextually relevant moral standard — say, Sara’s — permits torturing babies for fun. Though this indeed distinguishes the contents of (1) and (2), it does so in the wrong sort of way. (1) is not a claim about Sara or her moral views. It is a claim about the moral status of torturing babies. This is what distinguishes (1) from a sentence like (6c), reproduced below, or (9), said in a context in which we are cataloguing what Sara’s moral views are.¹⁶

(6c) According to Sara’s moral views, torturing babies for fun is wrong.

(9) Torturing babies for fun is “wrong.”

¹⁶On this distinction, see, e.g., HARE 1952, VON WRIGHT 1963, HANSSON 1969. For related discussion in linguistics on “objective” and “subjective” uses of modals, see LYONS 1977; more on this in §2.3.3 of Chapter II.

The possibilities (1) rules out are possible moral standards, possible ways things might have been morally. Condition semantics captures this intuition.

Second, condition semantics has a natural explanation of SEMANTIC COMPLETENESS. Since the relevant moral standard does not figure into the content of moral claims — it is used in determining extension *from* content — we do not need a suitably specified context to determine what a given moral claim says (abstracting away from other context-sensitive items).

Finally, let's return to mental content. Condition semantics offers a natural explanation of FIRST-ORDER STATES OF MIND. To see this, start with a conservatively enriched standard modal semantics for attitude verbs like 'believe' (HINTIKKA 1969). As usual, attitude verbs can be treated as shifting the index. For condition semantics this means that attitude verbs shift not only the world parameter but also the moral standard parameter. So, what the attitude verb does is quantify over the set of possibilities, now represented at the relevant level of abstraction as a set of world-moral standard pairs, that are compatible with the attitude state. 'S believes ϕ ' says that S's belief state entails the content of ϕ , relative to the given context (*cf.* n. 22). As in unembedded cases, complements that contain moral terms may have extensions that non-trivially depend on the value of the moral standard parameter. 'Sara believes that torturing babies for fun is wrong' says, roughly, that for all $\langle w', i' \rangle$ pairs compatible with Sara's beliefs (in the world of evaluation), torturing babies for fun is wrong according to i' in w' . The belief ascription is true iff Sara's moral views are a certain way, i.e., iff all live moral standards, given her moral views, prohibit torturing babies for fun. In this way, we can capture FIRST-ORDER STATES OF MIND and the close semantic connection between sentences like (6a) and (6c).

We are now in a position to compare our approach to a Stalnakerian diagonalization strategy and an impossible worlds approach, briefly mentioned in §1.1 (*cf.* n. 13). Diagonalization is a means of *reinterpretation*; it is triggered by the assertion of a sentence that would be uninformative or trivial if interpreted with its literal meaning (STALNAKER 1978). First, diagonalization, in this sense, is in tension with MORAL NEUTRALITY: If moral sentences semantically express ordinary possible worlds propositions and are interpreted with respect to an invariant moral standard, then their semantic contents presuppose some particular view on how to live. Irrespective of its story about how we interpret moral language in

conversation, a reinterpretation strategy faces the same problems as MORAL INVARIANTISM: it fails to account for what it is to be *semantically* competent with moral language. Second, contingently true moral sentences will not trigger diagonalization. So, for any contingently true moral sentence ‘ ϕ is μ ’ (pick your favorite), for some moral predicate μ , the diagonalizer will have no explanation for how its semantic content differs from that of ‘ ϕ is δ ’ (for some associated descriptive, non-moral predicate δ) that would express the same possible worlds proposition. The main difference between condition semantics and Stalnakerian diagonalization is that, for condition semantics, *reinterpretation* is not necessary to capture the communicative content of moral sentences. Semantic competence itself requires moral expressions to be interpreted with respect to a given moral standard.

As for the impossible worlds approach, we can now see that it will end up looking quite similar to condition semantics. Whereas condition semantics separates the possible world and moral standard parameters, the impossible worlds theorist builds the moral standard into the (im)possible world. (For example, the truth conditions of (1) would be the set of (im)possible worlds w' such that torturing babies for fun is wrong according to the correct moral standard in w' .) For any $\langle w, i \rangle$ pair there is a unique (im)possible world identical to w in all non-normative respects in which i is the correct moral view. And if we restrict ourselves to impossible worlds whose impossibility is a result of what moral views are correct in them, the mapping from $\langle w, i \rangle$ pairs to (im)possible worlds is one-to-one. So, which analysis one adopts may depend on one’s commitments regarding the broader utility and theoretical role of impossible worlds (see n. 1). But even if one wished to go in for impossible worlds on independent grounds, separating in our theories the world and moral standard parameters of the index can illuminate more perspicuously the structure of our semantic competence with moral terms and what is special about their meanings as compared with the meanings of ordinary non-normative descriptive terms. And depending on one’s views about representation and intentional content more generally, one might think that representing moral judgments in terms of $\langle w, i \rangle$ pairs rather than impossible worlds will lend itself to a preferred account of how particular morality-dependent contents count as being the contents of agents’ beliefs and other attitudes. (We will return to this issue in §1.3.)¹⁷

¹⁷Thanks to Andy Egan and Eric Swanson for helpful discussion.

1.3 A way forward in metaethics

In §1.1 I argued that we should not build substantive normative assumptions into the meanings of moral terms. This motivated contextualism and condition semantics over invariantism. In §1.2 I argued that a variety of further phenomena motivate condition semantics over contextualism: Moral sentences place conditions on moral standards.

Now for a hitch — okay, two hitches. First, condition semantics may seem similar to certain versions of relativism in the sense familiar from recent contextualism-relativism debates. Is condition semantics committed to being “relativist”?

Second, we articulated condition semantics within a familiar truth-conditional framework. However, condition semantics seems to look a lot like the version of expressivism developed in GIBBARD 1990b, 2003, which, at least *prima facie*, purports to be *non*-truth-conditional.¹⁸ In Gibbard’s (2003) response to the Frege-Geach problem he develops a normative logic based, roughly, on assigning truth values to sentences relative to triples of context, world, and “hyperplan.” (A hyperplan is a maximal contingency plan, or a plan that, for any occasion or decision one might conceivably be in, either forbids or permits an alternative open on such an occasion. The semantics in his 1990b is couched in terms of “systems of norms” rather than hyperplans.) The content of an attitude or judgment is given in terms of the world-hyperplan pairs it rules out. This formalism should sound pretty familiar. What gives?

In reply, I understand condition semantics as offering an attractive *framework* for thinking about broadly metaethical questions. Much of the formal apparatus is, on its own, neutral on various broader philosophical issues. Certain of these issues can then be understood as characterizing the debates over relativism and expressivism. (This is not to say that the condition semantics framework is neutral on all philosophical issues. For example, it presupposes the substantive picture of content described in §1.1, and rules out invariantism and contextualism about moral terms.) Contemporary metaethicists can — and, if the arguments in §§1.1–1.2 are right, *should* — all accept condition semantics for giving their compositional

¹⁸However, condition semantics is clearly unlike old-school versions of emotivism and expressivism according to which utterances of moral sentences conventionally express non-contentful states of mind — e.g., states expressed by some variant on ‘Boo!’ or ‘Hurray!’ Thanks to Matthew Chrisman for pressing me on relevant distinctions between expressivist theories.

descriptive semantics for moral terms.¹⁹ Where they will differ is on certain further issues in, e.g., philosophy of language, philosophy of mind, and psychology. We can begin to delineate the landscape of resulting metaethical positions in terms of the following sorts of questions, among others.

PROPOSITION

What are propositions? Are they identical to — or, at least, do they determine — sets of possible worlds, or sets of $\langle w, i \rangle$ pairs? Are the abstract objects that a semantics assigns as the contents of declarative sentences and the complements of attitude verbs the same sorts of entities that are the contents of human states of mind?

SEMANTICS

What is explanatorily fundamental in a theory of meaning? Knowledge of truth conditions? Or satisfaction of norms regarding how expressions are conventionally used?

MONADIC TRUTH

How should we define a monadic truth predicate? Is there a single moral standard that is correct for all contexts? Or can the moral standard relevant in evaluating whether a moral sentence is true simpliciter vary across contexts?

METASEMANTICS

What makes a term *normative*? What is it about a linguistic community that makes it the case that a certain term has a morality-dependent content, and that it has the particular morality-dependent content that it does? Do facts about the term's regulative, directive role in planning and practical reasoning play an essential role in this sort of content-determination?

MIND

What makes a particular abstract object count as the content of an agent's attitude? Do facts about the agent's motivational state or emotional capacities play an essential role in this sort of content-determination?

¹⁹I mean 'descriptive semantics' in the sense of STALNAKER 1997: 535; cf. KAPLAN 1989: 573–576 on 'semantics'.

PSYCHOLOGY

Are the attitudes agents bear toward morality-dependent contents essentially practical and action-guiding? Is there a special tie between moral judgment and action?

No doubt these questions are at least dialectically, if not logically, related. Though defenses of answers to these questions must be reserved for elsewhere, the following clarificatory remarks may be helpful.

Though all metaethicists can accept that moral sentences have truth conditions, in the sense of sets of indices, whether we say they express “propositions” will depend on whether that label is better reserved for ordinary sets of worlds or for sets of our enriched indices. Given the theoretical roles propositions are usually thought to play — namely, of being the contents of declarative clauses and propositional attitudes — there is little reason to prejudice the issue in favor of the former. However, if one has a more metaphysically robust job description for propositions, calling perhaps for something that carves “fundamental reality” (whatever that is) at its joints, one might have qualms about calling sets of $\langle w, i \rangle$ pairs ‘propositions’.

Though condition semantics makes use of the notion of “truth at an index,” as is standard, it can still capture our intuitive notion of truth simpliciter (in a context). According to KAPLAN (1989: 522, 547), an ordinary non-normative sentence is true in a context c iff it is true at the point of evaluation $\langle c, w_c \rangle$, where w_c is the world of c (cf. LEWIS 1980: 88). By extension, we can say that a (moral) sentence is true — or, we might say, “correct” — in a context c iff it is true at the point of evaluation $\langle c, w_c, i_c \rangle$, where i_c is the correct moral standard of the context.

Note that this characterization is neutral on whether there is a single correct moral standard for all contexts. I suggest that it is by this question, the question targeted by MONADIC TRUTH, that we characterize “relativist” positions. To capture common relativist claims that morality is not objective — or at least that moral language does not presuppose that morality is objective — the relativist might say that a moral sentence is correct, or true in a context, iff it is true according to the relevant moral standard of the context, where what standard is relevant can vary across contexts. Conflicting moral judgments about a particular case may thus both be able to be correct. Those who defend the objectivity of morality — or at least the objective purport of moral language — would deny this by defining a monadic truth

predicate in terms of some universal moral standard.²⁰

I suggest that it is the questions in METASEMANTICS, MIND, and PSYCHOLOGY that locate many important points of contention in the debates over expressivism. Is a morality-dependent content assigned to a term because the term plays an essentially regulative, directive role in planning or practical reasoning? Are facts about an agent's conative, practical, or motivational state essential in determining that some particular set of $\langle w, i \rangle$ pairs is the content of her moral belief? If so, what role and which facts? (No doubt GIBBARD 1990b will be relevant here.) Though the non-expressivist would answer these questions in the negative, she might grant that moral beliefs are often intimately connected with an agent's emotional capacities and practical attitudes, and that utterances of moral sentences can non-conventionally express such attitudes in certain contexts.²¹ These questions may also shed light on the debate over judgment internalism. If having certain emotional capacities is necessary for one to count as bearing the acceptance relation to a certain morality-dependent content, this could clarify the sense in which the amoralist or sociopath may not count as genuinely accepting any moral claims.

It is widely assumed that expressivism is committed to explaining the semantic properties of a sentence S (e.g., inconsistencies, entailments) in terms of properties of the psychological attitudes conventionally expressed by utterances of S , rather than in terms of properties of the content of S . The above discussion suggests that there are positions continuous with historical versions of expressivism that reject this commitment, positions that accept the common assumption in semantics that, at the relevant level of abstraction, semantic properties of sentences are to be explained in terms of formal properties of their contents. Given the alleged problems incurred by this commitment, as discussed in the literature on the Frege-Geach problem, this may prove a welcome result for theorists attracted to the psychological aspects of expressivism. (Though see SILK 2012a for arguments that expressivists can still solve the negation problem even while taking the above explanatory commitment on board.)²²

²⁰Thanks to Allan Gibbard and Jason Konek for pressing me on this issue. Depending on how one answers MONADIC TRUTH, one's definition of a monadic truth predicate may introduce a disanalogy between normative and non-normative sentences: Unlike in the case of non-normative sentences, the question of which normative sentences are true simpliciter may be a normative question. Regardless, as noted in §1.1, one does not need to be able to determine whether a sentence is true simpliciter in order to be semantically competent with it.

²¹Compare "hybrid" versions of expressivism (see SCHROEDER 2009 for an overview).

²²For arguments against treating expressivism as committed to explaining semantic properties in terms of

In these ways, a plurality of implementations of condition semantics are possible depending on one's broader philosophical commitments. All metaethicists, I have argued, have reason to accept condition semantics for moral terms in giving their compositional semantics. And they can do so in a way that does not prejudge certain further issues concerning the "meaning" of moral terms, broadly construed. Instead, we can locate many classic metaethical debates in certain empirical and philosophical matters in psychology, philosophy of mind, and philosophy of language more broadly. The framework of condition semantics suggests new ways of clarifying what is at issue in these debates.

1.4 Conclusion

I have argued that reflection on what it is one knows when one knows what moral terms mean motivates a "condition semantics." Contents distinguish among possibilities. Semantic competence with moral language requires, perhaps among other things, having the capacity to correctly divide the space of moral standards, or distinguish among ways things might be morally. Just as ordinary factual sentences place conditions on possible worlds, moral sentences place conditions on moral standards. The resulting type of analysis improves upon invariantism: it's not the case that a mere world of evaluation determines what moral standard is relevant for the interpretation of moral terms. Condition semantics also improves upon contextualist analyses: knowing what a moral sentence means requires being able to correctly distinguish among moral standards, not among worlds based on whether such-and-such relevant standard G of the context is at it is; it requires being able to pick out the set of moral standards according to which the sentence is true, not the set of worlds in

properties of psychological attitudes, see CHARLOW 2011b: App. A. Though I have characterized expressivism as agreeing with non-expressivism on what sort of descriptive semantics to adopt for normative language, there will of course be alternative characterizations without this feature. For instance, though Gibbard's extension of ordinary possible worlds semantics treats sentential contents, roughly, as sets of pairs of worlds and normative standards, an alternative, perhaps more in the spirit of Gibbard's own non-technical discussions, is Swanson's (2012a) constraint semantics (*cf.* MOSS 2012). This does away with worlds in the index and treats the primary semantic values of all sentences as sets of admissible states ("constraints") — credal states, in the case of ordinary factual sentences and epistemically hedged sentences — and treats attitude ascriptions as saying that the subject's state satisfies the constraint expressed by the complement. This is, in effect, a static version of one kind of familiar dynamic semantics which treats the primary semantic values of sentences as relations between information states or contexts (perhaps understood in the enriched way described in LEWIS 1979b).

which the sentence is true according to *G*. The framework of condition semantics also offers a perspicuous way of posing various classical questions in metaethics and related areas. This, I hope, will motivate clearer, better motivated answers and suggest new ways the dialectic may proceed.

CHAPTER II

‘Ought’ and ‘Must’: Some Philosophical Therapy*

“‘Ought’ and ‘Must’ — they are contemptible auxiliaries.”
George Eliot[†]

Abstract

‘Ought’ is the philosopher’s normative term par excellence. But there has been little inquiry on what ‘ought’, in contradistinction from other necessity modals and normative terms, actually means. I offer an analysis of the meaning of ‘ought’, and of the distinction between ‘ought’ and ‘must’, that makes correct predictions concerning a wide range of semantic and pragmatic phenomena. ‘Ought’, on this view, expresses a kind of conditional necessity, necessity on the supposition that the “applicability conditions” of certain premises (norms, values, goals, etc.) are satisfied. Clarifying the distinction between ‘ought’ and ‘must’ is not merely of linguistic interest; it can improve theorizing on broader philosophical issues.

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[†]Mary Garth, in *Middlemarch*, Bk. 2, Ch. 14. Shamelessly modified from the original.

2.1 Introduction

‘Ought’ is the philosopher’s normative term par excellence. “A primitive ought,” it has even been said, “is the basic conceptual atom that gives normative concepts their special character” (GIBBARD 2006: 738). But there has been little inquiry on what ‘ought’ itself means. ‘Ought’, when it is investigated at all, is typically considered merely as a representative of normative terms more generally, effectively treated as an equivalence class. (What holds for ‘ought’ holds for...)

This is a problem. Not all normative terms are created equal. Exhibit A: Intuitively, ‘Ought ϕ ’ and ‘Should ϕ ’ express that ϕ is necessary in some sense. Yet it is well established that though ‘ought’ and ‘should’ (“weak necessity modals”) are stronger than possibility modals like ‘may’ or ‘can’, they are nevertheless weaker than modals like ‘must’ and ‘have to’ (“strong necessity modals”).¹

- (1)
 - a. I ought to (/should) help the poor. In fact, I must.
 - b. I must help the poor. #In fact, I ought to (/should).
- (2)
 - a. I ought to (/should) help the poor, but I don’t have to.
 - b. #I must help the poor, but it’s not as if I ought to (/should).

Even holding the reading of the modals fixed, ‘Ought ϕ ’ can be followed by ‘Must ϕ ’ but not vice versa, as reflected in (1); and ‘Ought ϕ , but not must ϕ ’ is consistent in a way that ‘Must ϕ , but not ought ϕ ’ is not, as reflected in (2). What is not well established is how to capture this difference in strength. (In what follows I will focus on ‘ought’ and ‘must’. Unless otherwise noted, I will not distinguish among weak necessity modals or among strong necessity modals, though this is a simplification.² Some speakers find ‘should’ to be more natural and less formal than ‘ought’; such speakers should feel free to substitute ‘should’ for

¹See, e.g., SLOMAN 1970; HORN 1972, 1989; WERTHEIMER 1972; HARMAN 1975, 1993; LYONS 1977; WOISETSCHLAEGER 1977; WILLIAMS 1981c; COATES 1983; JONES & PÖRN 1986; MCNAMARA 1990, 1996; PALMER 1990, 2001; BYBEE ET AL. 1994; GROEFSEMA 1995; ZIMMERMAN 1996; HUDDLESTON & PULLUM 2002; WERNER 2003, 2005; COPLEY 2006; WÄRNSBY 2006; VON FINTEL & IATRIDOU 2008.

²On differences among weak and strong necessity modals, respectively, see, e.g., LEECH 1970: 228; LAKOFF 1972b; WERTHEIMER 1972: 77–80; BOUMA 1975: 321–326, 333; LARKIN 1976; COATES 1983: 53–57, 67–69, 77–83; BYBEE ET AL. 1994: 214–218; PALMER 1990: 11, 38, 69–70, 106–107, 113–116, 177, 188–189, 2001: 73, 75; HUDDLESTON & PULLUM 2002: 186, 196–208, 998, 1001–1002; IATRIDOU & ZEIJLSTRA 2012.

‘ought’ in examples throughout this chapter.)

This might appear to be a narrowly linguistic problem. “Leave it to the semanticist,” one might say. But such a judgment would be premature. I will argue that insensitivity to differences among necessity modals has obscured theorizing on broader philosophical issues. First I will motivate and develop an account of the meaning of ‘ought’ and the distinction between weak and strong necessity modals (§2.2). This analysis elucidates the special role that ‘ought’ judgments play in conversation, deliberation, and planning, and captures a wide range of linguistic data. Though I will often focus on deontic readings, we will see that the proposed analysis generalizes across modal flavors. Ways in which the account improves upon its main rivals will be indicated throughout the discussion as points of contrast are made salient. Finally, the resulting account can help us diagnose problems with arguments on a number of further philosophical issues (§2.3). I will focus on three: the coherence of moral dilemmas, the possibility of supererogatory acts, and the connection between making a normative judgment and being motivated to act accordingly. These diagnoses, I hope, will motivate clearer answers and suggest new ways the dialectics may proceed.

2.2 Weak necessity as conditional necessity

2.2.1 ‘Ought’ and ‘must’ in context

It is well appreciated that a primary goal of conversation is to share information. We express our beliefs about the world and invite others to share in these beliefs. But we also express other aspects of our state of mind. We coordinate our expectations, values, goals, and plans. Sometimes we assert propositions outright. We commit to settling on the truth of our assertion for the remainder of the conversation.³ But sometimes we don’t wish to impose such a strong restriction on the future course of the conversation. I may want to propose that someone is obligated to do something but be unsure about whether there might be competing norms at play that would outweigh or cancel her obligation. Or we may want to proceed as if ‘ ϕ ’ is true because it follows from our evidence while remaining open to the possibility

³As usual, I assume as an idealization a purely monotonic model of information gathering, i.e., that information is only added and, once added, is not subject to further discussion.

that our evidence is misleading. I suggest that it is the role of weak necessity modals to allow us to carry out such goals, make such proposals, and express such states of mind.

Suppose I am considering whether to fight in the Resistance or take care of my ailing mother. I mention that the value of family, which supports my helping my mother over my fighting, is important, and you agree. But the issue is acknowledged to be complex, and it isn't settled in the conversation whether there might be more important competing values. Sensitive to this, you may find it more appropriate to express your advice that I help my mother by using 'ought' than by using 'must', as in (3).⁴

(3) Me: Family is very important.

You: I agree. You ought to (/ ? must, / ? have to) take care of your mother.

But if we come to settle that family is of primary importance, as in (4), it can become more natural to use 'must' and for us to accept that I have to help my mother.

(4) Me: Family is most important — more important than country.

You: I agree. You must (/ have to, / ? ought to) take care of your mother.

