Discourse Contextualism:

A Framework for Contextualist Semantics and Pragmatics

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“It’s puzzling work, talking is.”
George Eliot†

†Mr. Tulliver, in The Mill on the Floss, Bk. 1, Ch. 2
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Chapter 1

Introduction:

CR-Expressions and Discourse Contextualism

“We have not missed, you and I, contextualism: that many-splendored thing” is not how the movie ends. But it might have.

An important function of language is to share and coordinate our attitudes in communication. In inquiry we manage our beliefs about how things are, how they might be, and how possibilities may hang together. We also take a stance and socially orient ourselves toward possible acts, attitudes, and states of affairs. We evaluate possibilities as desirable, appropriate, horrible, trivial, permissible, wonderful. We make demands and grant permissions, emphasize commonality and breed antipathy. In communication we shape our identities as thinkers and feelers in a social world; we coordinate on what to believe, how to act, how to feel, and whom to be.

Language affords a variety of expressive resources for doing so. For instance, our evaluation of (1) to take a not-quite-momentous (?) example, depends on what our tastes are like.

(1) This ice cream is delicious.

(1) can seem acceptable if you like the ice cream, but unacceptable if you don’t. In using ‘delicious’ speakers can express their experiences and coordinate their sensibilities — sometimes in agreement, as in (2), sometimes in disagreement, as in (3).

(2) Me: This ice cream is delicious.
You: Yeah it is. Let’s get some more.

(3) Me: This ice cream is delicious.
You: No way. It's way too sweet.

Such discourse-oriented uses of language (let us call them) are commonplace. How to capture them is not. One approach is to treat the interpretation of (e.g.) 'delicious' as, in some sense, depending on context. Whether [1] is true or false can vary across contexts, on these views, even if everything else in the world — e.g., the facts about the ice cream's microphysical properties — remains fixed. Contextualism treats this context-dependence as a dependence of semantic (conventional) content on features of the context of utterance. We are all contextualists about pure indexicals whose contents are determined by specific linguistic rules. 'I', for instance, invariably refers to the speaker of the context. But not all expressions whose interpretation is intuitively sensitive to context lend themselves to so straightforward an analysis. There are Perry’s (1997: 595–596) intentional indexicals whose content is, plausibly, determined in part by pragmatic factors, like speaker intentions. Demonstratives, quantifiers, and even 'here' and 'now' likely fall in this camp. Such “impure indexicals” raise many questions about how context affects interpretation. But, details of the semantics and metasemantic aside, we all grant that the contents of these expressions depends in some sense on features of the context of utterance. In addition there is a range of expressions whose interpretation is intuitively sensitive to context but which are such that no particular way of spelling out their context-sensitivity seems capable of capturing all our intuitions. It is these expressions that are the locus of — and, depending on one's taste, to blame for — recent contextualism-relativism debates. These expressions include predicates of personal taste, like 'delicious', as well as epistemic vocabulary, normative and evaluative vocabulary, and vague gradable adjectives, among others. Call these expressions 'CR-expressions'.

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1The literature is vast. Some references:


Contextualism treats CR-expressions as context-sensitive in the same kind of way as paradigm context-sensitive expressions. Assimilating the apparent context-sensitivity of CR-expressions to that of paradigm context-sensitive expressions might seem to afford an initially attractive diagnosis of discourse-oriented uses like those in (2)–(3). Yet serious objections have been raised. A contextualist about a CR-expression must provide a general account of what information, standard, tastes, etc. (depending on the item in question) is supplied as a function of the context of utterance and figures in the derivation of semantic content. There are two main classes of data that have been thought problematic: first, discourse phenomena involving agreement and disagreement; second, the interpretation of CR-expressions in various complex linguistic environments, such as in attitude ascriptions and conditionals. Which is to say: CR-expressions seem happy (=contextualist-friendly) neither embedded nor unembedded. The general consensus is that CR-expressions’ distinctive discourse properties and embedding behavior cannot be captured by a standard contextualist semantics and general pragmatic principles. Many theorists use the putatively problematic data to motivate revising the compositional semantics (as by adding additional parameters to the index or circumstance of evaluation) or post-semantics (as by relativizing the definition of truth-in-a-context to a posited “context of assessment”). Though the resulting theories differ in their details, they agree in distinguishing the context-sensitivity of CR-expressions from that of paradigm context-sensitive expressions. Even those who wish to maintain a contextualist semantics often do so only by resorting to ad hoc pragmatic principles.

Some readers may have the impression that the debates between contextualist and non-contextualist theories have come to something of a standstill. If you were tired of these debates, I wouldn’t be unsympathetic. But I think there is progress to be made.

In this book I argue that we can capture the seemingly problematic discourse properties and embedding behavior of CR-expressions with an ordinary static contextualist semantics along with general, independently motivated principles of interpretation and pragmatic reasoning. I call the proposed account Discourse Contextualism. My introducing the new label shouldn’t mislead. The project is to develop a standard, no semantic bells or pragmatic whistles contextualist theory, and to de-
fend it against some of contextualism's most pressing objections. No novel semantic apparatus or pragmatic mechanisms required.

I begin in Chapter 2 by examining discourse agreement and disagreement. I show that the disagreement phenomena that have been thought problematic for contextualists about CR-expressions can arise with paradigm context-sensitive expressions. The cases I provide motivate a more unified treatment of paradigm context-sensitive expressions and the expressions that have figured in recent contextualism-relativism debates. I close this chapter by suggesting ways the dialectic may proceed, and I raise corresponding challenges for relativism and contextualism. The depth of the problem for contextualism raised by disagreement phenomena has not been adequately appreciated by contextualists. The central challenge is to explain the systematic differences in the linguistic behavior of CR-expressions, on the one hand, and paradigm context-sensitive expressions, on the other, given that they have the same general kind of semantics. The subsequent chapters take up the task of responding to various instances of this general challenge.

Taking my cue from the new data I provide, I motivate and develop an improved framework for developing a contextualist semantics and pragmatics, which I call Discourse Contextualism. The aim of Discourse Contextualism is to derive the distinctive linguistic behavior of a given CR-expression from a particular contextualist interpretation of an independently motivated formal semantics, along with general principles of interpretation and pragmatic reasoning. In using CR-expressions, speakers can exploit their mutual grammatical and world knowledge, and general pragmatic reasoning skills, to coordinate their attitudes and manage their assumptions about the context itself. Discourse Contextualism affords an independently attractive account of the meaning of CR-expressions, their distinctive roles in communication, and the role of context in their interpretation. The development of Discourse Contextualism in this book sheds light on interesting general issues concerning the varieties of context-sensitivity in natural language; the nature and origins of presupposition; the role of presupposition in collaborative action and discourse; the interactions between context and content throughout the process of interpretation; the interpretation of context-sensitive expressions in embedded contexts; the relations among logic, semantics, pragmatics, and metasemantics; the role of truth and truth-value intuitions in semantic theorizing; and the substantive normative and metaphysical assumptions of natural language.

The structure of the remaining chapters is as follows. Chapters 3–4 develop the Discourse Contextualist framework by applying it to the case of epistemic modals. These chapters constitute the core of the book. I argue that Discourse Contextualism can successfully respond to both central classes of challenges to contextualist se-
Chapter 3 focuses on capturing various discourse phenomena with epistemic modals in unembedded uses. Chapter 4 extends this account to capture various embedding phenomena with epistemic modals in attitude ascriptions, conditionals, and inferences.

Chapters 5–7 apply the Discourse Contextualist framework to several other types of CR-expressions: deontic modals, vague gradable adjectives, and (what I will call) evaluational adjectives, including predicates of personal taste, normative adjectives, and epistemic adjectives. These expressions exhibit many of the same kinds of distinctive phenomena motivating a Discourse Contextualist account. However, we will see important differences among them, in both meaning and use. How to apply the general Discourse Contextualist framework in each case is highly non-trivial. The applications in these chapters motivate attractive accounts of (e.g.) the sorites paradox and information-sensitivity, and provide perspicuous frameworks for broader theorizing about vagueness and normativity in language and thought. Discourse Contextualist semantics and pragmatics provide the basis for more comprehensive philosophical theories.

Finally, an Appendix lays out my preferred taxonomy for a range of invariantist, contextualist, and relativist views.

My primary aims in this book are twofold. First, most work on CR-expressions has been piecemeal, addressed to a particular class of expressions. Proceeding in this way runs the risk of drawing hasty generalizations, missing out on others, and producing a theory that is ill-equipped to capture the broader spectrum of examples. It isn’t for no reason that similar moves have been made in the literatures on epistemic modals, predicates of personal taste, gradable adjectives, etc. These expressions exhibit many of the same distinctive linguistic properties which have led to these parallel dialectics — hence the label ‘CR-expression.’ However, my use of this label shouldn’t mislead: it doesn’t presuppose that the expressions ultimately comprise a distinctive lexical class. We should insist on a unified account of CR-expressions — or, better put, at least an account which captures as much commonality among them as the data allows. But first we need a better understanding of what exactly the relevant data is. We need a more systematic investigation of the range of CR-expressions. A central aim of the present project is to take up such an investigation. Taking on this more demanding goal provides a richer set of data for adjudicating among theories. This includes data concerning similarities and differences among CR-expressions, as well as among context-sensitive expressions more generally. The investigation of CR-expressions in this book can thus be seen as part.

A notable exception is John MacFarlane’s work (see his 2014 for a collection of applications).
of the larger body of recent research — not only in philosophy of language but also various subfields of linguistics and computer science — on the varieties of context-sensitive language and the role of context in interpretation.

That said, I won’t be able to consider every construction which has been subject to recent contextualism/relativism debates here. For instance, there are also indicative conditionals and ‘knows’. These connect naturally with epistemic modals, but I won’t examine these connections here. And though I consider certain categories of epistemic, normative, and vague language, I ignore others. I leave further applications and generalizations of the the accounts offered here for elsewhere.

Canvasing the wider array of data can help clarify precisely what the relevant challenges for different views are, and thereby delineate better motivated paths for the dialectic to take. The second aim of the book is to begin the task of advancing the dialectic so conceived. I won’t be arguing that no alternative contextualist or non-contextualist theory can get the data right — although ways in which the proposed Discourse Contextualist account improves upon its rivals will be indicated as points of contrast are made salient. My primary aim is constructive. It is to develop a contextualist theory which improves in overall empirical coverage and explanatory power, and to begin to investigate the theory’s prospects. This inquiry can help delineate the advantages and burdens of contextualism going forward and provide a more appropriate basis for theory comparison.

I will argue that Discourse Contextualism meets various challenges often thought devastating for contextualism, and does so utilizing only independently attested aspects of conventional meaning and general principles of interpretation and pragmatic reasoning. This should be of interest to theorists who are compelled by the thought that the interpretation of CR-expressions seems to depend, in some sense, on context, but who also have reservations about the revisions introduced by relativist, expressivist, and dynamic accounts. (I suspect that many (most?) theorists fall into this camp.) Though I find some of the commonly cited reservations to be misplaced, these alternative accounts do face certain non-trivial burdens — for instance, for the invariantist, to provide positive evidence for thinking that it is part of the conventional meanings of CR-expressions that the world of evaluation determines a particular information state, standard, etc.; for the relativist and expressivist, to provide accounts of propositions, assertion, belief, and truth, and to justify the revisionary logics often generated by their semantics. Some of these burdens have begun to be addressed, but accounts are often admittedly incomplete.

In sum, Discourse Contextualism promises an empirically adequate and theoretically attractive account of the meaning and use of (at least some) CR-expressions. The resulting account sheds light on more general features of meaning and commu-
nication, and provides a fruitful framework for theorizing about broader philosophical issues, as in philosophy of language, metaphysics, normative and metanormative theory, logic, and philosophy of mind. I leave additional developments, as well as more direct comparison with its main rivals, for future research.
Part I

Discourse Contextualism: An Application to Epistemic Modals
Chapter 2

Accommodation and Negotiation with Context-Sensitive Expressions

“I am not I: thou art not he or she: they are not they.”

Evelyn Waugh

I noted in Chapter 1 that there are two central classes of data often thought problematic for contextualism: data concerning the behavior of CR-expressions in discourse disagreements, and data concerning the interpretation of CR-expressions in various embedded contexts. This chapter begins our investigation of CR-expressions in discourse by examining the former class of data. For concreteness I couch the discussion in terms of epistemic modals, i.e. epistemic uses of modal verbs, like ‘may’, ‘might’, ‘must’. Other types of CR-expressions will be considered in later chapters.

§2.1 presents a standard version of the objection from discourse disagreement — contextualism’s “Achilles’ heel” (MacFarlane 2014: 118), according to some. §2.2 considers several strategies of reply common in the literature, but argues that they are insufficient. The depth of the problem raised by disagreement phenomena has not been adequately appreciated by contextualists. As a way toward a more adequate solution, §2.3 provides new data illustrating that the same sort of seemingly problematic disagreement phenomena found with CR-expressions can also arise with paradigm context-sensitive expressions. §2.4 assesses the dialectical import of the cases I provide for developments of contextualism. §2.5 motivates a diagnosis of the broader spectrum of discourse disagreement examples. This elucidates the structure

†Brideshead Revisited, Author’s Note
of a more successful contextualist account. Developing this account forms the task of the remainder of the book.

2.1 Epistemic modals and discourse disagreement

Epistemic modals are interpreted — in some sense sense to be further specified — with respect to a body of information (evidence, beliefs, knowledge, etc.; differences in which epistemic relation is relevant won't matter in what follows). Sometimes this body of information is made linguistically explicit, like in (1).

(1) In view of Sally’s evidence, the butler might be the killer.

The phrase ‘in view of Sally’s evidence’ specifies that it is Sally’s evidence that figures in the interpretation of ‘might’. Roughly, (1) says that Sally’s evidence is compatible with the butler’s being the killer. Other times no particular body of information is explicitly specified, like in (2).

(2) The butler might be the killer.

Following common usage, call sentences like (2) bare epistemic modal sentences; and call epistemic modals that occur in such sentences bare epistemic modals. It is bare epistemic modals that will be the focus of the following chapters. Unless otherwise noted, by ‘epistemic modal’ I will mean “bare epistemic modal,” and by ‘epistemic modal sentence (utterance, assertion, claim)’ I will mean “bare epistemic modal sentence (utterance, assertion, claim).”

Our evaluations of epistemic modal sentences depend on what our epistemic state is like. (2) can seem acceptable if you don’t know whether the butler is the killer but unacceptable if you know that he isn’t. Contextualists and relativists, in contrast to invariantists, claim that this dependence of our evaluation of epistemic modal sentences on our epistemic state derives from a dependence of the interpretation of epistemic modals on a contextually relevant body of information. They agree that the truth value of an epistemic modal sentence can vary across parameters of interpretation (contexts of utterance, circumstances of evaluation, contexts of assessment) even if everything else in the world remains constant.

Contextualists claim that this context-dependence, broadly construed, is to be understood as a dependence of the semantic (conventional) content of an epistemic modal sentence on features of the context of utterance, those features that determine some contextually relevant body of information. Contextualism treats
as context-sensitive in the same kind of way as sentences with paradigm context-sensitive expressions. What information is conveyed by (3) depends on which female is most salient in the discourse context.

(3) She won a medal.

In a context where Anna is most salient, (3) communicates that Anna won a medal; but in a context where Betty is most salient, (3) communicates that Betty won a medal. Likewise, according to contextualism, in a context where Annette’s information $i_A$ is relevant, (2) communicates (roughly) that $i_A$ is compatible with the butler’s being the killer; but in a context where Ben’s information $i_B$ is relevant, (2) communicates (roughly) that $i_B$ is compatible with the butler’s being the killer. What (2) conventionally communicates, and hence whether it is true or false, depends on what information is relevant in the discourse context.¹

Contextualism treats a particular body of information determined by the context of utterance as figuring in the truth conditions of an epistemic modal sentence. So, to give a proper account of the meanings of epistemic modals in context, the contextualist must provide a general account of what body of information is supplied as a function of the context of utterance and figures in deriving semantic content. The putative problem is that there doesn’t seem to be any way of specifying the contextual

¹I will use terms like ‘conversation’, ‘discourse’, ‘utterance’, etc. broadly, so as to include uses of language in texts and in individual deliberation, and not simply in spoken dialogue. For the moment I gloss over differences between sentences-in-context and utterances; my talk about the semantic properties of utterances can be understood as short for talk about the semantic properties of the sentences uttered in the contexts of those utterances. I return to the importance of the distinction in §3.6.

By ‘contextualism’ I will mean “Utterance Contextualism” in the sense of the Appendix — also called ‘indexical relativism’ (WRIGHT 2001, KÖLBEL 2003, DREIER 2009), ‘revisionism’ (KÖLBEL 2002), and ‘indexical contextualism’ (MACFARLANE 2007b). To a first approximation, by ‘relativism’ I mean the view that no particular body of information figures in the semantic content of an epistemic modal sentence, and that epistemic modal sentences in context (or token epistemic modal utterances) can have different truth values relative to different assessors in the same world. I characterize a more precise typology of views in the Appendix (see also §§3.6, 4.3). See note 1 for references. In the literature on pragmatic enrichment, ‘contextualism’ refers to the view that context affects asserted content in ways that go beyond supplying values for free variables and other semantically context-sensitive material in the syntax (e.g., RECANATI 1993, 2004, BACH 1994, SPERBER & WILSON 1996, TRAVIS 1997, BEZUIDENHOUT 2002, CARSTON 2002, SOAMES 2009; see STANLEY 2000 for the classic critique). Since such views would assimilate the context-sensitivity of CR-expressions to an alleged radically general context-sensitivity in language, I won’t be considering them in this manuscript (cf. also LUDLOW 2014). I use ‘contextualism’ to refer to the more circumscribed view described in the main text.
ally relevant information that explains both (a) how we’re in a position to make the epistemic modal claims that we seem licensed in making (call it the justified use condition), and (b) how we can reasonably disagree with one another’s epistemic modal claims (call it the disagreement condition).

Suppose a class test is coming up. Alice is unsure when it is, so she decides to ask Bert. The following dialogue ensues:

\((4)\) Alice: When is the test?
Bert: I’m not sure. The test may be on Monday.
Alice: No, the test can’t be on Monday. The teacher never gives tests right after the weekend. It must be later in the week.

What body or bodies of information should the contextualist say figures in the contents of Bert’s use of epistemic ‘may’ and Alice’s use of epistemic ‘can’t’ and ‘must’?

Suppose, first, that Bert’s utterance of \((5)\) is just about his own information.

\((5)\) The test may be on Monday.

Assuming Bert is in a position to make a claim about his epistemic state, this captures how Bert is justified in making his epistemic modal utterance. But it becomes unclear how Alice can reasonably disagree with him. And it becomes unclear how in uttering \((6)\) Alice is disagreeing with Bert, given that they are making claims about their respective information.

\((6)\) No, the test can’t be on Monday.

Let \(m\) be the proposition that the test is Monday. Alice and Bert can agree about whether \(m\) is compatible with their respective information states while disagreeing with what one another says. Alice’s linguistic denial in \((4)\) is felicitous, whereas B’s in \((7)\) is not.

\((7)\) A: In view of Bert’s evidence, the test may be on Monday.
B: #No, in view of Alice’s evidence, the test can’t be on Monday.

This puts pressure on the claim that \((8)\) and \((9)\) explicitly specify the semantic con-
In view of Bert's evidence, the test may be on Monday.

In view of Alice's evidence, the test can't be on Monday.

Suppose instead that we treat epistemic modal claims as claims about the pooled information of a relevant group. Then we can capture how Alice and Bert make inconsistent claims. But it becomes unclear how Bert is in a position to make a claim about whether the test may be on Monday, which, intuitively, he is. It can be appropriate for Bert to utter (5) even if he doesn't know whether Alice is uncertain about m.

In sum, the objection from disagreement is that if we treat epistemic modal utterances as about the speaker's information (“speaker contextualism”), we capture the justified use condition but leave the disagreement condition unexplained; but if we treat epistemic modal utterances as about the pooled information of a larger group (“group contextualism”), we capture the disagreement condition but leave the justified use unexplained. There seems to be no general way of specifying what body of information is relevant as a function of context that captures all our intuitions. In using epistemic modals speakers express their states of mind and manage which possibilities are treated as live. A contextualist semantics seems ill-suited to capture this. Or so the objection goes.

Before proceeding I would like to make several clarificatory remarks on the scope of the present discussion of agreement and disagreement. First, following the consensus I assume that there is a disagreement between the speakers in dialogues such as (4), and moreover that there is some aspect of the disagreement that needs to be explained by a linguistic theory. This isn't to say that a linguistic theory needs to give a general philosophical account of the nature of disagreement. We won't be attempting to provide any such thing. Of course not all disagreements are verbally expressed in linguistic exchanges. (Inter-conversational disagreements will be considered in §3.4.2.) But for our purposes we can focus on a certain discourse phenomenon: the licensing of expressions of linguistic denial (in English, ‘no’, ‘nope’, ‘nu-uh’, etc.) in discourses such as (4). These expressions signal the speaker's discourse move of rejecting (denying, objecting to) some aspect of the previous utterance. Not all cases in which speakers intuitively disagree can be marked in this way. B's “disagreement in attitude” with A in (10) couldn't typically be signaled with a linguistic denial.

(10) A: I like Mexican food.
    B: #No, I don't. I like Thai.
Our task is to generate a representation of discourses like (4) that correctly predicts the felicity of expressions of linguistic denial and the discourse moves they mark.

Second, in calling discourses like (4) ‘disagreements’ I am not making any theoretical assumptions about at what level the disagreement ought to be explained. My usage is compatible with semantic or pragmatic explanations. A common way to explain why linguistic denial is licensed is to posit that the semantic or asserted contents of the speakers’ utterances are incompatible. Indeed, such a view was implicit in the standard worry for speaker contextualism noted above. However, no such specific account of disagreement is built into the data itself to be explained. Alternative explanations are possible, at least in principle (and, I will argue, not merely in principle).