This kind of case highlights a crucial difference between weak necessity modals like 'ought' and strong necessity modals like 'must'. In both (3) and (4) the value of family is accepted in the common ground (what is mutually presupposed for the purposes of the conversation; STALNAKER 1974, 2002).⁵ How you can express your advice that I help my mother depends on how the status of the value of family may relate to other values in the context. In (4), where it is common ground that the value of family is to take precedence, using a strong necessity modal is preferred. But in (3), where this condition isn't settled, were you to use 'must' you would imply that you are foreclosing certain possibilities that I have left open. Unless you have the authority to do so, your using 'must' is dispreferred. What is illuminating is that you can felicitously express your advice that I help my mother using 'ought', advice which I may accept, even if it isn't common ground that the above precondition for my having a genuine obligation to help my mother is satisfied. By using 'ought' you can propose that I help my mother while remaining neutral on whether the value of family might

⁴I use '?' to indicate that using the marked item is dispreferred. Thus '?' marks a weaker infelicity than '#'.

⁵This is contrary to suggestions by Aynat Rubinstein (2011: 141, 146; 2012a) regarding a similar example.

be outweighed or defeated in some way. If I agree, we can plan accordingly without having to presuppose that the value of family is more important than other competing values we accept or may come to accept.⁶

2.2.2 The analysis

We can make progress in capturing these points with a more nuanced understanding of the premises that figure in the interpretation of modals. Values, norms, goals, desires, etc. typically don't come in the form of blunt categorical imperatives or commands. They aren't usually of the form *No matter what, ϕ !*. Rather they often come with what I will call *applicability conditions* ("ACs"), or conditions under which they apply. If I want to go for a run, my desire need not be that I go for a run, come what may. More plausibly, it is that I go for a run given that it's sunny, that I don't prefer to do anything else more, and so on. Our preferences are often conditional, preferences *for* certain circumstances. Similarly with moral norms. Suppose you promised Alice that you would help her move. A norm against breaking your promise might be something to the effect that you help Alice unless you made a more important conflicting promise to Bert, or keeping your promise would lead to some serious harm, or... Norms can thus be understood on the model of *conditional* imperatives, imperatives that enjoin an action or state of affairs given that certain circumstances obtain. Likewise for goals, probabilities, and so on. This captures the intuitive idea that depending on the circumstances — i.e., depending on which applicability conditions are satisfied — only certain norms, etc. may be "in force." (Categorical norms, etc. can be treated as conditional on the tautology. For ease of exposition I will tend to couch the discussion specifically in terms of norms, though the points generalize to other types of considerations that can determine the reading of a modal.)

These points can be integrated into a standard premise semantic framework for modals. Modals are treated as receiving their reading or interpretation from a contextually supplied set of premises.⁷ Since modals can occur in intensional contexts, it is standard to index

⁶See WOISETSCHLAEGER 1977: ch. 5 and MCNAMARA 1990: ch. 3 for prescient discussion and related cases. See RUBINSTEIN 2011, 2012b for recent emphasis of how the relative felicity of 'ought' and 'must' depends on standing assumptions in the context. I discuss her view in my 2012b. See also VON STECHOW ET AL. 2006: 14–15, VON FINTEL & IATRIDOU 2008: 139–140.

⁷Equivalently, a preorder (LEWIS 1981). See especially KRATZER 1977, 1981, 1991; also VAN FRAASSEN

premise sets to a world of evaluation. Which premise set is relevant for the evaluation of a given modal sentence can depend on how things happen to be in the actual world, or on how things could be but aren't or could have been but weren't. What Little Timmy's parents command might change from one world to the next; thus the meaning of a phrase like 'what Little Timmy's parents command' that determines the intended reading for 'must' in (5)

- (5) In light of what Little Timmy's parents command, Little Timmy must be in bed by eight.

can be treated as a function that assigns to every possible world the set of propositions describing the house rules in that world. Similar remarks hold for the meanings of phrases like 'in view of the relevant circumstances', 'according to U.S. law', 'in light of your goals', and so on. It is these functions that context is said to supply for the interpretation of modals. Call these functions *unsaturated premise sets* (written ' P '). Call the value of an unsaturated premise set given a world of evaluation a *saturated premise set* — or simply a *premise set* (written ' P_w ').

We can capture the role of applicability conditions in terms of variability in the values of unsaturated premise sets at different worlds.⁸ Suppose we have a conditional imperative 'If C , ϕ !' which enjoins ϕ given that conditions C obtain. We can represent the content of this conditional imperative, intuitively, with an unsaturated premise set P that assigns to every relevant C -world a premise set that includes ϕ . For example, the normative import of your promise to help Alice move, mentioned above, would be reflected in P 's assigning a premise set that includes the proposition that you help Alice to worlds in which you made this promise, you didn't make a more important promise to Bert, etc. The premises in a saturated premise set thus reflect what is enjoined by a body of conditional norms — or what is preferred in light of a body of conditional preferences, what is the case in light of a body of evidential relations, etc. — given the circumstances that obtain in the evaluation world.

These conceptual points about the premises relative to which modal claims are interpreted can inform our semantics for weak and strong necessity modals. I give strong ne-

1973, LEWIS 1973, VELTMAN 1976.

⁸An alternative is to treat ACs as built into the specification of individual premises. Premises would be propositions expressed by material conditionals ' $\phi \supset \psi$ ', where ' ϕ ' describes the AC of the action or state of affairs described by ' ψ ' (SILK 2012b). As I argue elsewhere, however, this strategy founders in the case of the interpretation of possibility modals like 'may' (SILK 2013b).

cessity modals like ‘must’ their usual semantics of necessity. Bracketing some complications that won’t be relevant here, ‘Must ϕ ’ says that the prejacent proposition ϕ follows from P_w — where P_w is the premise set that is the value of the given unsaturated premise set P at the evaluation world w .⁹ Formally:

ACTUAL STRONG

‘Must ϕ ’ is true at w iff $\bigcap P_w \subseteq \llbracket \phi \rrbracket$

The truth of ‘Must ϕ ’ thus depends on the value of P *at the world of evaluation*. In order for ‘Must ϕ ’ to be true at w , given an unsaturated premise set P , the circumstances in w must be such that the premise set P_w verifies the necessity of ϕ .

The same doesn’t hold for ‘ought’. What makes weak necessity modals “weak,” I suggest, is that they express a kind of *conditional* necessity, necessity on the supposition that certain conditions, the applicability conditions of certain relevant premises, are satisfied.¹⁰ Roughly, ‘Ought ϕ ’ is true iff ‘Must ϕ ’ would be true were it to turn out that certain relevant norms, values, goals, etc. that bear on the necessity of ϕ are in force and not defeated. ‘Ought ϕ ’ makes a claim about the necessity of ϕ at all closest relevant χ -worlds, for some contextually supplied condition χ . More formally, where s is a selection function that selects a set of closest χ -worlds to the evaluation world w :

CONDITIONAL WEAK

‘Ought ϕ ’ is true at w iff ‘Must ϕ ’ is true at all worlds $w' \in s(w, \chi)$ iff $\forall w' \in s(w, \chi): \bigcap P_{w'} \subseteq \llbracket \phi \rrbracket$

(This will be refined in §2.2.4; more on the condition χ shortly.) In making an ‘ought’ claim one need not commit to being in a world w such that P_w verifies the necessity of ϕ .

⁹For simplicity I assume that our premise sets are consistent, and I do not distinguish between Kratzer’s modal bases and ordering sources. Dropping these assumptions, the simplified talk in the main text about what follows from P_w can be understood as short for talk about what follows from all maximally consistent subsets of $F_w \cup G_w$ that include F_w as a subset, where F_w is a modal base that describes some set of relevant background facts and G_w is an ordering source that represents the content of a relevant ideal at the evaluation world. (This still makes the limit assumption (LEWIS 1973: 19–20), the assumption that ordering consistent subsets of $F_w \cup G_w$ that include F_w by set inclusion \subseteq yields a set of subsets that are \subseteq -maximal. For semantics without the limit assumption, see LEWIS 1973; KRATZER 1981, 1991; SWANSON 2011.) I also assume that the prejacent of modals express propositions conceived as sets of possible worlds.

¹⁰For precedents in descriptive linguistics, see PALMER 1990: 59–60, 125, 128; 2001: 32, 73–74. In my 2012b: 45–47 and 2013b I argue that thinking of premise sets in terms of applicability conditions can also help solve the problem of capturing weights and priorities among premises in premise sets.

The truth-conditional difference between weak and strong necessity modals highlighted in ACTUAL STRONG and CONDITIONAL WEAK is certainly not the only difference among weak and strong necessity modals, a point we will return to in §2.3.3. However, as we will see in the remainder of this section, this account of the weak/strong necessity distinction can go a long way in explaining various properties of weak and strong necessity modals.

Treating weak necessity modals as conditional in the way described above helps capture how they are well suited to play the sort of role in conversation, thought, and planning discussed in §2.2.1. In saying ‘Must ϕ ’, you assume a body of relevant circumstances and norms (values, goals, etc.), and assert that ϕ is necessary relative to what the norms enjoin given those circumstances. So, in order for ‘Must ϕ ’ to be accepted in a context, and thus true at all worlds in the context set (the set of live possibilities, the set of worlds compatible with the common ground), the context set must be restricted to worlds in which the relevant applicability conditions are satisfied, i.e., to worlds w such that P_w entails ϕ . But sometimes placing such a strong constraint on the development of the conversation would be inapt. Perhaps we want to coordinate on the necessity of ϕ without having to restrict the future development of the conversation in such a way that decisively settles on the truth of certain ACs, or that presupposes that certain relevant premises are in force and not defeated. We can do so using a weak necessity modal. In uttering ‘Ought ϕ ’ one needn’t assume that the circumstances in the world are such that what the relevant norms enjoin given those circumstances entails ϕ ; one needn’t commit to being in a world w such that P_w entails ϕ . Rather, one expresses one’s commitment to the necessity of ϕ on some implicit condition or other, and invites one’s interlocutors to test whether this same property holds of their states of mind. If it does, then the group can proceed as if ϕ is necessary without having to presuppose that there aren’t any more important competing considerations and while remaining open to new evidence.

Returning to (3)–(4), reproduced below, the deontic necessity of my helping my mother depends on the value of family being more important in my situation than other potentially competing values.

- (3) Me: Family is very important.
You: I agree. You ought to (*I*? must, *I*? have to) take care of your mother.
- (4) Me: Family is most important — more important than country.

You: I agree. You must (/have to, /[?]ought to) take care of your mother.

In (4), when my assertion is accepted this condition that the value of family is to take precedence becomes common ground; the AC for my helping my mother is satisfied throughout the context set. So, the context set gets restricted to worlds w such that P_w includes the proposition that I help my mother, and your ‘must’ claim is true throughout the context set. Since using ‘must’ is felicitous in this context, using the weaker ‘ought’ would violate a Gricean quantity maxim and so is dispreferred. (I return to the precise sense in which ‘ought’ is weaker in §2.2.4.) In (3), by contrast, after my assertion is accepted it is still not common ground that the AC for my helping my mother is satisfied — hence the hesitancy one might feel in using ‘must’. But since ‘Ought ϕ ’ can be accepted in a conversation even if not all worlds w in the context set are such that P_w entails ϕ , your ‘ought’ claim is still felicitous and acceptable. By accepting your ‘ought’ claim, we can provisionally proceed as if my helping my mother is required without needing to settle that the value of family isn’t outweighed or defeated in some way.

I have said that ‘ought’ is preferred in (3), but it is important to see that in certain contexts ‘must’ may also be acceptable. A speaker may felicitously use ‘must’ in a context in which it isn’t common ground whether certain relevant applicability conditions are satisfied if she can be presumed to be a legitimate authority on them and can thus make them common ground by her utterance. This is a familiar kind of accommodation (LEWIS 1979b, STALNAKER 2002). In (3), if you can be presumed a normative authority on the issue in question, I will accommodate in response to your using ‘must’ by accepting the assumption required for your ‘must’ claim to be true, namely, that we are in a world w such that P_w includes the proposition that I help my mother.

This is not an isolated example. Suppose Alice, a young teenager, wants to go to Harlem and is considering with her mother, Martha, whether to take the A train or the C train. The A train is quicker, but the C train is safer. Martha takes the safety of her child to be of paramount importance, though this value is not common ground between them. Nevertheless Martha can felicitously say to Alice:

(6) You must take the C train, not the A train.

By uttering (6) Martha expresses her acceptance that the goal of traveling safely takes priority over the goal of traveling quickly. Given her authority in the context, she can legitimately expect Alice to share this acceptance and accommodate. This renders it common ground that the applicability condition of the former but not the latter goal is satisfied, and restricts the context set to worlds that verify the necessity of ϕ . But such special contexts notwithstanding — contexts in which the speaker does not have or does not wish to exercise this authority — ‘ought’ will be preferred.

Before moving on, a brief word about the implicit condition χ that figures in the interpretation of ‘ought’ is in order. Using ‘ought’ allows us to coordinate on some action’s being required without having to settle definitively that all the norms that render that action required apply and are not defeated. Given this role for ‘ought’ in an utterance of ‘Ought ϕ ’, and given plausible conversational maxims — especially, that given a set of alternative propositions a speaker asserts the proposition she thinks is most likely to remain accepted throughout the evolution of the conversation — χ will be some condition such that there is no alternative condition with respect to which ‘Ought ψ ’ would be true that is (presumed to be) at least as likely or desirable as χ , for contraries ‘ ϕ ’ and ‘ ψ ’. There may be independent reasons for building this subjective element into the semantics for ‘ought’, but this complication is not necessary for present purposes. We can derive it pragmatically. Upon hearing an utterance of ‘Ought ϕ ’ a hearer might reason as follows:

- (7) “S said ‘Ought ϕ ’. So S must think there is some relevant condition C given which ‘Must ϕ ’ would be true. If S thought there was another more probable or desirable condition C’ given which ‘Must ψ ’ would be true (for contraries ‘ ϕ ’ and ‘ ψ ’), she would think it more likely or desirable that ‘Must ψ ’ is true and accepted than ‘Must ϕ ’. So S would have said ‘Ought ψ ’, assuming that she is being cooperative and obeying the maxims. But S didn’t say ‘Ought ψ ’. So she must think C is not less likely or desirable than any relevant alternative condition with respect to which ‘Ought ψ ’ would be true.”

2.2.3 Epistemic readings

Though we have been focusing on deontic readings, the proposed analysis generalizes across modal flavors, even to epistemic modals. Like with norms and goals, what is expected given certain evidence can be conditional, conditional on things being normal in the relevant respects. Suppose Alice is coming to visit and her flight was due to arrive fifteen minutes ago. Let w_N be a world in which conditions are normal in the relevant respects, and $w_{\bar{N}}$ be a world in which conditions are not normal in these respects. For instance, in w_N Alice leaves her house on time, traffic conditions are thus-and-so, her flight isn't delayed, pirates don't kidnap her, and so on. The evidential import of these conditions can be reflected in the unsaturated premise set P 's assigning w_N a premise set that includes the proposition A that Alice arrives by such-and-such time t , and assigning $w_{\bar{N}}$ a premise set that includes $\neg A$. Relative to this unsaturated premise set, A is only an epistemic necessity at worlds like w_N in which conditions are normal. So in order for A to be accepted as epistemically necessary, the context set must be restricted to normal worlds like w_N .

Consider the dialogues in (8)–(9).

- (8) Me: Alice must have arrived by now.
You: Really? But what if she got into a car accident on the way to the airport, or her flight got delayed, or the plane needed to circle?
Me: Oh, I hadn't thought of that. (/I was assuming otherwise.)
- (9) Me: Alice ought to have arrived by now.
You: #But what if she got into a car accident on the way to the airport, or her flight got delayed, or the plane needed to circle?
Me: I know; that's why I said *ought*!

As in the case of Martha and Alice in (6), your utterance in (8) is felicitous only if you have the epistemic authority to make me accommodate and make it common ground by your utterance that conditions are normal. If you don't have this authority, I may reasonably raise to salience certain live possibilities that are incompatible with the epistemic necessity of A . But if I use 'ought', as in (9), your mentioning such possibilities may be beside the point, for I am not committing to conditions being normal. I am making an implicitly conditional

claim about what would be necessary were it to turn out that conditions are normal. As in the deontic case, ‘must’ is preferred if I can reasonably treat the relevant applicability conditions as settled, and ‘ought’ is preferred if I cannot. We can provide a uniform explanation for the behavior of weak and strong necessity modals in their various readings.

2.2.4 Counterfactual marking

The proposed analyses capture a wide range of further linguistic phenomena involving weak and strong necessity modals. One example which I find especially compelling concerns how weak necessity is expressed cross-linguistically. In this section and the next I will argue that the way in which the proposed account can capture the cross-linguistic data also helps explain various seemingly unrelated semantic and pragmatic properties of ‘ought’ and ‘must’.

Past tense forms of modals — in English, ‘would’ for ‘will’, ‘could’ for ‘can’, ‘might’ for ‘may’ — are often used not to indicate past time reference, but to express tentativeness or politeness and weaken the force of the modality, as in (10)–(11). They are also the forms that appear in the consequents of subjunctive conditionals, as in (12).

- (10) a. Alice will (/may, /can’t) be at home now.
b. Alice would (/might, /couldn’t) be at home now.
- (11) a. May (/Can) I comment on your proposal?
b. Might (/Could) I comment on your proposal?
- (12) If you took the 2:00 flight tomorrow, you would (/could, /might) get there by 4:00.

PALMER 2001 dubs these uses of past tense “the modal past.”¹¹

Strikingly, ‘ought’ patterns with the past-marked modal forms. First, as we have seen, ‘ought’ weakens the necessity of ‘must’. Second, ‘ought’, unlike ‘must’, can appear in subjunctive conditional consequents, as in (13).

- (13) a. If Alice came to the party tomorrow, Bert ought to leave.
b. #If Alice came to the party tomorrow, Bert must(ed) leave.

¹¹See also, e.g., JOOS 1964, LYONS 1977, COATES 1983, PERKINS 1983, PALMER 1987, 1990, FLEISCHMAN 1989, IATRIDOU 2000, HUDDLESTON & PULLUM 2002. Terminology varies among authors.

Third, when used with nonpast time reference, ‘ought’, unlike ‘must’, patterns with the past-marked forms in being non-entailing; ‘Ought ϕ ’, unlike ‘Must ϕ ’, is compatible with ‘ $\neg\phi$ ’. (We will return to this point in §2.2.5.)

- (14) a. Alice ought to be here by now, but she isn’t.
 b. #Alice must be here by now, but she isn’t.

(15) I could give to Oxfam, but I won’t.

Fourth, when used with the perfect, ‘ought’ patterns with the past-marked forms in implicating the negation of its prejacent.

(16) I could have given to Oxfam. (Implicates: I didn’t)

- (17) a. We ought to have given to Oxfam. (Implicates: we didn’t)
 b. #We must have given to Oxfam (but we didn’t).

‘Must’ cannot even receive a deontic reading when used with past time reference. ‘Ought’, but not ‘must’, can be used to communicate that a certain obligation held in the past. This follows from the more general point that only past-marked forms can take scope under the perfect (CONDORAVDI 2002). Suppose we know that Alice lost the race, but we are discussing alternative ways things could have gone. We can use the past-marked form ‘might’ but not ‘may’ to express that after the first lap it was still (circumstantially, metaphysically) possible for Alice to win.

- (18) a. After the first lap, Alice (still) might have won. √perf > might
 b. After the first lap, Alice (#still) may have won. *perf > may

That ‘ought’ can take scope under the perfect in (17a) is a fifth respect in which ‘ought’ patterns with past-marked modal forms. In sum, though ‘must’ does not have a past tense form, ‘ought’ appears to function semantically as its modal past.¹²

These data are surprising given the fact about English that the distinction between weak

¹²Cf. ANDERSON 1971: 79; PALMER 1990: 59–60, 80, 124–128; 2001: 32, 73–74, 127, 203–204. Formally, ‘should’ is the past tense form of ‘shall’. But ‘should’ with this quasi-subjunctive meaning is distinct from ‘should’ in its expressing weak necessity (cf. n. 2). I am not distinguishing typographically between word forms and lexical items; context should disambiguate.

and strong necessity is marked with different words. But they become less surprising when we examine other languages. The cross-linguistic norm is to mark the semantic distinction between weak and strong necessity morphologically. Weak necessity is typically expressed using the formal modal past of a strong necessity modal, or by combining a strong necessity modal with counterfactual morphology — e.g., with some kind of fake past-tense marking (past-tense marking that receives a nonpast interpretation).¹³

Von Fintel and Iatridou (2005, 2008) attempt to capture this cross-linguistic data in their semantics for ‘ought’. They treat weak necessity modals as quantifying over “the best of the best” worlds — roughly, the relevant P_w -compatible worlds that are also compatible with certain further considerations, represented by a secondary ordering source (premise set that represents the content of some ideal; see n. 11). (This can be understood as formalizing the not uncommon informal claim that “*Ought* is related to *must* as *best* is related to *only*” (WILLIAMS 1981c: 125) — i.e., that ‘Ought ϕ ’ implies that ϕ is best among various acceptable alternatives, whereas ‘Must ϕ ’ implies that ϕ is the only acceptable alternative; see also, e.g., SLOMAN 1970, MCNAMARA 1990.) It is speculated that “the counterfactual marking is co-opted here in a somewhat meta-linguistic kind of way: ‘if we were in a context in which the secondary ordering source was promoted [to primary status], then it would be a strong necessity that...’” (2008: 139). The tentativeness associated with the counterfactual marking is attributed to the fact that the premises in the secondary ordering source need not apply: “The choice of whether to really promote the secondary ordering source is left open” (2008: 139).

I find this analysis unsatisfying. First, little is said about what makes a primary ordering source “primary” and a secondary ordering source “secondary” apart from the fact that the latter figures only in the interpretation of weak necessity modals. No story is given about how primary and secondary ordering sources are determined independently of the truth condi-

¹³See esp. PALMER 2001: 127, 146, 155, 183–186, 193–196; VON FINTEL & IATRIDOU 2008; cf. VAN LINDEN & VERSTRAETE 2008. Interestingly, the marker for weak necessity in Central Pomo is also a conditional marker (PALMER 2001: 185). As von Fintel and Iatridou note (126n.22), English ‘ought’ fits this pattern historically; it was formerly the past subjunctive of the verb ‘owe’ (see also CURME 1931: 413; BOUMA 1975: 334). For discussion of how counterfactuality is marked cross-linguistically, and of what are the essential grammatical components, if any, of counterfactual marking, see JAMES 1982; FLEISCHMAN 1989; DAHL 1997; IATRIDOU 2000, 2009; PALMER 2001; VAN LINDEN & VERSTRAETE 2008; RITTER & WILTSCHKO 2010; BITTNER 2011; BJORKMAN & HALPERT 2012.

tions of the relevant ‘ought’ and ‘must’ sentences. We should be able to say what the primary and secondary ordering sources are in various contexts without simply reverse engineering them from relevant truth value judgments. Second, absent an account of what makes it the case about a speaker that she is counterfactually promoting a secondary ordering source, the proposed story about the role of the counterfactual marking seems *ad hoc*. Third, one might worry that the proposed explanation for the tentativeness associated with the counterfactual morphology just redescribes what needs to be explained. The tentativeness is “explained” by positing a parameter consisting of premises that need not apply. Fourth, it is unclear how their explanation would generalize to explain the tentativeness associated with counterfactual morphology on other kinds of lexical items — e.g., possibility modals like ‘might’, or desire verbs like ‘wish’, which, as von Stechow and Iatridou themselves note, are expressed in many languages by placing counterfactual morphology on the word for ‘want’ (see also IATRIDOU 2000).

I have said that weak necessity modal claims are claims about what would be necessary were it to turn out that certain applicability conditions are satisfied. Treating weak necessity as conditional necessity in this way suggests a more natural explanation of the data. We can capture the cross-linguistic data by taking our cue from independent theories of the semantic and pragmatic role of counterfactual marking. The details of what this role is and how it is determined are not uncontroversial. But it is generally agreed that counterfactual morphology signals that the worlds being talked about needn’t be candidates for actuality, or that the set of topic worlds isn’t a subset of the context set (STALNAKER 1975, VON STECHOW 1998, IATRIDOU 2000, BITTNER 2011). We can incorporate this element into our analysis of weak necessity modals by supplementing the truth conditions in *CONDITIONAL WEAK* with a pragmatic constraint on the selection function s that the set of selected worlds not be included in the context set c .

(19) *Pragmatic constraint: $s(w, \chi) \not\subseteq c$*

This requires that at least some of the worlds at which the necessity of the prejacent is evaluated be outside the context set. Given the truth-conditions in *CONDITIONAL WEAK* and the pragmatic constraint in (19), it is unsurprising that many languages should use a modal past form of a strong necessity modal to express weak necessity, and that English should be the

anomaly in using a different modal verb.

Treating ‘ought’ semantically as the modal past of ‘must’ in this way explains why ‘ought’ should pattern with the past modal forms in the ways described above. It also gives precise expression to the intuition that ‘ought’ is weaker and more tentative than ‘must’. In uttering ‘Ought ϕ ’ the speaker makes a claim about the necessity of ϕ and marks her utterance as being about a set of worlds that needn’t be candidates for actuality. But, as Stalnaker notes, “normally a speaker is concerned only with possible worlds within the context set, since this set is defined as the set of possible worlds among which the speaker wishes to distinguish” (1975: 69). So, using ‘ought’ implicates that one isn’t in a position to make a claim about whether the prejacent is necessary throughout the set of live possibilities. Interestingly, this suggests that the basis of the scale between ‘ought’ and ‘must’ is not one of quantification but of epistemic strength.¹⁴ We can assimilate the tentativeness of ‘ought’ to the tentativeness of past forms more generally, as in non-counterfactual subjunctive conditionals — sometimes called “future less vivid” conditionals — like (12) above and (20).

- (20) If you came to our party tomorrow — and I’m not saying that you will — you would have a great time.

In such examples, the speaker may simply wish to admit the possibility that it could become taken for granted that the marked clause is not true. This is what happens with ‘ought’ regarding the relevant applicability conditions (and, as we will see in §2.2.5, the modal’s prejacent as well).

This explanation of the relative tentativeness associating with using ‘ought’ also helps explain our initial data from (1)–(2), reproduced below.

- (1) a. I ought to help the poor. In fact, I must.
b. I must help the poor. #In fact, I ought to.
- (2) a. I ought to help the poor, but I don’t have to.
b. #I must help the poor, but it’s not as if I ought to.

Since ‘ought’ is weaker than ‘must’, Grice’s first quantity maxim — “Make your contribution

¹⁴Cf. ZIEGLER 2000 and VAN LINDEN & VERSTRAETE 2008 on counterfactual clauses.

as informative as is required” (GRICE 1989: 26) — can be exploited to generate a familiar upper-bounding implicature, namely, from the use of ‘ought’ that for all one knows — or, better, for all one is willing to presuppose in the conversation — ‘Must ϕ ’ is false.¹⁵ This scalar implicature has the usual properties of implicatures. It is cancelable and reinforceable, as in (1a) and (2a), respectively. And it is suspendable, as in (21).

(21) I ought to help the poor. Maybe I have to.

In the case of (1a), for example, the speaker first conveys that the set of worlds being talked about isn’t included in the set of live possibilities and then asserts that what holds in the former worlds — the deontic necessity of the proposition that I help the poor — also holds in the latter worlds. The implicature data with ‘ought’ can thus be treated analogously to the implicature data with subjunctive conditionals.

- (22) a. If you had the flu, you would have exactly the symptoms you have now. (*cf.* ANDERSON 1951: 53)
 b. If you had the flu, you would have very different symptoms from the symptoms you have now.
 c. If you had the flu, you would be sick. Maybe you do have the flu; you *are* pretty congested.

Before moving on, I would like to address two concerns with the proposed way of capturing the counterfactual element in weak necessity modals. First, on my account, ‘ought’ makes a claim about what is necessary at certain worlds outside the context set. This might seem to predict that ‘Must ϕ ’ and ‘Ought $\neg\phi$ ’ are consistent: Given an unsaturated premise set P , there is nothing inconsistent with ϕ following from P_w and $\neg\phi$ following from $P_{w'}$, for all $w' \in s(w, \chi)$ and some χ that is false at w .¹⁶ But this prediction seems incorrect; (23) is contradictory.

(23) #I must give more to the poor, but I shouldn’t.

¹⁵See, e.g., HORN 1972, 1989; GAZDAR 1979; GAMUT 1991. Often in scalar implicatures hearers are also licensed in taking the so-called “epistemic step” from ‘It’s not the case that S believes ϕ ’ to ‘ S believes $\neg\phi$ ’. This stronger implicature will not be relevant in what follows.

¹⁶A simple model: Let $W = \{w, w'\}$, $P_w = \{\phi\}$, $P_{w'} = \{\neg\phi\}$, $w \notin \chi$, $w' \in \chi$, and $s(w, \chi) = \{w'\}$.

If ‘Must ϕ ’ is true, ‘Ought $\neg\phi$ ’ must be false.

As the reforcability data in (2a) shows, it is felicitous and consistent to predicate the necessity of ϕ of a set of worlds at least some of which are outside the context set, while also denying that ϕ is necessary at all worlds in the context set. But our treatment of the pragmatics of ‘ought’ claims confirms that it should be anomalous to predicate the necessity of ϕ of certain worlds outside the context set when one is in a position to predicate the necessity of $\neg\phi$ of all worlds in the context set. Given the role that necessity claims play in guiding action, deliberation, and expectations, it would be counter to one’s discourse- and non-discourse-related goals to utter ‘Ought $\neg\phi$ ’ while also proposing to coordinate on the necessity of ϕ . As discussed in §2.2.2, given a set of relevant considerations that bear on the necessity of ϕ , the worlds of which $\neg\phi$ is predicated to be necessary in an utterance of ‘Ought $\neg\phi$ ’ are, roughly, those worlds compatible with the applicability conditions that the speaker most endorses in some relevant sense. If the speaker successfully asserts ‘Must ϕ ’, some of these worlds will be in the context set. This correctly predicts that if ‘Must ϕ ’ is felicitous and true, ‘Ought $\neg\phi$ ’ is false. One cannot accept both ‘Must ϕ ’ and ‘Ought $\neg\phi$ ’.

Second, I have argued that ‘Ought ϕ ’ says that ‘Must ϕ ’ is true at certain possibly counterfactual worlds. Von Stechow and Iatridou object that this sort of view incorrectly predicts that ‘ought’ is semantically equivalent to ‘would have to’ (2008: 128–131). In (1)–(2), ‘ought’ cannot be replaced by ‘would have to’.

- (24) a. I ought to help the poor. In fact, I must.
b. ?I would have to help the poor. In fact, I must.
- (25) a. I ought to help the poor, but I don’t have to.
b. ?I would have to help the poor, but I don’t have to.

Similarly, (26a) is not equivalent to (26b) (their (59) and (62)).

- (26) a. (If Fred wanted to get to the island) he would have to use this boat.
b. He ought to use this boat.

The worry is that “[t]he string *would have to* talks about a necessity that obtains in a counterfactual world. In the actual world, there is no modal advice, suggestion or obligation... On

the other hand, when we use *ought*, the modal's force holds in the actual world" (2008: 129).

Languages that mark the weak/strong necessity distinction morphologically use the same string to express 'ought' and 'would have to'. Given considerations of compositionality, it would be preferable, other things equal, to give these strings the same semantic interpretation. The account in this chapter, unlike the one in VON FINTEL & IATRIDOU 2008, has this advantage. Expressions of weak necessity are given precisely the semantics we would expect given their lexical and morphological features across languages. Even so, we can still capture the apparent differences between 'ought' and 'would have to' sentences.

'Ought' allows us to talk about what is necessary in certain worlds outside the context set without having to make explicit a condition that determines a specific set of worlds in which the necessity claim is said to hold. This need not render 'ought' claims hopelessly vague, however. Given pragmatic principles like those discussed in §2.2.2 and in this section, hearers can retrieve a plausible range of conditions that speakers assume to be most likely or desirable when making 'ought' claims. If a hearer accepts a speaker's assertion of 'Ought ϕ ', she expresses that there is also some condition that she takes to be most likely or desirable given which ϕ is necessary — this even if speaker and hearer are not explicit about what this condition is. This carves out two crucial features of 'ought' claims in conversation, features which distinguish them from 'would have to' claims.

First, conversational participants can all accept 'Ought ϕ ' and coordinate on the necessity of ϕ without having to make explicit and agree upon a specific condition given which ϕ would be necessary. This marks a contrast in the anaphoric properties of 'ought' and 'would have to'. Whereas 'ought' is acceptable even if no particular condition is salient, as in (27a), 'would have to' is not, as in (27b). The condition that figures in a 'would have to' claim must be readily retrievable by the addressee; it must be salient in the extra-linguistic context, as in (28), or in the linguistic context, as in (29).

(27) [Context: We are strangers standing in a hotel lobby. I notice you fumbling with your bags.]

- a. Here, I should help you.
- b. ?Here, I would have to help you.

(28) [Context: We are trying out electric guitars in a music store. We come across a very

expensive vintage Gibson Les Paul.]

I would have to check with my wife first.

- (29) a. If I really wanted to buy this guitar, I would have to check with my wife first.
- b. I could buy this guitar. But I would have to check with my wife first.

Second, by asserting ‘Ought ϕ ’ speakers exert conversational pressure on hearers to presuppose that there is some condition that is most likely or desirable given which ϕ is necessary. By contrast, one can accept that ϕ is necessary given ψ , for some possibly counterfactual condition ψ , without thinking that ψ is the most likely or desirable condition that bears on whether ϕ is necessary. This contrast is reflected in (30)–(31); the (a)-examples are true, but the (b)-examples are false.

- (30) a. If I was a mobster, which I’m not, I would have to kill you.
- b. I ought to kill you.

- (31) [Context: I don’t know whether Alice will come to my wedding next month. As a matter of fact, unbeknownst to me, she won’t end up coming.]
 - a. If Alice came to my wedding next month, I would have to send her a thank you card.
 - b. I ought to send Alice a thank you card.

This predicts that if we make explicit a condition that is mutually endorsed in the conversation, the effects of a ‘would have to’ claim should be closer to those of an ‘ought’ claim. This prediction appears to be borne out.

- (32) a. Alice left an hour ago. If there wasn’t any traffic and everything was normal, she would have to be at her office by now. In fact, I checked and there wasn’t any traffic and everything was normal. So she must be at her office by now.
- b. Alice left an hour ago. She ought to be at her office by now. In fact, I checked, and there wasn’t any traffic and everything was normal. So she must be at her office by now.

- (33) [Context (see (6)): Alice wants to go to Harlem and is considering with her mother,

Martha, whether to take the A or the C train. The A train is quicker, but the C train is safer. Martha says:]

- a. If safety was most important, you would have to take the C train. In fact, safety is more important, as we can agree. So you have to take the C train.
- b. You ought to take the C train. In fact, safety is most important, as we can agree. So you have to take the C train.

In these ways, although ‘ought’ claims are claims about what is necessary in certain possibly counterfactual worlds, they differ from explicit counterfactuals with necessity modals. We can capture the sense in which weak necessity modal claims can bear on what is necessary in (what is presumed to be) the actual world.

2.2.5 Entailingness and performativity

By treating ‘ought’ semantically as the modal past of ‘must’ and building a conditional element into its meaning, we can also explain several seemingly unrelated puzzles concerning entailingness and performativity with ‘ought’ and ‘must’.

First, though many authors have claimed that ‘Ought ϕ ’ on its epistemic reading expresses that ϕ is probable,¹⁷ the data strongly suggests that ‘ought’ is unlike ‘must’ in this respect. ‘Must ϕ ’ commits the speaker to a high unconditional credence in ϕ , whereas ‘Ought ϕ ’ does not commit the speaker to any unconditional credence in ϕ (*cf.* SWANSON 2012a). Reconsider (14), reproduced below.

- (14) a. Alice ought to be here by now, but she isn’t.
b. #Alice must be here by now, but she isn’t.

Epistemic ‘Must ϕ , but $\neg\phi$ ’ is inconsistent in a way that epistemic ‘Ought ϕ , but $\neg\phi$ ’ is not.¹⁸

¹⁷E.g., SLOMAN 1970; HORN 1972; WERTHEIMER 1972; FINLAY 2009; LASSITER 2011.

¹⁸The felicity of epistemic ‘Ought ϕ , but $\neg\phi$ ’ does not threaten our claim that ‘Ought ϕ ’ expresses the speaker’s presumption that there is no condition χ — no set of relevant ACs — that is at least as probable as ones given which ϕ is necessary. The condition χ that is supposed true in the interpretation of epistemic ‘ought’ must be live at least in the sense that one does not have evidence from one’s direct experience that it is false. As long as one would have expected that χ was satisfied were it not for one’s indirect evidence that it is false, one can still utter ‘Ought ϕ ’. Support for this comes from the fact that it is preferred for denials of the relevant ACs to be headed by epistemic ‘must’, which, it is widely acknowledged, typically signals that its

Surprisingly, this appears to hold for deontic readings as well.¹⁹

- (34) a. You ought to help your mother, but you won't (/but I know you won't).
b. #You must help your mother, but you won't (/but I know you won't).

Of course obligations can go unfulfilled. What is interesting is that speakers appear to assume otherwise, at least for the purposes of conversation, when expressing obligations with 'must'.

I follow STALNAKER 1975, VON FINTEL 1998, and BITTNER 2011, among others, in thinking that there is a default presupposition that a modal's domain of quantification is a subset of the context set — a default canceled by the subjunctive, or counterfactual markers more generally. This predicts straightaway that (14b) and (34b) are inconsistent. Since 'must' does not have a counterfactual element to its meaning, the context set must include $\bigcap P_w$, for all worlds w in the context set. So, if 'Must ϕ ' is accepted, $\neg\phi$ cannot be satisfied throughout the context set; hence the inconsistency of 'Must ϕ , but $\neg\phi$ '. However, there is no similar restriction on the value of the unsaturated premise set P at worlds outside the context set; the value of P at non-live possibilities needn't be compatible with the common ground. Since 'ought' takes us to worlds outside the context set in assessing the necessity of its prejacent, as long as all worlds $w' \in s(w, \chi)$ are outside the context set, 'Ought ϕ ' can be true at a live possibility w even if all the worlds in the context set are $\neg\phi$ -worlds; hence the consistency of 'Ought ϕ , but $\neg\phi$ '. So, even if SWANSON (2012a: 22–23) is right that "pure premise semantics on its own" cannot capture the above data, the analyses of 'ought' and 'must' in §2.2.2, conjoined with independently motivated pragmatic constraints on mood and the interpretation of modals, suggest a natural explanation.²⁰

prejacent is the conclusion of an indirect inference (see, among many others, KARTTUNEN 1972: 11–15; COATES 1983: 18, 41, 64–65, 73, 177; 2001: 34–35; VON FINTEL & GILLIES 2010).

- (i) She ought to be here by now, but she isn't. Something must have ($l^?$ has) gone wrong!

¹⁹See esp. WERNER 2003: 124–137 and 2005; NINAN 2005; PORTNER 2009: 103, 189–196. See also LEMMON 1962, LEECH 1971, WERTHEIMER 1972, HARMAN 1973, LYONS 1977, WILLIAMS 1981c, COATES 1983, PALMER 1990, 2001, HUDDLESTON & PULLUM 2002, SWANSON 2012a.

²⁰This is of course not the only possible explanation for the data in (14) and (34). SWANSON 2012a captures the data by including in the semantic entry for 'must' but not 'ought' a constraint that requires high credence in the modal's prejacent. It would be better, I take it, if we could explain the data in terms of independent features of the semantics of 'ought' and 'must', as I have argued we can. Alternatively, one might explain the data by appealing to the different performative properties of weak and strong necessity modals (NINAN 2005; SWANSON 2008: 1203–1204; PORTNER 2009: 103, 189–196). I argue below that the analysis in the main text has

One might worry that our explanation of the inconsistency of (34b) does not also predict the inconsistency of (35).

(35) ?You must go to confession, but I'm not sure if you will (/but you might not).

We predicted that if 'Must ϕ ' is true, ' $\neg\phi$ ' cannot be true throughout the context set. This would seem to leave open whether it might be true at some worlds in the context set. In reply, I am not sure that (35) is inconsistent; at minimum, it sounds better than (34b). But if we grant that it is at least anomalous, one option is to say that this is because of a pragmatic norm that interlocutors do what they can to make the actual world be among the best worlds (*cf.* PORTNER 2007: 358). (35) would then be pragmatically anomalous to the extent that it is anomalous to commit someone to help see to it that ϕ while expressly admitting the possibility of $\neg\phi$. This is not full-blown inconsistency, of course, but that seems like the correct prediction for this case.

Deontic 'ought' and 'must' are often thought to differ in their conventional force. At least in root clauses, deontic 'must', unlike deontic 'ought', is often thought to have a performative or imperative-like aspect to its conventional meaning; it is often thought to conventionally perform a directive speech act, or be used to try to get someone (possibly oneself) to do something, perhaps in addition to performing an assertion.²¹ Some have appealed to this performative property of deontic 'must' as motivation for a dynamic semantics. Though a dynamic implementation might be desirable on other grounds, our explanations for (14) and (34) suggest an alternative static explanation. Since accepting 'Must ϕ ' is incompatible with denying ' ϕ ', if the truth of ' ϕ ' is assumed to be under the control of some relevant subject, updating with 'Must ϕ ' will commit the subject of the obligation to seeing to it that ϕ . So, it is no surprise that 'must' should be thought to be conventionally directive. But since accepting 'Ought ϕ ' is compatible with denying ' ϕ ', updating with 'Ought ϕ ' needn't commit anyone to seeing to it that ϕ . So, we correctly predict that even if deontic 'ought' can be used to perform a directive speech act, it doesn't do so as a matter of its conventional meaning. (Though 'ought' is not conventionally directive, it should come as no surprise, given the discussion

the advantage of explaining these performative properties as well, without needing to take them as basic.

²¹See especially NINAN 2005; PORTNER 2007: 363–365, 2009: 103–105, 189–196; SWANSON 2008: 1203–1204. *Cf.* BEHRE 1955, LEECH 1970, 1971, LYONS 1977, LEWIS 1979a, WELLS 1979, COATES 1983, PALMER 1990, BYBEE ET AL. 1994, HUDDLESTON & PULLUM 2002, NUYTS ET AL. 2005.

in §§2.2.1–2.2.2 of the conversational role of ‘ought’ claims and the implicit condition χ , that deontic ‘ought’ claims are still often thought to perform more moderate speech acts of recommending or advising.)²²

2.3 A little philosophical therapy

Thus concludes our whirlwind tour of various linguistic advantages of understanding weak necessity as conditional necessity. ‘Ought’, I have argued, expresses a kind of conditional necessity, necessity on the supposition that the applicability conditions of certain norms, values, goals, etc. are satisfied. The wide range of semantic and pragmatic phenomena that are predicted and explained by our analysis lend it a robust base of support. But as interesting as our linguistic ruminations have been — no presupposition failure I hope! — the distinction between ‘ought’ and ‘must’ is not merely of interest to the philosopher of language or linguist. Greater sensitivity to differences among necessity modals can improve theorizing on broader philosophical issues. I will briefly discuss three such issues in normative and metanormative theory: moral dilemmas, supererogation, and judgment internalism.

2.3.1 Moral dilemmas

Suppose you promised Alice that you will help her move and promised Bert that you will help him move, but you discover that you cannot help them both. Suppose also that each promise is uniquely important and that there is no higher-order principle you can use to resolve whom to help. On the face of it, you are in a moral dilemma. But some have argued that genuine moral dilemmas are impossible.