Third, many authors have expressed the intuition that discourse disagreements like (4) are in some sense “faultless.” Saying that Alice and Bert disagree doesn’t itself imply that one of them must be making a cognitive mistake. Yet nothing in the above characterization of the objection to contextualism, or in the discussion to follow, requires taking a stand on this issue one way or the other.

2.2 Insufficient replies

The epicycles from here are involved. I will spare the reader many of the details (see n. 2). I will simply consider two possible lines of reply. I mention these specifically because I think there is something importantly right about them, though they are insufficiently explanatory as they stand. The positive contextualist account to be developed in this book can be understood as attempting to capture the intuitions driving these responses in a more rigorous, explanatory way.

2.2.1 The varieties of linguistic denial. Metacontextual negotiation

A common contextualist strategy is to try to explain disagreement phenomena pragmatically, in terms of non-conventional aspects of the use of epistemic modals. Many contextualists note that denials can target various non-truth-conditional aspects of utterances — e.g., presuppositions, implicatures, aspects of linguistic form, salient or topical propositions, or non-linguistic changes in the conversational situation.⁴

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B’s denial in (11) targets a presupposition of A’s utterance, and B’s denial in (12) targets a scalar implicature.

(11)  A: The king of France was at the awards ceremony.
     B: No, there is no king of France.

(12)  A: Sally won two medals.
     B: No, she won three.

So, the speaker contextualist might say that the proposition targeted by Bert’s denial in (4) isn’t Alice’s “autobiographical report” — the semantic content of her utterance — but rather “the proposition that he would have asserted by uttering the same sentence” (Björnsson & Finlay 2010: 20). One might say that even though, semantically, Bert’s utterance in (4) just makes a claim about his own information, the primary implication he intends to convey is a pragmatically related proposition to which Alice is licensed in objecting. (We can bracket what type of implication this might be, e.g. implicature, presupposition, etc.) One candidate is an implication that Alice’s information state ought to be as Bert’s is. It is this implication, the reply continues, which is felicitously targeted by Alice’s denial. In uttering (5) and (6), Alice and Bert “pragmatically advocate” (Plunkett & Sundell 2013a) for their respective information.

Contextualists have been right to emphasize that incompatibility of conventionally asserted content isn’t necessary for discourse disagreement. I am sympathetic with the informal impression that in dialogues like (4) the interlocutors are disagreeing about what sort of context to be in — specifically, about what possibilities to treat as live in the conversation. Intuitively, Alice and Bert are disagreeing, not about whether the test’s being Monday is compatible with such-and-such body of information, but rather about what the operative body of information is to be. Simply noting this, however, is insufficient. The question isn’t whether such “metacontextual” or “discourse-oriented” negotiations are possible. The challenge is to explain why they are so systematic with epistemic modals, given that a contextualist semantics is correct. The force of this challenge has gone underappreciated by contextualists.⁵

The above contextualist line of reply turns on positing that the implications systematically targeted by linguistic denials — and affirmations, for that matter — in discourses with epistemic modals are implications other than the utterances’ semantic contents. However, surprisingly little attention has been given to what specific mechanisms are responsible for this, or how these mechanisms are linguistically constrained (see n. 5) — i.e., how the (dis)agreement phenomena can be derived from the specific semantic contents, general conversational principles, and general features of contexts of use. This raises the question, first, why the alleged (non-semantic) implications follow so systematically. When an utterance of ‘ϕ’ systematically triggers the specific implication that ψ, we typically expect this implication to be derivable from some aspect of the conventional meaning of ‘ϕ’ (perhaps along with general features of contexts of use). It is unclear which aspect this would be with epistemic modals, given that they make ordinary descriptive claims about the information of the speaker or a relevant group. ‘I’m hungry’ doesn’t (systematically) trigger an implication that the addressee ought to be hungry.

Second, it is puzzling why the putative implications associated with epistemic modal utterances should be specifically normative in nature. According to contextualism, epistemic modal sentences have ordinary representational contents; they have a mind-to-world direction of fit. Even if we find examples of ordinary descriptive claims sometimes having normative implications — consider ‘It’s cold in here’ ↝ ‘You should shut the window’ — it’s not as if they systematically carry those particular normative implications across uses. Why, then, should descriptive claims about one’s information systematically communicate normative claims about what information to accept?

Simply appealing to linguistically unconstrained pragmatic mechanisms obscures the contrasts between epistemic modals and paradigm context-sensitive expressions (more on which shortly). When speakers use paradigm context-sensitive expressions with different intended asserted contents, the norm isn’t disagreement, but talking past. Denials like B’s in (13)–(14) are typically infelicitous.

(13) A: I’m hungry.
    B: #No, I’m not hungry.

(14) A: That is a cute baby. [said demonstrating b]
    B: #No, that isn’t a cute a baby. [said demonstrating b’]

‘I’m hungry’ doesn’t systematically trigger an implication that the addressee ought to be hungry. ‘That [demonstrating b] is a cute baby’ doesn’t systematically trigger an implication that the addressee ought to be demonstrating b. One is left wondering
why the assumed pragmatic mechanisms which license linguistic denials with epistemic modals couldn't (and systematically don't) also apply with paradigm context-sensitive expressions. Why would the semantic contents of epistemic modal utterances, unlike other utterances, typically not have main point status? Why, with epistemic modals, would speakers systematically assert propositions they don't have a "fundamental interest" in (Finlay 2014b: 133; cf. 2014a: 147–150, 184–188, 217–222)? The distinctiveness of epistemic modals' behavior in discourse still needs to be explained.

2.2.2 Epistemic modals in a language game

This section describes a contextualist response inspired by Keith DeRose's (2004, 2009) "Single Scoreboard Semantics," which is itself inspired by David Lewis's (1979b) notion of the "score" of a conversation (cf. Zeevat 1997).

In his seminal “Scorekeeping in a Language Game” David Lewis proposed that a conversational context and its evolution over time can be modeled on analogy with a sports game. There are facts about a conversation that bear on the interpretation and felicity of utterances, facts which are themselves affected by utterances and other changes in the context. These facts can be represented by an abstract structure, or “scoreboard,” which includes various contextual parameters. Just as sections on a scoreboard change as the game progresses, contextual parameters can take on different values over the course of the conversation. Changes in these parameter values can be used to model the evolution of the conversation.

One important component of the conversational score is the common ground — roughly, the set of propositions that the conversational participants take for granted for the purposes of the conversation (Stalnaker 1978, 2014, Clark 1996). A related notion is the context set, the set of possible worlds in which all the propositions in the common ground are true. This represents the “live possibilities” in the conversation, the possibilities among which the participants intend to distinguish. Including the common ground in the score captures a crucial goal of conversation: to share information, to figure out how the world is. We winnow down the context set as we share information and settle on a more complete picture of the world. A not implausible move is to treat epistemic modals as interpreted with respect to this discourse-level body of information.

Interpretation is often a joint project. This point is nicely highlighted by the scoreboard model. Though each conversational participant may have a particular view of what ought to be accepted in the conversation, there is, at any point in the discourse, a single scoreboard that represents the information that is treated as rel-
evant in the conversation. It is this single body of information that figures in the interpretation of Alice and Bert’s uses of epistemic modals. Bracketing for the moment exactly how this context-sensitivity is built into the syntax and semantics, we might represent the truth-conditional contents of Bert’s and Alice’s respective utterances as in (15), where CG is the common ground and m is the proposition that the test is Monday.

(15) a. CG is compatible with m  
b. CG is incompatible with m

So, since CG figures in the contents of both Alice’s and Bert’s utterances, Alice denies what Bert says (cf. DeRose 2004: 6).

This is a tidy reply, perhaps too tidy. The scoreboard model is just that — a model. It must be given an interpretation. On a contextualist interpretation of the scoreboard model, the value of the common ground parameter helps determine the semantic contents of epistemic modal sentences in context.⁶ This parameter represents the mutually accepted information of the conversational group. So the question remains how Bert is in a position to make a claim about whether the test may be on Monday, given that he doesn’t know whether Alice is uncertain about m. And, assuming that Alice infers from Bert’s utterance that he doesn’t accept that the test won’t be Monday, it remains unclear how she could (take herself to) be saying something true.⁷ The difficulties from §2.1 persist in full force.

Again, there is an intuition that Alice and Bert are disagreeing about or negotiating over what body of information ought to figure in the conversational score (n. 5). The challenge for contextualism is to capture this given its semantic claim that a particular body of information figures in the content of an epistemic modal sentence. Why should uttering a sentence which conventionally describes what possibilities are live in the conversation systematically communicate something about what possibilities ought to be treated as live? Merely introducing the scoreboard apparatus leaves this challenge untouched.

⁶A non-contextualist alternative would be to treat the contents of epistemic modal sentences as abstracting over the common ground parameter. See the discussion of Relativist Semantics + Pragmatics in the Appendix.

⁷Going for a “gap” view, according to which Alice’s and Bert’s utterances are truth-valueless, raises additional challenges. DeRose claims that in disputes like these the one speaker is “denying the very same gappy thing that [the other speaker] is affirming” (2004: 16). However, the pragmatics for partial semantics that I am aware of either treat an assertion of ‘ϕ’ as false or treat ‘ϕ’ as unassertable when it lacks a truth value (e.g., Beaver & Krahmer 2001, von Fintel 2008). Perhaps some other pragmatics would be more suitable to DeRose’s purposes.
2.2.3 Recap

The contextualist strategies considered in this section are insufficient as they stand. Yet they highlight a crucial role of epistemic modals in discourse and inquiry. Intuitively, in uttering \( (5) \) Bert proposes that the test’s being Monday be treated as a live possibility in the conversation. If Alice doesn’t object — if she *accommodates* — then the conversational common ground is set as Bert’s utterance requires. But if Alice does object, then *negotiation* can ensue about when the test is (cf. Richard 2004, 2008, following Lewis 1979b). Call these properties of epistemic modals — how epistemic modals are used to manage what information is accepted and what possibilities are treated as live in the conversation, how the conversational context affects the interpretation of epistemic modals, and how using epistemic modals changes the context and hence the interpretation of subsequent uses — the *discourse properties* of epistemic modals. The worry pressed in this section is that these distinctive discourse properties of epistemic modals are unexpected given the contextualist’s semantics. Appreciating the force of this worry brings into view what a more adequate contextualist account will need to explain. We need a more explanatory contextualist account of the role of context and pragmatic reasoning in generating the distinctive discourse properties of epistemic modals.

The overall consensus is that the objection from discourse disagreement is devastating for standard versions of contextualism. Here is John MacFarlane:

> There’s widespread agreement nowadays that the standard contextualist account of epistemic modals faces a serious problem, and there’s even agreement about what that problem is… Bert is entitled to make his original speech act if his information is consistent with the test’s being on Monday… Alice is entitled to reject Bert’s utterance on the basis of her information that the test is not on Monday… These are the judgements that standard contextualism cannot well explain. (MacFarlane 2010: 1, 11; adapted for the present example)

> All [contextualist theories] face the same basic problem… [A]lthough the truth of a claim made using epistemic modals must depend somehow on what is known — that is what makes it “epistemic” — it does not seem to depend on any particular body of knowledge. There is no way to account for this in the framework of contextualism, which requires that the relevant body of knowledge be determined by features of the context of use. (MacFarlane 2014: 248)
Likewise Egan et al. (2005: 149) conclude that “any version of contextualism faces serious problems.” But I am more optimistic. In the following sections I will present new data that motivates an improved contextualist account. I would like to take a step back from discourse disagreements with CR-expressions, and examine agreement and disagreement phenomena more generally. Perhaps better understanding the role of context and context-sensitive language in collaborative action will shed light on the role of CR-expressions in managing the state of the context.

2.3 Accommodation and negotiation with paradigm context-sensitive expressions

Discussions of disagreement with CR-expressions typically start by considering examples with the following structural features: (a) A utters a sentence with a CR-expression, (b) B felicitously responds with an expression of linguistic denial (‘no’, ‘nu-uh’, etc.) followed by an utterance of an apparently inconsistent sentence using the same CR-expression (or a corresponding dual, as in (4)), and yet (c) the intended contents of A’s and B’s utterances are compatible according to (an initial version of) the contextualist’s semantics. It has been assumed by all parties in the literature that with paradigm context-sensitive expressions, by contrast, if the (c)-condition is satisfied, then the (b)-condition is violated; that is, it has been assumed that if the expressions are used with different intended contents, then linguistic denial isn’t licensed for the second speaker. This assumption has not been made without reason. Unlike Alice’s reply in (4), Dan’s replies in (16)–(18) with pure indexicals, definite descriptions, pronouns, and quantifiers (to take just four examples) are infelicitous.

(16)  Clara: I just finished teaching.  
      Dan: #No I didn’t.

(17)  [Context: Clara and Dan see a group of students exiting a classroom. Another group of students is waiting to enter.]  
      Clara: Look, the students (/they) just finished the test.  
      Dan: #No, the students (/they) didn’t just finish. They haven’t even started.

(18)  Clara: Every student is taking the test today.  
      Dan: #No, not every student is taking it today. Students in other classes aren’t taking it at all.

Though Clara and Dan use the same expressions in these examples (‘I’, ‘the children’,

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8Much of the material in §§ 2.3–2.4 is drawn from NLK 2014a
‘they’, ‘every student’), they are talking about different individuals (as in (16)) and different groups of students (as in (17)–(18)). Clara and Dan aren’t disagreeing, nor are they negotiating about how the context is. They are simply talking past one another.

However, closer inspection reveals that many paradigm context-sensitive expressions exhibit the same sort of discourse behavior that we saw with epistemic modals. This hasn’t been noticed in the literature.

Start with definite descriptions. Suppose that Amanda and Billy are playing with three children, two white and one non-white. Amanda is a racist against non-whites, and Billy knows this. The two white children, Will and Wilma, are laughing, and the one non-white child, Nick, isn’t. Amanda says:

(19) Look, the children are laughing!

Roughly, (19) says that everyone in the most salient group of children is laughing (Lewis 1973, 1979b, von Heusinger 1997, 2000, Schlenker 2004). So, insofar as Amanda intends to say something true, it is mutually obvious that she is assuming that the most salient group of children includes only Will and Wilma. Since it is mutually accepted that there would be no non-racist grounds for treating Nick as less salient than Will and Wilma, Amanda’s utterance of (19) thus implicitly suggests that “we aren’t talking about Nick” because of his race. Indeed it is the implicit nature of this suggestion that can make it so destructive. If Billy doesn’t object to Amanda’s utterance, he will accommodate her in her assumption that Nick’s not being white is a sufficient reason not to be talking about him. This can set the stage for further exclusionary behavior in the future.

To avoid such a consequence, Billy might object by explicitly calling out Amanda on her assumption; he might say something like, ‘Wait a minute, why are you ignoring Nick?’ But Billy needn’t be so explicit; he might respond as in (20).

(20) No, the children aren’t laughing. Nick is bored out of his mind.

Insofar as Billy intends to say something true, it is mutually obvious that he intends his use of ‘the children’ to pick out a group that includes Nick. In uttering (20) Billy responds by acting in a way which assumes that Nick is included in the group of children under discussion. Billy can thus respond to Amanda with an utterance that makes a contrary implicit proposal: that Nick isn’t to be ignored because of his race. At this point Amanda also has several options. Recognizing the reasons for Billy’s disquiet, she might grant that Billy is right. It can then become taken for granted that there are no legitimate grounds to exclude Nick from the group being discussed.
But Amanda might not be so accommodating. This can lead to (implicit or explicit) negotiation about what group of children is salient and why.

Similar examples can be given with pronouns and demonstratives. In the context for (19), Amanda might instead have uttered (21) or (22).

(21) Look, they are laughing!
(22) Those are some happy children!

Roughly, (21) says that everyone in the most salient group of individuals is laughing (Grosz et al. 1995, Roberts 2003), and (22) says that everyone in the group of individuals being demonstrated is a happy child (Kaplan 1989, Siegel 2002). As above, insofar as Amanda intends to say something true, it is obvious that she is assuming that the most salient group of individuals, or the group of individuals being demonstrated, doesn't include Nick. Since it is mutually accepted that there would be no non-racist grounds for excluding Nick from the set of most salient or demonstrated individuals, Amanda utterances in (21)–(22) implicitly suggest that Nick is somehow inferior on account of his race. To avoid accommodating Amanda in this assumption, Billy might object by explicitly calling her out on it. But he need not. He might respond as in (23)–(24).

(23) No they aren't. Nick is bored out of his mind.
(24) No, those are a mix of happy and unhappy children.

As above, insofar as Billy intends to say something true, it is obvious that he is intending his use of the pronoun or demonstrative to pick out a group that includes Nick. By uttering (23)–(24) and acting in a way which assumes that Amanda's assumption is false, Billy issues a contrary implicit proposal — namely, that Nick isn't to be ignored because of his race. This can lead to (implicit or explicit) negotiation about which individuals are being talked about and why.

Now turn to quantifiers.⁹ Consider Chip, a well known sexist in America before the ratification of the Nineteenth Amendment. Commenting to Dorothy on the glories of American democracy, Chip says:

(25) Ain’t America great? Everyone can vote.

Roughly, (25) says that every relevant individual in America can vote — a bit less

⁹One could recast (19)–(20) using ‘all the children’. But since, Logic 101 aside, it is contentious whether ‘all’ is quantificational (Lasersohn 1999, Brisson 2003), I give a different example for ‘every’.
roughly, that every individual in America who has a moral right to vote is legally allowed to vote. Insofar as Chip intends to say something true, it is mutually obvious that he is assuming that women aren’t in the class of Americans who have a moral right to vote. To avoid accommodating Chip in this assumption, Dorothy might object by addressing the issue explicitly; she might say something like, ‘Wait a minute, why are you ignoring women?’ But Dorothy needn’t be so explicit. She might respond as in (26).

(26) No, not everyone can vote. I still can’t.

Insofar as Dorothy intends to say something true, it is mutually obvious that she intends her use of ‘everyone’ to quantify over a domain which includes women. By uttering (26) and acting in a way which assumes that Chip’s assumption is false, Dorothy issues a contrary implicit proposal — namely, that women aren’t to be excluded from the conversationally relevant domain of individuals. This can lead to (implicit or explicit) negotiation about which individuals ought to be given a legal right to vote.

One might object that there is a potential disanalogy between these examples and the discourse disagreements with CR-expressions. Take (19) – (20) and definite descriptions. Suppose the semantic value of ‘the children’ in (19) is determined partly by factors other than Amanda’s communicative intentions in such a way that Amanda is incorrect about which children are salient, and hence mistaken about the content of her assertion. Then Amanda’s and Billy’s utterances address the same question — whether Nick, Will, and Wilma are laughing — and the contents of their utterances are incompatible. Amanda is simply saying something false. (Mutatis mutandis with (21) – (26) and pronouns/salience, demonstratives/demonstrations, and quantifiers/domain restriction.)

In reply, note that nowhere in the above characterizations of the examples did I make assumptions about the actual contents of the speakers’ utterances. Perhaps surprisingly, for present purposes we needn’t take a stand on whether (e.g.) Amanda’s utterance of (19) is true or false. Given the standing conversational assumption that Amanda is being cooperative and obeying the conversational maxims (Grice 1989), Amanda’s utterance assumes that she and Billy occupy a context $c_A$ which deter-

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10 Similar examples can be constructed with gradable adjectives, relational expressions (‘enemy’, ‘local’), and neutral modal verbs (‘may’, ‘must’), among others. Since it is contentious whether the context-sensitivity of these expressions ought to be analyzed along contextualist or relativist lines, I won’t give such examples here. It is an interesting question whether these sorts of examples can be constructed with any paradigm context-sensitive expression. I briefly return to this issue in §2.3.
mines the group consisting of Will and Wilma as the semantic value of ‘the children’.

In conversation we keep track of information not only about the subject matter of the conversation, but also about the conversation itself and the conversational situation. Hence the worlds in the context set will fix facts about the conversational participants, the extra-linguistic context, and the semantic values of expressions. So, if Billy doesn’t object, one effect of Amanda’s utterance is that the context set will be updated to include only worlds $w_{cA}$ in which the concrete conversational situation is as her utterance assumes, and in which the content of her assertion is (roughly) that Will and Wilma are laughing. Similarly, one effect of Billy’s utterance of (20), if Amanda doesn’t object, is that the context set will be updated to include only worlds $w_{cB}$ in which the concrete conversational situation determines that the content of his assertion is (roughly) that it’s not the case that Nick, Will, and Wilma are all laughing. For present purposes we can leave open whether the actual world is among the $w_{cA}$ worlds or among the $w_{cB}$ worlds. What is important is that, as far as Amanda and Billy may be concerned, the intended contents of their assertions are compatible, and yet they disagree. (We will return to these points concerning (meta)semantics and truth-value judgments extensively in the following chapters.)

In any case, what is important for the moment is less the correct account of what is going on these examples, and more what we can learn from them in motivating an improved contextualist account of CR-expressions. Diagnoses and analyses will follow in due course.

2.4 A way forward

Call the examples from §2.3 the PCS-examples ("PCS" for Paradigm Context-Sensitive). The PCS-examples show that we see the same patterns of accommodation and negotiation with paradigm context-sensitive expressions as we do with CR-expressions. One might take this as providing surprising new evidence for relativism’s sovereignty in the realm of context-sensitivity. I suspect I am not alone in thinking that we should be wary of this response. A more judicious response is to reexamine the data. Who knows, perhaps there are insights about the role of context-sensitive language in collaborative action and discourse that we have been missing. In this spirit I would like to draw two lessons — one for the relativist, one for the contextualist.