On the one hand, it is not uncommon for arguments against the existence of moral dilemmas to be motivated by the thought that it is inconsistent for contrary acts to be simultaneously required. It would seem inconsistent for you to be required to help Alice and required to help Bert when you cannot help them both. Morality, the thought goes, could never land

²²In my 2013a I apply these explanations of the contrasting discourse properties of ‘ought’ and ‘must’ to the case of the Miners Puzzle, and argue that they elucidate previously unnoticed contrasts in information-sensitivity among deontic conditionals with ‘ought’, ‘must’, and ‘may’.

us in such a genuine contradiction. Here are Kant and Alan Donagan:²³

But since duty and obligation are concepts that express the objective practical *necessity* of certain actions and two rules opposed to each other cannot be necessary at the same time, if it is a duty to act in accordance with one rule, to act in accordance with the opposite rule is not a duty but even contrary to duty; so a *collision of duties* and obligations is inconceivable (*obligationes non colliduntur*). (KANT 1996: 6:224)

Rationalist theories cannot allow moral dilemmas... Each principle and each derivative proposition of a rationalist theory asserts, of some rule or precept that it assumes all human beings can observe in all situations to which that rule or precept applies, that practical reason requires them all to observe it. If, therefore, any such theory were to assert that practical reason requires any human being in any situation to observe a set of precepts that cannot all be observed in it, it would contradict itself; for it would assert that set of precepts not to be what it also asserts or assumes them to be. (DONAGAN 1993: 15)

On the other hand, there is a long tradition in ethics and logic that is compelled by the thought that it is at least coherent to think that ‘Ought ϕ ’ and ‘Ought ψ ’ might both be true, for contraries ‘ ϕ ’ and ‘ ψ ’.²⁴ Even if, fortuitously, there are no moral dilemmas, it is plausible that the possibility of moral dilemmas should not be ruled out simply by the meaning of ‘ought’. This intuition is bolstered when we turn to non-moral dilemmas. Even if morality could not place us in a situation in which we could not satisfy all its demands, our desires, for example, certainly could. Suppose you want to keep both of your promises to Alice and Bert but regard them as uniquely important. You have landed yourself in a dilemma concerning what to do in light of your desires. We need a semantics that renders dilemmas coherently expressible.

²³See also ARISTOTLE 1989, AQUINAS 1948, MILL 1998, ROSS 1930, DAVIDSON 1969, SEARLE 1980, HARE 1981, CONEE 1982, DONAGAN 1984, FELDMAN 1986, THOMSON 1990, PIETROSKI 1993, BRINK 1994, MCCONNELL 1996, ZIMMERMAN 1996. See HILL 1996 for an interpretation of Kant on which dilemmas are possible.

²⁴See, among many others, LEMMON 1962; VAN FRAASSEN 1973; WILLIAMS 1973; BARCAN MARCUS 1980; FOOT 1983; GOWANS 1987; DANCY 1993; HARMAN 1993; HORTY 1994, 2003; GOBLE 2009, SWANSON 2011.

Attending to differences between weak and strong necessity modals can help us capture both of these intuitions. Even if we cannot be required to perform each of several mutually incompatible actions, ‘ought’ ≠ ‘is required’. Many find it plausible that the dilemma in (36) expressed with ‘ought’ is consistent in a way that the dilemma in (37) expressed with ‘must’ is not.²⁵

(36) I ought to help Alice and I ought to help Bert, but I can’t help them both.

(37) #I must help Alice and I must help Bert, but I can’t help them both.

Our semantics captures this by validating agglomeration for ‘must’ but not for ‘ought’: ‘Must ϕ ’ and ‘Must ψ ’ entail ‘Must $\phi \wedge \psi$ ’, but ‘Ought ϕ ’ and ‘Ought ψ ’ don’t entail ‘Ought $\phi \wedge \psi$ ’. Treating ‘must’ as an ordinary necessity modal validates agglomeration. If $\bigcap P_w \subseteq \phi$ and $\bigcap P_w \subseteq \psi$, then $\bigcap P_w \subseteq \phi \wedge \psi$. If ‘ ϕ ’ and ‘ ψ ’ are contraries, then ‘Must ϕ ’ and ‘Must ψ ’ can both be true only if P_w is inconsistent, i.e., only if $\bigcap P_w = \emptyset$. Insofar as quantifiers presuppose that their domains are non-empty, this correctly predicts that dilemmas expressed with ‘must’ are either infelicitous or inconsistent. By contrast, CONDITIONAL WEAK allows dilemmas to be consistently expressed with ‘ought’. ‘Ought ϕ ’ and ‘Ought ψ ’ can both be true, for contraries ‘ ϕ ’ and ‘ ψ ’, if (and only if) there are conditions C and C' such that ‘Must ϕ ’ is true at all closest relevant C -worlds w and ‘Must ψ ’ is true at all closest relevant C' -worlds w' . If C and C' are incomparable in likelihood or desirability and there is no other relevant condition C'' that is at least as likely or desirable as C or C' , then both ‘Ought ϕ ’ and ‘Ought ψ ’ are assertable as well.²⁶

If circumstances conspire aright, ‘Ought ϕ ’ and ‘Ought ψ ’ can both be true, even relative to the same unsaturated premise set. This raises the question of whether circumstances *could* so conspire, or whether, for a given flavor of modality, such an unsaturated premise set could ever be called for. But this is a question for the world, or for substantive normative

²⁵See, e.g., LEMMON 1962, GOWANS 1987, HARMAN 1993, SWANSON 2011; cf. FOOT 1983.

²⁶SWANSON 2011 builds this sensitivity to incomparabilities into his semantics for ‘ought’. Swanson’s semantics — or at least an adaptation of it with the limit assumption — treats ‘Ought ϕ ’ as saying that ϕ follows from some maximally consistent subset of P_w (for a possibly inconsistent premise set P_w). This semantics also predicts that dilemmas are coherently expressible with ‘ought’. (‘Must’ is given an ordinary semantics of necessity. Compare these semantics for ‘ought’ and ‘must’ with the “conflict account” and “disjunctive account,” respectively, of all-things-considered oughts in HORTY 2003, 2012.) The analysis in this chapter has the advantage of capturing a wider range of data.

theory, not for semantics. In the case of, say, desire-based dilemmas, the answer seems to be a clear “Yes.” But perhaps the correct moral view excludes this possibility. There may be independent arguments for the conclusion that there are no genuine moral dilemmas. But such arguments will need to be just that: *independent* — that is, independent of linguistic intuitions like the intuition that (37) is inconsistent. Dilemmas *are* coherently expressible. They need not “entail a contradiction” (DAVIDSON 1969: 34).

2.3.2 Supererogation

Supererogatory acts are acts that go “beyond the call of duty.” To a first approximation, they are acts that are permitted but not required, and better than what is minimally required. Think: throwing yourself on a grenade to protect your friends; giving a substantial portion of your income to the poor; and so on.

Some ethicists deny that any acts are supererogatory. According to them, acts that are intuitively supererogatory are in fact required. Others grant that there are supererogatory acts, but hold that they are still binding in some sense and thus deserving of some criticism if not performed. (These are “anti-supererogationists” and “qualified supererogationists,” respectively, in the terminology of HEYD 1982.)²⁷ The following is a not uncommon line of argument: “It would be much better if I gave more money to the poor. I really ought to do so. So, I must have conclusive reason, and hence an obligation, to give more to the poor. So, my not giving more to the poor must be wrong and hence subject to criticism.” (“And so,” the anti-supererogationist would add, “my giving more to the poor must not be supererogatory after all.”) This kind of argument generalizes, leading to the so-called “paradox of supererogation,” or the “good-ought tie-up.” Here is Joseph Raz (though he ultimately rejects this line of thought):

If doing a supererogatory act is praiseworthy there must be reasons for doing it, and the reasons must outweigh any conflicting reasons for not doing it. But if there are conclusive reasons for performing the act then not to perform it is to

²⁷For classic examples of anti-supererogationism, see MOORE 1903, NEW 1974, FELDMAN 1986, KAGAN 1989. For classic examples of qualified supererogationism, see RAWLS 1971, RICHARDS 1971, RAZ 1975. See URMSON 1958 for the seminal work that prompted contemporary interest in supererogation. For extensive treatments of supererogation, see especially HEYD 1982 and MELLEMA 1991.

act against the balance of reasons. If reason requires that the act be done then surely one ought to do it, and the “ought” is based on all the reasons which apply to the case; it is a conclusive ought. But this entails that failing to perform the act is failing to do what one ought (conclusively) to do, so why isn’t it blameworthy not to perform a supererogatory act? (RAZ 1975: 164)

There are several things to be distinguished in this type of argument: what is good, what is blameworthy, what one ought to do, and what one is required to do. Suppose that it would be supererogatory for you to give more to the poor, and that you ought to do so. (I need not take a stand on whether all supererogatory acts, if there are any, are acts that one ought to perform (as opposed to simply being acts that it would be better to perform). But for the sake of argument we can suppose that they are.) Its being the case that you ought to give more to the poor, however, does not imply that you *must*, or that you are required or have conclusive reason to do so. ‘Be required’ and ‘have conclusive reason’ express strong necessity. While it is plausible that failing to do what one must is blameworthy, it is less obvious that one may always be blamed for failing to do what is good.

The anti-supererogationist gets traction with the intuition that failing to do what one must is wrong and subject to criticism. It is only if we conflate ‘must’ with ‘ought’ — something facilitated by the pervasive talk in ethics of “obligation”²⁸ — that this intuition will seem to speak against supererogationism. Of course, this does not mean that supererogationism is correct. One might accept on independent grounds a demanding moral theory according to which one must do what is evaluatively best. But many find such a view implausible, and it would be preferable if an alternative were available. By clarifying the distinction between ‘ought’ and ‘must’ we can see how it is at least coherent for a moral view to (a) distinguish what one ought to do and what would be best from what one must do, or what is minimally required, and (b) attach blame or criticism to failing to do the latter.

There are two further intuitions many have about supererogation that our account is well placed to capture. First, there are long traditions according to which it is only a select few, perhaps those who have some sort of “higher calling,” who ought to perform supererogatory

²⁸Cf. HUDDLESTON & PULLUM 2002: 207: “Deontic necessity is commonly glossed as ‘obligation’, but the noun *obligation* covers the range of *should* as well as *must*.”

actions.²⁹ Second, many agents who perform supererogatory actions regard them as their duty, or as things they must do.³⁰ By treating premises as in force only given the satisfaction of certain applicability conditions, and treating ‘ought’ as expressing necessity conditional on certain such applicability conditions being satisfied, we can capture both of these intuitions.

Suppose there are conditional norms to the effect that one ϕ s if one desires greater merit, or has a higher calling, or has been given a special dispensation of divine grace, etc., where ϕ is some intuitively supererogatory action. First, if Alice does not satisfy some such applicability condition, ‘Alice must ϕ ’ is false. But if it is plausible that Alice “has a higher calling” or the like, one might truly say that Alice ought to ϕ . In this sense ϕ -ing may be supererogatory for her. Even so, we can still capture the sense in which the *act* of ϕ -ing is supererogatory insofar as agents in general fail to satisfy the relevant applicability conditions and the generic claim ‘One must ϕ ’ is false.

Turning to the second intuition, given that agents are typically in a position to settle on whether they desire greater merit, say, or satisfy the above sorts of applicability conditions, it is unsurprising that those who perform supererogatory acts may regard them as things they must do. By saying ‘I must ϕ ’, the agent expresses that she is assuming that the supererogatory norms in question apply to her. For the sake of argument, suppose the agent’s ‘must’ claim is correct. Even so, as above, there is still a sense in which her act is supererogatory insofar as the generic claim ‘One must ϕ ’ is false. But there is also a sense in which her act may be supererogatory *for her*. For even if she is among the select few, the fact that she is may itself be the result of some supererogatory act(s). Her wanting to “go beyond the call,” say, is good but not required of her. So, even if she must ϕ , it won’t be the case that *she must be such that she must ϕ* .³¹ Her being such that ϕ -ing is required for her is itself supererogatory. Though she may “just be doing her duty,” that it is her duty renders her deserving of praise.

²⁹This line has found support in all of Jewish, Catholic, and Protestant theologies. See HEYD 1982: ch. 1; MELLEMA 1991: ch. 3 for discussion.

³⁰For instance, concerning the “righteous gentiles” he interviewed from Le Chambon who protected Jews from Nazis, Philip Hallie relates that they invariably “pulled back from me but looked firmly into my eyes and said: ‘How can you call us “good”? We were doing what had to be done’ ” (HALLIE 1979: 20, cited in HORGAN & TIMMONS 2010: 40n.23). See also, e.g., URMSON 1958: 103–104; EISENBERG 1966.

³¹*Cf.* BARCAN MARCUS 1966 on iterated deontic modals.

2.3.3 Judgment internalism

It is often claimed that a distinctive mark of normative language and judgment is its practical character, or its connection with action and motivation. This connection between normative language and action is epitomized in the thesis of judgment internalism — to a first approximation, the claim that there is an internal and necessary connection between making a normative judgment and being motivated to act accordingly.³² Here, for example, are Allan Gibbard and Ralph Wedgwood:

The clear distinctive feature of normative concepts, I now think, lies in their conceptual ties. Oughts of action tie in conceptually with acting. (GIBBARD 2011: 36)

[T]he necessary connection that normative judgments have to motivation and practical reasoning is a *special* feature of normative and evaluative judgments. It is a feature that is *absent* from all judgments that are wholly non-normative and non-evaluative in content. Indeed, this seems to be precisely one of the features that distinguishes normative and evaluative judgments from judgments of all other kinds. (WEDGWOOD 2007: 71)

Many take it as obvious that some form of internalism is true. After all, the reasons we weigh in deliberation are reasons *for action*, i.e., reasons *for acting on*. Normative judgments are constitutive of deliberation, and deliberation is essentially practical; its aim is action. But many find there to be clear counterexamples. What about the psychopath? Or someone who is really tired or depressed? Can't they make sincere normative judgments while lacking the corresponding motivation?

Clarifying differences among necessity modals can illuminate metaethicists' conflicting intuitions about judgment internalism. The continuation of the above quote from Gibbard is revealing.

The clear distinctive feature of normative concepts, I now think, lies in their conceptual ties. Oughts of action tie in conceptually with acting. Take, for example, the belief that the building is on fire and the one and only way to keep

³²For classic discussions, see FALK 1948, NAGEL 1970, WILLIAMS 1981a, KORSGAARD 1986, DARWALL 1997.

from being burned to a crisp is to leave forthwith. If that's the case, we'd better leave forthwith, but it isn't strictly incoherent, conceptually, to have this belief and not to leave. Contrast this with the normative belief that one *must* leave forthwith. It is, I maintain, conceptually incoherent to hold this belief and not leave, if one can. (GIBBARD 2011: 36)

It is revealing that Gibbard uses 'must' to pump the intuition that normative beliefs are conceptually tied with action. Insofar as deontic 'must' is conventionally directive, it is no surprise that judgment internalism will seem compelling when considering deontic 'must' judgments. Further, 'must' is nearly always used "subjectively" in the sense of LYONS 1977: Utterances of 'Must ϕ ' nearly always present the speaker as endorsing the norms with respect to which the modal claim would be true.³³ It is hard to hear a sincere utterance of 'Must ϕ ' as consistent with the speaker's being indifferent about ϕ .

- (38)
- a. #I must help my mother, but I won't.
 - b. #You must help your mother, but I don't care whether you do.
 - c. #You must help your mother. Aren't family values stupid? I wouldn't do it if I were you.

Similarly for utterances with 'have got to':

- (39)
- a. #I've got to help my mother, but I won't.
 - b. #You've got to help your mother, but I don't care whether you do.
 - c. #You've got to help your mother. Aren't family values stupid? I wouldn't do it if I were you.

But the same sorts of judgments are not nearly as anomalous when expressed with weak necessity modals, or with weak or strong necessity modals that are not typically subjective in Lyons's sense (e.g., 'be supposed to', 'have to'). As we have seen, despite being the ethicist's paradigmatic normative term, deontic 'ought' is not conventionally directive. Interestingly, 'is to', in terms of which GIBBARD 2003 and WEDGWOOD 2007 effectively analyze all normative terms, is not conventionally subjective (LAKOFF 1972a).

³³See also LEECH 1970, HALLIDAY 1970, LAKOFF 1972a,b, LARKIN 1976, COATES 1983, PALMER 1990, 2001, VERSTRAETE 2001, HUDDLESTON & PULLUM 2002, SWANSON 2012b.

- (40) a. I should help my mother, but I won't.
b. You're (supposed) to help your mother, but I don't care if you do.
c. You have to help your mother. Aren't family values stupid? I wouldn't do it if I were you.

We need not be psychopaths to sincerely utter the sentences in (40). Even if internalism is true for deontic 'must' and 'have got to' judgments, it is false for judgments expressed using terms that are not conventionally directive or subjective.³⁴

In light of the various dimensions along which necessity modals can differ, we should be cautious about ascribing properties to or giving general accounts of normative language and judgment. One might even worry that construing the object of inquiry as a class of so-called "normative" terms and concepts obscures the phenomena. Better perhaps to understand ourselves as examining directive and subjective language.

The considerations in this section suggest the following general methodological lesson. The ethicist often comes to the table with various implicit views about how normative language works, some correct but others not. These assumptions can sometimes be brought to bear, perhaps inadvertently, in arguments on substantive normative and metanormative issues. By locating these assumptions, the philosopher of language can free up the ethicist in her investigations of normativity and normative thought and talk. In normative and metanormative inquiry we must be sensitive to the particularities of the terms we use when soliciting judgments about cases.

2.4 Conclusion

'Ought' is the pet term of many a philosopher. It is thus surprising that there is nearly no theoretical work investigating the meaning of 'ought' in contradistinction to other necessity modals and normative terms. This is a problem for the philosopher of language and semanticist, but it has implications for broader philosophical theorizing. Our study of the distinction between 'ought' and 'must' is illustrative of how theoretical inquiry into normative language

³⁴Lyons's distinction between "subjective" and "objective" uses might be captured by giving the former a condition semantics treatment and the latter a contextualist treatment; compare the discussion of examples (1), (6c), and (9) in §1.2.

and conversation can clarify and improve normative evaluation in practice.

CHAPTER III

Evidence Sensitivity in Weak Necessity Deontic Modals*

Abstract

Kolodny and MacFarlane (2010) have made a pioneering contribution to our understanding of how the interpretation of deontic modals can be sensitive to evidence and information. But integrating the discussion of information-sensitivity into the standard Kratzerian framework for modals suggests ways of capturing the relevant data without treating deontic modals as “informational modals” in their sense. I show that though one such way of capturing the data within the standard semantics fails, an alternative does not. Nevertheless I argue that we have good reasons to adopt an information-sensitive semantics of the general type Kolodny and MacFarlane describe. Contrary to the standard semantics, relative deontic value between possibilities sometimes depends on which possibilities are live. I develop an ordering semantics for deontic modals that captures this point and addresses various complications introduced by integrating the discussion of information-sensitivity into the standard semantic framework. By attending to these complexities, we can also illuminate various roles that information and evidence play in logical arguments, discourse, and deliberation.

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3.1 Introduction

Here is a familiar picture: Morality consists of a set of imperatives. What one ought to do is a function solely of the imperatives in force and the facts about the world. For instance, suppose you're in a convenience store, considering whether or not to steal the chocolate bar that's calling out to you. Given the facts and the imperatives in force — for instance, *Don't steal!* — it's obvious what you ought to do: you ought not steal the chocolate.

This type of view has a rich history. It has been articulated and defended by normative ethicists of many stripes. Here is a representative quote:

Surely what a person ought or ought not do, what is permissible or impermissible for him to do, does not turn on what he thinks is or will be the case, or even on what he with the best will in the world thinks is or will be the case, but instead on what *is* the case. (THOMSON 1986: 178–179)¹

As Prichard puts it (though he ultimately rejects this line of thought), what one ought to do “depends [only] on the nature of the facts” (1949: 29), that is, “facts about the world, known or unknown” (LEWIS 1981: 218). Call deontic ‘ought’s interpreted with respect to such facts about the relevant circumstances *circumstantial* ‘ought’s.

As a substantive normative matter, perhaps people like Thomson are right. Even so, language and language users are not always privy to such lofty normative truths. Even if what we ought to do is what is best (in some sense) in light of the relevant external circumstances, it is well known that we can at least ask and talk about what we ought to do in view of a certain body of evidence (information, belief, knowledge).² (Distinctions between evidence-, information-, belief-, or knowledge-sensitive readings of ‘ought’ won’t matter for our purposes.) Deontic modals like ‘ought’ can be embedded in constructions that shift the relevant deontic standard. Suppose Alice thinks we ought to do what’s best in light of the evidence. So some deontic standards relevant to the evaluation of ‘we ought to ϕ ’ in (1) are sensitive to what the evidence is.

¹See also, e.g., BENTHAM 1789/1961, MILL 1998, MOORE 1903, SIDGWICK 1907, HARE 1981, RAILTON 1984.

²See, e.g., ROSS 1939; PRICHARD 1949: 18–39; EWING 1953: 63; BRANDT 1963: 110–115; GIBBARD 1990a: 29–36, 1990b: 42–44, 2005: 340–341; PARFIT 1984: 25, 2011a: ch. 7; JACKSON 1986; WEDGWOOD 2007: 118, 2012; KOLODNY & MACFARLANE 2010: 117–121.

- (1) a. As far as Alice is concerned, we ought to ϕ .
 b. Alice thinks we ought to ϕ .
 c. Given that we ought to do what's best in light of the evidence, we ought to ϕ .

We need a semantics that can interpret *evidence-sensitive* readings of deontic 'ought', that is, talk about what we ought to do in view of the evidence. We need a semantics that is neutral on substantive normative philosophical issues about whether what one ought to do can turn on features of one's epistemic position. (I will focus my attention on weak necessity modals like 'ought'.)

The problem is that the standard semantics for modals stemming from Angelika Kratzer (1981, 1991) seems to encode the normative assumptions of the familiar picture described above. It seems to assume that deontic 'ought's are always circumstantial 'ought's.³ Simplifying somewhat, for Kratzer deontic modals quantify over those possibilities, among those consistent with certain relevant circumstances, that best approximate the deontic ideal. The standard semantics thus appears to leave open how to interpret evidence-sensitive readings of deontic modals. (We will characterize the standard semantics in greater detail in §3.3.)

KOLODNY & MACFARLANE (2010) have made a pioneering contribution to our understanding of how the interpretation of deontic modals and conditionals can be sensitive to evidence and information. Ultimately they defend a non-standard semantics according to which the calculation of a set of deontically ideal worlds, and hence the domain of quantification for a deontic modal, is determined relative to an information state. But Kolodny and MacFarlane make no claims to integrate their discussion of information-sensitivity or their resulting analysis into the standard Kratzerian framework for modals in linguistic semantics. Doing so suggests alternative ways of capturing the data that they do not consider.

On the face of it, the fix to the standard Kratzer semantics might seem simple: We might treat evidence-sensitive 'ought's as quantifying over those possibilities, among those consistent with a relevant body of *evidence*, that best approximate the deontic ideal. However, after gathering further data regarding the behavior of deontic 'ought' when unembedded in root declarative clauses and embedded in conditionals (§3.2), I will show that this suggestion is

³For example: "[Normative] conversational backgrounds can function as ordering sources for a circumstantial modal base," where "[c]ircumstantial modality is the modality of rational agents" (1991: 646; cf. 1981: 58–59). This terminology will be clarified in §3.3.

insufficient (§3.4). Though this strategy fails, an alternative version of the standard semantics can indeed capture the relevant data, *pace* KOLODNY & MACFARLANE 2010 and most others in the recent literature on information-sensitivity (§3.6). A modal's *notional* sensitivity to information need not be captured by treating it *semantically* as an “informational modal” in their sense (to be described).

Nevertheless I will argue that we have good reasons to adopt an information-sensitive semantics of the general type described in KOLODNY & MACFARLANE 2010 (§§3.5–3.6). Contrary to the standard semantics, deontic rankings can themselves be information- or evidence-sensitive in the following sense: Relative deontic value between possibilities sometimes depends on which possibilities are live. Capturing this point within a (revised) Kratzerian framework raises complications, both technical and philosophical, that Kolodny and MacFarlane do not address. The main contributions of my theory, developed in §3.5, concern (a) how to capture information-sensitivity within an ordering semantics for modals and restrictor semantics for conditionals, (b) how to do so in a way that captures the variety of data and does not presuppose particular substantive normative views, and (c) how to interpret the orderings generated in the semantics. (In the Appendix I offer, within the framework of Discourse Representation Theory, one way of formalizing the more theory-neutral semantics developed in §3.5.) By attending to the complexities introduced by integrating the discussion of information-sensitivity into the standard semantic framework, we can also illuminate the various roles that information and evidence play in logical arguments, discourse, and deliberation (§3.7).

3.2 Data

Our child has injured himself and is badly in need of medical attention. The phones are down, and there's no way to call an ambulance. We quickly get our son into the car and race to the local hospital. As we get closer, the traffic suddenly slows down on the highway. We near an exit for Route 1 that would, under normal conditions, get us to the hospital faster. The problem is that the city has been doing construction on Route 1 on alternating days, and we have no way of finding out (without taking the route) whether they're doing construction on it today. If they are, we'll get stuck, and our son will suffer serious long-term damage

and may even die; but if they aren't, we'll be able to speed along to the hospital. If we stay put along our current route, we'll make it to the hospital slowly but surely, but likely with some complications from the delay. As it turns out, unbeknownst to us, they aren't doing construction on the 1; the way is clear. What should we do?⁴

When we make judgments about what to do in a position of uncertainty, we often find ourselves hedging our bets in ways that we wouldn't if we knew all the facts. (Think: insurance policy purchases.) There is a salient reading of (2) — with implicit assumptions made explicit in (3) — on which it's true.

(2) We ought to stay put.

(3) In view of the evidence, we ought to stay put.

After all, we don't know, and have no way of finding out in advance, whether there is construction on the 1, and the results will be disastrous if we switch but the 1 is blocked.

However, when we consider the case not from our limited subjective perspective but from a bird's-eye point of view, the judgment in (4) — with implicit assumptions made explicit in (5) — can seem compelling.

(4) We ought to switch to the 1.

(5) In view of the relevant circumstances, we ought to switch to the 1.

After all, the way is in fact clear and switching to the 1 will get our child to the hospital most quickly.

Thus I take it that (2) and (4) each has a reading on which it is true. On the true reading of (2), the 'ought' is interpreted as an evidence-sensitive 'ought', as "ought in view of the evidence."⁵ By contrast, on the true reading of (4), the 'ought' is interpreted as a circumstantial

⁴Compare KOLODNY & MACFARLANE 2010 for discussion of the Miners Case from Parfit (1988, 2011a), who credits it to Donald Regan (1980: 265n.1); see also JACKSON 1991.

⁵A simple calculation of expected utility would explain the truth of (2) on its evidence-sensitive reading — using two states (clear, blocked), two acts (stay put, switch routes), and relevant assignments of probabilities to states and utilities to outcomes. However, I remain neutral here on what ultimately makes this normative conclusion correct; consequentialist, deontological, and virtue theories may all ratify it. Also, I bracket just whose evidence is relevant and remain neutral between contextualist and non-contextualist treatments, that is, neutral on whether the relevant evidential state is always supplied from the context or is sometimes

‘ought’, as “ought in view of the relevant circumstances.”⁶ (Of course, since we do not have access to the facts about the traffic conditions that help make (4) true, we would not be in a position to assert (4). But our question is simply whether (4) has a reading on which it is true.)

Our first piece of data is that deontic modals can be interpreted not only with respect to a relevant body of facts about the world, known and unknown, but also with respect to a relevant body of evidence. Unembedded deontic ‘ought’ can receive both circumstantial and evidence-sensitive readings. Though deontic ‘ought’ can have these different readings, I’m sympathetic with Kratzer’s view that “there is something in the meaning [of the modal]... which stays invariable” (1977: 340).⁷ So I assume that, other things being equal, it would be preferable to derive circumstantial and evidence-sensitive readings of ‘ought’ from a common semantic core, or at least capture as much commonality between them as the data allows.

I should say that the distinction between circumstantial and evidence-sensitive readings is perhaps not a deep conceptual distinction. One of the relevant circumstances, one might say, is that we do not know whether there is construction on the 1; in that sense, ‘In view of the relevant circumstances, we ought to stay put’ is true. True enough. But it is not counter-intuitive that the sorts of facts that are targeted in phrases like ‘in view of the circumstances’ and in the relevant reading of (4) are facts about the external circumstances, or conditions in the world over which the relevant agent(s) currently has (have) no direct control. In (5), for example, ‘the relevant circumstances’ can be understood as short for “the relevant facts or circumstances concerning the traffic conditions, our current location, our child’s physical condition, our driving skills, etc.” In view of these facts, it makes sense to say that (4) is true.

supplied from a context of assessment or a parameter of the circumstance of evaluation (see, e.g., STEPHENSON 2007a, YALCIN 2007, VON FINTEL & GILLIES 2008, DOWELL 2011, MACFARLANE 2011; cf. Chapter I).

⁶Readers who deny that the correct deontic view is such that what we ought to do can be sensitive to features of our limited epistemic position may feel free to embed sentences under, e.g., “Given the truth of X’s beliefs about the correct deontic view.” My distinction between “circumstantial” and “evidence-sensitive” ‘ought’s closely mirrors the common distinction between “objective” and “subjective” senses of ‘ought’. I use ‘circumstantial’ instead of ‘objective’ because such interpretations simply need to be sensitive to certain contextually relevant circumstances; the objective ‘ought’ is a limiting case of this. I avoid calling the evidence-sensitive reading “subjective” for reasons that will become clear below. I use ‘circumstantial’ and ‘evidence-sensitive’ to map onto circumstantial and epistemic modal bases, respectively (see §3.3).

⁷See also WERTHEIMER 1972; LYONS 1977; ATLAS 1989; BRENNAN 1993; GROEFSEMA 1995; PAPAFRAGOU 2000; PALMER 2001 (though cf. COATES 1983, QUIRK ET AL. 1985, PALMER 1990). For discussions of proliferating senses of ‘ought’ in the ethics literature, see, e.g., JACKSON 1991, FINLAY 2009, VAN ROOJEN 2010.

It is in this way that our talk about “circumstantial ‘ought’s” and what we ought to do in view of “the relevant facts or circumstances” should be understood (*cf.* ABUSCH 2012).

Second, though we can get alternative readings of unembedded deontic ‘ought’s, as brought out in the availability of both (2) and (4), there are interesting constraints on what readings are available in conditionals. The reading of ‘ought’ in ‘we ought to stay put’ is simply unavailable in a true reading of the straight ‘if p , (then) q ’ hypothetical conditional:⁸

(6) #If the way is clear, we ought to stay put.

(7) If the way is clear, we ought to switch to the 1.

In a manner to be explained, the ‘ought’ in the consequent of (7) seems to be interpreted as if the information that the way is clear is already available, this despite the fact that the antecedent of (7) is not as in (8).⁹

- (8) a. If the way is clear and we know it, we ought to switch to the 1.
b. If we learn that the way is clear, we ought to switch to the 1.

If there is a true reading at all of a deontic conditional like (6) with (2) as its consequent clause, this reading is only available with a construction like ‘even if’ or ‘still’:

(9) Even if the way is clear, we still ought to stay put.

⁸I use the term ‘hypothetical conditional’ in the sense of IATRIDOU 1991.

⁹One might say that we take (7) to be true because we reinterpret it as enthymematic for (8), implicitly assuming that we can learn whether the way is clear (see VON FINTEL 2012). But I take this suggestion to be something of a non-starter (see CARR 2012 for further discussion). First, at least in cases with deontic ‘must’, there seems to be a contrast in acceptability between conditionals with ‘if ψ ’ and ‘if we learn that ψ ’ as their antecedents:

- (i) ?If the way is clear, we must switch to the 1.
(ii) If we learn that the way is clear, we must switch to the 1.

Judgments are subtle here. But informal polling suggests that, in the context as described, whereas (i) is dispreferred — we do not have an obligation to switch to the 1 conditional on how the world happens to be — (ii) is true. This suggests that the antecedent in (i) is not reinterpreted as in (ii). It would be odd if the antecedents of deontic ‘ought’ conditionals were reinterpreted in the proposed way but the antecedents of deontic ‘must’ conditionals were not. Second, the reinterpretation move is *ad hoc*. There is no independent mechanism I know of to motivate why this type of reinterpretation should occur in these examples. In any event, it will be instructive to examine the prospects for developing a semantics that captures how (7), as it stands, is true.

3.3 The standard semantics

Our task is to examine whether the standard semantics can accommodate these phenomena. Let’s clarify what this “standard semantics” is. Standardly, modals are interpreted as quantifiers over possible worlds. Simplifying a bit, the domain of quantification is set by two contextually supplied parameters: a set f of accessible worlds (a “modal base”), and a preorder \lesssim (a reflexive and transitive relation) on W , where this preorder ranks worlds along some relevant dimension.¹⁰ The modal quantifies over those worlds in the modal base that rank highest in the preorder. Different readings of modals arise from different contextual resolutions of the modal base and preorder.

Modal bases determine reflexive accessibility relations: they are sets of worlds consistent with a body of truths in the world of evaluation. For Kratzer, the two main types of modal bases are circumstantial (a set of worlds consistent with certain relevant circumstances), on the one hand, and evidence-based or epistemic (a set of worlds consistent with a certain relevant body of evidence), on the other. (I’ll use ‘epistemic’ broadly to cover modal bases describing relevant bodies of knowledge or evidence.) Hereafter I assume that our preorders are deontic and are indexed to a world of evaluation — written ‘ \lesssim_w ’ (read: “is at least as deontically good as at w ”) — since, as we saw in (1), deontic modals can themselves occur in intensional contexts that shift the ordering.

A deontic selection function D can be defined to select from some domain those worlds that are not \lesssim_w bettered by any other world:

Definition 1. $\forall Z \subseteq W: D(Z, \lesssim_w) := \{w' \in Z: \forall w'' \in Z: w'' \lesssim_w w' \Rightarrow w' \lesssim_w w''\}$

D selects the set of \lesssim_w -maximal (“ \lesssim_w -best”) worlds from the modal base, those worlds in the modal base that best approximate the deontic ideal. Modals quantify over these worlds in $D(f(w), \lesssim_w)$. As deontic modals, on Kratzer’s view, take circumstantial modal bases, the truth-conditions for ‘Ought ϕ ’ are roughly as follows. (‘ $\llbracket \]$ ’ denotes the interpretation function, a function from contexts c , indices w , and well-formed expressions to extensions.)¹¹

¹⁰In addition to KRATZER 1977, 1981, 1991, see LEWIS 1973, 1981, VAN FRAASSEN 1973, VELTMAN 1976.

¹¹I make the following simplifying assumptions: I treat modal bases as mapping worlds to sets of worlds, rather than to sets of propositions (and use ‘modal base’ to refer sometimes to this function, sometimes to its value given a world of evaluation); I abstract away from details introduced by Kratzer’s ordering source; I

Definition 2. $\llbracket \text{Ought } \phi \rrbracket^{c,w} = 1$ iff $\forall w' \in D(f_{\text{circ}}(w), \lesssim_w): \llbracket \phi \rrbracket^{c,w'} = 1$

This says that ‘Ought ϕ ’ is true iff ‘ ϕ ’ is true at all the best circumstantially accessible worlds.

I assume a Kratzerian restrictor analysis of conditionals on which ‘if’-clauses restrict the modal bases of various operators like modals.¹² To interpret a conditional, on this view, evaluate the proposition expressed by the consequent clause relative to (a) the preorder at the world of evaluation, and (b) the modal base at the world of evaluation restricted to worlds in which the antecedent is true:

Definition 3. $\llbracket \text{If } \psi, \text{ ought } \phi \rrbracket^{c,w} = 1$ iff $\forall w' \in D(f^+(w), \lesssim_w): \llbracket \phi \rrbracket^{c,w'} = 1$,
where $f^+(w) = f(w) \cap \llbracket \psi \rrbracket^c$. (Remark: $\llbracket \alpha \rrbracket^c := \{w: \llbracket \alpha \rrbracket^{c,w} = 1\}$)

This says that ‘If ψ , ought ϕ ’ is true iff ‘ ϕ ’ is true in all the accessible ψ -worlds that are best in view of the deontic ideal at the world of evaluation.

Call this package ‘the standard Kratzer semantics’, or simply ‘the standard semantics’. There is a feature of this view that I want to highlight. On the standard semantics, the preorders with respect to which modals are interpreted are independently defined in the following sense. They are preorders on W . The only role of the modal base is to restrict our attention to different subsets of the given preorder. Specifying a modal base just knocks worlds out of the ranking; it doesn’t change how the remaining worlds are ranked. Though ‘ought’ in Definition 2 is treated as quantifying over the worlds in $D(f(w), \lesssim_w)$, this notation is a bit sloppy. More precisely, the standard semantics says that given a preordered set (W, \lesssim_w) and non-empty subset $f(w)$ of W , ‘ought’ quantifies over the worlds in $D(f(w), \lesssim_w \cap f(w)^2)$.

Definition 4. For a set S , its binary Cartesian product $S^2 = S \times S = \{(x, y): x \in S \wedge y \in S\}$.

Since $\lesssim_w \cap f(w)^2$ is just a sub-preorder of \lesssim_w , the relations between worlds as given by the preorder \lesssim_w on W will be maintained when we only consider the worlds in the given modal base. Informally, how worlds are ranked relative to one another is independent of which other worlds are relevant. This feature of the standard semantics will be important in what follows.

make the Limit Assumption (LEWIS 1973: 19–20) and assume that our selection function is well-defined and non-empty; and I bracket differences in quantificational strength between weak and strong necessity modals. For semantics without the Limit Assumption, see LEWIS 1973, 1981, KRATZER 1981, 1991, SWANSON 2011. See Chapter II on the distinction between weak and strong necessity modals.

¹²See KRATZER 1981: 318–319, 1991: 648–649. Cf. LEWIS 1975: 184–185.

3.4 A failed first pass

This ordering semantics framework suggests two general ways of attempting to capture the difference between circumstantial and evidence-sensitive readings of deontic ‘ought’: posit a shift in modal base, or posit a shift in preorder. Let’s start with the former option: there is a shift in modal base but a constant preorder in the interpretations of circumstantial and evidence-sensitive readings of ‘ought’. We will return to the latter option in §3.6 after we are in a position to compare it to our alternative proposal developed in §3.5.

One might think that what changes in the interpretation of circumstantial and evidence-sensitive ‘ought’s is the set of possibilities being considered, or the modal base. This is suggested by our paraphrases of (2) and (4) in (3) and (5), respectively, reproduced below.

- (2) We ought to stay put.
- (3) In view of the evidence, we ought to stay put.
- (4) We ought to switch to the 1.
- (5) In view of the circumstances, we ought to switch to the 1.

As noted above, for Kratzer the two main types of modal bases are circumstantial and epistemic; it is the role of adverbial phrases like “in view of the relevant circumstances” and “in view of the evidence” to supply these respective modal bases for the interpretation of the modal. So one might think that (2) is true on its “epistemic” reading, where the modal base consists of a set of worlds consistent with the evidence (which, importantly, leaves open whether there is construction on the 1); whereas (4) and (7)

- (7) If the way is clear, we ought to switch to the 1.

are true on their “circumstantial” readings, where the modal base is a set of worlds consistent with the relevant circumstances (which, importantly, establish that the 1 is clear). In this way, one might think that a circumstantial modal base determines the circumstantial ‘ought’ and an epistemic modal base determines the evidence-sensitive ‘ought’ (again, where a constant deontic preorder is used in interpreting both readings). Call this hypothesis ‘MODAL BASE

SHIFT'.

Assuming a Kratzerian restrictor analysis of conditionals as given in Definition 3, the predicted truth-conditions of (7), according to MODAL BASE SHIFT, will be as in (10).

$$(10) \quad \llbracket (7) \rrbracket^{c, w} = 1 \text{ iff } \forall w' \in D(f_{\text{circ}}^+(w), \lesssim_w): \text{ we switch to the } 1 \text{ in } w', \text{ where } f_{\text{circ}}^+(w) = f_{\text{circ}}(w) \cap \{w'': \text{ the way is clear in } w''\}$$

This says (7) is true iff we switch to the 1 in all the circumstantially accessible worlds in which the way is clear that are best in view of the deontic ideal *at the world of evaluation*.

There is something importantly right about MODAL BASE SHIFT. However, it is insufficient as it stands. First, we do not yet have an explanation for how (2) could be true, even on its evidence-sensitive reading, given that (4) is true on its circumstantial reading. Consider two worlds w' and w'' such that $w' \in D(f_{\text{circ}}(w), \lesssim_w)$ and $w'' \in D(f_{\text{epist}}(w), \lesssim_w)$ — where $f_{\text{epist}}(w)$ is the set of worlds consistent with the available evidence about the road conditions, our child's health, the location of the hospital, and so on. Though in w' we switch to the 1 and in w'' we stay put, w' and w'' are otherwise identical; the way is clear in both w' and w'' . Challenge: How could w' be a \lesssim_w -best world in $f_{\text{circ}}(w)$ but not in $f_{\text{epist}}(w)$? How could it be that all the \lesssim_w -best worlds in $f_{\text{epist}}(w)$ aren't all worlds where we switch to the 1, given that in *some* worlds in $f_{\text{epist}}(w)$ the way is clear? We need an explanation for how and in what sense staying put could be best.

More precisely, consider the following worlds, *CS*, *BS*, *CP*, and *BP*, characterized with respect to the relevant state of the world (whether the way is Clear or Blocked) and action taken (whether we Switch or stay Pt), and which are consistent with the other details of the case. (These might be treated as representatives of suitable equivalence classes of worlds.) Given our description of the case, the epistemic modal base is a subset of the circumstantial modal base. Roughly, the two are identical except for the fact that all worlds consistent with the relevant circumstances are worlds where the way is clear, whereas some worlds consistent with our evidence are worlds where the way is blocked: $f_{\text{circ}}(w) = \{CS, CP\}$ and $f_{\text{epist}}(w) = \{CS, BS, CP, BP\}$. (Since the way is actually clear, the evaluation world w may be either *CS* or *CP*.) Given that on their circumstantial readings (4) is true and (2) is false, we see that $CS \in D(f_{\text{circ}}(w), \lesssim_w)$ and that $CS <_w CP$. The worry for MODAL BASE SHIFT is that given that *CS* remains in the epistemic modal base $f_{\text{epist}}(w)$, and given that the less long-term damage

for our child the better, *CS* remains deontically best when *BS* and *BP* are added to the modal base.

Second, conversely, *MODAL BASE SHIFT* does not account for how (4) could be true on its circumstantial reading given that (2) is true on its evidence-sensitive reading. Intuitively, since the circumstantial modal base is a subset of the epistemic modal base, if a world in the epistemic modal base is best by \lesssim_w , it will remain best when the domain is restricted to the circumstantial modal base. More formally: Since \lesssim_w is just a set of ordered pairs, we can intersect it with another set of ordered pairs to yield an order preserving sub-preorder.

Definition 5. Let $\mathbf{S} = (S, \lesssim^S)$ and $\mathbf{T} = (T, \lesssim^T)$ be preordered sets. $\mathbf{S} \trianglelefteq \mathbf{T}$ (read: ‘*S* is a sub-preorder of *T*’) if $S \subseteq T$ and $\lesssim^S = \lesssim^T \cap S^2$.

Proposition 1. Let $\mathbf{S} = (S, \lesssim^S)$ and $\mathbf{T} = (T, \lesssim^T)$ be preordered sets such that $\mathbf{S} \trianglelefteq \mathbf{T}$. $\forall u, v \in S: u \lesssim^T v \Leftrightarrow u \lesssim^S v$.

Theorem 1. Let $\mathbf{S} = (S, \lesssim^S)$ and $\mathbf{T} = (T, \lesssim^T)$ be preordered sets such that $\mathbf{S} \trianglelefteq \mathbf{T}$. $\forall u \in S: u \in D(T, \lesssim^T) \Rightarrow u \in D(S, \lesssim^S)$.