The initial worry for speaker contextualism, recall, was that it predicts that the

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11 The fact that Amanda and Billy disagree doesn’t imply that they aren’t engaged in a "cooperative" conversation, in the sense relevant for interpreting their utterances. Rejection and denial are compatible with Gricean cooperativity (Asher & Lascarides 2013, pace Finlay 2014a: 124, 180).
contents of Alice’s and Bert’s utterances in (4) are compatible, and hence it fails to capture how Alice’s linguistic denial is licensed and how Alice and Bert disagree. The PCS-examples demonstrate that this is inference is problematic. It cannot be a general requirement for discourse disagreement that the (intended) contents of the speakers’ utterances be incompatible. The interlocutors in the PCS-discourses disagree even though they are talking about (or at least intending to talk about) different people. This puts pressure on the relativist who wishes to wield disagreement data against contextualism to show that the disagreements ought not be explained in some alternative manner that is consistent with a contextualist semantics.

Correspondingly, the PCS-examples give the contextualist a place to look for a solution to their problems with disagreement. Perhaps by examining what is going on in the disagreements with paradigm context-sensitive expressions we can learn something about the discourse properties of CR-expressions, and, more generally, about how expressions with a contextualist formal semantics can be used in managing the conversational context itself. This possibility should give the contextualist a license for optimism. But it also raises a challenge. Not only must the contextualist provide a positive account of what is going on in PCS-style examples; she must also provide a formal semantics for CR-expressions that meets the following constraints. On the one hand, the semantics must be similar enough to that of paradigm context-sensitive expressions so that the explanation of disagreement cases with the latter expressions carries over to disagreements with CR-expressions. On the other hand, the semantics cannot be too similar lest she fail to capture certain differences in the discourse properties of the two classes of context-sensitive expressions. For instance, even if paradigm context-sensitive expressions can figure in disagreements with the structure we are considering (§2.3), this isn’t the norm. The norm is talking past, not disagreement, as it is with CR-expressions. The contextualist’s semantics must assimilate CR-expressions and paradigm context-sensitive expressions in such a way that this semantics, along with general pragmatic principles, predicts both the similarities and the differences in how context affects their interpretation, on the one hand, and how their use affects the context, on the other.

This, in my view, is the central challenge facing contextualist theories. Its force has been widely underappreciated among contextualists (§2.2). The methodological upshot of §2.2 bears repeating. It isn’t uncommon for contextualists, when faced with putatively problematic linguistic phenomena, to respond by positing linguis-
tically unconstrained interpretive mechanisms or ad hoc pragmatic principles (e.g., Cappelen 2008, Björnsson & Finlay 2010, von Fintel & Gillies 2011b, Stalnaker 2014: chs. 6–7; see also n. 5). I view such responses as non-starters. I take it as a constraint on an adequate contextualist account of CR-expressions that it meet the relevant challenges without resorting to novel grammatical, pragmatic, or interpretive principles. This isn’t to say that no differences among CR-expressions and paradigm context-sensitive expressions should be explained by reference to specific grammatical properties of the expressions. But if we cannot explain the distinctive behavior of CR-expressions in general, as compared with paradigm context-sensitive expressions, in terms of independently attested aspects of conventional meaning, general features of contextualist semantics, and general pragmatic principles, then we should give up being contextualists.

The aim of this book is to begin the project of addressing these challenges for contextualism. I start in the next section by offering a diagnosis of the PCS-examples. I then outline one way in which the contextualist can take her cue from these examples in providing an improved account of the meaning and use of CR-expressions. This forms the basis for the contextualist theory developed in the remaining chapters.

2.5 Managing the context:
Toward Discourse Contextualism

I am sympathetic with the idea that the speakers in our discourse disagreements with epistemic modals and paradigm context-sensitive expressions are disagreeing about what sort of context to be in — what intentions to have, what to treat as salient, what possibilities to treat as live, etc. The challenge is to explain how such “metacontextual” or “discourse-oriented” disagreement is possible, and why it is so systematic with CR-expressions, given a contextualist semantics (§2.2). How can descriptive

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13 Plunkett & Sundell (2013a: 4) claim to have an aim of explaining disagreement phenomena in terms of general, independently motivated semantic and pragmatic mechanisms (cf. Finlay 2014: 246). (They focus on normative language.) However, as far as I can see, they don’t provide an account of what the specific mechanisms are or a derivation of how they generate the various phenomena. Plunkett & Sundell nicely highlight various examples of discourse disagreement over non-truth-conditional content. On this basis they claim that speakers negotiate about the values of contextual parameters, and “pragmatically advocate” for their proposed values in using (what I’m calling) CR-expressions (2013a: 13–19, 28; 2013b: 262–263, 267). But no substantive explanation is given as to how precisely this happens, given the contextualist’s semantics, or, more pressingly, why CR-expressions contrast with paradigm context-sensitive expressions in their tendency for this kind of use.
claims about groups that are salient be used to negotiate over which groups ought to be treated as salient? Why should descriptive claims about one's epistemic state be used systematically to negotiate over what epistemic state to have?

To help us answer these questions it is instructive to examine analogous non-linguistic examples. Considering examples with non-linguistic action sheds light on how context-sensitive expressions can be used in managing the state of the context itself. The discourse properties of CR-expressions and paradigm context-sensitive expressions observed in this chapter are an instance of a more general phenomenon.

Suppose it is common knowledge between Clara and Dan that several days ago she said something to him that could have been construed as rude. Clara isn't sure whether Dan took what she said that way, and, if he did, whether he is offended. She doesn't want to bring up their previous interaction explicitly since she wouldn't want to make something out of nothing. So the next time she sees Dan she acts as though everything is normal between them. She is warm and open as usual. Since Dan wasn't in fact offended by Clara's earlier remark, he responds in kind to Clara. Since Clara knows that Dan wouldn't respond this way if he was actually annoyed, and Dan knows that she knows this, etc., it becomes common ground that they are on good terms and that he didn't take her remark as rude.

Now consider a variant on the case. Suppose that Dan did in fact take Clara's remark as being rude. Though he didn't say so at the time, Clara knows he was annoyed. Nevertheless when she next sees Dan, she doesn't want to bring up their previous interaction. She wants to avoid the potential conflict if she can. So she acts as if everything is copacetic, even though she knows that it isn't. However, Dan doesn't want to go along with Clara's behavior. He could object by making their clash in attitudes explicit. He might say something like, “Why are you acting as if everything is okay between us? Don't you remember what you said?” Or perhaps, “I know you're just trying to get everything back to normal, but, listen, it isn't.” But Dan needn't object in this way. Instead he simply acts aloof. In return Clara might continue to act amiably, hoping that he will eventually respond in kind. Clara and Dan can thus manage their assumptions about the state of their relationship without explicitly raising the issue.

My point in working through these examples is to highlight how commonplace a certain sort of reasoning about context is. The appropriateness of our actions often requires that circumstances are a certain way. In acting, we can thus exploit our mutual world knowledge and general pragmatic reasoning skills to communicate information and manage our assumptions about these circumstances. This can streamline collaborative action. The lesson is this: by acting in such a way that is appropriate only if the context is a certain way, one can implicitly propose that the
context be that way. If the other party accommodates by proceeding in like manner, it can become taken for granted that the context is that way. If she doesn’t, this can lead to negotiation over the state of the context. Crucially this can all happen without explicitly raising the issue of what the context is like. I suggest that the linguistic case — the case of linguistic action, discourse, and interpretation — is a special instance of these phenomena.

Consider first an ordinary example with definites in a non-contentious context. Suppose we are babysitting two children, Gabriel and Gabriella. I am playing with them; you are watching TV, not paying attention to us. Gabriel starts laughing — while Gabriella observes my efforts unimpressed — and I wish to communicate this to you. Though Gabriel is salient to me, I know he isn’t salient to you. Yet I can utter

(27) Look, the baby is laughing!

This is because I can expect that, upon hearing my utterance of (27), your attention will also become centered on Gabriel and you will recognize my intention to refer to him. You can integrate your grammatical knowledge and knowledge about the conversational situation, and (tacitly) reason roughly as follows:

(28) “‘The F’ refers to the most salient F. No baby is most salient to me. But some baby must be particularly salient to AS, else he wouldn’t have used ‘the’. Assuming AS intends his communication to be successful, he must intend for that baby to become particularly salient to me as well. This could be either Gabriel or Gabriella. I now see that Gabriel is laughing, but Gabriella isn’t. Since AS knows this, and wouldn’t intend to communicate something false, he couldn’t have meant that Gabriella is laughing. So AS must be assuming that Gabriel is the most salient baby, and have meant that Gabriel is laughing.”

In accepting an utterance one normally accepts what the speaker committed to in uttering it. So, since it is common knowledge that I can expect you to be able to undergo some such abductive reasoning process, if you don’t object then it can become taken for granted that Gabriel is the most salient baby — indeed, that he is the most salient male. This can license your using a pronoun to refer to him, like in

(29) He must love that game!
We can then proceed as if Gabriel was maximally salient all along.\footnote{For rigorous formalizations in artificial intelligence and logic of this sort of process and the tacit reasoning behind it, see, e.g., \textsc{Thomason} 1990, 1999, \textsc{Hobbs et al} 1993, \textsc{Poesio} & \textsc{Traum} 1997, \textsc{Bunt} 2000, \textsc{Rich et al} 2001, \textsc{Stone} & \textsc{Thomason} 2002, 2003, \textsc{Asher} & \textsc{Lascarides} 2003, \textsc{DeVault} & \textsc{Stone} 2006, \textsc{Thomason et al} 2006, \textsc{Lauer} 2013. As these literatures have extensively documented, we are quite skilled at inferring one another's intended context and coordinating interpretation, action, and planning accordingly (cf. \textsc{Railton} 2009 for rich related discussion of our fluency in tacit reasoning and integrating it in action). Research in psycholinguistics also establishes the ease with which speakers coordinate on linguistic meaning and use, both at the level of individual conversations in establishing local sub-languages (entrainment) and at the level of groups and communities in establishing more stable linguistic conventions (e.g., \textsc{Clark} & \textsc{Wilkes-Gibbs} 1986, \textsc{Garrod} & \textsc{Anderson} 1987, \textsc{Garrod} & \textsc{Doherty} 1994, \textsc{Barr} & \textsc{Keysar} 2005, \textsc{Kecskes} 2008, \textsc{Djalali et al} 2011). This empirical and computational work receives further support from corpus studies indicating the rich frequency of informative presuppositions in natural discourse (e.g., \textsc{Poesio} & \textsc{Vieira} 1998, \textsc{Spenader} 2002; for general background on presupposition accommodation, see \textsc{Beaver} & \textsc{Zeevat} 2003, \textsc{Von Fintel} 2008, \textsc{Roberts} 2013, \textsc{Tonhauser} 2015, and references therein). For discussion of various philosophical motivations, see \textsc{Clark} & \textsc{Marshall} 1981, \textsc{Thomason} 1990, \textsc{Clark} 1996, \textsc{Stalnaker} 1999, 2014, \textsc{Von Fintel} 2008.)}

Rather than formalize this process (n.\textsuperscript{14}), let's simply observe its principal features. Given the grammatical properties of 'the,' a salience ordering on relevant babies must be contextually supplied in order for my utterance of \textsuperscript{27} to carry determinate information. Although the main point of my utterance is to update the common ground with the information that Gabriel is laughing, a precondition for doing so is that Gabriel be the most salient baby in the context. By acting in such a way that is appropriate only if Gabriel is the most salient baby in the context — namely, by uttering \textsuperscript{27} — I can implicitly propose that it become taken for granted that he is. We can manage our assumptions about the conversational situation — specifically, individuals' relative saliences — without discussing them explicitly.

Parallel points hold concerning Amanda's utterance of \textsuperscript{19} 'Look, the children are laughing!' from §2.3. By acting in such a way that is appropriate only if Will and Wilma are the most salient children in the context, Amanda implicitly proposes that they are. Note that my utterance of \textsuperscript{19} and Amanda's utterance of \textsuperscript{19} both implicitly propose that one child be treated as less salient. The appropriateness of my utterance requires that Gabriella is less salient than Gabriel, and the appropriateness of Amanda's utterance requires that Nick is less salient than Will and Wilma. The relevant difference in the cases lies in the grounds for the assumed salience orderings. It is this which determines the full import of our proposals and gives our (linguistic) acts importantly different meanings in their respective contexts. In the context for \textsuperscript{27} it is commonly accepted that the mere fact that Gabriel is laughing is sufficient for treating him as more salient, and that there are no other plausibly...
relevant grounds for treating him as more salient. By contrast, in Amanda’s utterance of (19) there is an alternative, more likely reason why Amanda is treating Nick as less salient, given her racism: the fact that he isn’t white. The appropriateness of Amanda’s utterance thus plausibly requires that Nick be less salient than Will and Wilma merely because of his race. It is this feature of Amanda’s utterance to which one may wish to object. Nick’s not being white isn’t a sufficient reason not to be talking about him.

So, suppose Billy responds to Amanda, as he does, by uttering (20) ‘No, the children aren’t laughing’. For reasons analogous to those above, his doing so is appropriate only if Nick is included in the most salient group of children in the context, hence only if Nick isn’t to be ignored simply on account of his race. Amanda’s and Billy’s linguistic acts thus commit them to incompatible propositions about the conversational situation. Billy’s utterance fails to accommodate Amanda’s implicit proposal about the context and exerts pressure on her to accommodate him instead. In using ‘the children’ Amanda and Billy can manage their assumptions about the very contextual features plausibly relevant to determining its content.

There is much more to be said about the dynamics of this process. We will examine it in greater detail in the next chapter when we turn to epistemic modals (see also n. 14). For now, and to motivate this discussion, I simply want to highlight a common feature of our examples from this section: Each utterance assumes a certain salience ordering on the set of relevant individuals, and then asserts something about the maximal element of this ordering. My utterance of (27) assumes a salience ordering on which G is the most salient baby, and asserts that G is laughing; Amanda’s utterance of (19) assumes a salience ordering on which W+W are the most salient children, and asserts that W+W are laughing; and so on. More abstractly, each utterance assumes a value for a certain contextual parameter, and then asserts something about the world given that value. “Metacontextual” effects arise via general pragmatic reasoning from the requirement that a value for the parameter be assumed as input to semantic interpretation.

In §2.3 I left open to what extent processes of accommodation and negotiation are possible with paradigm context-sensitive expressions. Our reflections in this section suggest that these discourse phenomena will be possible for any intuitively context-sensitive expression such that speakers can reasonably wish to have different assumptions concerning the features of context that plausibly help determine the content of a given use of that expression. This suggests a strategy for developing a contextualist account of CR-expressions. We can generalize our insights about paradigm context-sensitive expressions to yield the following structure for a contex-
tualist account of a CR-expression ‘α’

Discourse Contextualism (outline):

1. **Compositional semantics**: ‘α’ is semantically associated with a relevant contextual parameter or variable x.

2. **Interpretive constraints**: Utterances of ‘α’-sentences (a) assume that the conversational situation determines a value for x that would make the utterance appropriate, and (b) assert something about the world given this value.

3. **Discourse-oriented effects**: Assuming that speakers’ assumptions about the value of x are readily retrievable, speakers can manage the value of x by using ‘α’ — e.g., in direct affirmations and denials.

Call a contextualist account that has these components *Discourse Contextualism*. The strategy of Discourse Contextualism is to derive the distinctive linguistic behavior of CR-expressions from a particular sort of contextualist semantics — one which associates them with a relevant contextual variable (or variables) — along with general pragmatic principles. The aim of the remainder of this book is to develop this schematic outline of a contextualist semantics and pragmatics and to implement it for various CR-expressions.

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15 I treat ‘α’, ‘β’, etc. as schematic letters to be replaced with expressions of the appropriate category. I generally reserve ‘ϕ’, ‘ψ’, etc. for declarative sentences. For convenience I sometimes refer to the possible worlds proposition expressed by ‘ϕ’ by dropping the single quotes — e.g., using ‘s ∩ ϕ’ as short for ‘s ∩ [ϕ]c’, where [ϕ]c = { w ∥ϕ∥c,w = 1 }. ∥·∥ is the interpretation function, a function from (abstract) contexts c and expressions to contents, or, equivalently, from contexts, indices, and expressions to extensions. (More on the relevant notions of context in Chapter 3.) I will use boldfaced type for parameters/variables, and italics for their values in context.
Chapter 3

Discourse Contextualism I: Epistemic Modals in Discourse

“Might? aye — what’s the use of talking about might?”

The last chapter motivated a framework for implementing a contextualist semantics and pragmatics for CR-expressions: Discourse Contextualism. I begin by applying this framework to the case of epistemic modals. In this chapter I focus on the discourse properties of epistemic modals in unembedded uses — how epistemic modals are used in managing what possibilities are live in the conversation, how the conversational context affects the interpretation of epistemic modals, and how using epistemic modals changes the context and hence the interpretation of subsequent uses. Particular attention will be given to discourse disagreement, though we will see a variety of ways in which the use of epistemic modals both affects and is affected by the discourse context. The next chapter extends this Discourse Contextualist account to capture the distinctive behavior of epistemic modals in various embedded contexts. Discourse Contextualism constitutes an improved contextualist semantics and pragmatics for epistemic modals.

The structure of the chapter is as follows. §§3.1–3.2 develop the basics of a Discourse Contextualist account of epistemic modals and applies it to several examples of discourse agreement and disagreement. §3.3 shows how the account solves the contextualist’s problems with discourse disagreement and elucidates various aspects of epistemic modals’ meaning and use. §3.4 applies the treatment of disagreement

†Uncle Kimble, in Silas Marner, George Eliot
to two related classes of data which have been thought problematic for contextualism: retraction and eavesdropper cases. §3.5 clarifies the role of presupposition in the foregoing Discourse Contextualist semantics and pragmatics. §3.6 examines several methodological issues concerning the role of truth-value judgments and the relation between semantic competence with epistemic modals and substantive epistemological theorizing. §3.7 concludes.

For expository purposes I will be focusing solely on epistemic possibility and necessity modals, like ‘may’, ‘might’, ‘must’, ‘can’t’, etc. But it is important to keep in mind that these are examples of a broader class of epistemic vocabulary that includes expressions of various categories — what Swanson 2011a calls “the language of subjective uncertainty.” For the moment I will leave open how the present account of modals extends to the case of epistemic adjectives, adverbs, etc. We will return to this issue in Chapters 6–7.

3.1 Components 1 and 2:

From formal semantics to interpretive constraints

The strategy of Discourse Contextualism is to show how a certain contextualist semantics for epistemic modals — one that associates them with a relevant contextual parameter — generates constraints on their interpretation and predicts their behavior in discourse. This model is particularly well suited for epistemic modals. Let’s consider in turn the three components of a Discourse Contextualist account outlined at the end of Chapter 2.

The first component — the compositional semantic component — basically comes for free. It is standard in linguistic semantics to treat modals as semantically associated with a parameter or variable $P$ that ranges over sets of premises. Roughly, ‘Must $\phi$’ says that $\phi$ follows from these premises, and ‘May $\phi$’ says that $\phi$ is compatible with these premises. This contextually supplied set of premises determines the reading of the modal (epistemic, deontic, teleological, etc.).

On the standard semantic framework for modals, see esp. Kratzer 1977, 1981, 1991; also van Fraassen 1973, Lewis 1973, Veltman 1976. The premise semantic implementation adopted here is equivalent (Lewis 1981) to the perhaps more familiar implementation in Kratzer 1981, 1991 which uses a set of propositions (ordering source) to induce a preorder on the set of accessible worlds. Some potential complications: First, it is standard to index premise sets to a world of evaluation (though see Hacquard 2006, 2010). I return to this issue in §3.3. Second, Kratzer’s semantics makes use of two premise sets: a premise set $F$ (a “modal base”) that describes some set of relevant background facts and a premise set $G$ (an “ordering source”) that represents the content of some ideal.
Epistemic readings of modals call for a premise set that represents a body of information (evidence, etc.). We saw in §2.2.2 that an adequate model of context is standardly taken to include a parameter for the discourse common ground—a set of propositions describing the information taken for granted for the purposes of conversation, the information presumed available for communication (Stalnaker 1974, 1978). It is natural to link \( P \) with this discourse-level parameter, at least in the uses of epistemic modals we have been considering. This reflects the paradigmatic role of epistemic modals in information sharing and communal inquiry. (Complications to this natural move will follow in due course.)

Treating epistemic modals as semantically associated with a contextual parameter places interesting constraints on their felicitous use and interpretation. Epistemic modal sentences include a variable \( P_e \) for an epistemic premise set. When this variable is free, a value must be contextually supplied in order for the sentence to have a specific interpretation in context. So, for communication to be successful, the hearer must be able to retrieve the speaker’s intended value; the hearer must be able to infer how the speaker takes the discourse context to be such that it determines such-and-such content for the speaker’s utterance. An utterance of (1) assumes that context supplies a salience ordering on which some individual \( b \) is the most salient baby, and asserts that \( b \) is laughing.

(1) The baby is laughing.

Likewise an utterance of epistemic ‘May (/Must) \( \phi \)’ assumes a value for \( P_e, P_e^c \), and asserts that \( \phi \) is compatible with (/follows from) \( P_e^c \). (I use boldfaced type for pa-
rameters/variables, and italics for their values in context.)

Five clarificatory remarks: First, I am not suggesting that the standard semantic framework for modals calls for contextualism about *epistemic modals*. All parties — contextualists, relativists, expressivists, invariantists — can accept that the modal verbs themselves (qua lexical items) are context-sensitive, in the sense that the context of utterance determines what type of reading the modal receives. What is at issue is whether, given an epistemic reading for the modal, some specific body of information supplied by the context of utterance figures in the sentence’s semantic content, where what information is supplied may vary across contexts in the same world. Non-contextualist accounts deny this. Debates about contextualism arise for expressions whose lexical semantics already fixes a specific reading or “flavor” — e.g., ‘probably’, ‘tasty’, ‘tall’, etc. The debates would also arise for epistemic modal markers in languages which, unlike English, lexically specify readings for modals (e.g., Lillooet; van der Auwera et al. 2005). The preoccupation on lexically unspecific grammatical English modals is idiosyncratic.