Proof. Consider an element u^* of *S*. Suppose for reductio (i) that $u^* \in D(T, \lesssim^T)$, and (ii) that $u^* \notin D(S, \lesssim^S)$. By (i) and Definition 1, $\forall u' \in T: u' \lesssim^T u^* \Rightarrow u^* \lesssim^T u'$. But by (ii) and Definition 1 it follows that there is a world $v \in S$ such that $v \lesssim^S u^* \wedge u^* \not\lesssim^S v$. Since $S \subseteq T, v \in T$. So $v \lesssim^T u^* \wedge u^* \not\lesssim^T v$, since by Proposition 1 \lesssim^S is an order preserving sub-preorder of \lesssim^T . Contradiction. So, $\forall u \in S: u \in D(T, \lesssim^T) \Rightarrow u \in D(S, \lesssim^S)$. \square

The problem is that if w' is in $D(f_{\text{epist}}(w), \lesssim_w)$, then, since $w' \in f_{\text{circ}}(w)$ and $f_{\text{circ}}(w) \subset f_{\text{epist}}(w)$, w' is also in $D(f_{\text{circ}}(w), \lesssim_w)$. By Theorem 1, the deontically best worlds in $f_{\text{epist}}(w)$, given that they are also consistent with the relevant circumstances, remain deontically best with respect to a contraction of the domain to $f_{\text{circ}}(w)$. So *MODAL BASE SHIFT* incorrectly predicts that if (2) is true, (4) is false, even when the former is given an evidence-sensitive reading and the latter is given a circumstantial reading.

Now turn to the indicative conditional in (7). The third problem for *MODAL BASE SHIFT* is that in order to accommodate the felicity of (7), *MODAL BASE SHIFT* would have to say that the relevant circumstances do not specify whether or not the way is clear (assuming, as is plausible, that ‘if $p \dots$ ’ presupposes that p is not settled). But the relevant circumstances *do*

specify this; this is part of what makes (4) true. So the choice of modal base in (7) seems *ad hoc*. Treating the modal base as circumstantial also obscures such conditionals' continuity with unembedded evidence-sensitive 'oughts'. Example (2) seems as closely related to (7) as expected utility is to conditional expected utility. (We will return to this point in §3.6.)

Fourth, modifying MODAL BASE SHIFT by treating the modal base in the conditional as epistemic still leaves problems. This is because, for Kratzer, the antecedent of a deontic conditional 'If ψ , ought ϕ ' restricts the preorder used to evaluate 'ought ϕ ' to preorder only the ψ -worlds. Paralleling our second argument above, we can intersect \lesssim_w with another set of ordered pairs — the binary Cartesian product of $\llbracket \psi \rrbracket$ — to yield an order preserving sub-preorder used in evaluating 'ought ϕ '. Intersecting \lesssim_w with $\llbracket \psi \rrbracket^2$ yields a preorder over only ψ -worlds preordered by \lesssim_w that maintains the relations between them specified by \lesssim_w .¹³ So, as long as the way is clear in some world $w' \in D(f_{\text{epist}}(w), \lesssim_w)$ — or at least as long as 'In view of our evidence, our staying put is better than our switching' is true relative to \lesssim_w — if the \lesssim_w -best worlds out of some domain are worlds where we stay put, then the best worlds with respect to the sub-preorder $\lesssim_w \cap \llbracket \text{the way is clear} \rrbracket^2$ will still be worlds where we stay put. MODAL BASE SHIFT incorrectly predicts that (7) is false given that (2) is true. We still need an explanation for how (2) and (7) are both true and felicitous.

One might try to salvage MODAL BASE SHIFT by advancing a covert higher modal analysis of deontic conditionals like (7).¹⁴ On such an analysis, the 'if'-clause in an overtly modalized conditional like (7) restricts the modal base of a posited higher *covert* modal, rather than that of the overt modal. In effect, the conditional claims that the modal sentence 'we ought to switch to the 1' is true in all the worlds w' accessible from w where the way is clear. Assuming the covert modal is epistemic (as is customary), we get roughly the following truth-conditions for (7), where $f_{\text{epist}}^+(w) = f_{\text{epist}}(w) \cap \{w''': \text{the way is clear in } w'''\}$.

$$(11) \quad \llbracket (7) \rrbracket^{c, w} = 1 \text{ iff } \forall w' \in f_{\text{epist}}^+(w): \forall w'' \in D(f_{\text{circ}}(w'), \lesssim_{w'}): \text{we switch to the 1 in } w''$$

A covert modal analysis might be thought to help respond to our fourth objection, that of explaining how (2) and (7) are both true, for the following reason. When evaluating the

¹³Thanks to Eric Swanson for this way of putting the point.

¹⁴For defenses of covert modal analyses of various conditional constructions, see FRANK 1996, GEURTS 2004, VON FINTEL & IATRIDOU 2005, LESLIE 2009, SWANSON 2010, and SILK 2010.

consequent clause we see what is deontically best in view of the preorder at the worlds w' in which the way is clear. So, as long as the deontic preorder at some world w' accessible from the world of evaluation ranks some world w'' (accessible from w') where we switch to the 1 as best — and assuming suitable constraints on the modal base of the overt modal — (7) will be true even if (2) is true.

This response won't itself do the trick, even putting aside the fact that it won't help MODAL BASE SHIFT respond to our first three objections above. First, the reply turns on the assumption that the deontic preorder at the (epistemically) accessible worlds is relevantly different from the deontic preorder at w . But we can stipulate as a feature of the case that we have no relevant normative uncertainty. The deontic preorder then won't vary across epistemically accessible worlds. This is a problem because, if the deontic preorder is kept constant, MODAL BASE SHIFT won't be able to show how (7) is consistent with (2). Since modal bases determine reflexive accessibility relations, the world of evaluation w is always one of the worlds w' in the modal base. But, as we saw in the second objection above, MODAL BASE SHIFT cannot capture how 'we ought to switch to the 1' is true at $w (= w')$, even on its circumstantial reading; and so, it still cannot capture how (7) is true, given that (2) is true.

Here is another way of making the same point. Given that 'we ought to stay put' is true in the world of evaluation w , the accessible worlds that are \lesssim_w -best are worlds where we stay put. Now suppose that in w , the way is clear and we stay put, and that w is much like the actual world (e.g., in its laws) but is otherwise deontically perfect. So one of the \lesssim_w -best worlds where the way is clear is a world where we stay put. Again, since modal bases determine reflexive accessibility relations, w is one of the worlds w' that is accessible from w . So one of the $\lesssim_{w'}$ -best worlds accessible from the accessible worlds where the way is clear is a world where we stay put (again, assuming that all circumstantially accessible worlds are also epistemically accessible). But the conditional says that all the best worlds accessible from the accessible worlds where the way is clear are worlds where we switch to the 1. Contradiction.¹⁵

¹⁵More formally: Suppose (2) is true in the world of evaluation w , and the way happens to be clear in w . Then $\forall w' \in D(f_{\text{epist}}(w), \lesssim_w)$: we stay put in w' . Suppose the world of evaluation w is one such world $w' \in D(f_{\text{epist}}(w), \lesssim_w)$; accordingly, we stay put in w . As noted above, $f_{\text{circ}}(w') \subset f_{\text{epist}}(w)$; and suppose that $\forall w''' \in f_{\text{epist}}(w)$: $\forall u, v \in f_{\text{circ}}(w''')$: $u \lesssim_{w'''} v \Leftrightarrow v \lesssim_{w'''} u$. (Weaker assumptions would suffice for our purposes, but these make the problem more transparent.) Then $w \in D(f_{\text{circ}}(w'), \lesssim_{w'})$. So, since the way is clear in w , $\exists w'' \in f_{\text{epist}}^+(w)$: $\exists w'' \in D(f_{\text{circ}}(w'), \lesssim_{w'})$: we stay put (and thus don't switch to the 1) in w'' — namely, where

Intuitively, (2) and (7) are both true in the specified model. But, even with a covert modal analysis, MODAL BASE SHIFT incorrectly predicts that they are inconsistent.

There may be various ways to modify MODAL BASE SHIFT to ward off some of these concerns. However, the arguments of this section suggest the following general lesson. It cannot simply be a shift in modal base that explains the observed variation in readings. A semantics that treats modal bases merely as restrictors of an independently defined deontic preorder will not be able to accommodate the data described in §3.2. In the next section I will outline a semantics that elucidates our data. This will obviate the motivation to add further epicycles to MODAL BASE SHIFT. (We will return to the “shift in preorder” strategy in §3.6.)

3.5 A solution: Information-reflecting deontic preorders

As I see it, the problem with MODAL BASE SHIFT is not its claim that the ‘in view of’ phrases in glosses like “ought in view of our evidence” and “ought in view of the circumstances” play their usual role of specifying a modal base. The problem is that *the devil’s in the preorder*. I suggest that, contrary to the standard semantics, evaluations of deontic betterness among worlds in a domain can depend essentially on global properties of that domain. Deontic requirements need not simply order worlds in the modal base; they can also be sensitive to the fact that the modal base is as it is. We need the accessible worlds to be able to “see” what the other accessible worlds are like. This suggests the following glosses for (2), (4), and (7).

- (12)
- a. Given that the epistemic modal base is as it is — i.e., given that it contains both worlds where the way is clear and worlds where the way is not clear — the best of these are worlds where we stay put.
 - b. Given that the circumstantial modal base is as it is — i.e., given that it contains only worlds where the way is clear — the best of these are worlds where we switch to the 1.
 - c. If the way is clear, then, given that the updated modal base is as it is — i.e., given that it contains only worlds where the way is clear — the best of these are worlds where we switch to the 1.

$w = w' = w''$. But (7) says that $\forall w' \in f_{\text{epist}}^+(w): \forall w'' \in D(f_{\text{circ}}(w'), \lesssim_{w'})$: we switch to the 1 in w'' . Contradiction.

There are a number of ways we might implement this informal thought. We might avail ourselves of the resources of decision theory and build probability functions and utility functions into the semantics, perhaps deriving deontic preorders from calculations of expected utility. For the sake of generality I will put this strategy aside.¹⁶ Abstracting away from details about how deontic preorders are generated, what we need in our revised Kratzer semantics is for the generation of deontic preorders to be *information-sensitive* in the following sense: It needs to be sensitive to what the set being preordered is like. A world’s position in the deontic preorder cannot always be determined independently of which worlds are in the set being preordered.¹⁷ Deontic preorders can thus reflect a world’s relative approximation of a deontic ideal, where what this ideal is can vary given different information states. In decision-theoretic terms, the preorder on worlds can be treated as reflecting, not the absolute utilities of the possible outcomes — e.g., no delay, short delay, long delay — but the expected utilities of the various acts one performs or strategies one takes in those worlds.¹⁸

We can capture this by indexing the deontic preorder used in interpreting weak necessity modals like ‘ought’ to a world of evaluation *and* an information state (a set of worlds) s — written ‘ $\lesssim_{w,s}$ ’. (Which information state? The information state characterizing the modal’s local context, or the original context as possibly modified by a clause or part of a clause. More on this shortly.) This suggests the following revised truth-conditions:¹⁹

Definition 6. $\llbracket \text{Ought } \phi \rrbracket^{c,w} = 1$ iff $\forall w' \in D(f(w), [\lambda s. \lesssim_{w,s}](f(w)))$: $\llbracket \phi \rrbracket^{c,w'} = 1$

As we will see, s need not represent the information state of anyone in particular. I use the term ‘information state’ in a broad sense simply to describe a set of worlds. Both epis-

¹⁶See LASSITER 2011 for developments (though cf. KRATZER 2012).

¹⁷This amounts to a denial of the assumption articulated in STALNAKER & THOMASON 1970: 29 and STALNAKER 1984: 121 for the case of the similarity relation used in interpreting counterfactuals. Cf. Kolodny and MacFarlane’s treatment of deontic selection functions as “seriously information-dependent” (2010: 133).

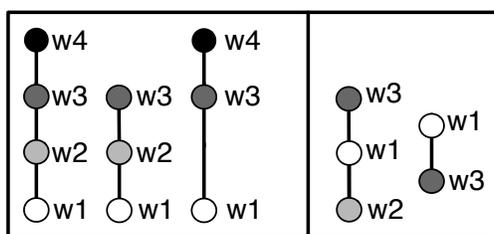
¹⁸Thus Charlow’s (2011a) worry that the semantics in KOLODNY & MACFARLANE 2010 violates an analog of the Independence of Irrelevant Alternatives does not carry over to the semantics presented here (9, 17–18; cf. LASSITER 2011: 139).

¹⁹In the terminology from KOLODNY & MACFARLANE 2010, this semantics treats deontic ‘ought’ as an “informational modal” (131). See the Appendix for a concrete way of formalizing the largely theory-neutral analysis presented here within Discourse Representation Theory. For alternative, independently developed accounts, see BJÖRNSSON & FINLAY 2010, CARIANI ET AL. 2011, CHARLOW 2011a, and LASSITER 2011, in addition to the seminal discussion in KOLODNY & MACFARLANE 2010. Again, given our purposes in this chapter I am bracketing the sorts of complications to the semantics of weak necessity modals described in Chapter II.

temic and circumstantial modal bases — updated or not — represent information states in this sense. (Though more fine-grained characterizations of information states may be needed to deliver the appropriate verdicts for more complex cases — e.g., certain cases involving probabilistic information or evidence — given our purposes I bracket such complications here.)

The contrast with Kratzer is important. As noted in §3.3, on the standard semantics modals are interpreted with respect to an independently defined preorder; the modal base simply restricts our attention to different subsets of it. More formally, context supplies a deontic preorder on W that is a function solely of the world of evaluation w . Fixing w fixes the preorder. The only role of the modal base $f(w)$ is to generate a sub-preorder $\lesssim_w \cap f(w)^2$, the maximal elements of which supply the modal’s domain of quantification. Consequently, if one world is ranked better than another according to the preorder, it will remain better with respect to any subset that contains both worlds as members (see Theorem 1). By contrast, on my revised picture what context supplies is a function from a modal base (and a world of evaluation) to a preorder on that modal base. In this way, the modal base does not simply restrict an independently defined preorder; it helps determine what the preorder is. As a result, two worlds can be ranked differently relative to one another when members of different modal bases. These contrasts are reflected in Figure 3.1.

Figure 3.1: Kratzerian vs. information-reflecting orders



Definition 7. $<$ (read: “is deontically better than”) is a strict partial order such that $\forall w', w'': w' < w'' \Leftrightarrow w' \lesssim w'' \wedge w'' \not\lesssim w'$.

KRATZERIAN ORDERS:

$$\begin{aligned}
 W &= \{w_1, w_2, w_3, w_4\}. <_w = \{\langle w_4, w_3 \rangle, \langle w_4, w_2 \rangle, \langle w_4, w_1 \rangle, \langle w_3, w_2 \rangle, \langle w_3, w_1 \rangle, \langle w_2, w_1 \rangle\} \\
 f_1(w) \subset W &= \{w_1, w_2, w_3\}. <_w \cap f_1(w)^2 = \{\langle w_3, w_2 \rangle, \langle w_3, w_1 \rangle, \langle w_2, w_1 \rangle\} \\
 f_2(w) \subset W &= \{w_1, w_3, w_4\}. <_w \cap f_2(w)^2 = \{\langle w_4, w_3 \rangle, \langle w_4, w_1 \rangle, \langle w_3, w_1 \rangle\}
 \end{aligned}$$

INFORMATION-REFLECTING ORDERS:

$$\begin{aligned}
 f_3(w) &= \{w_1, w_2, w_3\}. [\lambda s . <_{w,s}] (f_3(w)) = <_{w,f_3(w)} = \{\langle w_3, w_1 \rangle, \langle w_3, w_2 \rangle, \langle w_1, w_2 \rangle\} \\
 f_4(w) &= \{w_1, w_3\}. [\lambda s . <_{w,s}] (f_4(w)) = <_{w,f_4(w)} = \{\langle w_1, w_3 \rangle\}
 \end{aligned}$$

A word on terminology. Call a function $[\lambda s . \lesssim_{w,s}]$ from information states to preorders a *preorder selector*. A preorder selector is *information-sensitive*, in my sense, iff it is a non-constant function from information states to preorders, that is, a function that sometimes yields different preorders when given different information states as arguments. By extension I will say that a preorder is *information-reflecting* iff it is the value of an information-sensitive preorder selector.

Before turning to our data, it is worth mentioning that our indexing preorders to an information state does not itself imply that modals with information-sensitive and non-information-sensitive interpretations have distinct lexical entries. As noted in §§3.2–3.3, one perceived advantage of Kratzer’s framework is that by treating modals as context-dependent quantifiers it captures the various flavors of modality in a unified way without positing an ambiguity. The analysis here does not force us to forfeit this advantage. (Though of course one might accept that modals are ambiguous on other grounds.) All modals can be interpreted with respect to preorders that are indexed to an information state, even if some preorders are not sensitive to the value of this parameter — that is, even if some are non-information-reflecting. Information-sensitive ‘ought’ need not have a distinct lexical entry.

In the remainder of this section I will explain in a more or less theory-neutral way how information-sensitive deontic preorder selectors can help account for the data from §3.2. Revising Kratzer’s account in light of received philosophical considerations about how evidence can bear on what we ought to do generates an improved semantics that nicely predicts our data.

I noted above that deontic preorders used in interpreting ‘ought’ are to be indexed to the information state determined by the modal’s local context. In an unembedded sentence ‘Ought ϕ ’, the local context is equivalent to the global context; thus, \lesssim is indexed to w and $f(w)$.

Start with (2), our evidence-sensitive deontic ‘ought’ in a root declarative clause. Here $s = f_{\text{epist}}(w)$, the set of worlds consistent with the available evidence. We predict the following truth-conditions.

(2) We ought to stay put.

(13) $\llbracket (2) \rrbracket^{c, w} = 1$ iff $\forall w' \in D(s, \lesssim_{w, s})$: we stay put in w' , where $s = f_{\text{epist}}(w)$

Since the deontic preorder is indexed to the set of epistemically accessible worlds $f_{\text{epist}}(w)$, we correctly predict that (2) is true. Since some worlds in $f_{\text{epist}}(w)$ are worlds where the way is clear and some are worlds where the way is blocked, the $\lesssim_{w, f_{\text{epist}}(w)}$ -best of these worlds will be worlds where we stay put. (Here and throughout I assume we are restricting our attention to information-sensitive preorder selectors that reflect plausible views on how deontic value depends on information.) We can thus explain our first piece of data: the true reading of (2), where ‘ought’ is interpreted as “ought in view of the evidence.” As is evident, it isn’t simply the fact that the modal base is epistemic that explains how this reading is generated. The deontic preorder also reflects what this modal base is like — specifically, that it includes some worlds where the way is clear and some worlds where it isn’t.²⁰

Now turn to the true reading of (4). Reflecting that the ‘ought’ is interpreted as a circumstantial ‘ought’, “ought in view of the relevant circumstances,” the relevant information state s^* will be set to $f_{\text{circ}}(w)$:

(4) We ought to switch to the 1.

(14) $\llbracket (4) \rrbracket^{c, w} = 1$ iff $\forall w' \in D(s^*, \lesssim_{w, s^*})$: we switch to the 1 in w' , where $s^* = f_{\text{circ}}(w)$

²⁰Examples involving claims about what some other agent ought to do in view of her evidence or claims about one ought to do in view of some other contextually salient body of information — where the agent’s evidence or the salient information differ from the evidence available in the conversational context — pose no special problems and may be treated analogously. In such cases the modal base and the information state to which the preorder is indexed is, intuitively, the one characterizing the agent’s epistemic state or the contextually salient body of information (though see n. 5).

Insofar as the information-reflecting deontic preorder is indexed to the circumstantial modal base s^* — which, importantly, includes only worlds where the way is clear — the $\lesssim_{w, f_{\text{circ}}(w)}$ -best of these worlds will be worlds in which we switch to the 1. This is the correct result.

But if the preorders used in interpreting (2) and (4) are relevantly different in these ways, insofar as they rank certain pairs of worlds differently, do circumstantial and evidence-sensitive readings of ‘ought’ really count as being derived from a common semantic core (see §3.2)? Yes. On the standard Kratzer semantics, what context supplies for the interpretation of a modal isn’t, strictly speaking, a set of accessible worlds and a preorder; rather, what is supplied is a function *from* a world of evaluation *to* a set of accessible worlds and a preorder. As a result, though the relevant circumstances, for example, may vary from world to world, what is contributed for interpretation by a phrase like ‘in view of the relevant circumstances’ remains constant; it is a function from a world w to the set of worlds consistent with the relevant circumstances in w . We reflected this in the formalism by treating modal bases f as taking worlds as argument and indexing deontic preorders to worlds. The situation is precisely parallel in our revised picture. Though the deontic preorder can vary from information state to information state (and perhaps from world to world), what is contributed to the interpretation of ‘ought’ that makes it count as “deontic” remains constant; it is a function from a world and an information state to a preorder, as reflected in the formalism by double indexing the preorder to these two parameters. As captured in the truth-conditions in Definition 6, this is so regardless of whether the modal is given an evidence-sensitive or circumstantial reading. It is in this sense that our analysis derives circumstantial and evidence-sensitive readings of deontic ‘ought’ in a unified way from a common semantic core.

Complicating matters a bit, let’s return to the deontic conditional in (7).

(7) If the way is clear, we ought to switch to the 1.

The appropriate reading for (7) is predicted from independent principles of local interpretation. Following KARTTUNEN 1974, STALNAKER 1974, and HEIM 1990, among many others, I assume that the consequent of a conditional must be interpreted with respect to the local context set up by the antecedent — i.e., with respect to the global context (hypothetically)

incremented with the antecedent.²¹ Accordingly, in a deontic hypothetical conditional ‘If ψ , ought ϕ ’, the preorder will be indexed to w and $f(w) \cap \llbracket \psi \rrbracket^c$. In (7) the ‘ought’ in the consequent is interpreted with respect to the global context incremented with the proposition that the way is clear, as reflected in (15). The truth-conditions for (7) are given in (16).

$$(15) \quad [\text{If the way is clear}]^c [\text{we ought to switch to the } \mathbf{1}]^{c_1=c \cap p}$$

$$(16) \quad \llbracket (7) \rrbracket^{c,w} = \mathbf{1} \text{ iff } \forall w' \in D(s^+, \lesssim_{w,s^+}): \text{ we switch to the } \mathbf{1} \text{ in } w', \text{ where } s^+ = f_{\text{epist}}(w) \cap \{w'' : \text{the way is clear in } w''\}$$

The global context is, roughly, the set of worlds consistent with the evidence (see §3.4). The ‘if’-clause restricts this set to contain only worlds where the way is clear. As the modal in the consequent clause is interpreted relative to this updated context, the deontic preorder is indexed to this restricted set of worlds that encodes the information that the way is clear. Given that $f_{\text{epist}}^+(w)$ contains only worlds where the way is clear, the deontically best of these, relative to this updated information state, are worlds in which we switch to the $\mathbf{1}$. In this way, in conditionals like (7) we, in effect, update our epistemic state with the information expressed in the antecedent and then determine what ought to be in light of that updated information state.