Second, treating modals as interpreted with respect to a contextually supplied premise set raises questions about how this context-dependence is implemented in the syntax and compositional semantics. One might treat the modal verbs themselves, qua lexical items, as indexicals (like ‘I’, ‘here’, ‘now’), whose semantic contents depend on context. Alternatively one could treat the lexical items as having invariant semantic values, but as having additional argument places which may be filled by contextual parameters. Context-sensitivity in the interpretation of modals would arise only at the clausal level. Officially I remain neutral on these options. What is at issue here is whether (e.g.) bare epistemic modal *sentences* can be given a successful contextualist semantics. However, for expository purposes I will assume that the premise set parameter P is syntactically realized as a variable (cf. von Fintel & Heim 2011). (Likewise for the other contextual parameters considered in Chapters 5–7.)


For the invariantist, a specific body of information figures in the semantic content, but it is determined by the world of evaluation. To capture this in the standard framework one might posit a substantive lexical constraint that epistemic premise sets be determined solely by the evaluation world. For the relativist/expressivist, no particular body of information figures in the semantic content. To capture this in the standard framework one might treat what context supplies for interpreting a modal as a function from judges (centers, groups) to premise sets. What would be special about epistemic readings is that the supplied function non-trivially depends on the value of the judge.

6On syntactic issues regarding premise set variables/parameters, see von Fintel 1994, Frank 1994, von Fintel & Heim 2011, Schaffer 2011, for general discussion concerning diagnostics for
Third, it is common in linguistic semantics to treat various paradigm context-sensitive expressions on the model of variables. These variables, like any others, receive their values from an assignment function, which is often treated as supplied by context (e.g., Heim & Kratzer 1998, Schlenker 2003, Cumming 2008, Heim 2008, Ninan 2012a). There may ultimately be reasons for distinguishing how context fixes the values of indexicals (à la Kaplan 1989) from how assignment functions fix the values of variables, and for distinguishing the assignment of values to variables shifted by quantifiers from the assignment of values to context-sensitive expressions (cf. Kaplan 1989; 592–593; Belnap et al. 2001: 150–151; Rabern 2012b). However, the issues that motivate these potential distinctions are largely orthogonal to our discussion here (though see Santorio 2012). What is important for a contextualist semantics is that a particular contextually determined value for the premise set variable P figures in the semantic content. My talk about context supplying values for variables can be understood as short for talk about contextually supplied assignment functions.

Fourth, I am not committing to a particular story about the nature and representation of context. For instance, I haven't said that the relevant background information in conversation is what is mutually known (presupposed, accepted, believed, believed to be accepted, etc.). And I haven't said that contexts are determined wholly by speaker attitudes. Indeed I haven't said anything about what in fact determines contexts at all (cf. §2.3). We will return to this in §3.6 and throughout the following chapters. What is important for the present discussion is simply that contexts determine premise sets for the interpretation of modals — in the cases at hand, premise sets that represent the information taken for granted in the conversation — and that speakers assume as much.

Finally, my occasional talk of epistemic modals targeting a relevant body of evidence shouldn't be taken to suggest that this evidence need be “had” by any subject, and I am not assuming that it is to be identified with the sort of thing that justifies belief in epistemology (cf. Lewis 1996, Egan 2007, von Fintel & Gillies 2007). What is relevant for the semantics is simply that epistemic modals are interpreted with respect to a given body of information.


3.2 Component 3: Using epistemic modals.

The basic account

Before turning to disagreement cases I would like to examine cases where communication proceeds successfully. The preoccupation in the literature with non-ideal examples — e.g., where communication fails, where there is disagreement, or where speakers aren’t even involved in the same conversation — can obscure how epistemic modals typically function in discourse. Starting with prototypical collaborative cases will better illuminate the phenomena. This can demystify what goes wrong in the non-ideal case.

Suppose you are in your office, which has no access to windows, and you see me walking down the hallway. You call me in and ask if I know what the weather is like outside. Though I haven’t looked outside myself, I have just seen some people walk in with wet umbrellas. I say:

(2) It must be raining.

Given the grammatical properties of epistemic modals, my utterance assumes a body of evidence that is relevant for the particular task at hand, namely, resolving an issue you have placed on the conversational table: what the weather is like. Since your plans depend on how this question is resolved, I ought to make available to you my grounds for inferring an answer to it. So I continue as in (3).

(3) It must be raining; I just saw some people walk in with wet umbrellas.

Recognizing my communicative intentions (more on which below), you successfully restrict the range of possible interpretations for ‘must’, the evidential basis for my utterance of (2) becomes common ground, and you plan for rain.

The body of information assumed by my utterance of (2) can affect the interpretation of subsequent utterances. This delimits the interpreter’s computational task of determining the intended contents of future uses of epistemic modals, and facilitates a more efficient exchange of information and coordination of plans in future collaborative endeavors. Suppose I have two umbrellas, one big, one small; the bigger one covers me better, but the smaller one is better in the wind. Trying to decide which to take, you say ‘Is it windy? I want to know if I should take my smaller umbrella.’ I

It may be windy. I saw one person with an inverted umbrella, but it looked pretty flimsy.

The information that served as the basis for my utterance of leads to your further question about the newly raised possibility of rain. Though I cannot resolve this further question, I make available additional evidence — the inverted umbrella — which refines our understanding of this possibility. This additional evidence is incorporated into the common ground, the possibility of rain and wind is treated as live, and you plan accordingly.

These commonplace examples highlight an important point. Epistemic modal utterances presume an implicit, semantically unspecified body of information. Nevertheless, utilizing general principles of pragmatic reasoning, speakers and hearers can integrate relevant features of the (past, present, and projected future) conversational situation to interpret epistemic modals and coordinate on an evolving common ground. The semantics for epistemic modals generates constraints on the interpretation of uses of epistemic modals in particular contexts. By reasoning from these constraints speakers can effectively share information and coordinate action.

With this in mind, return to the discourse disagreement with Alice and Bert, reproduced below as.

A test is coming up. Alice wants to know when it is, so she asks Bert. Bert doesn’t know either, but he wishes to raise Monday as a possibility. He utters.

Upon hearing Bert’s semantically underspecified utterance, Alice might (tacitly) reason roughly as follows, where $m$ is the proposition that the test is Monday (cf. §2.5):

“Bert is intending to say something about the possibility $m$. In order to do so, given the grammatical properties of modals, a set of premises must be contextually supplied. Since Bert wouldn’t intend to say something false, he must be assuming a premise set $P$ that is compatible with $m$. Saying that $P$ is compatible with $m$ doesn’t provide a complete answer to my question of
when the test is. But since Bert is cooperative, his utterance of (6) must still be relevant and realize an intention to provide a partial answer. Assuming \( P \) as a value for \( P_e, P_c \), would do so by ensuring that the information taken for granted in the conversation not exclude the possibility \( m \). So, Bert must be assuming a value for \( P_e, P_c \), and have meant that \( P_e \) is compatible with \( m \).”

Rather than fully formalize this reasoning here (see ch. 2 n. 14), let’s consider its principal features. The appropriateness of Bert’s linguistic act of uttering (6) requires that the discourse common ground be compatible with \( m \). Since it is mutually presupposed that Bert is obeying the conversational maxims (Grice 1989), in uttering (6) Bert implicitly proposes that it become taken for granted that the common ground is that way. In accepting an utterance one normally accepts what the speaker committed to in uttering it. So, since it is common knowledge that Bert can expect Alice to undergo an abductive reasoning process like in (7) it is also common knowledge that she will object if she knows that \( m \) is false, given their common goal of settling when the test is. So if Alice doesn’t object, this will confirm that the context is as the appropriateness of Bert’s action requires, and the discourse-level common ground parameter can be set to a value that is compatible with \( m \).

However, since Alice knows that the test won’t be on Monday, she ought to object (see ch. 2 n. 11). Suppose she replies as in (5). For reasons parallel to those above, her doing so is appropriate only if the discourse common ground is incompatible with \( m \). As she expects, Bert goes through an analogous abductive reasoning process and infers that she must wish to take for granted that the discourse common ground is that way. By assuming a contrary value for the contextual variable \( P_e \), Alice fails to accommodate Bert’s implicit proposal about the conversational situation, and exerts conversational pressure on Bert to accommodate her instead. If Bert accepts Alice’s justification for her denial, it can become taken for granted that the context is as their present actions mutually require. But if he has reason to doubt Alice’s justification, further negotiation can ensue over the state of context. This can all happen even if what is explicitly being put forward on the conversational table are propositions about logical relations between propositions and premise sets. By producing utterances that assume incompatible values for the contextual variable \( P_e \) — i.e., by acting in ways that would be appropriate only if \( P_e \) was assigned such-and-such contrary values — Alice and Bert can negotiate over what possibilities to treat as live in the conversation. In using epistemic modals Alice and Bert can exploit their mutual grammatical knowledge, along with general pragmatic reasoning, to manage their assumptions about the conversational situation itself.
3.3 Features

Various discourse properties of epistemic modals are already elucidated by this basic Discourse Contextualist account. §§3.3.1–3.3.3 reconsider the central desiderata for a contextualist account of discourse disagreement discussed in §§2.1–2.2. §§3.3.4–3.3.6 examine several additional features of the meaning and use of epistemic modals. (We will return to the challenge from §2.4 of explaining certain contrasts between CR-expressions and paradigm context-sensitive expressions in greater detail in §4.4.)

3.3.1 Justified use

First, Discourse Contextualism captures the justified use condition from §2.1: it explains how Alice and Bert are in a position to make their epistemic modal claims. Since Bert can reasonably expect Alice to undergo the sort of pragmatic reasoning in (7) and retrieve his intended interpretation, he needn't be overstepping his epistemic bounds in using epistemic ‘may’ and assuming a value for the discourse-level common ground parameter. Similarly, since Alice knows that Bert has similar semantic and pragmatic competencies, she can express her disagreement with Bert's assumption by means of a direct denial — that is, by performing an act, the linguistic act of uttering ‘No, the test can't be Monday,’ which assumes an incompatible value for $P_e$. In assuming a value for the contextual variable $P_e$ one needn't believe that the assumed information is (already) commonly accepted in the context. The relevant attitude toward the proposition that the context (and hence value for $P_e$) is thus-and-so isn't belief but acceptance for the purposes of the conversation.¹⁰ Given how skilled we are at inferring one another's intended context (ch. 2 n. 14), we can use epistemic modals as a way of testing one another's epistemic states, inviting them to object if they think they are in a better epistemic position.

3.3.2 Locus of disagreement

The account captures the disagreement condition from §2.1 as well: it makes sense of how speakers can reasonably disagree with one another's epistemic modal claims. Sequences of assertion, denial, and counter-assertion — the sorts of discourse moves

we see in dialogues like (5)—needn't be analyzed in terms of incompatibility of semantic or asserted content. For all I have said, the intended contents of Alice's and Bert's utterances may be compatible. It may be the case both that Bert's assumed value for \( P_e, P_B \), is compatible with \( m \), and that Alice's assumed value for \( P_e, P_A \), is incompatible with \( m \) (though see §2.1). Even so, contextualism needn't treat Alice and Bert as talking at cross-purposes. We can locate a precise sense in which Alice and Bert disagree: they disagree over the grammatically backgrounded content of what value for the contextual epistemic premise set variable \( P_e \) is determined in their context. Their utterances carry incompatible assumptions about what information is available in their context.

As noted in §2.3, in conversation we keep track of information not only about the subject matter of the conversation, but also about the linguistic and extra-linguistic context itself. So, successfully updating with Bert's utterance would result in a context set in which, for all worlds in that set, the conversational situation determines a value for \( P_e \) that is compatible with \( m \); whereas successfully updating with Alice's utterance would result in a context set in which, for all worlds in that set, the conversational situation determines a value for \( P_e \) that is incompatible with \( m \). This gives precise expression to the informal idea from §2.1 that Alice and Bert are disagreeing about what sort of context to be in.

It is important to be clear about the relevant level at which Alice and Bert's disagreement is explained as being “about the context.” The present challenge for contextualism, recall, is to explain the licensing of expressions of linguistic denial in dialogues like (5), and represent precisely how the hearer rejects the speaker's discourse move and issues a counter-move (§2.1). For these purposes what is important is that our formal pragmatics locates a specific incompatibility in the updates from Alice's and Bert's utterances: their utterances make incompatible assumptions about their conversational situation. This needn't imply that the disagreement is fundamentally “about the context,” how to use words, etc. More fundamentally, Alice and Bert's disagreement concerns what possibilities to treat as live, and what information to take for granted, and why. It is this which grounds the incompatible representations of context assumed by their respective utterances. It is instructive to compare this case

\[11\] Stalnaker 1978 accesses similar updates via a strategy of “diagonalization.” On a Stalnakerian line, epistemic modal utterances would be reinterpreted because they have different semantic contents in different contexts across worlds in the context set. Though I agree that some sort of back-and-forth reasoning about context and content is responsible for the sorts of updates described in the main text, I needn't commit to Stalnaker's particular account of the grounds of diagonalization, his treatment of diagonalization as a reinterpretation strategy (as opposed to a result of ordinary interpretive mechanisms), or to his claim that the diagonal content constitutes “the” asserted content.
with the discourse disagreements involving paradigm context-sensitive expressions from §2.3. Amanda and Billy’s disagreement isn’t just about semantic values; it is about whether Nick is less salient merely because of his race. Disagreement about context can be grounded in more fundamental disagreement about what attitudes to take up toward the relevant content-determining contextual features — what to treat as salient, what information (norms, values, standards, tastes) to accept, etc. For these reasons I eschew classifying the present Discourse Contextualist account as a “metacontextual” or “metalinguistic” account of discourse disagreement.12 (We will return to these points in §§3.5–3.6, and again in Chapters 5–7.)

3.3.3 Discourse-oriented effects

Discourse Contextualism elucidates the informal intuitions from §2.2 concerning epistemic modals’ role in managing the set of live possibilities. It is common to treat discourse moves like assertions as proposalsto update the context set; an assertion is treated as a proposal to restrict the context set to worlds compatible with the propositional content of one’s assertion.13 Since epistemic modal sentences require a value for a contextual variable in order to express a proposition, the assignment of such a value is a precondition for making a discourse move. Making an epistemic modal assertion creates a new discourse context in which that precondition is taken for granted, this even prior to the acceptance or rejection of the proposal which constitutes one’s assertion. As Stalnaker notes in remarking on the “commonplace effect” of speech acts, “the context on which an assertion has its essential effect is not defined by what is presupposed before the speaker begins to speak, but will include any information which the speaker assumes his audience can infer from the performance of the speech act” (1978: 86; cf. 1998: 101–102).14 Failing to object to an epistemic modal assertion thus typically communicates that one accepts the value for Pe which it requires. This puts pressure on the hearer to conform her presuppositions to the assumed epistemic premise set. Though the truth conditions of epistemic modal sentences are ordinary representational contents, speakers can use epistemic modals to communicate normative claims about what possibilities to ignore and not to ignore and about what the operative body of information ought to be.

12 Contrast Plunkett & Sundell 2013a, following Barker 2002.
In fact, the nature of epistemic modal sentences’ truth conditions may help explain their propensity for discourse-oriented uses. We will have much more to say throughout the following chapters about the distinctive linguistic behavior of epistemic modals, and various similarities/differences among CR-expressions and paradigm context-sensitive expressions. For now let us simply observe the following. The asserted contents of epistemic modal utterances are boring logical propositions about entailment and compatibility relations between propositions and premise sets. The logical properties of certain bodies of information aren’t usually what is at issue in conversation. What is typically interesting in a speaker’s epistemic modal utterance is rather what value is being assumed for the discourse-level common ground parameter, i.e. what information the speaker is presuming to be taken for granted in the conversation. Given the ease with which we can retrieve one another’s intended values for \( P_e \) (as described above), using an epistemic modal affords an efficient means of managing our assumptions about this information. General pragmatic principles concerning efficiency and effectiveness in communication call for us to do so. So, it wouldn’t be surprising if the primary function of epistemic modals in discourse came to be to facilitate coordination on a presumed common body of information. An ability to capture this is often taken to be a distinctive advantage of relativist, expressivist, and dynamic theories (see ch. 2 n. 5). Discourse Contextualism captures it in terms of a static contextualist semantics and general pragmatic effects of using sentences with this semantics.

### 3.3.4 Expressing states of mind

A common complaint against contextualist theories is that they incorrectly treat epistemic modal utterances as reporting, rather than expressing, speakers’ states of

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15Here and throughout, I use ‘at issue’ in a largely theory-neutral way, simply to describe, intuitively, what constitutes a speaker’s central message. A content’s being “at issue,” in this informal sense, is neutral on whether it is specifically truth-conditional and whether it is delimited by semantic or pragmatic considerations.

16Consider, e.g., Levinson’s (1987) Maxim of Minimization: “Produce the minimal linguistic clues sufficient to achieve your communicational ends.” One might also appeal to Heim’s (1991) pragmatic *Maximize Presupposition*! principle to support that we ought to use bare epistemic modal sentences, which assume a value for \( P_e \), to alternative sentences which explicitly specify the relevant information. Yet properly formulating and applying the principle may require some care. Roughly put, the principle says that when sentences \( S \) and \( S' \) are contextual alternatives with the same asserted content and \( S' \) has stronger presuppositions, \( S' \) ought to be used. One would thus need to ensure that ‘MODAL \( \phi \)’ and ‘In view of \( P_e \), MODAL \( \phi \)’ come out as relevant alternatives.
Discourse Contextualism avoids this worry. Common characterizations of contextualism notwithstanding, on the present account epistemic modal utterances aren’t fundamentally about an individual or group. They make logical claims given a certain epistemic premise set. In uttering an epistemic modal sentence the speaker assumes a value for the contextual variable $P_e$ — a body of information endorsed for purposes of conversation — and asserts something about how the world is given that assumed value. The speaker thus expresses her state of mind in the sense of performing an act that assumes that she is in that state of mind (cf. Bach & Har- nish 1979). Alice’s utterance of ‘The test can’t be on Monday’ assumes a value for $P_e$ which is incompatible with the test’s being Monday. Given their common goal of settling when the test is, Bert can reasonably infer from Alice’s act that she knows the test isn’t Monday. Discourse Contextualism can capture the core expressivist claim that using an epistemic modal expresses, rather than reports, the speaker’s state of mind.

It is common in the literature to treat some uses of epistemic modals as having a “solipsistic” reading on which they are “about” (in some sense) the speaker’s epistemic state. This claim is misleading. The discussion in this chapter suggests that the apparent speaker-oriented nature of these readings is a symptom of how speakers are often justified in using epistemic modals without (much, if any) evidence about others’ information ($\S3.2$, though see $\S3.6$), and how in using epistemic modals speakers express their state of mind.

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18 E.g., Silk 2013c: 212–213, MacFarlane 2014: 146–147, a.m.o.

19 Compare MacFarlane’s treatment of an assertion as “about X if the truth of its content at an arbitrary circumstance of evaluation depends on how things are with X” (2014: 87, following Perry 1988); cf. Abrusán 2011.

3.3.5 Expressive vs. intuitively contextualist uses

Bare epistemic modal sentences differ from their explicitly relativized counterparts in grammatically backgrounding something that the latter make overt: what body of information is relevant. Thus far we have been focusing on what we might call expressive uses of bare epistemic modals — uses in which the speaker appears to express a first-order attitude about the modal's prejacent. But it is worth noting that not all uses of bare epistemic modals contrast with their explicitly relativized counterparts in being expressive in this sense. Adapting terminology from Lyons (1977, 1995), say that a modal is used expressively if it presents the speaker as endorsing the considerations with respect to which the modal claim would be true. And say that a modal is used non-expressively if it does not. Non-expressive uses are compatible with the speaker's endorsement; they simply fail to present it. Applied to the case of epistemic readings, an epistemic modal is used expressively, in this sense, if it presents the speaker as accepting the body of information that would verify the modal claim, and non-expressively if it doesn’t. (These definitions will be slightly modified below and again in Chapter 4.)

It is expressive uses that have seemed problematic for contextualism. Non-expressive uses correspond to intuitively contextualist readings — readings where the expression is interpreted as if there was an implicit ‘according to’-type phrase. Examples with the deontic modal ‘have to’ and the predicate of personal taste ‘tasty’ are given in (8)–(9), respectively.

(8) Ernie has to be home by 10. Aren’t his parents stupid? I’d stay out if I were him.

(9) The new brand of cat food is really tasty. Fluffy eats it right up.

In (8) the speaker is simply reporting what is required by Ernie’s parents’ rules. Likewise, (9) simply describes what is tasty for cats. Not all CR-expressions are equally robust in the extent to which they allow non-expressive readings. Though epistemic modals are typically used expressively, non-expressive uses are possible. Consider

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22 Cf. Lyons 1977, 798, 805–807. Indeed some linguists have even claimed that epistemic modals
the following modification of a case from Angelika Kratzer:

(10) [Context: We are standing in front of a locked filing cabinet. None of us has had access to the information in it, but we know that it contains the police’s complete evidence about the murder of Klotho Fischer. We are betting on who might or must have killed Fischer according to the information in the filing cabinet. You, who are innocent, say:]

a. I might have done it.

b. I must have done it.

(cf. Kratzer 2012: 98–99)

Here context makes salient the body of information provided in the filing cabinet. (10a) says what is possible according to this information; (10b) says what is necessary according to it. This information needn’t be accepted in the discourse context.

We can capture the distinction between expressive and non-expressive uses while giving them a uniform type of analysis. This constitutes an improvement over disjunctive, non-contextualist accounts, which are forced to give a contextualist semantics for some, but not all, uses of epistemic modals. In both kinds of uses the epistemic modals are interpreted with respect to a contextually supplied set of premises. The difference lies in what premise set variable is supplied. Non-expressive uses, like in (10), call for a variable that represents a certain relevant body of information. In (10) this would be a variable $P_{fc}$ that refers to the information in the filing cabinet. This information may be accepted in the discourse context, but it may not be. What distinguishes intuitively expressive uses is that they call for a discourse-level contextual variable, $P_e$. This variable refers to the information taken for granted in the conversation. So, expressive uses of bare epistemic modals don’t simply say what is possible or necessary according to a given body of information. They also assume that the relevant information is accepted in the discourse context.

This latter claim needs to be refined. I have been assuming that the value for the epistemic premise set variable in expressive uses is identified with the conversational common ground. But this identification isn’t forced upon us. Consider the following modification of the case in (10).

(11) [Context: You are standing in front of a locked filing cabinet. You don’t have access to its contents, but you know that it contains the complete evidence about the murder of Klotho Fischer. You have partial amnesia, and although you remember that you once held a bitter grudge against Fischer, you can’t remember if you ended up taking action against him. I ask you whether you killed him. You say:]
I don’t know. I might have killed him.

Intuitively, the epistemic ‘might’ is interpreted with respect to the contextually salient body of information provided in the filing cabinet. But your use of ‘might’ still seems “expressive” in the sense that you treat this information as authoritative and would accept it if you were explicitly presented with its contents. You aren’t simply reporting what is possible according to the information in the filing cabinet. The epistemic premise set variable should still represent this information as being endorsed, in some sense, in the context.

One way of capturing this is as follows. Which premise set is relevant for the evaluation of a 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 information is in the filing cabinet might change from one world to the next. For this reason it is standard to index premise sets to a world of evaluation. What context supplies that determines the intended reading for ‘might’ in (11) is a function that assigns to every possible world the set of propositions describing the information in the filing cabinet in that world. Call such a function an unsaturated premise set (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)’). The variable that determines the reading of a modal ranges over unsaturated premise sets.

Although the assumed value for P_e in expressive uses may often correspond to the conversational common ground, context may make salient an alternative way of determining the value for P_e. This, I suggest, is what happens in examples like (11). In (11) the contextually supplied value for P_e is the function from worlds to sets of propositions describing the information in the filing cabinet in those worlds. Given your ignorance about the contents of the filing cabinet, what information it contains will vary across the worlds in the context set. What your utterance in (11) assumes is thus that the context set contains a world w such that P_e(w) — the value for P_e, P_e, given w as argument — is compatible with your being the killer. What is “en-

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24 See the references in note 20 for relevantly similar cases; for related discussion, see esp. Yalcin 2011, Dorr & Hawthorne 2013, Stalnaker 2014, Moss 2015.

dorsed” in an expressive use of an epistemic modal — the body of information that is the value for the contextual variable \( P_e \) — needn't be the information comprising the discourse common ground itself. Speakers can endorse and make claims about bodies of information without knowing what that information consists of.

For these reasons, giving syntactic expression to the distinction between expressive and non-expressive uses needn't imply that the distinction is always clear-cut in concrete contexts of use. Consider a variant of (11) in which you endorse the information in the filing cabinet, whatever it is, and you come to gain access to it. Upon discovering that the police's evidence leaves you open as a possible suspect, you might say something like 'Wow, so I might have killed Fischer.' Intuitively, your utterance expresses your state of mind, which is compatible with your being the killer, and the evidential basis for this is the information in the filing cabinet. Formally, your use of 'might' is interpreted with respect to the discourse-level variable \( P_e \), and the basis for your claim is that \( P_k \) is compatible with your being the killer. The net effect of your utterance is thus to update both \( P_e \) and \( P_k \) to values compatible with the proposition that you killed Fischer — the former via the asserted content, the latter via the grounds for your assertion.²⁶

(For simplicity I will often bracket complications from world-indexing premise sets. My talk about a proposition's “following from (/being compatible with) \( P \)” can be understood as short for saying that the proposition follows from (/being compatible with) \( P(w) \), for any relevant world \( w \).)

### 3.3.6 Anaphoric properties. Contextual underspecification

Our discussion of prototypical successful communication with epistemic modals in the beginning of § 3.2 highlights an often neglected feature of epistemic modals: their anaphoric properties (see esp. Stone 1994, 1999; cf. McCready & Ogata 2007). In the example, recall, you ask me what the weather is like. If you don't know that I have just seen people with wet umbrellas, it would be infelicitous for me to reply simply by uttering (2) 'It must be raining'. A natural response to such an utterance would be something like 'Why? What makes you say that?'. For my utterance to be felicitous I must make available to you the evidence that licenses my inference, as in (3), reproduced below, or (12).

²⁶See § 7.2 for related discussion. Of course there can also be cases in which it is unclear whether one's use of an epistemic modal is expressive or not. But this is just a familiar way in which context sometimes underdetermines a specific interpretation (represented here in terms of underdetermination of logical form, or what Stanley & Szabó 2006 call the “grammatical” role of context).
It must be raining; I just saw some people walk in with wet umbrellas.

I just saw some people walk in with set umbrellas, so it must be raining.

Similar points hold with epistemic possibility modals. Suppose now that I don’t take myself to have conclusive (indirect) evidence that it is raining. Perhaps I saw some people walk in slightly wet, but I also know that the sprinklers outside the building have been acting up. If you don’t know any of this, it would be dispreferred for me simply to utter (13).

(13) It may be raining.

A natural response would be something like ‘What makes you think that? Did you check the weather report earlier?’ I ought to make available to you the evidence that licenses my raising the possibility of rain, as in (14).

(14) a. It may be raining; I checked the weather report earlier, and it said there would be a chance of rain all afternoon.

b. It may be raining. I just saw some people walk in with wet coats. Then again, the sprinklers have been acting up, so maybe that’s why.

There is a general expectation that the evidential basis for a speaker’s epistemic modal claim be accessible in the discourse.

This accessibility norm can be derived from the claim that epistemic modal utterances assume that the conversational situation is such as to supply a value for \( P_e \) from which the prejacent follows (in the case of ‘must’) or is compatible (in the case of ‘may’). Upon hearing an utterance of ‘Must (/May) \( \phi \)’, a hearer can infer that the speaker must have some evidence or other that entails (/is compatible with) \( \phi \). But this inference will typically be so weak as to have nearly no inferential potential. There are infinite premise sets from which the prejacent follows and with which it is compatible. This correctly predicts that utterances of epistemic ‘Must (/May) \( \phi \)’ will often be anomalous if an assumed value of \( P_e \) isn’t readily retrievable in the discourse context. (Compare: ‘Therefore, \( \phi \).’)

We should be careful not to overstate this generalization. As we will see in §3.5.2, sometimes epistemic possibility modals are used simply to ensure that a certain possibility is live. With epistemic possibility modals — and for ‘might’ even more than ‘may’ — we are sometimes more willing simply to accommodate that the speaker must have some relevant evidence for her claim, or at least that the speaker lacks evidence against it, and to leave matters at that. Even in broadly anaphoric cases, like (3), (12), (14) above, there is often a (restricted) range of suitable values for the
relevant epistemic premise set variable available for accommodation. When I utter ‘It may be raining’ in response to your question about the weather, there may be various ways of accommodating a value for $P_e$ that are compatible with the proposition that it’s raining, given our existing commitments. This highlights the flexibility of epistemic modals in discourse. I can successfully raise the possibility of rain without needing to settle on a fully specified body of relevant information. Our purposes typically don’t require us to commit for the future course of the conversation to a particular body of relevant information.\footnote{The anaphoric properties of epistemic modals seem strongest in the case of ‘must’, slightly weaker for ‘may’, and still weaker for ‘might’. It is thus unfortunate that the literature on epistemic modals has focused on ‘might’, which is idiosyncratic in certain respects. I won’t attempt to speculate about the basis for these apparent variations. We will return to differences in felicity requirements among epistemic modals and other anaphoric expressions in Chapter 4.}

These points about contextual underspecification in the dynamics of epistemic modal utterances are compatible with treating the compositional semantics as taking a particular value for the epistemic premise set variable. Following Lewis (1970, 1975), we can distinguish two notions of context: speakers’ concrete discourse context, or conversational situation, on the one hand, and an abstract context that represents it. (I will use ‘concrete context’, ‘(concrete) discourse context’, and ‘(concrete) conversational situation’ interchangeably.) Compositional semantics — “descriptive semantics” in the sense of Stalnaker (1997: 535), “semantics” in the sense of Kaplan (1989: 573–576) — takes as given a particular abstract representation of context that assigns values to variables and other context-sensitive expressions. The project of compositional semantics is to investigate, given such an assignment, what lexical entries, composition rules, and syntactic structures generate correct predictions about the conventional contents of complex expressions. In actual conversation, however, speakers may be uncertain about the state of their concrete conversational situation, just as they can be uncertain about other features of the world. They can be undecided about which abstract context represents the discourse context. (Indeed, this may even be indeterminate.) In the case of epistemic modals, the formal semantics takes as given a particular value for the contextual variable $P_e$, $P_{ec}$, and assigns (e.g.) ‘May $\phi$’ the value Truth iff $P_e$ is compatible with $\phi$. So, one effect of successfully updating with an utterance of epistemic ‘May $\phi$’ is that the context set gets restricted to worlds in which the concrete discourse context in those worlds determines an abstract context that assigns such a value to $P_e$. This is compatible with there being multiple live representations of context which assign alternative values to $P_e$. Speakers can manage their assumptions about the contextual features that determine the value for the epistemic premise set variable without antecedently
settling on a particular such value. (We will return to the importance of these issues throughout the following chapters.)\(^2\)

(An alternative way of representing this sort of contextual uncertainty (indecision, indeterminacy) would be to enrich the structure of bodies of information themselves. One might treat the value of the contextual variable \(P_e\) given an abstract context \(c\) as itself a set \(\mathcal{P}\) of unsaturated epistemic premise sets — namely, the set of unsaturated epistemic premise corresponding to the multiple representations of context above.\(^3\) The compositional semantics, on this line, would utilize a set of bodies of information: one might treat ‘Might \(\phi\)’ as true at \(w\) in \(c\) iff for every \(P \in \mathcal{P}\), \(P(w)\) is compatible with \(\phi\); and one might treat ‘Must \(\phi\)’ as true at \(w\) in \(c\) iff for every \(P \in \mathcal{P}\), \(P(w)\) entails \(\phi\). ‘Might’ and ‘must’ wouldn’t be duals. Such complications to the standard semantic framework for modals might be called for on independent grounds, but given our purposes I won’t pursue them here.)

### 3.3.7 Recap

Let’s take stock. I have argued that we can derive various seemingly problematic discourse properties of epistemic modals from a contextualist semantics and general conversational principles. Discourse Contextualism starts with a particular contextualist interpretation of a standard semantic framework for modals. The strategy is then to show how this semantics generates constraints on the interpretation of epistemic modals in context and predicts their behavior in discourse. Semantically, expressive uses of epistemic modals are associated with a contextual parameter representing information endorsed for the purposes of conversation. Pragmatically, the “discourse-oriented” effects of such uses arise via general pragmatic reasoning from (inter alia) the requirement that a value for this parameter be assumed as input to semantic interpretation. In using epistemic modals, speakers can exploit their mutual grammatical and world knowledge, along with general pragmatic reasoning, to manage an evolving common ground.

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3.4 More data: Retraction and eavesdroppers

In this section I will apply the above Discourse Contextualist account of disagreement to two related classes of data that have been thought problematic for contextualism: data concerning the retraction of epistemic modal utterances, and data concerning eavesdroppers’ assessments of epistemic modal utterances.

3.4.1 Retraction

Retraction arguments

A common argument against contextualism concerns retraction phenomena: cases where a speaker retracts her previous epistemic modal utterance in light of an objection from another speaker. The worry for contextualism is that epistemic modals behaved differently from paradigm context-sensitive expressions in retraction cases.30 When a speaker $A$ truly utters a sentence with a paradigm context-sensitive expression, and a hearer $B$ objects after there has been a change in the contextual features plausibly relevant to determining the content of that expression, there is little tendency for $A$ to retract her initial utterance, as reflected in (15)–(16) with ‘here’.

(15) $A$: It’s hilly here.

[Context change: They drive into the plains.]

$B$: No, it isn’t hilly here at all.

$A$: Oh, come on; you know that’s not what I meant.

(16) $A$: It’s hilly here.

[Context change: They drive into the plains.]

$B$: No, it isn’t hilly here at all.

$A$: #Oh, my bad; I take it back. (#Oh, I guess I was wrong.)

With epistemic modals, by contrast, it can be appropriate for speakers to retract, even when their initial utterances were plausibly justified by the evidence available at the time. Consider the following variant of our discourse disagreement between Alice and Bert:

(17) Alice: When is the test?

Bert: I'm not sure. The test may be on Monday.

[Context change: Chrissy, an older student whom Alice and Bert don't know, enters the conversation.]

Chrissy: No, the test can't be on Monday. Professor X never gives tests right after the weekend — I know, I had her last term. The test must be later in the week.

Bert: Oh, my bad; I take it back. (#Oh, come on; you know that's not what I meant.)

The challenge for the contextualist is to explain this contrast. In (15), A’s initial token utterance with ‘here’ was true, and remains true after the relevant shift in context; hence it would be odd for A to retract. But, on the one hand, if we say that Bert’s utterance of (6) ‘The test may be on Monday’ was true and remains true after Chrissy’s utterance, it becomes unclear why he should retract. On the other hand, if we say that Bert’s original utterance was false, we will presumably need to say that this is because Chrissy’s information was relevant all along. This leaves us with the original worry with group contextualism in §2.1: it becomes unclear how Bert was justified in making his initial utterance, which, intuitively, he was.

(A brief remark on how this way of presenting retraction arguments compares with others in the literature: Retraction phenomena are often understood in terms of whether the speaker’s initial epistemic modal utterance was true/correct in view of her available evidence at the time, and remains true/correct after new, previously unavailable evidence has been accepted. For this reason retraction cases are frequently presented in terms of truth/falsity and “what was said,” as in (18)–(19).

(18) Oh, whoops. I guess I was wrong in what I said.
(19) Oh, whoops. I guess what I said was false.

Doing so raises distracting issues about propositional anaphora, indirect speech reports, and, as we will see in §5.6, implicit metasemantic assumptions in truth-value judgments (on the former issues, cf. Chapter 4, esp. §4.2.4). We can raise the worry concerning the contrast between epistemic modals and paradigm context-sensitive expressions without introducing such complications. The worry is that after changes in the relevant contextual features, epistemic modals seem to license certain responses not licensed with paradigm context-sensitive expressions ('my bad', 'I take it back', 'I was wrong', etc.). The discourse move or speech act of utterance retraction needn’t be expressed in terms of truth/falsity or “what was said.”)
Insufficient replies

First, some contextualists have responded to retraction arguments by noting that speakers don't always retract their epistemic modal utterances when new information is brought to bear. Here is a case from VON FINTEL & GILLIES (2008):

(20) [Context: Billy is looking for her keys. Alex is trying to help.]

Alex: The keys might be in the drawer.

Billy: (Looks in the drawer, agitated.) They’re not. Why did you say that?

Alex: Look, I didn’t say they were in the drawer. I said they might be there — and they might have been. Sheesh.

(VON FINTEL & GILLIES 2008: ex. 10)

Moreover there is variability in speaker intuitions about when retraction is even warranted. However, merely noting these points is insufficient. The relevant worry for contextualism is that epistemic modals contrast with paradigm context-sensitive expressions in licensing retraction, not in requiring it. Simply noting that speakers don’t always retract in the face of new evidence still leaves the contextualist with the challenge of explaining the cases where speakers do retract. Further, the contextualist, just as much as the relativist, still needs to explain the apparent variability in (speakers’ judgments about) when retraction is licensed.

Second, retraction arguments often proceed by identifying a certain discourse move — a retraction of a previous epistemic modal utterance, or an assertion in the face of new evidence — and arguing that it isn’t best understood in terms of a contextualist semantics. One contextualist-friendly response might be to understand retraction of a past epistemic modal utterance in terms of a present unwillingness to update with the sentence uttered — for instance, to understand Bert’s retraction of his original utterance of (6) in terms a present unwillingness to update with (6), given the presentation of Chrissy’s new evidence. On this line, Bert retracts in the sense that, and because, he would no longer wish to update the conversational com-


32For similar points, see MACFARLANE 2010: 13–15, 2014: 260; EGAN 2014: 126; MOSS 2013: 71n.6. Relativists overstate their case when they claim that “epistemic modal claims are always evaluated in light of what we know now (at the time of assessment), even when we know much more than was known at the time the claim was made” (MACFARLANE 2011: 173).
mon ground by uttering [6]. However, this reply leaves unexplained the contrasts in retraction phenomena between epistemic modals and paradigm context-sensitive expressions. After A and B drive into the plains, there is no inclination for A to retract her initial utterance of ‘It’s hilly here’, even though A would no longer wish to update with ‘It’s hilly here’. In both [15] and [17] the speaker “disagrees” with her past self in the sense that she wishes to have certain incompatible presuppositions about the conversational situation.

**Learning from new data**

Following our strategy in §2.3, let’s see if we can find parallel retraction cases with paradigm context-sensitive expressions. Perhaps investigating what is going on in these cases will illuminate what is going on in the cases with epistemic modals.

Recall our Amanda and Billy example from §2.3: Amanda and Billy are watching three children — Nick, Will, and Wilma. Will and Wilma, the two white children, are laughing, but Nick, the one non-white child, is not. Amanda is racist against non-whites, and Billy knows this. Now consider the following variant of their discourse:

\[
\begin{align*}
(21) & \quad \text{Amanda:} \text{ Look, the children are laughing!} \\
& \quad \text{Billy:} \quad \text{No they aren't. What about Nick? Don't forget him.} \\
& \quad \text{Amanda: (Sheepishly.) Oh, whoops. My bad; I take it back.}
\end{align*}
\]

Here Amanda decides not to defend her racist assumption and retracts her initial utterance. Similarly, consider the following variant of our Chip and Dorothy example:

\[
\begin{align*}
(22) & \quad \text{[Context: Chip, a well known sexist in America before the ratification of the Nineteenth Amendment, is commenting to Dorothy on the glories of American democracy.]} \\
& \quad \text{Chip:} \quad \text{Ain't America great? Everyone can vote.} \\
& \quad \text{Dorothy:} \quad \text{No, not everyone can vote. I still can't.} \\
& \quad \text{Chip:} \quad (\text{Sheepishly.}) \text{ Oh, whoops. My bad; I take it back.}
\end{align*}
\]

Here Chip decides not to defend his sexist assumption that women aren’t among those relevant Americans who have a moral right to vote. The discourses in (21)–(22) show that we see retraction phenomena with paradigm context-sensitive expressions. This hasn’t been noted in the literature.

Our discussion of the PCS-examples in §2.3 suggests the following diagnosis for what is going on in discourses like (21)–(22): Take (21). Amanda’s utterance of (23)
assumes that Nick is less salient than Will and Wilma.

(23) The children are laughing.

Given Amanda’s racism, her utterance can thus implicitly suggest that Nick is to be ignored on account of his race. Billy, wishing to object to this feature of Amanda’s linguistic act, produces an utterance that issues a contrary assumption about the state of the context: that Nick is not less salient than Will and Wilma. So far, so familiar. What is important about (21) is that one option open to Amanda is to accommodate Billy’s alternative contextual assumption and retract her initial utterance. Perhaps Amanda wanted to try and smuggle her racist views into the context by uttering (23), but she is unwilling to defend these views explicitly. Perhaps she doesn’t want her racist commitments to be explicitly registered in the conversational record. This suggests the following diagnosis: In retracting, Amanda rejects a contextual assumption of her initial utterance. By acting in such a way that would be appropriate only if a different value was assigned to the relevant contextual parameter, Amanda can accept the contrary proposal implicit in Billy’s reply. She can act as if Billy’s assumptions about the context — specifically, about the salience ordering on relevant groups of children — were correct all along.

We can treat retraction cases with epistemic modals analogously. As we saw in §3.2, Bert’s utterance of (6) ‘The test may be on Monday’ assumes that the discourse common ground is compatible with the proposition m that the test is Monday. Chip, wishing to object to this feature of Bert’s linguistic act, produces an utterance that issues a contrary assumption about the state of the context: that the discourse common ground is incompatible with m. What retraction cases like (17) show is that even Bert’s original utterance was justified, he may wish to accommodate Chip’s alternative contextual assumption. In retracting his initial utterance, Bert rejects its assumption about the context, and accepts the alternative value for the relevant contextual parameter assumed by Chip’s reply. The discourse common ground can then be updated accordingly and reflect Chip’s new evidence.

We noted above that speakers don’t always retract their epistemic modal utterances in the face of new evidence. We can capture the variability in speakers’ tendencies to retract in terms of broader features of the discourse. In (17), the primary conversational goal is to figure out when the test is. A sub-goal is to settle on whether the test is Monday. Given Chip’s presentation of new evidence that settles this question, Bert can streamline the conversation by retracting and thereby settling with Alice and Chip on the current state of the discourse context. Crucially, the fact that Bert’s retraction is licensed doesn’t show that his initial utterance was unjustified. Since
it is common knowledge that Chip's additional evidence wasn't available to Alice or Bert when Bert produced his utterance, there is no risk to Bert of being thought unjustified in making his initial utterance. Bert needn't sidetrack the conversation by getting bogged down on the question of what information was previously available to him. The group can proceed for the purposes of the conversation as if Chip's assumed value of the contextual parameter $P_e$ was relevant all along.

Cases where speakers don't retract can then be understood as cases where the speaker wishes to defend the justification of her initial utterance. The discourse in (20) from von Fintel & Gillies sets up precisely such a case. Though Alex is trying to be helpful, Billy responds to her utterance by looking “agitated” and challenging the justification of Alex's utterance. By asking “Why did you say that?” Billy changes the primary goal of the conversation from settling on where the keys are to establishing the rationale for Alex's utterance. Since Alex’s retracting would convey that she is willing to proceed as if Billy’s assumed for $P_e$ was relevant all along, she should do so only if she can reasonably expect Billy to think that this is simply to streamline the conversation and that Billy’s new evidence wasn’t previously available to her. Since this condition isn’t met, Alex has reason to “stick to her guns” and not retract.