3.6 Shifts in preorder?

In §3.4 we noted that the standard Kratzer semantics suggests two broad ways of capturing the difference between circumstantial and evidence-sensitive readings of deontic ‘ought’ — namely, in terms of a difference in modal base, on the one hand, and preorder, on the other. In §3.4 I argued that positing that this difference is merely due to a shift in modal base faces serious problems. We are now in a position to assess the other type of analysis that avoids making the sorts of revisions to Kratzer’s ordering semantics developed in §3.5.

²¹I am blurring the distinction between global contexts and the (epistemic) modal bases they determine. Given the sort of context-dependence we are interested in, no harm will come from this. For expository purposes I assume that the incrementing proceeds via set-intersection. The point about local interpretation might be put in terms of context change potentials; however, it is ultimately neutral between static implementations (à la Stalnaker) and dynamic implementations (à la Heim), yielding truth-conditions and context change potentials, respectively, as semantic values.

Thus far I have bracketed details regarding how the preorders used in interpreting modals are generated. In Kratzer’s theory preorders are generated by an “ordering source” g , or set of propositions (indexed to the world of evaluation): for any worlds w' and w'' , w' is at least as good as w'' relative to the ideal set up by $g(w)$ iff all propositions in $g(w)$ that are true in w'' are also true in w' .²²

Definition 8. $w' \lesssim_{g(w)} w'' := \forall p \in g(w): w'' \in p \Rightarrow w' \in p$

In broad outline, a second strategy — call it ‘PREORDER SHIFT’ — aims to explain the difference between circumstantial and evidence-sensitive readings of ‘ought’ in terms of a difference in ordering source. It analyzes (a) evidence-sensitive readings of ‘ought’ in terms of an ordering source that encodes the values of various outcomes conditional on (perhaps among other things) some relevant epistemic state being such-and-such way, (b) circumstantial readings of ‘ought’ in terms of an ordering source that encodes the objective values of various outcomes, and (c) hypothetical deontic conditionals in terms of the latter (objective) kind of ordering source.

The ordering source implicated in the interpretation of an evidence-sensitive ‘ought’ sentence like (2), or at least a simplified version of such an ordering source, might be something like the following.

- (17) $g_{\text{subj}}(w) =$
 $\{$ *the way is clear and we know it* \supset *we switch to the 1,*
the way is blocked and we know it \supset *we stay put,*
we don’t know whether there is construction on the 1 \supset *we stay put* $\}$

With suitable constraints on the relevant modal base — e.g., assuming it’s restricted to worlds where we don’t know whether there is construction on the 1 — (2), on its evidence-sensitive reading, will come out true with respect to this ordering source. The $\lesssim_{g_{\text{subj}}(w)}$ -best worlds among those where we don’t know whether the way is clear or blocked are all worlds where we stay put. These worlds make true all three propositions in the ordering source (vacuously

²²There are several ways of integrating ordering sources into our semantics from §3.5. One option would be to treat g as a function from worlds and information states to sets of propositions; g would be type $\langle s, \langle st, \langle st, t \rangle \rangle \rangle$. An ordering on worlds could be generated as follows:

(i) $w' \lesssim_{g(w)(s)} w'' := \forall p \in g(w)(s): w'' \in p \Rightarrow w' \in p$

in the case of the first two), whereas worlds in which we don't stay put fail to make true the third proposition above. In this way, the strategy is to build information-sensitivity into the ordering source by including propositions expressed by sentences that describe relevant features of the agent's epistemic state (and the state of the world) in the antecedents, and describe the actions available to the agent in the consequents. (For the sake of argument I bracket worries about whether an ordering source like the one in (17) will generalize to more complex cases, e.g., where the relevant epistemic states must be given a more fine-grained characterization. For I will argue that even if it can, we still have reasons to prefer an information-sensitive analysis of the sort developed in §3.5.)

By contrast, the ordering source implicated in the interpretation of a circumstantial 'ought' sentence like (4) might be something like this:

$$(18) \quad g_{\text{obj}}(w) = \\ \{ \textit{the way is clear} \supset \textit{we switch to the 1}, \\ \textit{the way is blocked} \supset \textit{we stay put} \}$$

With suitable constraints on the relevant modal base — e.g., assuming it's restricted to worlds where the way is clear — (4), on its circumstantial reading, will come out true: the $\lesssim_{g_{\text{obj}}(w)}$ -best worlds where the way is clear are all worlds where we switch to the 1.

Similarly, if we assume a covert modal analysis for overtly modalized deontic hypothetical conditionals (as described at the end of §3.4), we will be able to derive the truth of (7). As suggested in the truth-conditions in (11), first we restrict ourselves to worlds w' in which the way is clear. Assuming that the deontic ideal in these worlds is the same as that in the world of evaluation — i.e., assuming that $g_{\text{obj}}(w) = g_{\text{obj}}(w')$ — the $\lesssim_{g_{\text{obj}}(w')}$ -best of the (circumstantially) accessible worlds w'' from w' will all be worlds where we switch to the 1 (assuming that all such worlds w'' are still worlds where the way is clear). So, (7) is correctly predicted to be true.

In these ways, this implementation of the standard Kratzer semantics may be able to make the correct predictions about our example sentences (though see below). 'Ought's *notional* sensitivity to information may be captured in the semantics by encoding relevant features of the agent's decision problem — the possible states of the world, the agent's epistemic state, and the available actions — into propositions in the ordering source, rather than by giving 'ought'

an *information-sensitive semantics* of the sort described in §3.5. This is an important point to acknowledge since much of the recent literature has assumed that the standard Kratzer semantics is necessarily inconsistent with the data.²³ The data may not force us to treat ‘ought’ as an “informational modal,” to use Kolodny and MacFarlane’s terminology (2010: 131), or as having its domain of quantification determined relative to an information state supplied from the point of evaluation.

This leaves us with two theories, both of which are adequate to our original data. As is often the case, how we decide between them may depend largely on theoretical considerations. Though how such considerations tally up can be a subtle matter, I would like to present a preliminary case that the alternative theory developed in §3.5 — call it ‘INFORMATION-SENSITIVE SEMANTICS’ — is the better package deal. There are reasons for preferring a theory on which circumstantial and evidence-sensitive readings of ‘ought’ result from how circumstantial and epistemic modal bases, respectively, interact with the same information-sensitive preorder selector. In short, INFORMATION-SENSITIVE SEMANTICS seems to offer a more unified analysis of all the relevant readings of deontic modals.

First, INFORMATION-SENSITIVE SEMANTICS treats phrases like ‘in view of the evidence’ and ‘in view of the circumstances’ — as in (3) and (5) — as having their usual import and role: As on Kratzer’s stated view, these phrases are used to specify the two main kinds of modal bases. By contrast, PREORDER SHIFT stipulates that in certain examples with deontic modals, these phrases suggest something about what ordering source is relevant (e.g., one like g_{subj} or g_{obj}) and do so in unpredictable ways. There is no independent motivation I know of for this stipulation.

Second, INFORMATION-SENSITIVE SEMANTICS better captures the common normative element in circumstantial and evidence-sensitive readings of ‘ought’. What makes a normative modal the kind of normative modal that it is — e.g., rational, moral, prudential, etc. — is the preorder with respect to which it is interpreted. INFORMATION-SENSITIVE SEMANTICS, unlike

²³For example: “on any setting for the modal base and ordering source standardly considered, the framework fails to predict the [evidence-sensitive] reading on which [(2)] is true”; “the... ordering source runs into a technical problem when it comes to the interaction with conditional antecedents” (CARIANI ET AL. 2011: 14, 34; though see 31–33). “Standard quantificational semantics for deontic modals... are not able to capture these facts [about information-sensitivity]” (LASSITER 2011: 136). Cf. KOLODNY & MACFARLANE 2010: 133 and CHARLOW 2011a: 9. See also DOWELL 2012 and VON FINTEL 2012 for discussion.

PREORDER SHIFT, captures how it is a constant set of values or norms that are used to assess the deontic betterness-making features of acts and worlds in the interpretation of circumstantial and evidence-sensitive readings of ‘ought’. (For instance, according to utilitarianism, the ordering source implicated in both readings might be something like {*We maximize expected utility*}, where “expectedness” is determined in light of the given modal base.) As the ‘in view of the evidence’ and ‘in view of the circumstances’ phrases suggest, it is simply the relevant body of information which changes (and which then interacts with the relevant information-sensitive norm). This view also better illuminates why various normative ethicists have thought to engage in the project of attempting to analyze (in my terminology) circumstantial ‘ought’s in terms of evidence-sensitive ‘ought’s or vice versa.²⁴ But if the ordering sources implicated in the interpretation of both readings were logically unrelated in the manner suggested by PREORDER SHIFT, this project might seem to be conceptually confused.

Third, INFORMATION-SENSITIVE SEMANTICS better captures the close semantic connection between unembedded evidence-sensitive ‘ought’ sentences like (2) and deontic conditionals like (7). As suggested in §3.4, evaluations of conditional expected utility — expected utility given a condition — play an important role in rational choice theory and decision making more generally. It would be surprising if we could not express such evaluations in natural language. INFORMATION-SENSITIVE SEMANTICS, unlike PREORDER SHIFT, captures how deontic conditionals like (7) can express such evaluations — namely, by interpreting ‘ought’ with respect to the same preorder selector that is used in interpreting unembedded evidence-sensitive ‘ought’ sentences. (Though, again, such sentences need not express judgments of expected utility, and information-sensitive preorder selectors need not be consequentialist.) Further, PREORDER SHIFT seems to predict that there would be a kind of equivocation in accepting (7) and then accepting (19) upon learning that the way is clear.

(19) In view of the evidence, we ought to switch to the 1.

Whatever is going on in the successive interpretations of these sentences, it does not seem that it is the ordering source that is changing. When we learn new factual information — for example, that the antecedent condition of a deontic conditional like (7) obtains — we can

²⁴See, e.g., BRANDT 1963: 113–114, GIBBARD 1990a: 31–34, 2005: 343–348, WEDGWOOD 2012.

conclude something about what we *subjectively* ought to do. (As we'll see in the following section, even if the inference from (7) and its antecedent condition to its consequent is not classically valid, it seems to be dynamically valid.)

To bring this out, consider the following variant on our original case. The case is the same as before except that now there are three ways we can get to the hospital: we can stay along our current route, we can switch to Route 1, or a bit farther down we can switch to Route 2. Route 2, like Route 1, has had construction on it lately, but when it's clear it is the fastest route to the hospital. (When it's blocked, it's as slow as the 1.) We don't know whether Route 2 is clear today, but our evidence strongly suggests that construction work is done on the 1 and the 2 on the same days. Call this case 'ROUTE 2'. The following conditional seems true:

(20) If Route 1 is clear, we ought to take Route 2.

On the condition that Route 1 is clear, switching to Route 2 is the expectably best action. INFORMATION-SENSITIVE SEMANTICS captures this: the preorder is indexed to our current information state updated with the information that Route 1 is clear. Relative to this updated information state, our taking Route 2 is best. However, suppose that unbeknownst to us, it turns out that Route 1 is clear but Route 2 is blocked. Then, since PREORDER SHIFT interprets the 'ought's in deontic hypothetical conditionals as having a circumstantial reading, or as taking an objective ordering source, (20) is incorrectly predicted to be false. The lesson: The 'ought's in deontic conditionals like (7) and (20) are not given objective or circumstantial readings. They are evidence-sensitive — or, better, evidence-sensitive on a condition.

In reply PREORDER SHIFT could drop its claim that the 'ought' in a deontic hypothetical conditional takes an objective ordering source. Instead it could claim that the 'ought' is interpreted with respect to a sort of hybrid ordering source — in the case of (20), perhaps something like the following:

(21) $g_{\text{subj}^*}(w) =$
 $\{ \textit{the 1 is clear} \supset \textit{we switch to the 2},$
 $\textit{the 2 is clear} \supset \textit{we switch to the 2},$

the way is blocked \supset *we stay put*,
 \vdots
 $\}$

Given the sorts of assumptions discussed in the case of (7), (20) will come out true with respect to this ordering source. *PREORDER SHIFT* can indeed capture our new data. But, as suggested above, it does so in such a way that leaves opaque the connection between the norms used in assessing claims like (2), (4), (7), and, now, (20). More pressingly, *ROUTE 2* is only the first of a long line of more complex cases in which, roughly, what is objectively best comes apart from what is expectably best, which comes apart from what is expectably best on one condition, which comes apart from what is expectably best on another condition, and so on. For each evaluation of what is expectably deontically best on a given condition *C*, for variable *C* — and for the interpretation of each associated hypothetical conditional — we will need a new ordering source. It is plausible that a theory that unifies these ordering sources and treats context as making a uniform contribution to the interpretation of all such conditionals (and their unembedded, evidence-sensitive counterpart) is to be preferred. *INFORMATION-SENSITIVE SEMANTICS* does just that.

So, even if *PREORDER SHIFT* is empirically adequate, there are good reasons for thinking that *INFORMATION-SENSITIVE SEMANTICS* yields the better overall theory.

3.7 Information-sensitivity and modus ponens

So far, so good. But as the reader may have noticed, there is a perhaps surprising feature about the joint consistency of certain of our examples, reproduced below: Modus ponens is violated. (What is at issue here is the validity of modus ponens for the indicative conditional, not, e.g., the truth-functional material conditional.)

- (22) a. We ought to stay put. (\Rightarrow It's not the case that we ought to switch to the 1.)
 b. If the way is clear, we ought to switch to the 1.
 c. The way is clear.

The recent treatment of deontic conditionals in KOLODNY & MACFARLANE 2010 has made much of this point. Though they consider a more complicated case involving constructive dilemma, this is unnecessary. The violation of modus ponens is evident even in non-hypothetical contexts, as in (22). That modus ponens fails is unsurprising given our semantics (*cf.* KOLODNY & MACFARLANE 2010: 137–142). First, though it might be true that the way is clear, the epistemic modal base for the unembedded ‘ought’ in (22a) need not encode this information. Since deontic preorders can be sensitive to what the set being preordered is like, the mere truth of a proposition, together with the truth of an associated conditional ‘ought’, won’t entail the conditional’s modalized consequent. Second, since the consequent of a hypothetical conditional is interpreted with respect to its local context, the deontic preorder is sensitive to the information expressed by the antecedent in a way that affects the modal’s domain of quantification. So, the sentences in (22), even when the ‘ought’s are given the same reading without equivocation, can all be true with respect to a constant global context. (I assume that it is this notion of validity — which requires interpretation with respect to a constant global context — that is relevant for the evaluation of a logical argument for a particular conclusion.²⁵)

But if modus ponens fails in this way, can we still account for how, in practical deliberation, we can legitimately detach unembedded evidence-sensitive ‘ought’ claims from associated conditionals upon learning that the latter’s antecedent condition obtains? Yes: Although modus ponens is not (neo)classically valid, modus ponens inferences like the ones

²⁵*Cf.* KADMON & LANDMAN 1993, VON FINTEL 1999, 2001, LEPORE & LUDWIG 2007: 307–311. More formally:

- (i) $\alpha_1, \dots, \alpha_n \models \beta$ iff for all contexts c : $\llbracket \alpha_1 \rrbracket^c \cap \dots \cap \llbracket \alpha_n \rrbracket^c \subseteq \llbracket \beta \rrbracket^c$

It is worth noting that denying an information-sensitive semantics of the sort described in §3.5 won’t allow one to hold on to modus ponens for the indicative conditional — at least if one accepts a Kratzerian restrictor analysis for conditionals: such an analysis doesn’t validate modus ponens anyway (*pace* suggestions in DOWELL 2012). Simple countermodels with and without the postulation of a covert higher modal:

Proof. Overt modal restriction: Suppose w_1 is the world of evaluation, $f(w_1) = \{w_1, w_2\}$, w_1 is a $(\phi \wedge \psi)$ -world, w_2 is a $(\neg\phi \wedge \neg\psi)$ -world, and $w_2 <_{w_1} w_1$. Then ‘ ϕ ’ is true (since w_1 is a ϕ -world), and ‘If ϕ , ought ψ ’ is true (since w_1 , the \lesssim_{w_1} -best ϕ -world in $f(w_1)$, is a ψ -world), but ‘Ought ψ ’ is false (since w_2 , the \lesssim_{w_1} -best world in $f(w_1)$ is a $\neg\psi$ -world). \square

Proof. Covert modal restriction: Start with the same model as before, but where $f(w_1)$ is the modal base of the covert higher modal. Assume that $f'(w_1)$, the modal base of the overt modal at w_1 , is $\{w_1\}$. Then ‘ ϕ ’ is true and ‘Ought ψ ’ is false for the same reasons as in the first proof; but ‘If ϕ , ought ψ ’ is true since for all ϕ -worlds w' in $f(w_1)$ — namely, w_1 — the $\lesssim_{w'}$ -best worlds in $f'(w')$ is a ψ -world (since w_1 is the only such world w'). \square

we are considering are *dynamically* valid.²⁶ Roughly, for a set of premises to dynamically entail a conclusion, it must be that when the premises are successively asserted (and accepted), the context set of the evolving context is included in the proposition expressed by the conclusion in that evolved context.²⁷ In assessments of dynamic validity, premises not only play their usual classical role of ruling out possibilities; they also change the context, and hence information state, with respect to which subsequent sentences are interpreted.

Informally, suppose we start in a context that leaves open whether the way is clear. I assert (23), which is successfully added to the common ground.

(23) If the way is clear, we ought to switch to the 1.

Next, I learn that the way is clear and so assert (24).

(24) The way is clear.

Since (24) is not only true but is also accepted, the context set is reduced to worlds where the way is clear. But this updated context is precisely the one relevant in the interpretation of the consequent of (23)! So, the resulting context set entails — is a subset of — the proposition expressed by (25).

(25) We ought to switch to the 1.

Thus, (23) and (24) dynamically entail (25). More formally (*cf.* n. 21):

Proposition 2. $\llbracket \text{If } \psi, \text{ ought } \phi \rrbracket^{c,w} = \llbracket \psi \rrbracket^{c_1,w} = 1$ implies $\llbracket \text{Ought } \phi \rrbracket^{c_2,w} = 1$, where $c_1 = c \cap$

²⁶Compare the notion of a “reasonable inference” in STALNAKER 1975, an important inspiration for much work in dynamic semantics. See WILLER 2012 for elaboration on the importance of a dynamic notion of logical consequence in logics and semantics for information-sensitive deontic modals. A related but importantly different notion is Kolodny and MacFarlane’s notion of “quasi-validity” (2010: 139–142). Roughly, an argument is quasi-valid iff it is (neo)classically valid when its premises are epistemically necessary. As Kolodny and Macfarlane show, modus ponens is quasi-valid. However, as Willer observes (11n.9), a notion of quasi-validity may have more limited importance since it does not apply in hypothetical reasoning and fails to capture certain intuitively valid forms of inference (*cf.* SCHULZ 2010).

²⁷More formally (*cf.* VON FINTEL 2001: 141–142; GILLIES 2009: 342–344):

(i) $\alpha_1, \dots, \alpha_n \models_{\text{dynamic}} \beta$ iff for all contexts c : $\llbracket \alpha_1 \rrbracket^c \cap \dots \cap \llbracket \alpha_n \rrbracket^{c|\alpha_1| \dots |\alpha_{n-1}|} \subseteq \llbracket \beta \rrbracket^{c|\alpha_1| \dots |\alpha_n|}$

I put this (contentiously) in terms of context change potentials merely for notational convenience. See, e.g., GROENENDIJK & STOCKHOF 1991, VAN BENTHEM 1995, 1996, VELTMAN 1996, and MUSKENS ET AL. 1997 for discussion of various possible notions of dynamic entailment.

$\llbracket \text{If } \psi, \text{ ought } \phi \rrbracket^c$ and $c_2 = c_1 \cap \llbracket \psi \rrbracket^{c_1}$.

Proof. Suppose that $\llbracket \text{If } \psi, \text{ ought } \phi \rrbracket^{c,w} = \llbracket \psi \rrbracket^{c_1,w} = 1$. So, by Definitions 3 and 6, $\forall w' \in D(c \cap \llbracket \psi \rrbracket, \lesssim_{w,c \cap \llbracket \psi \rrbracket}) : \llbracket \phi \rrbracket^{c,w'} = 1$. Assume that updating with ‘If ψ , ought ϕ ’ doesn’t affect the deontic preorder — i.e., that $\lesssim_{w,c \cap \llbracket \psi \rrbracket} = \lesssim_{w,c_1 \cap \llbracket \psi \rrbracket}$, indeed that $D(c \cap \llbracket \psi \rrbracket, \lesssim_{w,c \cap \llbracket \psi \rrbracket}) \supseteq D(c_1 \cap \llbracket \psi \rrbracket, \lesssim_{w,c_1 \cap \llbracket \psi \rrbracket})$. Since $\llbracket \psi \rrbracket^c = \llbracket \psi \rrbracket^{c_1}$, $D(c \cap \llbracket \psi \rrbracket, \lesssim_{w,c \cap \llbracket \psi \rrbracket}) \supseteq D(c_1 \cap \llbracket \psi \rrbracket^{c_1}, \lesssim_{w,c_1 \cap \llbracket \psi \rrbracket^{c_1}})$. But $c_2 = c_1 \cap \llbracket \psi \rrbracket^{c_1}$. So, it follows that $D(c \cap \llbracket \psi \rrbracket, \lesssim_{w,c \cap \llbracket \psi \rrbracket}) \supseteq D(c_2, \lesssim_{w,c_2})$. So, since $\llbracket \phi \rrbracket^c = \llbracket \phi \rrbracket^{c_2}$, $\forall w' \in D(c_2, \lesssim_{w,c_2}) : \llbracket \phi \rrbracket^{c_2,w'} = 1$. \square

In this way, in deliberation and conversation we can legitimately detach claims about what we ought to do — in the subjective, evidence-sensitive sense — from associated deontic conditionals upon learning the truth of their antecedent conditions.