### 3.4.2 Eavesdroppers and inter-conversational disagreement

**Eavesdropper arguments**

A second additional argument against contextualism concerns phenomena involving eavesdroppers: cases where someone evaluates an utterance made in a context in which she is not participating[^3]. The worry for contextualism is that epistemic modals behave differently from paradigm context-sensitive expressions in eavesdropper cases. When eavesdroppers evaluate utterances of sentences with paradigm context-sensitive expressions, they do so with respect to the contextual features relevant in the context of utterance. There is no inclination to evaluate $A$’s utterance in (24) as false.

(24)  [Context: You have a spy camera set up in $A$ and $B$’s house in Russia, where it’s cold. You are watching a video of their dealings from your base in Tahiti, where it’s warm. $A$ says to $B$:]

It's cold here.

We evaluate $A$’s utterance with ‘here’ with respect to $A$’s location, not our own. By

contrast, sometimes we evaluate epistemic modal utterances made in other conversations with respect to our own information, rather than with respect to the information available in the context of utterance. Suppose you are listening in on Alice and Bert's conversation about when the test is, as in (25).

(25)  [Context: You overhear Alice and Bert talking about when the test is. You know that the test isn't Monday. Bert says:]  
The test may be on Monday.

Did Bert speak falsely? A common response is that he did. This contrasts with our intuitions about Bert's explicitly relativized epistemic modal utterance in (26).

(26)  [Context: You overhear Alice and Bert talking about when the test is. You know that the test isn't Monday. Bert says:]  
For all {I, we} know, the test may be on Monday.

The challenge for the contextualist is to explain these contrasts. We evaluate utterances with paradigm context-sensitive expressions with respect to the contextual features relevant in the context of utterance, even if we aren't party to the conversation in which the utterance is made. By contrast, we sometimes appropriately evaluate speakers' epistemic modal utterances with respect to our own information, rather than with respect to their information, even if we aren't participants in their conversation. One might take these latter evaluations with epistemic modals as indicating that the eavesdropper's information was in fact available or relevant in the context of utterance. But, as before, saying this would reintroduce the worry of capturing how speakers like Bert in (25) are in a position to make the epistemic modal claims they seem licensed in making.

An insufficient reply

As with the case of retraction arguments, some contextualists have observed that eavesdroppers don't *always* evaluate epistemic modal utterances made in other conversations with respect to their own information (n. 31). But merely noting this is insufficient. The contextualist still needs to explain (a) the cases where eavesdroppers do evaluate based on their own information, and (b) the apparent variability in what information eavesdroppers use in interpreting epistemic modals.
Inter-conversational disagreement

The challenge raised by eavesdropper cases is an instance of a general challenge of accounting for inter-conversational agreement and disagreement, i.e. agreement and disagreement among individuals not engaged in the same conversation. Here are two examples from John MacFarlane, modified for the case of epistemic modals.

(27) When I overhear Bert talking about how the test “may be on Monday,” I may think he is wrong. The test can’t be on Monday. But Bert certainly doesn’t think of himself as involved in a conversation with me — he doesn’t even know I’m here. Nor do I think of myself as conversing with him.

(28) Unbeknownst to each other, two research groups are investigating the cause of a certain epidemic. After gathering lots of evidence, Group 1 concludes, “The epidemic may have spread to humans from birds.” Group 2, looking at a different body of evidence, concludes, “The epidemic can’t have spread from birds; it must have come from spores in the soil.” Looking at both reports, I note that their conclusions disagree about the possibility that the disease was spread to humans from birds. When I bring both groups together, they will accept my characterization of their results as disagreeing. They will certainly not protest that their conclusions are compatible.

(adapted from MacFarlane 2007a: 20–21)

The worry is that Discourse Contextualism cannot explain inter-conversational disagreement since there is no shared contextual parameter for individuals in different conversations.

Learning from new data

Before replying, I should say that I find appeals to inter-conversational cases methodologically suspect. A primary task of semantics is to investigate how the conventional meanings of sentences place constraints on how uses of those sentences affect the context or a hearer’s state of presupposition. There are reasons to worry about how probative judgments in inter-conversational cases are for semantic theorizing thus conceived. There is independent empirical evidence that eavesdroppers consistently perform worse than conversational participants in identifying speakers’ intended interpretations (e.g., Schober & Clark 1989). We should be wary with abstracting away from intuitions about language use and how utterances affect the discourse context. How, as theorists, to interpret data involving object language truth-value judgments is notoriously difficult enough as it is (von Fintel 2004).
Eavesdropper cases and appeals to some (likely ill-defined) pretheoretic notion of disagreement only make matters worse.

With that said, for the sake of argument I will grant that the sorts of judgments in (27)–(28) are correct, and that they are something that needs to be explained by a semantic and pragmatic theory. And though I think we should be cautious about how much dialectical weight we place on eavesdropper cases, I will assume that they do bring out a contrast that needs to be explained in our assessment practices with paradigm context-sensitive expressions and epistemic modals.

Start with the general problem concerning inter-conversational disagreement. Consider (27) (the reply would parallel for (28)). One natural thought is that Bert and I disagree insofar as were we to enter into a conversation with one another, we would both intend our uses of epistemic modals to be interpreted with respect to the discourse common ground. Our utterances would thus assume incompatible values for this contextual parameter and impose incompatible updates to it. But we needn't even invoke hypothetical conversations to make the point. I disagree with Bert in the same way that Alice disagrees with Bert in (5); we wish to take alternative bodies of information for granted. I wish to proceed as if the possibility that the test is Monday has been ruled out, whereas Bert does not.

We have already seen independent reasons for thinking that incompatibility of asserted content isn't necessary for disagreement, and that incompatibility of pre-suppositions can suffice. This appears to hold for inter-conversational cases as well. Consider (29).

(29)  A thinks that there is a king of France. Pleased about this exciting state of affairs, A says 'I'm glad there's a king of France'. B, who is in an unrelated conversation, thinks there isn't a king of France. Pleased about this, B says 'I'm glad there isn't a king of France'. Intuitively, A and B disagree, though they are in different conversations.

When A utters 'I'm glad there's a king of France', and B utters 'I'm glad there isn't a king of France', they disagree, intuitively, in the sense that they have incompatible presuppositions. A's utterance with the factive verb 'glad' assumes that there is a king of France; B's utterance with the factive verb 'glad' assumes that there isn't a king of France. Apparent inter-conversational disagreement from incompatible presuppositions isn't limited to epistemic modals.

Now turn to eavesdropper cases. Let's take up our now familiar strategy, and reexamine our extra-conversational assessment practices with paradigm context-sensitive expressions. Return to the case of Amanda and Billy. Suppose you are
eavesdropping on Amanda and Billy’s conversation, as in (30).

(30)  [Context: You are spying on Amanda and Billy from an adjacent room. Ignoring Nick for racist reasons, Amanda says:]
Look, the children are laughing!

Did Amanda speak falsely? A not implausible response is that she did. You might think to yourself, “Amanda shouldn’t be ignoring Nick. She spoke falsely. Nick isn’t laughing.” Similarly, reconsider the following variant on our Chip and Dorothy example. Suppose you are Dorothy, eavesdropping on a conversation between Chip and some of his other sexist friends, as in (31).

(31)  [Context: You overhear Chip and his friends, well known sexists in America before the ratification of the Nineteenth Amendment, commenting to one another on the glories of American democracy. Chip says:]
Ain’t America great? Everyone can vote.

Did Chip speak falsely? A not implausible response is that he did. You might think to yourself, “Chip shouldn’t be ignoring women. He spoke falsely. I can’t vote.”

These cases show that eavesdroppers sometimes evaluate utterances with paradigm context-sensitive expressions made in other conversations based on their own assessments of the contextual features relevant to interpreting those expressions. However, there is a complication that I would like to flag. First, one's views about whether cases like (30)–(31) reflect a departure from our ordinary practices of evaluating utterances with PCS-expressions will depend on one's views about the metasemantics of these expressions (cf. §2.3). For instance, if the semantic value of Amanda's use of 'the children' is determined partly by factors other than her communicative intentions, she may be incorrect about which children are salient, and thus incorrect about what she is saying. If so, it will be features relevant in her own context of utterance in virtue of which her utterance is false. In any case, it is compatible with my aims here that cases like (30)–(31) have merely heuristic value. As in our discussion of disagreement with PCS-expressions in Chapter 2, what is important is what we can learn about our evaluation practices with epistemic modals. I postpone discussion of issues concerning metasemantics and utterance truth to §3.6.

It isn't counterintuitive that what is going on in eavesdropper cases like (25) and (30)–(31) is that the eavesdroppers are projecting themselves and their assumptions about the relevant contextual features into the other conversations, and are then evaluating the speakers’ utterances accordingly. This raises the question of under
what conditions eavesdroppers will do. Our discussion of the variability in the retraction data suggests that we look to eavesdroppers’ aims in evaluating the speakers’ utterances. What issue is primary for the eavesdropper? What to assume about the relevant contextual features? Whether the speaker was justified in assuming the value for the relevant contextual parameter that she did? Whether, given such-and-such value for the relevant contextual parameter, the sentence uttered is true?

Our discussion of retraction suggests the following hypothesis: that eavesdroppers will interpret a context-sensitive utterance with respect to the contextual features they take to be relevant only if the primary issue for them concerns the nature of those features and what value is appropriate for the associated contextual parameter. Given the egregiousness of Amanda’s assumptions about who is salient in her context, it would be hard when overhearing her utterance not to treat the question of who is salient as of central importance. This predicts, correctly it seems, that eavesdroppers will tend to assume the salience ordering they take to be appropriate in interpreting Amanda’s utterance. Likewise, given the problematic nature of Chip’s assumptions about who ought to be allowed to vote, we should that eavesdroppers will tend to assume the domain restriction they take to be relevant in interpreting Chip’s utterance. However, what is assumed about the relevant features of context in uses of PCS-expressions is rarely contentious in these ways. What is typically at issue is the utterance’s truth conditional content, taking as given the speaker’s intended value for the relevant contextual parameter. Hence it isn’t surprising that eavesdropper arguments typically get off the ground by assuming that PCS-expressions behave in the way reflected in (24) above.

Like with retraction phenomena, how an eavesdropper interprets the speaker’s epistemic modal utterance will depend on which issue primary: our inquiry concerning the modal’s prejacent, or the speaker’s justification for her linguistic act. When we overhear Bert’s utterance in (25) and evaluate it as false, we are accommodating the value for the contextual variable $P_e$ that represents the information we take to be appropriate in guiding inquiry. This reflects our prioritizing the question of what to assume in our inquiry into how the world is. When we overhear Bert’s utterance in (25) and evaluate it as true, we are accommodating the value for $P_e$ that represents (what we are assuming is) Bert’s information. This reflects our prioritizing the question of whether Bert was justified in his utterance, i.e. whether his utterance accurately reflected the information available to him. The contrast with PCS-expressions is that with epistemic modals what is typically of primary importance is their discourse-oriented contribution, which targets the former question — what information is taken for granted, and what possibilities are treated as live (§3.3.3. More on this in §4.4). (How precisely to capture these phenomena will depend on
the proper contextualist treatment of epistemic modals in embedded contexts. We will take this up in Chapter 4.

To recap, retraction and eavesdropper phenomena initially seem to present the following contrasts between paradigm context-sensitive expressions and epistemic modals: first, that (a) speakers don’t take themselves to have reason to retract past utterances with PCS-expressions after changes in the contextual features plausibly relevant to determining the contents of those expressions, but do take themselves to have reason to retract their previous epistemic modal utterances when presented with new evidence (specifically, evidence with respect to which, in conjunction with the rest of one’s current evidence, the sentence previously uttered is false); and, second, that eavesdroppers interpret PCS-expressions used in other conversations with respect to the contextual features plausibly relevant in the context of utterance, but interpret epistemic modals used in other conversations with respect to the information plausibly relevant in their own context of evaluation. Contrary to initial appearances, the starkness of these contrasts isn’t warranted by the data. There are cases where speakers retract with PCS-expressions and where eavesdroppers interpret PCS-expressions with respect to their own context of evaluation. And there are cases where speakers don’t retract with epistemic modals and where eavesdroppers interpret epistemic modals with respect to the context of utterance. Noting this leaves open why retraction is warranted in the cases where it is, and why eavesdroppers sometimes interpret context-sensitive expressions with respect to their own context of evaluation rather than the context of utterance. I have suggested that we understand retraction phenomena and eavesdroppers’ assessment practices in terms of speakers’ conversational goals and the contextual assumptions of context-sensitive utterances. In the case of epistemic modals, we should expect speakers to retract and eavesdroppers to interpret with respect to their own information only in cases where the primary aim is to settle on whether to treat the prejacent as a live possibility (or necessity), and where the justification of the speaker’s (initial) utterance isn’t plausibly in question. Since these conditions aren’t always met, we should expect variability in speakers’ tendencies to retract and in eavesdroppers’ assessment practices. Similarly, we should expect variability in assessors’ judgments about retraction and eavesdropper cases, insofar as assessors may reasonably disagree about what the interlocutors’ primary goal ought to have been, or about whether the speaker’s (initial) utterance was justified.
3.5 Aside: Presupposition and epistemic modals

I have said that utterances of epistemic modal sentences assume a value for a premise set variable and make a claim about the world in light of that assumed value. It will be helpful to make this informal talk about “assuming” a body of information more precise. (Readers less interested in details about the presuppositional properties associated with epistemic modals may wish to proceed to the next section.)

3.5.1 “Assuming” values for variables?

Discourse Contextualism starts with a formal semantics associating epistemic modal sentences with a variable that ranges over bodies of information (§3.1). This would seem to predict that uses of epistemic modals will be associated with existence and salience presuppositions of the sort characteristically found with variables — namely, that there is a body of information that can serve as the value of the epistemic premise set variable and that this information is salient. Yet common tests for presuppositions may seem to suggest otherwise. In this section I consider two: the Family of Sentences test and the ‘Hey, Wait a Minute’ test.

First, a familiar way of testing for presuppositions is via the Family of Sentences (FoS) test (Karttunen 1973, Chierchia & McConnell-Ginet 1990, Beaver 2001; Tonhauser et al. 2013). Suppose we are talking about Alice using the pronoun ‘she’. The implication of (32) that Alice is a philosophy major doesn’t project — it isn’t something the speaker would be committed to — when (32) is embedded un-

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3 Five clarificatory remarks: First, I use ‘implication’ as neutral between assertion, entailment, presupposition, (conversational or conventional) implicature. Second, given my purposes I won’t distinguish among kinds of conventional non-truth-conditional content, and I assume that the projective contents under consideration are presuppositions. As we will see, this is compatible with the relevant expressions’ having relevantly different discourse and embedding properties. (See, e.g., Chierchia & McConnell-Ginet 1990, Potts 2005, Beaver et al. 2009, Roberts 2011, Tonhauser et al. 2013, Tonhauser 2015 for discussion of various sorts of projective contents. For general background on presupposition, see, e.g., Soames 1989, Heim 1990b, Beaver 2001, Beaver & Geurts 2014 see also ch. 2 n. 14) Third, there may ultimately be reasons to distinguish the existence and salience implications often associated with variables (Tonhauser et al. 2013). This potential complication won’t be relevant in what follows. Fourth, I will sometimes characterize the relevant presuppositions as constraints to be satisfied by context, though the points are compatible with characterizations of presuppositions as propositions or constraints. Fifth, I intend my talk of the presuppositions “associated with” epistemic modals to be neutral on whether the fundamental locus of presuppositions are expressions, utterances, or speakers. However, to emphasize the presupposition’s conversational basis, as defended below, I will often talk in terms of what a use of an epistemic modal presupposes.
der clausal negation, in a question, or in the antecedent of a conditional, as reflected in (33). In contrast, the implication of (32) that there is a suitable salient referent for 'she' does project.

(32) She is a philosophy major.
(33) a. She isn’t a philosophy major.
    b. Is she a philosophy major?
    c. If she is a philosophy major, she’s sure to win the prize.

This is taken to show that the implication that Alice is a philosophy major is part of the asserted, truth-conditional content of (32), whereas the implication that there is a suitable salient referent is grammatically backgrounded, or not-at-issue.

Turning to epistemic modals, we have seen that Bert’s utterance of (6) commits him to there being a relevant value for $P_e$ which is compatible with the proposition $m$ that the test is Monday. What happens when we embed (6) in FoS environments?

(6) The test may be on Monday.
(34) a. It’s not the case that the test may be on Monday. (/The test can’t be on Monday.)
    b. Might (/Could) the test be on Monday?
    c. If the test may be on Monday, I should start studying now, just in case.

Distinguish the claim that there is a relevant value for a variable, from the assumption of a particular value for that variable. The sentences in (34) all plausibly imply the former existential claim. Alice’s utterance of ‘The test can’t be Monday’, for instance, commits her to there being some relevant value for $P_e$ or other. However, the implication of (6) that (say) $P_B$ is the relevant value doesn’t seem to project. Alice’s utterance of the negation of (6) commits her to an incompatible value for $P_e$. And, intuitively, a speaker of (34b) is asking about what information (value for $P_e$) to accept, and a speaker of (34c) is merely entertaining the possibility that the relevant information (value for $P_e$) is compatible with $m$. What, then, should we make of the idea that Bert’s utterance of (6) “assumes” a certain value for $P_e, P_B$?

Applying the FoS test to epistemic modals is complicated by the fact that we have been focusing on expressive uses. Epistemic modals pattern with paradigm presuppositional expressions once we control for this factor. First, note that the assumption of a certain value for the epistemic premise set variable does project in non-expressive uses of epistemic modals. Reconsider (10) from §3.3.5. We are betting on who might have killed Fischer according to the information in the filing.
cabinet, which contains the police's evidence about the murder. Your utterance of (35) commits you to the unsaturated premise set $P_{fc}$ being the salient value for the variable $P_{fc}$ representing the police's evidence. That is, it commits you to a certain function from worlds to sets of propositions describing the information in the filing cabinet in those worlds. This commitment survives in the sentences in (36).

(35) I might have done it.

(36) a. It’s not the case that I might have done it. (/I couldn’t have done it.)
    b. Might I have done it?
    c. If I might have done it, I should avoid the police, just in case.

What is being denied, questioned, and supposed is whether you are in a world $w$ such that $P_{fc}(w)$ — the value of the same assumed value for $P_{fc}$ at the evaluation world — is compatible with your being the killer.

Conversely, the assumption of a certain variable value does not project in certain discourse-oriented uses of paradigm context-sensitive expressions (§2.3). Chip’s utterance of (37) commits him to a certain value $d$ for the domain restriction parameter $d$ that excludes women. The implication that this is the salient value for $d$ fails to project in Dorothy’s utterance of (38).

(37) Everyone can vote.

(38) No, not everyone can vote.

Likewise, hearing Chip’s remark, one might utter (39)–(40) as ways of expressing uncertainty about women’s rights.

(39) Can everyone vote?

(40) If everyone can vote, it must be that women don’t have a say.

The lesson is that although passing the FoS test can confirm that an implication is a presupposition, failing the test doesn’t confirm that an implication isn’t a presupposition. With epistemic modals and paradigm context-sensitive expressions alike, the assumption of a certain parameter value projects in descriptive non-discourse-oriented uses, but fails to project in discourse-oriented uses where the identity of this value cannot be taken for granted in the discourse.\footnote{One diagnosis of the non-projection cases is that the presupposition is getting locally satisfied, i.e. satisfied in a context other than the discourse context, as in the scope of the negation, question operator, or ‘if’-clause. We will examine issues of local satisfaction extensively in Chapter 4.}
A second worry with treating epistemic modal utterances as presupposing a certain body of information concerns their behavior with denials. Presuppositions can be echoed in indirect denials, whereas asserted content cannot (Shanon 1976, von Fintel 2004). The existence presupposition of (41), unlike the asserted content, can be indirectly challenged by uttering something like 'Hey, wait a minute,' as reflected in (42).

(41) A: The mathematician who proved Goldbach’s Conjecture is a woman.
(42) B: Hey, wait a minute. I had no idea that someone proved Goldbach’s Conjecture.
   B’: #Hey, wait a minute. I had no idea that that was a woman.
   (von Fintel 2004: ex. 3)

By contrast, it would be odd to respond to an utterance of (6) like Chris or Dani in (43).

(6) The test may be on Monday.
(43) Chris: #Hey, wait a minute. I had no idea that you/we were presupposing a body of information.
   Dani: ?Hey, wait a minute. I had no idea your/our evidence was compatible with the test’s being Monday.

Diagnosing what is wrong with this objection elucidates an important feature of the role of epistemic modals in discourse. As with the FoS test, passing the 'Hey, wait a minute' test can confirm that an implication is a presupposition, but failing the test doesn’t confirm that an implication isn’t a presupposition. The 'Hey, wait a minute test' identifies presuppositions only when (among other things) the addressee would be justified in objecting that the speaker has assumed something that isn’t common ground, and the addressee doesn’t regard herself as being a more competent judge of the issue in question than the speaker (cf. Swanson 2006a: 13–14, Tonhauser et al. 2013: 81). Consider (44).

(44) A: I have to pick up my sister at the airport.
   B: Hey, wait a minute. I had no idea you had a sister!
   B’: No you don’t. You don’t even have a sister.

First, if prior to A’s utterance you had no opinion on whether A has a sister, then, assuming that it isn’t particularly interesting news that A has a sister, it would be pedantic to reply as B does. It is obvious how A’s presupposition can be accom-
modated. Second, if you think that A doesn't have a sister, then you can skip the indirect 'Hey, wait a minute' reply and go straight to a direct denial, as B′ does. This streamlines the conversation. Since it is obvious that A is assuming she has a sister, if you take yourself to be in a position to voice disagreement on whether she does, you can do so straightforwardly.

These conditions are often met with epistemic modals. As we have seen, addressees typically can infer what information the speaker intends, and regard themselves as competent judges of what information to take for granted in the conversation. Rather than needlessly sidestepping the conversation by complaining like Chris or Dani in (43), hearers can respond with a direct affirmation or denial, like Alice in (5). However, we shouldn’t overstate the extent to which values for Pe can be accommodated. Addressees sometimes can respond by echoing what is presupposed by an epistemic modal utterance. Recall our discussion of the anaphoric properties of epistemic modals (§§3.2, 3.3.6). If you don’t know that I have just seen people come in with wet umbrellas, you can felicitously respond as in (45).

(45) You: What’s the weather like outside?
Me: It must be raining. Let's stay here for lunch.
You: Hey, wait a minute. What makes you say that? Have you seen or heard anything recently? Or did you just see people come in with wet umbrellas, you can felicitously respond as in (45).

So, we can maintain that, as with other variables, the implications associated with epistemic premise set variables are presuppositional. Our talk of epistemic modal utterances “presupposing” values for Pe doesn’t imply that the question of what value context supplies is non-main-point or non-at-issue, or that the presupposition always projects. Semantically, a value for Pe is “presupposed in the sense that the compositional semantics takes it as given in deriving the sentence's semantic content. In many utterances, the presupposition of a value for Pe may be “pre”supposed only in the sense of being a precondition for the appropriateness of the linguistic act.

Our discussion sheds light on the basis of the presupposition associated with epistemic modals. There is a sense in which the presupposition is triggered grammatically: epistemic modals are semantically associated with a premise set variable which (when free) must receive a value from context for the sentence to have a fully specified content. But this trigger isn’t the result of some property specific to epistemic modals. Other expressions semantically associated with contextual variables will have a similar presupposition that context supplies a salient value of the appropriate type (more on which in §4.4). This presupposition follows from general features of cooperative communication. When the conventional meaning of an expres-
sion links its interpretation to features of context, a speaker’s use of the expression can reflect her commitments about those contextual features. Given the grammatical properties of epistemic modals, using an epistemic modal sentence assumes that the discourse context supplies a body of information that would give one’s utterance the intended interpretation. Expressive uses of epistemic modals thus characteristically reflect speakers’ commitments about what information to accept and what value for $P_e$ context supplies (§3.3.4). Given that a primary aim of discourse is to coordinate on a presumed common body of information about how the world is, there is reason to expect that this issue, though grammatically backgrounded, will have main-point status in many uses (§3.3).  

### 3.5.2 Presupposition and non-monotonic updates

As noted in §3.3.3, it is common to treat assertions as explicit proposals to update the context set. Since epistemic modal sentences require a value for a contextual variable in order to express a proposition, the assignment of such a value is a precondition for issuing the proposal which constitutes one’s assertion. Making an epistemic modal assertion thus takes for granted that this precondition is satisfied and implicitly changes the context accordingly, even prior to the assertion’s acceptance or rejection. There is more than one way to get information into the common ground (n. 14). Treating the body of information relevant for the interpretation of epistemic modals as presupposed has interesting consequences for how we model the dynamics of epistemic modals in discourse.

It is common in formal pragmatics to assume as an idealization that the process of information-gathering is monotonic — i.e., that information is only added and, once added, isn’t subject to further discussion. Successful assertions winnow down the context set; they eliminate possibilities incompatible with the content of the assertion. However, it is well known that presupposition accommodation can require adding possibilities to the context set. Consider (46).

(46) [Context: You see me carrying an infant. You think it is a boy, but it is actually a girl.]

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37This way of thinking about the presuppositions of uses of epistemic modals is friendly to views that attempt to explain the origins of (at least some) presuppositions in terms of general principles of conversation and of information structure and processing. See, e.g., Stalnaker [1997, 2014], Atlas [2006], Levinson [1983, 1998], Thomason [1990], Abbott [2000], Simons [1983, 2001, 2006, 2007], Thomason et al. [2006], Abusch [2010], Schlenker [2010], Simons et al. [2010], Abrusan [2011]. I leave open here the extent to which presuppositions can be conversationally derived in this way. Such conversational explanations needn’t be incompatible with the presuppositions having become grammaticalized.
You: He is so cute! What’s his name?
Me: Her name is Lila.

Your utterance presupposes that the baby is a boy. But updating with my assertion, assuming you don’t object, will add worlds where the baby is a girl to the context set.

Likewise, a function of some uses of epistemic possibility modals is to add to the context set possibilities hitherto ruled out in the conversation. Here is an example from Eric Swanson:\[^{38}\]

(47) Betty: I saw Ron walking his dog last night with Sam.
Clara: Are you sure it was Ron’s dog? It might have been a neighbor’s.
Betty: #I think it was Ron’s dog, but I might be wrong. Anyhow, Ron’s dog was really misbehaving…

(Swanson 2011a: 253–254)

Successfully updating with Betty’s initial assertion would restrict the context set to worlds in which the dog Betty saw was Ron’s dog. However, her admission to Clara that she might be wrong about whose dog she saw ensures that the context set comes to include worlds in which the dog was someone else’s. The context set expands to satisfy the presupposition of her use of ‘might’ that the value for \( P_e \) is compatible with the proposition that the dog she saw wasn’t Ron’s. This makes it infelicitous for her to then use the definite expression ‘Ron’s dog’ to refer to the dog she saw.

We shouldn’t overstate the ease with which speakers can use epistemic possibility modals to raise hitherto ignored possibilities. Swanson notes:

This [aspiration of ‘It might be that \( \phi \)’ to ensure that it is not presupposed that \( \neg \phi \)] — combined with the crucial fact that speakers can often felicitously use ‘might’ statements without having much evidence that bears on the truth of the embedded claim — gives ‘might’ statements a surprising kind of power… This is one reason why it’s hard to argue with conspiracy theorists, skeptics, and the like. Give them an inch of credence, and they are entitled to take a mile of presupposition.

(Swanson 2011a: 254)

“Hard,” perhaps, but not impossible. The anti-skeptic can refuse to accommodate the presupposition of the skeptic’s utterance; she can refuse to play the skeptic’s game:

(48) Richard: My hand hurts.

[^{38}]: For related discussion of the role of epistemic modals in raising possibilities to awareness, see also Franke & de Jager 2011, Yalcin 2011.
Tom: Are you sure you have a hand? You might be a bodiless brain in a vat.

Richard: Shut up. My hand is killing me.

It needn’t be the case that once the context set expands, “the commonsensical epistemologist must concede defeat” (1979b: 355). More generally, it isn’t always the case that speakers can felicitously utter epistemic ‘May ϕ’ while lacking substantial positive evidence for the truth of ‘ϕ’. Consider a more prosaic example. Suppose you can’t find your keys. For all we know, they could be almost anywhere. Yet it would be infelicitous for me to utter (49).

(49) They might be in China.

This is nicely predicted on the present account. On the one hand, if we have been presupposing that the keys aren’t in China, this likely isn’t for no reason. So, positive countervailing reasons will typically need to be given for why we should now come to leave open the possibility that they are there. On the other hand, if worlds in which the keys are in China are already in the context set, uttering (49) would change the context only by explicitly getting it on the conversational record that what we have been presupposing is compatible with the possibility that the keys are in China. One would typically need reason for making it explicit that the context set is compatible with this possibility as opposed to some other salient alternative.

There are multiple ways of modeling the above sorts of non-monotonic updates from epistemic modal utterances. As Lewis (1979a) highlighted in the analogous case of deontic permissions, there is no unique way of subtracting information from the common ground in order to accommodate an utterance of epistemic ‘May ϕ’ (cf. Yablo 2011, Stalnaker 2014: ch. 6, Nuffer 2015). I will leave open the problem of specifying a general rule for how utterances of epistemic ‘May ϕ’ change the context. This is admittedly unsatisfying, as it is often the discourse-oriented contribution of epistemic modal utterances that is of primary importance in conversation. At minimum we can subsume the problem to the more general problem of modeling (non-monotonic) updates involving presupposition accommodation. It is an interesting question whether it is the task of formal pragmatics proper, as opposed to a more general theory of belief revision, to model these sorts of updates.\footnote{See Zeevat 1997 for a model which treats all assertive updates as non-monotonic. Cf. Las- carides & Asher 2009, which preserves monotonicity in constructing logical forms for discourses with corrections and disputes. For classic discussions of contraction and revision operations in theories of belief revision, see Alchourrón et al. 1985, Gardenfors 1988, Levi 1991, Fuhrmann 1997, Hansson 1999.} What is impor-
tant for our purposes is simply that utterances of epistemic ‘May $\phi$’ ensure that the endorsed information is compatible with $\phi$, and that they do so by presupposing a value for the contextual variable $P_e$ that renders the utterance appropriate.

### 3.5.3 A presupposition of commonality?

There is a precedent of invoking the notion of presupposition in contextualist accounts that is worth briefly mentioning. Dan López de Sa has suggested that contextualists can account for disagreement phenomena by positing that the relevant expressions trigger a “presupposition of commonality,” a presupposition that the interlocutors “are all alike in the relevant respects” (2008: 304).

Applied to the case of epistemic modals this would be a presupposition that the interlocutors accept the same information. I am sympathetic with the informal spirit of this approach. But it is underdeveloped in ways that make it unclear how it is supposed to account for the relevant phenomena. One interpretation might be to view the present account as filling in the basis of the presupposition, how it is represented in the lexical semantics, and how appealing to it can help explain disagreement data.

First, López de Sa stipulates the putative presupposition of commonality as a separate component of meaning associated with individual lexical items. For example, he writes that “‘is funny’ triggers the presupposition that the participants in the conversation are similar with respect to humor” (2008: 304; cf. 2007: 276). By contrast, Discourse Contextualism links the class of epistemic modals with a discourse-level parameter, and assimilates the presupposition associated with epistemic modals to the (existence, salience) presuppositions associated with variables more generally.

Second, López de Sa claims that the putative presupposition of commonality helps explain discourse disagreement. The following constitutes the explanation for the case of ‘funny’:

According to the [presupposition of commonality] approach, ‘is funny’ triggers a presupposition of commonality to the effect that both Hannah and Sarah are similar with respect to humor. Thus, in any non-defective conversation where Hannah uttered ‘Homer is funny’ and Sarah replied ‘No, it [sic] is not,’ it would indeed be common ground that Hannah and Sarah are relevantly alike, and thus that they are contradicting each other. After all, and provided they are alike, either both Hannah and

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Sarah are amused by Homer or they are not. Hence why, unlike in the case of ‘I am tired,’ ordinary understanding would indeed hear a disagreement as to whether Homer is funny. (López de Sa 2008: 305)

It is unclear how this explanation is supposed to work. In many cases of disagreement the interlocutors manifestly don’t converge in the relevant respects; it can be mutually obvious that they are assuming different information, standards of funniness, etc. Indeed, this is often the basis for their disagreement. This raises two concerns. First, though the presupposition of commonality isn’t satisfied (cf. 2007: 278n.11), there needn’t be any infelicity in the speakers’ utterances. If there is a genuine presupposition here, we need an explanation of why this should be so (as I have attempted to do above). Second, it is unclear what exactly in the account represents the disagreement. Given López de Sa’s speaker contextualism, in cases of disagreement not only can speakers agree that the presupposition of commonality isn’t satisfied, but they can also agree with what their opponents assert (2007: 276). López de Sa might stipulate that it is sufficient for disagreement that the presupposition of commonality isn’t satisfied. But this would just restate what needs to be explained, namely, how the interlocutors are disagreeing. It would also reissue the challenge of accounting for the contrast between cases like (5) that do involve disagreement, and cases like (50), where the modals are explicitly relativized, that don’t.

(50) Bert: For all I know, the test may be on Monday.
Alice: #No, for all I know, the test can’t be on Monday.

Here it is manifest that Alice and Bert aren’t similar in their information, but they don’t disagree. By contrast, Discourse Contextualism explicitly represents disagreement in the incompatibility of presupposed content.

Discourse Contextualism better captures the intuitions that may lie behind the presupposition of commonality approach. In expressive uses the relevant presupposition isn’t that the interlocutors are alike in the information they accept. It is that there is a single body of information operative in the conversation that determines the contents of epistemic modal utterances.

3.6 Truth

There has been a conspicuous omission from much of our discussion thus far. In our response to objections from eavesdropper cases we had to consider eavesdroppers’ judgments about the truth or falsity of epistemic modal utterances. But nowhere in
the positive developments of and motivations for Discourse Contextualism have we
appealed to speakers’ intuitions about the truth values of epistemic modal sentences
in context. This is surprising: truth value judgments are often taken to be one of the
primary types of data for semantic theorizing. But it is no accident.

I take it that the primary questions for a formal semantics and pragmatics — an
account of the conventional meaning and use of language — are the following:

- **Compositional Semantics**: Given an assignment of values to context-sensitive
expressions, what are the conventional contents of expressions of the language,
and how are the conventional contents of complex expressions calculated as a
function of the conventional contents of their parts?

- **Formal Pragmatics**: Given a compositional semantics for the language, how
do individual utterances and sequences of utterances change the discourse
context? How should we model the dynamics of uses of language with this
semantics in conversation?

Formal semantics investigates what lexical entries to give for the simple expressions
of the language that makes the correct predictions about the conventional contents of
more complex expressions, given their internal syntactic structure and the language’s
composition rules. Crucially, compositional semantics takes as given an abstract
representation of context that assigns values to variables and other context-sensitive
expressions (§3.3.6). This abstract context represents speakers’ concrete discourse
context, or conversational situation.

Call the question of what makes it the case that a certain abstract context repre-
sents a concrete conversational situation a question of **metasemantics**⁴¹:

- **Metasemantics**: What makes it the case, for a given concrete discourse context,
that such-and-such abstract context c represents it, i.e. that such-and-such val-
ues are assigned to free variables and other context-sensitive expressions?

We have been able to address the semantics and pragmatics of epistemic modals
without taking a stand on the metasemantics of epistemic modals; we haven't needed
to commit to a particular story about what in fact determines the value for the epis-
temic premise set variable in a given concrete context. However, settling on this
metasemantic issue is necessary for determining the truth values of epistemic modal

⁴¹This isn’t the only sense of ‘metasemantics’ in the literature. ‘Metasemantics’ is sometimes used
to refer to the study of what makes it the case that expressions have the linguistic meanings that they
utterances. One cannot evaluate an epistemic modal utterance as true or false without making assumptions about what value for the contextual variable $P_e$ is determined by the concrete discourse context in which the utterance was produced. We can capture core features of the conventional meaning and discourse function of epistemic modals while remaining on neutral on which epistemic modal utterances are true or false.

Consider our discussions of discourse disagreement. Recall the Amanda/Billy example from §2.3 with definite descriptions. Given the semantics of the definite article, the truth of Amanda's utterance of ‘The children are laughing’ requires an assignment of the group consisting of Will and Wilma to the definite description ‘the children’. So, updating with Amanda’s utterance would result in a context set in which, for all worlds in that set, Nick is less salient than Will and Wilma on account of his race and the concrete context determines an abstract context on which the Will+Wilma group is the referent of Amanda’s use of ‘the children’. Correlatively, updating with Billy’s counter-utterance of ‘No, the children aren’t laughing’ would result in a context set in which, for all worlds in that set, Nick isn’t less salient and the concrete context determines an abstract context on which the group including Nick is the referent of ‘the children’. This locates a precise sense in which Amanda and Billy disagree: they have incompatible assumptions about the conversational situation. But notice that this explanation is neutral on the correct metasemantics of ‘the’ and relevant consequent issues. It leaves open whether facts independent of Amanda’s intentions make it the case that Nick is as salient as Will and Wilma, what the contents of Amanda’s and Billy’s respective uses of ‘the children’ are, whether these contents are the same or incompatible, and whether Amanda’s (or Billy’s) utterance is true.

Parallel points hold concerning discourse disagreements with epistemic modals. Recall our account of Alice and Bert’s disagreement from §§3.2–3.3. Given the semantics of epistemic modals, the truth of epistemic ‘May $\phi$’ requires an assignment to the epistemic premise set variable $P_e$ that is compatible with $\phi$. So, updating with Bert’s utterance would result in a context set $c_B$ in which, for all worlds in $c_B$, the concrete context determines an abstract context that supplies a value for $P_e$ that is compatible with the proposition $m$ that the test is Monday. Correlatively, updating with Alice’s utterance would result in a context set $c_A$ in which, for all worlds in $c_A$, the concrete context determines an abstract context that supplies a value for $P_e$ that is incompatible with $m$. This locates a precise sense in which Alice and Bert disagree: they have incompatible assumptions about the conversational situation, specifically about what evidence is available. But notice that we can say all this without taking a stand on whether the actual world is in $c_A$ or $c_B$, or on whether Alice or Bert, or
both, spoke truly. The dynamics of Alice and Bert’s conversation can be captured in terms of facts about the compositional semantics, about what their utterances assume about the (concrete and abstract) context, and thus about the intended contents of their utterances given those contextual assumptions. We can capture the interesting discourse-oriented features of epistemic modals, and how speakers can use epistemic modals to manage their assumptions about what possibilities are live, without taking a stand on the correct metasemantics or truth-value assignments for epistemic modal utterances.⁴² (Similar remarks apply for retraction and eavesdropper cases.)

This has important methodological and dialectical implications. First, a central question in the literature on contextualism and relativism about epistemic modals has concerned what body of information is “relevant” for the interpretation of epistemic modals. The problem of specifying which body of information is supplied by context might initially seem to be specific to contextualist theories. Absent such a specification contextualists might seem to lack an account of what contribution epistemic modals make to truth conditions — plausibly something that must be addressed by any semantic theory worth its salt. However, locating the question of what body of information is supplied in the metasemantics can help us see that this worry is ill-founded. For the purposes of compositional semantics, the contextualist can take as given a specification of context, and hence a specification of a relevant body of information for epistemic modals. As shown in this chapter, we needn’t even answer the question of what information is relevant in order to capture many of the discourse phenomena prominently discussed in the literature. The question of what body of information is relevant for interpretation will eventually need to be answered by any overall theory, contextualist or not — or at least any overall theory that wishes to assign truth values to epistemic modal utterances.⁴³ Where one does is a matter of bookkeeping: for Discourse Contextualism, in the metasemantics; for certain alternative versions of contextualism, in the semantics; for relativism, in the “postsemantics” (MacFarlane 2003, 2011, 2014; cf. Lewis 1980, Kaplan 1989), i.e. in defining truth in a context of utterance (and, for MacFarlane, also a context of assessment); and for invariantism, in the semantics, specifically in the account of what body of information is used.

⁴²Contrast Plunkett & Sundell 2013a: 15, 23, 26.

⁴³Expressivist and dynamic accounts which reject giving a postsemantics for epistemic modals may avoid this question (see esp. Yalcin 2011); however, they would still need to provide an account of what distinguishes (in my terminology) the expressive uses, which are given the relevant expressivist/dynamic semantics, and the varieties of non-expressive uses, which are not. See the Appendix for further discussion.
determined by a given world of evaluation.

Second, settling on the truth or falsity of epistemic modal sentences in a “neutral” or informally described discourse context may be less critical in capturing our semantic competence with epistemic modals than we initially thought. The issue of what the correct metasemantic story is for epistemic modals is highly contentious, and the correct story, whatever it is, is likely highly complex. A range of factors are plausibly relevant to fixing the value of the contextual variable $P_e$ — e.g., speaker intentions, previous utterances and discourse moves, information structure, features of the concrete conversational situation and broader environment, and so on. And the ways in which these factors, whatever they are, interact to determine the relevant value are plausibly highly complex, and even variable across utterances. (One needs only a brief foray into the bewildering range of cases in the literature on what information is “relevant” to convince oneself of these points (cf. n. 20). Is it simply the speaker’s information? The pooled information of the group? The information that is “at hand,” or within the group’s “epistemic reach”? The information that bears on the group’s current plans and deliberations? …) Given the range, complexity, and diversity of candidate metasemantic stories for epistemic modals, even detailed descriptions of concrete discourse contexts will likely fail to specify all the contextual features that might be relevant to determining the value of $P_e$. Informants may fill in the details in different ways (cf. Kecskes 2008). Further, even given a complete description of any plausibly relevant features of context, informants may disagree about how the value for $P_e$ is determined as a function of these features. Epistemic modals are unlike ‘I’, ‘here’, ‘now’, demonstratives, and definite descriptions in these respects. ⁴⁴ Speakers may thus arrive at diverging truth-value judgments on the basis of metasemantic differences rather than on the basis of anything concerning conventional meaning.

To take just one example, one plausible metasemantic factor is what information is, in some sense, “available” to the speaker. Normative considerations about what information the speaker ought to have accessed, or what the speaker ought to have

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⁴⁴Comparison with (e.g.) demonstratives is instructive. There is a longstanding debate about whether it is intentions, demonstrations (public gestures), or some combination thereof that determine the semantic values of demonstratives (e.g., Kaplan 1989, Perry 2001, Siegel 2002). But there is still a limited range of contextual factors that are plausibly relevant to doing so. Moreover, for most cases, the candidate metasemantic views agree about what the semantic value is (e.g., who the speaker is talking about and who the speaker is intending to talk about are typically identical). (Cf. Glanzberg 2007, 2009 on the “indirect metasemantics” of functional parameters vs. the “direct metasemantics” of thematic parameters. Glanzberg’s distinction is orthogonal to the distinction between CR-expressions and paradigm context-sensitive expressions.)
been presupposing in her conversation, thus have the potential to implicitly affect informants’ truth-value judgments. For instance, informants in retraction cases may make different assumptions about whether the speaker ought to have accessed the newly presented evidence. This can lead to divergence about whether the speaker ought to retract, even restricting our attention to informants centrally concerned with assessing the speaker’s justification for her utterance (§3.4.2). This may help explain some of the variability in the retraction and eavesdropper data mentioned in §3.4. But it also reflects just how ambiguous data about truth-value judgments can be. We should be cautious about beginning theorizing on the basis of such data. It may be more helpful to start with how successful utterances change the discourse context. This needn't involve going in for a dynamic semantics, and identifying a sentence's semantic value with its context change potential. Static semantic contents can be extracted from what they do in explaining language use in discourse.