3.8 Conclusion

Let’s take stock. On first glance it appeared that the standard Kratzer semantics for modals was incomplete; it seemed to be silent on how to interpret claims about what one ought to do in view of the evidence. While a quick fix was apparently available — namely, allowing deontic modals to take epistemic modal bases — we have seen that a more radical revision of Kratzer’s ordering semantics may be called for. On the analysis defended here, modal bases do not simply restrict deontic preorders; they help determine what the preorder is. By making the deontic preorder information-reflecting — indexed to a set of worlds — we can improve on MODAL BASE SHIFT and PREORDER SHIFT and give a unified explanation for how changes in modal base help generate circumstantial and evidence-sensitive readings of deontic ‘ought’. The intended readings of deontic ‘ought’ conditionals follow from the information-sensitivity of the preorder selector and independent principles concerning local interpretation. The project here has not been to argue that no other theory can get the data right. Rather it has been to motivate building information-sensitivity into our semantics and articulate one way of doing so that is empirically adequate and theoretically attractive.

By dropping philosophical assumptions that may have been implicit in Kratzer’s original analysis, we have opened up new ways of generating the desired predictions about various phenomena involving deontic ‘ought’. And we have done so in a way that better captures the

common core of the modals than we otherwise would have. This, I take it, is an instance of a more general methodological lesson. The linguist, like any other practicing scientist, often comes to the theoretical table with various implicit philosophical views. The acceptance of such assumptions can often inadvertently restrict the space of possible analyses to be given in response to new data. By locating these assumptions, the philosopher of language can, among other things, free up the linguist and help expand the range of candidate theories.

Appendix Evidence-sensitivity in DRT

I have argued that deontic preorders used in interpreting ‘ought’ can be sensitive to what the modal base is like and how it is updated locally. Since Discourse Representation Theory (DRT) has been enormously fruitful in its treatment of sentence-internal context updates, in this appendix I will formalize the more theory-neutral analysis of information-sensitivity from §3.5 using DRT. Of course there will be alternative implementations.

A DRT: Some background

A Discourse Representation Structure (DRS) represents the body of information accumulated in a discourse. A DRS consists of a *universe* of “discourse referents” (objects under discussion), depicted by a set of variables, and *conditions* that encode information gathered in the discourse.²⁸ Syntactically, algorithms map syntactic structures onto DRSs. Semantically, DRSs are interpreted model-theoretically by *embedding functions* — functions from discourse referents to individuals in a model such that for each discourse referent x , the individual that x is mapped onto has every property associated with the conditions on x . Truth is then defined at the discourse level rather than at the sentence level: roughly, a DRS K is true in a model \mathcal{M} iff there is an embedding function for K in \mathcal{M} that verifies all the conditions in K . Different types of conditions have different verification clauses (see below).

A simple example should clarify. Take the single-sentence discourse ‘John killed a miner’. The following DRS represents the information that there are two individuals — John and a

²⁸Discourse referents can be understood as entities that can serve as antecedents for anaphora — introduced non-linguistically or linguistically by indefinite NPs — modeled as constraints on assignment functions. They needn’t correspond with referents in the model. See KARTTUNEN 1976 for classic discussion.

miner — and that the first killed the second.

(26)

j	m
john(j)	
miner(m)	
killed(j , m)	

An embedding function f verifies (26) in a model \mathcal{M} iff the domain of f includes j and m , and according to \mathcal{M} , $f(j)$ is John, $f(m)$ is a miner, and $f(j)$ killed $f(m)$. Roughly, the DRS (26) is true in a model \mathcal{M} iff there is an embedding function in \mathcal{M} that verifies all its conditions — here, iff there is an embedding function in \mathcal{M} such that j can be mapped onto an individual in the model, John, and m can be mapped onto an individual which is a miner in the model, such that the individual corresponding to j killed the individual corresponding to m . The universe of this DRS is $\{j, m\}$ and the condition set is $\{\text{John}(j), \text{miner}(m), \text{killed}(j, m)\}$. This DRS forms the background context against which subsequent utterances are interpreted.

Modally quantified sentences induce more complex DRSs. For concreteness, I will follow the DRT analysis of modals in FRANK 1996. As contexts are often represented in dynamic theories of interpretation in terms of sets of *states* — sets of world-embedding function pairs $\langle w, e \rangle$ — Frank, following GEURTS 1995, introduces *context referents* that denote such sets.²⁹ *Update conditions* $G :: F + K'$, from an input context referent F with a DRS K' to an output context referent G , are used to represent the dynamic meaning of sentences in a discourse. A bit of terminology:

Definition 9. A *Discourse Representation Structure (DRS)* K is an ordered pair $\langle U_K = U_{K_{\text{ind}}} \cup U_{K_{\text{cont}}}, \text{Con}_K \rangle$, where $U_{K_{\text{ind}}}$ is a set of variables, $U_{K_{\text{cont}}}$ a set of context referents, U_K the universe of K , and Con_K a set of conditions.

Definition 10. An *embedding function* f for K in an intensional model \mathcal{M} is the union of an embedding function f_1 and an embedding function f_2 , where:

²⁹See also PORTNER 1996, VAN ROOY 2001. Cf. STONE 1997, 1999, BITTNER 2001, BRASOVEANU 2007, which analyze modal quantifiers in terms of discourse referents for static, rather than dynamic, objects, e.g., sets of possible worlds.

1. f_1 for K in \mathcal{M} is a (possibly partial) function from $U_{K_{\text{ind}}}$ into D .
2. f_2 for K in \mathcal{M} is a (possibly partial) function from $U_{K_{\text{cont}}}$ into sets of **states** $\langle w, f_1 \rangle$.

For embedding functions f and g and DRS K , g *extends* f with respect to K — written $f[K]g$ — iff $\text{Dom}(g) = \text{Dom}(f) \cup U_K$ and $f \subseteq g$.

A modal’s nuclear scope — the DRS representing its prejacent — is treated as anaphoric to an antecedent context referent that is updated with the restrictor. (This is intended to capture, among other things, Kratzer’s notion of relative modality, or the claim that modals are interpreted relative to a contextually supplied set of premises.) This anaphoric analysis yields the following general logical form for modals Q (depicted with a diamond) in (27), relative to an anaphoric context referent X' , restrictor DRS K' , scope DRS K'' , and context referents G' and G'' .

(27)

$$\begin{array}{l}
 X' \ G' \ G'' \\
 X' = ? \\
 G' :: X' + \boxed{K'} \ \diamond Q \ G'' :: G' + \boxed{K''}
 \end{array}$$

There are a number of ways to render the computation of the modal’s domain of quantification information-reflecting. Here I will do so by treating the denotation of a deontic context referent D as a function from a set of worlds (an information state) to a set of states, those states consistent with what is deontically required in view of that information state. For ease of exposition I abstract away from details involving Kratzer’s ordering source and treat a deontic modal’s modal base as complex, consisting of a merged context $R + D$, where R is the relevant “realistic” (circumstantial, epistemic) context. Specifically, I assume that the complex modal base B is formed from the merge of a realistic context R and a deontic context D that takes R as argument: $B = R + D(R)$. The denotation of B determines the set of worlds $\sigma(e(B)) = \sigma(e(R)) \cap \sigma(e(D)(e(R)))$ — i.e., the set of worlds consistent with the relevant body of facts or evidence and what is deontically required relative to the information state determined by that body of facts or evidence. The set of worlds (“context set”) $\sigma(\Gamma)$ determined by a set of states Γ is given as follows:

Definition 11. $\sigma(\Gamma) = \{w': (\exists x') \langle w', x' \rangle \in \Gamma\}$, for a set of states Γ

Some relevant verification conditions (see, e.g., FRANK 1996, VAN EIJCK & KAMP 1997, KAMP ET AL. 2011 for fuller treatments):

Definition 12. For all worlds w , (well-founded) embedding functions e, f, g, h with domains in U_K , intensional models \mathcal{M} , DRSs K, K', K'' , and sets of conditions Con :

1. The truth-conditions of a DRS K in \mathcal{M} :

$$(a) \llbracket K \rrbracket_{\langle w, f \rangle} = \{ \langle w, g \rangle : f[K]g \ \& \ \langle w, g \rangle \models_{\mathcal{M}} K \}$$

$$(b) \text{ A DRS } K \text{ is true in } \mathcal{M} \text{ iff } \exists f. \langle w, f \rangle \models_{\mathcal{M}} K$$

2. The context change potential of a DRS K in \mathcal{M} w.r.t input and output states $\langle w, f \rangle, \langle w, g \rangle$:

$$\langle w, f \rangle \llbracket K \rrbracket_{\langle w, g \rangle} \text{ iff } f[K]g \ \& \ \langle w, g \rangle \models_{\mathcal{M}} K$$

3. Verification of a DRS K in \mathcal{M} by embedding function e :

$$\langle w, e \rangle \models_{\mathcal{M}} \langle K \rangle \text{ iff } \exists f. e[K]f \ \& \ \forall c \in Con_K: \langle w, f \rangle \models_{\mathcal{M}} c$$

$$(a) \langle w, e \rangle \models_{\mathcal{M}} P^n(x_1, \dots, x_n) \text{ iff } \langle e(x_1), \dots, e(x_n) \rangle \in I(P^n)$$

$$(b) \langle w', e \rangle \models_{\mathcal{M}} G :: F + \langle K' \rangle \text{ iff } e(G) = \{ \langle w', g \rangle : \exists \langle w', f \rangle \in e(F) \text{ s.t. } \langle w', e \cup f \rangle \llbracket K' \rrbracket_{\langle w', g \rangle} \} \ \& \ \exists \langle w, g \rangle \in e(G)$$

$$(c) \langle w, e \rangle \models_{\mathcal{M}} G :: X' + \langle K' \rangle \diamond_{\text{every}} H :: G + \langle K'' \rangle \text{ iff}$$

$$e(G) = \{ \langle w', g \rangle : \exists \langle w', x' \rangle \in e(X') \text{ s.t. } \langle w', e \cup x' \rangle \llbracket K' \rrbracket_{\langle w', g \rangle} \} \ \&$$

$$e(H) = \{ \langle w', h \rangle : \exists \langle w', g \rangle \in e(G) \text{ s.t. } \langle w', e \cup g \rangle \llbracket K'' \rrbracket_{\langle w', h \rangle} \} \ \&$$

$$\forall \langle w', g \rangle : \langle w', g \rangle \in e(G) \rightarrow \exists \langle w', h \rangle \in e(H)$$

$$(d) \langle w, e \rangle \models_{\mathcal{M}} G = F + D(F) \text{ iff}$$

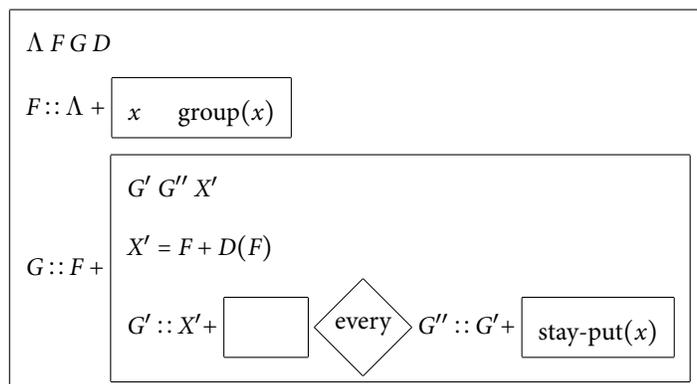
$$e(G) = \{ \langle w', g \rangle : \exists \langle w', f \rangle \in e(F) \exists \langle w', d \rangle \in e(D)(e(F)) \text{ s.t. } \langle w', g \rangle = \langle w', f \cup d \rangle \}$$

B The data

Turning to our data, first let's analyze (2), our evidence-sensitive unembedded deontic 'ought'. The (partial) DRS for (2) will be roughly as in (28). Let F be the context that encodes our

evidence; D encode what is deontically required; and Λ be the empty context that begins the discourse, where $e(\Lambda) = \{\langle w', \lambda \rangle : w' \in W\}$ and λ is the empty function.³⁰

(28) We ought to stay put.

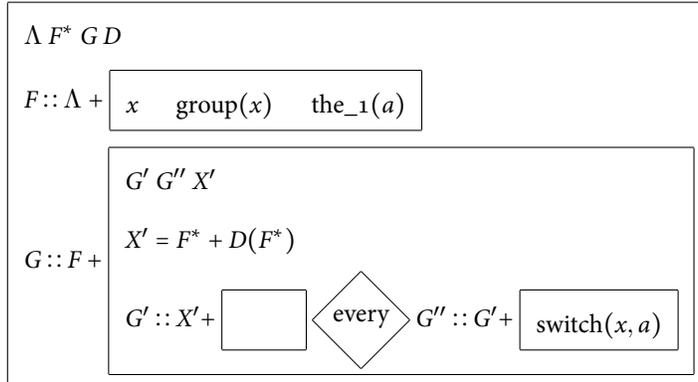


The left-hand subordinate box is empty since the modal's domain is already restricted by virtue of being anaphoric to the prior context F . Importantly, what is deontically required anaphorically depends on the realistic context F . The complex modal base $X' = F + D(F)$ restricts the modal's domain of quantification to worlds that are consistent with the available evidence and what is deontically required relative to this evidence — i.e., to worlds in $\sigma(e(F)) \cap \sigma(e(D)(e(F)))$. Accordingly (28) is true iff in all of these worlds, we stay put. More generally, the modal condition in the DRS updating F is verified iff every state in the denotation of X' can be extended to a state that verifies the scope DRS $\boxed{\text{stay-put}(x)}$. Since the deontic context is sensitive to what the epistemic context is, this modal condition is indeed verified.

Now reconsider our circumstantial 'ought' in (4). The DRS for (4) will be much like that in (28); however, the modal's restriction will be anaphoric, not to F , but to F^* , a context referent that encodes the relevant facts about the situation.

³⁰I assume a syntacticized version of Kratzer's semantics for modals, though nothing here hinges on this. Also, our DRSs are merely partial representations, so not all conditions encoding our evidence or the relevant circumstances are given in the representations that follow.

(29) We ought to switch to the 1.



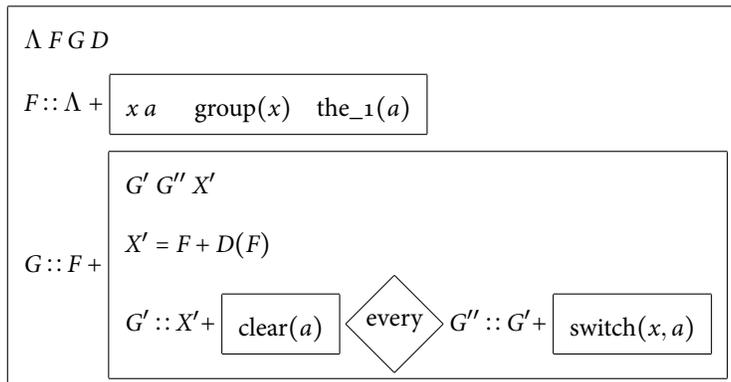
So the context set of the denotation of F^* includes only worlds where the 1 is clear. Since the deontic context D is sensitive to this, the modal condition, evaluated with respect to the complex modal base $X' = F^* + D(F^*)$, is verified. We switch to the 1 in all worlds in the context set of the denotation of X' — i.e., all worlds in $\sigma(e(F^*)) \cap \sigma(e(D)(e(F^*)))$.

Turning to (7), in order to capture how the ‘ought’ is interpreted with respect to its local context, we need to ensure that the deontic context merges with the *updated* modal base that includes the condition encoded by the ‘if’-clause in forming the modal’s complex modal base. So, the DRS in (30) will not provide the correct representation of (7). The problem is that the complex modal base $X' = F + D(F)$ is formed before the context is updated with the restrictor DRS

clear(a)

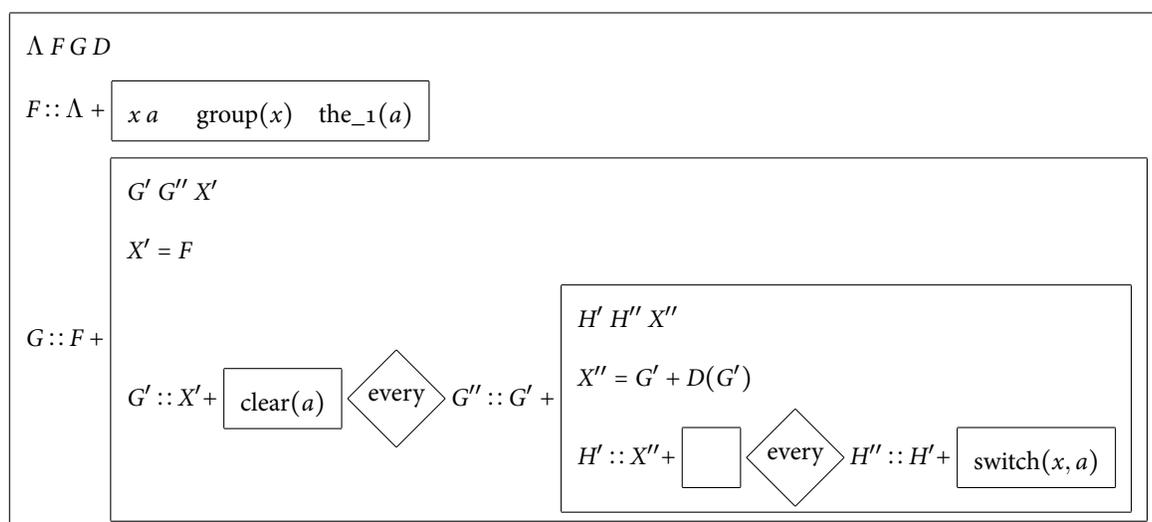
.

(30) If the way is clear, we ought to switch to the 1.



So, if we are to correctly represent the intended readings of deontic conditionals like (7) within our current semantic framework, we may need to posit a covert necessity modal that scopes over, and is restricted by, the ‘if’-clause. (Alternative frameworks may not require this move.) As briefly mentioned in §3.4, such a move has much independent support — e.g., in light of data with anankastic conditionals, nominally quantified ‘if’- and ‘unless’-sentences, and ‘might’-counterfactuals — though, for reasons of space, I will not rehearse those arguments here (see n. 14). Suffice it to say that this independently motivated element helps yield the accurate representation of (7) in (31).

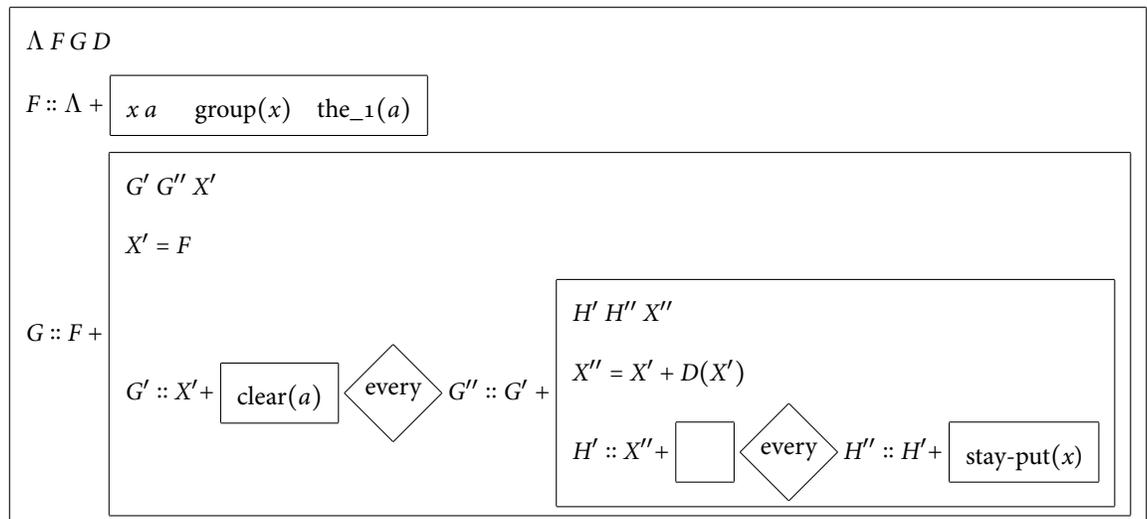
(31) If the way is clear, we ought to switch to the 1.



The modal base X' of the covert modal is anaphoric to the context referent F that encodes the available evidence (see §§3.4–3.5). The complex modal base X'' of the overt deontic ‘ought’ is identified with the update of X' with the DRS representing the ‘if’-clause merged with the deontic context — i.e., $X'' = G' + D(G')$. Crucially, this allows the information-sensitive deontic context D to interact with the context referent G' that encodes the condition that the way is clear, rather than with F , which does not. So the embedded ‘ought’ quantifies over worlds in which the way is clear that are consistent with the evidence and what is deontically required relative to this updated information state. Accordingly, the modal condition in G is verified; we switch to the 1 in all worlds in $\sigma(e(X''))$.

Finally, a brief word about the ‘even if’ conditional in (9). Independent considerations from FRANK 1996 suggest that in modalized ‘even if’ conditionals, the embedded modal’s modal base is anaphoric to the non-updated context referent $X' = F$, rather than to the updated context G' as in (31) — in Kratzerian terms, to the higher modal’s modal base $f(w)$ rather than to $f^+(w)$. This is represented in (32).

(32) Even if the way is clear, we ought to stay put.



If this position on ‘even if’ conditionals is right, we have an independently motivated way of predicting the appropriate truth-conditions for (9). As in (28), what is deontically required is calculated relative to the non-updated information state that encodes our actual evidence.

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