Truth-value judgments about epistemic modal utterances may thus be less probative into the semantics of epistemic modals than initially seemed. Nothing less than a stipulation of a value for the epistemic premise set variable, or of what information is relevant or available, may suffice for delivering truth-value judgments that are stable across speakers and reflect genuinely semantic competence with epistemic modals. But this amounts to the point implicit in the Compositional Semantic question above: that a semantics for epistemic modals — an account of their conventional meaning, a representation of speakers’ semantic competence — takes as given an abstract representation of context. Thus far I have largely abstracted away from differences between (concrete) utterances and (abstract) sentences-in-context, but we can now see that the distinction is of crucial importance. It is judgments about the truth values and truth conditions of epistemic modal sentences given an abstract context — rather than of epistemic modal utterances given an informally characterized concrete conversational situation — that provide essential data for semantic theorizing. It is in this way that Discourse Contextualism avoids building substantive philosophical views about epistemic relations (knowledge, available evidence, etc.) into the conventional meanings of epistemic modals. Maintaining this sort of neutrality is often taken to be a distinctive feature of relativist and expressivist

\[^{45}\text{Cf.} & \text{KAPLAN} 1989: 522, 584–585, 591.}

\[^{46}\text{My remarks about the importance of judgments about truth conditions in an abstract context needn't exclude theories that utilize a notion of “truth conditions” more fine-grained than a set of worlds. For discussion of the relation between truth-value judgments, semantic value, and (semantic) content, see, e.g.,} & \text{SCHOUBYE} 2009, \text{YALCIN} 2011, 2012a, 2014, \text{STOKKE} 2014. \text{For general discussion of speaker judgments in linguistic theorizing, see, e.g.,} & \text{MATTHEWSON} 2004, \text{KEPSER} & \text{REIS} 2005.\]
theories,⁴⁷ but we can now see that contextualism can capture it as well.

To be clear, I am not suggesting that the metasemantic issues, or issues dependent on them, are unimportant in an overall theory. They are important. But answering them may not be necessary for explaining much of the linguistic phenomena relevant for assessing contextualism. I am also not suggesting that issues about the semantics and the metasemantics of epistemic modals cannot become intertwined with one another. Sometimes, a given semantics calls for an implausible metasemantics; noting this can lead us to rethink the original semantic proposal. Suffice it to say that the way the semantics and the metasemantics interact and mutually constrain theorizing may be more complicated than we initially thought.

3.7 Recap

In Chapter 2 I suggested that a more nuanced understanding of the role of context in interpretation provides the basis for an improved framework for contextualist semantics and pragmatics. I called this framework Discourse Contextualism. This chapter has begun to develop the Discourse Contextualist framework by applying it to the case of epistemic modals. The focus has been on capturing various discourse properties of epistemic modals — how context affects the interpretation of epistemic modals, on the one hand, and how epistemic modals are used to change the context and manage what possibilities are treated as live, on the other. The strategy of Discourse Contextualism is to start with a particular contextualist interpretation of a standard semantics for modals, and then derive distinctive features of the use of epistemic modals from this formal semantics and general conversational principles. I have argued that various agreement and disagreement phenomena with epistemic modals can be understood in terms of speakers’ assumptions about what


It would be instructive to consider the common objection to contextualism about knowledge that it is irrelevant to substantive epistemology in light of the foregoing discussion (e.g., Kornblith 2000, Sosa 2000). A contextualist semantics for ‘know’ is indeed neutral on substantive epistemological issues. It is only when supplemented with a specific metasemantics — an account of what determines the relevant information (evidence, knowledge, etc.) across contexts — that it acquires substantive philosophical import.

I am sympathetic with the analogous theme from MacFarlane’s work that questions about adding parameters to the index are independent of questions about relativism in the “philosophically interesting sense” (MacFarlane 2005b, 2014). One can address the former compositional semantic questions without addressing the sorts of substantive philosophical questions about the nature of reality necessary for defining a (postsemantic) notion of truth simpliciter.
epistemic premise set is determined by their conversational situation. Expressive uses of epistemic modals conventionally presuppose a lexically unspecified value for a discourse-level parameter representing a body of salient, endorsed information. Insofar as their intentions are mutually manifest, speakers can manage the value of this parameter in using epistemic modals. Speakers can exploit their mutual grammatical and world knowledge, and general pragmatic reasoning skills, to coordinate in inquiry on an evolving common ground. Discourse Contextualism provides a perspicuous way of posing further questions about how evidence regulates the interpretation of epistemic modals in concrete discourse contexts.

The development and defense of Discourse Contextualism thus far is far from complete. In this chapter I have focused on capturing various discourse properties of epistemic modals in unembedded linguistic environments. Though I have briefly speculated at certain points about the basis for apparent differences in the discourse properties of epistemic modals and paradigm context-sensitive expressions, the challenge from §2.4 remains pressing. We will address it further in the next chapter. But first let's turn to the second main class of seemingly problematic data for contextualism: the behavior of epistemic modals in embedded contexts.
Chapter 4

Discourse Contextualism II: How to Embed an Epistemic Modal Attitude Problems and Other Defects of Character

The last chapter developed an improved contextualist account of various ways in which the discourse context both affects the interpretation of epistemic modals and is affected by their use. This chapter extends this Discourse Contextualist account by turning to the second class of purportedly problematic data for contextualists: data involving epistemic modals embedded in various linguistic environments. I will focus primarily on what I take to be the three most pressing objections in this area. The first two objections concern attitude ascriptions: first, that contextualism mischaracterizes subjects’ states of mind, and, second, that it fails to predict how epistemic modals are obligatorily linked to the (closest) subject in attitude ascriptions. (Parallel objections have been raised concerning indirect speech reports. The proposed treatment of attitude reports can be straightforwardly applied to this case as well.) The third objection concerns suppositional contexts: that contextualism fails to explain the persisting anomalousness of “epistemic contradictions” (Yalcin 2007, 2011) embedded in conditional antecedents and under suppositional verbs. Finally, I consider two objections concerning the joint interpretation of embedded and unembedded epistemic modals. These objections raise interesting broader issues about validity, quantification, presupposition, and anaphora with context-sensitive language. In subsequent chapters we will see how the proposed treatment of CR-expressions in attitude contexts constitutes an attractive framework for fur-
ther theorizing about the nature of the attitudes themselves.

The objections considered in this chapter aren’t the only challenges that arise concerning epistemic modals in embedded contexts (see also, e.g., Klinedinst & Rothschild 2012, Yalcin 2012c, Moss 2015). One limitation of the present discussion is that I will only be considering attitudes of “acceptance” (Stalnaker 1984) — roughly, attitudes that introduce an information state and have a mind-to-world direction of fit. My aim here is simply to introduce a range of pressing objections that naturally generalize across CR-expressions. The proposed Discourse Contextualist account should give a flavor for the kinds of explanatory resources available to contextualist theories.

The structure of the chapter is as follows. §4.1 describes the five objections to contextualism from embedding mentioned above. §4.2 shows how to extend the Discourse Contextualist account from Chapter 3 to respond to these objections. §4.3 briefly considers how the Discourse Contextualist treatment of embedding compares with certain relativist accounts. §4.4 revisits the challenge raised in §2.4 concerning the apparent contrasts between paradigm context-sensitive expressions, on the one hand, and epistemic modals (and other CR-expressions), on the other, in light of the developments in these chapters. §4.5 concludes.

4.1 Embedding problems

4.1.1 First-order states of mind


Call an attitude ascription like (1) with an epistemic modal sentence as its complement clause an epistemic attitude ascription.

(1) Bert thinks the test may be Monday.

Insofar as contextualism treats the contextually relevant body of information as figuring in the content of an epistemic modal sentence, contextualism seems to treat the epistemic attitude ascription in (1) as ascribing to Bert the belief that the contextually relevant information is compatible with the proposition that the test is Monday. The worry is that this incorrectly treats epistemic attitude ascriptions as ascribing higher-order attitudes about a body of information.
Consider the following example from Seth Yalcin:

Suppose my guard dog Fido hears a noise downstairs and goes to check it out. You ask me why Fido suddenly left the room. I say:

(20) Fido thinks there might be an intruder downstairs.

That is good English. What does it mean? Does it mean, as a relational [i.e., contextualist] semantics requires, that Fido believes that it is compatible with what Fido believes that there is an intruder downstairs? That is not plausible. Surely the truth of (20) does not turn on recherché facts about canine self-awareness. Surely (20) may be true even if Fido is incapable of such second-order beliefs. (Yalcin 2007: 997; cf. Silk 2013c: 207–208)

Adapting a point from Silk (2013c:208), whether one can represent or take a certain perspective on information states can come apart from whether one can be in an information state.

Likewise, (2) doesn’t ascribe to Bert the sorts of attitudes ascribed in (3):

(2) Bert fears that the test may be Monday.

(3) a. ≉Bert fears that it’s compatible with his/our/whomever’s evidence that the test is Monday.
   b. ≉Bert fears that he doesn’t know when the test is.

Bert’s fear is about when the test is, not himself or the strength of his evidence.

Epistemic attitude ascriptions seem to characterize the subject’s first-order state of mind itself. It is (4b), not (4a), with which (1) has an important semantic connection.

(4) a. ≉Bert thinks that, in view of his/our/whomever’s information, the test may be Monday.
   b. ≈In view of Bert’s information, the test may be Monday.

(1) characterizes Bert as accepting information which is compatible with the test’s being Monday. The challenge is to capture this within a contextualist semantics.

4.1.2 Obligatory shifting

A second objection is that epistemic modals appear to behave differently from paradigm context-sensitive expressions (PCS-expressions) when embedded under attitude verbs.

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Suppose A says ‘I am hungry’. B cannot report the belief A expresses by using ‘I’. This is because, even when embedded under ‘thinks’, ‘I’ must be interpreted with respect to the context of utterance, the so-called “global” context, as reflected in (5).

(5)  
B: A thinks I am hungry.  
\hspace{1cm} (global interpretation obligatory)  

a.  \simeq A thinks B is hungry.  
b.  \nsim A thinks A is hungry.

Not all context-sensitive expressions must be rigidly interpreted with respect to the context of utterance in this way; some are more flexible. ‘Local’, for example, can be interpreted with respect to the “local” (“subordinate,” “derived”) context of (what we are presupposing is) the subject’s attitude state, as reflected in (6b).

(6)  
Joe: Pete thinks Al is at a local bar.  
\hspace{1cm} (global interpretation possible)  

a.  \simeq Pete thinks Al is at a bar local to Joe  
b.  \nsim Pete thinks Al is at a bar local to Pete

If Joe is in Boston, Pete is in Ann Arbor, and Pete thinks that Al is at Ashley’s, a bar in Ann Arbor, Joe can report Pete’s belief by uttering (6). Yet ‘local’ can still also be interpreted with respect to the global context, as in (6a). Joe can utter (6) to report Pete’s belief that Al is at Ashley’s even if Joe is in Ann Arbor and Pete is in Boston. (I will use ‘global context,’ ‘context of utterance,’ and ‘discourse context’ interchangeably. Note that the “global context,” in this sense, is still intuitively “local” in the sense of being “local to the conversation.” We will characterize the notion of local context more precisely in §4.4.)

The generalization is that PCS-expressions are at least optionally interpreted with respect to the global context of utterance. By contrast, there seems to be no reading of (1) on which Chip is ascribing to Bert the belief that it is compatible with Chip’s evidence that the test is Monday.

(1)  
Chip: Bert thinks the test may be Monday.  
\hspace{1cm} (local interpretation obligatory)

Bert might never have heard of Chip or contemplated his evidence (under any guise). The worry is that, unlike PCS-expressions, epistemic modals are obligatorily linked to the attitude subject.

Moreover, epistemic modals seem to be obligatorily linked to the closest attitude subject (Hacquard, 2006, 2010, Stephenson, 2007, 2010). When (1) is embedded under an attitude verb, as in (7), ‘may’ can still only report Bert’s state of mind.
Chip thinks that Bert thinks the test may be Monday.

The content of Chip's belief is that Bert's evidence is compatible with the test's being Monday. There seems to be no reading of (7) on which the speaker is ascribing to Chip the belief that Bert believes that Chip's or the speaker's evidence doesn't exclude the possibility that the test is Monday.

Two qualifications about this objection are in order. First, the objection is sometimes put in terms of the observation that (in this case) epistemic modals needn't be interpreted with respect to the information relevant in the context of utterance. This is too weak. There is independent evidence that context-sensitive expressions can sometimes be interpreted with respect to the local context characterizing the attitude state. The relevant contrast isn't that epistemic modals needn't be interpreted with respect to the information available in the global context; it is that they can't be. So, it is insufficient for contextualists to reply by pointing to cases, like (6), where PCS-expressions are linked to the attitude subject, or to reply by noting that in a context where we are reporting someone's belief, it can be that person's information that is “relevant.”

This point has not been adequately appreciated in the literature.

Second, I want to emphasize that we are still focusing on expressive uses of epistemic modals (§3.3.5). In Chapter 3 we put the distinction between expressive and non-expressive uses in terms of whether they presented the speaker as endorsing (in the relevant sense) the considerations that would verify the modal claim. This characterization can be generalized to cover embedded uses by allowing the endorsement to hold in the modal's local context, rather than in the global discourse context. Expressive uses of epistemic modals in attitude ascriptions — call them expressive epistemic attitude ascriptions — present the subject of the attitude as endorsing the information that would verify the modal claim. Many CR-expressions can naturally be used non-expressively in attitude contexts, like 'tasty' in (8).

Faith thinks the new brand of cat food is tasty. Her cat was devouring it.

(8) ascribes to Faith a belief about what is tasty for cats. As in the unembedded case, non-expressive uses correspond to intuitively contextualist readings; they pose no challenges for contextualism. Some authors have claimed that epistemic modals disallow non-expressive uses in attitude contexts (Stephenson 2007b, Weatherson 2007b, Cappelen & Hawthorne 2009, Dowell 2011, von Fintel & Gillies 2011, Finlay 2014: 236–245, Yanovich 2014).

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This is not what is at issue here. The worry is that there is no reading of (1) that characterizes Bert’s beliefs in terms of the information accepted in the discourse context. For this reason it is insufficient for contextualists to point to examples involving apparently non-expressive uses of epistemic modals in attitude ascriptions (e.g., Dowell 2011: 21–22).

4.1.3 Epistemic contradictions

The third objection concerns the behavior of epistemic modals in suppositional contexts. Consider the following Moore-paradoxical sentence:

(9) #The test is Monday, but I don’t think that it is.

Though it would be anomalous to utter (9), the incoherence vanishes when (9) is embedded in suppositional contexts, like under imperative uses of ‘suppose’ (‘imagine’, etc.) or in the antecedent of a conditional:

(10) ok Suppose the test is Monday but I (/you) don’t think that it is.
(11) ok If the test is Monday but I don’t think that it is, I’m going to fail.

That (9) can be coherently entertained shows that it isn’t a semantic contradiction. The anomalousness of (9) is due to a feature of asserting (9). Roughly, the second conjunct explicitly denies what asserting the first conjunct expresses.

Now consider the following analogous example with epistemic ‘may’:

(12) #The test is Monday, but it may not be.

Like with (9), it would be anomalous to utter (12). However, Seth Yalcin (2007).

We can adapt example (10) from Chapter 3 to provide such a case:

(i) [Context: We are standing in front of a locked filing cabinet. None of us has had access to the information in it, but we know it contains the police’s complete evidence about the murder of Klotho Fischer and narrows down the set of suspects. We are betting on who might have killed Fischer according to the information in the filing cabinet. You, who are innocent, say:]

I think I might have killed him.

Here the context makes the body of information in the filing cabinet especially salient. This licenses interpreting the epistemic ‘might’ embedded under ‘think’ with respect to a perspective other than the attitude subject’s.

My use of ‘antecedent’ and ‘consequent’ makes no assumptions about the underlying syntax of conditionals, and is compatible with both restrictor and operator analyses of ‘if’-clauses.

2011) notices something striking about “epistemic contradictions” like (12): their incoherence persists in suppositional environments, as reflected in (13)–(14).

(13) #Suppose that [the test is Monday but it may not be].
(14) #If the test is Monday but it may not be, I’m going to fail.

Unlike (9) (12) cannot even be coherently entertained. Yet this cannot be because (12) is an ordinary contradiction, since ‘Might ϕ’ doesn’t entail ‘ϕ’.

The behavior of epistemic contradictions poses a challenge for contextualist semantics in general. For any (possibly single-membered) group G, it should be coherent to entertain the possibility that ϕ and G doesn’t think (/know) that ϕ. But it isn’t coherent to entertain the possibility that ϕ and it might be that ¬ϕ. So, ‘ϕ but might ¬ϕ’ isn’t equivalent to ‘ϕ but it’s compatible with G’s information that ¬ϕ’, for any G.

Some have responded that the anomalousness of epistemic contradictions persists in suppositional contexts for the general reason that epistemic modals are always anomalous in suppositional contexts (cf. Schnieder 2010, Crabill 2013). Expressive uses of ‘may’ or ‘must’ in (15) seem anomalous:

(15) #If Max may/must be lonely, his wife will be worried. (Papafragou 2006: ex. 8)

I have two worries with this response.

First, we shouldn’t overstate the embedding restrictions on epistemic modals.

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7 For the descriptive claim that epistemic modals are disallowed in the antecedents of conditionals, see, e.g., Leech [1971], Lyons [1977], Coates [1983], Hengeveld [1988], Bybee et al. [1994], Drubig 2001, Nuyts 2001a. I will tend to focus on examples with conditionals, and I bracket any potential differences between examples with conditionals and examples with suppositional verbs (see Dorr & Hawthorne 2013 for discussion).


To take one additional example, it is sometimes said that epistemic modals (at least in English) cannot occur in the scope of tense, and that their evaluation time cannot be back-shifted or future-shifted (e.g., Cinque 1999, Stowell 2004, Hacquard 2009). This is incorrect. Here is a future-shifted case: Suppose we are surveying the area in preparation for a wilderness trek tomorrow. There isn’t a tiger in the bushes now, but you want to go over the relevant safety precautions. You say:
Perhaps contrary to initial appearances, expressive uses of epistemic modals can felicitously occur in suppositional contexts, as we already saw in §3.5.1.

(16) If the test may be on Monday, I should start studying now, just in case.

(17) If a tiger might be in the bushes, don't wait to find out.

(18) Imagine you are stuck at your cubicle and it must be raining out — you see a bunch of people come in with wet umbrellas and rain jackets.

Intuitively, the advice in (17) is conditional on one's taking it to be possible that a tiger is in the bushes. What (18) asks you to imagine is that you have indirect evidence which entails that it's raining.

A second worry is methodological. As discussed above (§§1, 2.4), contextualists should be wary of responses which turn on features specific to particular (types of) expressions. This is because many of the allegedly problematic phenomena appear across various (types of) CR-expressions. Concerning epistemic contradictions, observe that analogous phenomena arise with certain other types of CR-expressions, like predicates of personal taste and gradable adjectives:

(19) a. #The brownies are tasty but we all hate them.
    b. #Suppose the brownies are tasty but we all hate them.

(20) [Context: Ken is 5'6' tall.]
    a. #Ken is tall but the standards for tallness are super high.
    b. #Suppose Ken is tall but the standards for tallness are super high.

But there are no putatively analogous embedding restrictions on (e.g.) 'tasty' or 'tall'.

Appealing to embedding restrictions on epistemic modals to explain the epistemic

(i) There might be a tiger here tomorrow. What will you do?

Similarly, here is a back-shifted case: Suppose we are on day two of our trek. We aren't sure whether there is a tiger in the bushes, and we are considering what attitude to take up toward this possibility. You recall that yesterday we took rustling in the bushes to indicate that a tiger might be there. Though we later found out that there wasn't one, you still think our response was appropriate. Since you think our attitudes in the past are a good guide to what attitude to take up now, you say:

(ii) Yesterday there might have been a tiger here. So we should think there might be one now too.

Note that, unlike the example from VON PINTER & GILLIES (2008: 87), the past-epistemic-possibility reading in (ii) doesn't arise in response to an implicit/explicit 'why' question; so the response from STEPHENSON (2007b: 505–508) and MACFARLANE (2014: 271–275), that the back-shifting is due to a covert 'because' which shifts the temporal evaluation parameters, is unavailable. (For further discussion and references, see also, e.g., PORTNER 2009: 222–236.)
contradictions data may thus be of limited broader dialectical appeal. Such expla-
nations are unlikely to generalize. (We will return to “epistemic contradiction”-style
phenomena with other CR-expressions below and in the following chapters.)

4.1.4 Inferences

Finally, I would like to mention two additional objections, though they won’t be the
primary focus in the subsequent positive discussion. This isn’t because I take them to
pose less of a potential problem for contextualism. It is because they raise more gen-
eral linguistic issues which have received independent treatment. I consider them
here simply for the sake of thoroughness.

Mark Schroeder (2009) has argued that contextualism faces a “general problem
with attitude ascriptions.” (Schroeder focuses on normative language. I adapt his
objection to the case of epistemic modals.) Suppose we overhear Bert say (21).

(21) The test may be on Monday.

We know that the teacher doesn’t assign exams the first day after a break. So we
reason as follows:

(22) a. Bert believes the test may be Monday.
    b. It’s not the case that the test may be Monday.
    c. So, Bert believes something that’s not true.

Our reasoning seems impeccable. But it is hard to see how the contextualist can
capture the soundness of our inference.

Assessments of validity require interpreting all the sentences with respect to a
constant context. The worry is that no potentially relevant body of information,
whether ours or Bert’s, makes all the sentences in (22) true. Suppose, first, that
context supplies a body of information $P_B$ that characterizes Bert’s evidence. This
captures the truth of (22a) and correctly characterizes Bert’s state of mind. But it
falsifies (22b). $P_B$ is compatible with the proposition $m$ that the test is Monday. Al-
ternatively, suppose context supplies a body of information $P_e$ that characterizes our
stronger evidence. This captures the truth of (22b)–(22c). But it falsifies (22a). Bert
needn’t believe that such-and-such body of information $P_e$ is incompatible with $m$.
So, either we correctly characterize Bert’s state of mind but fail to capture the truth
of (22b), or we capture the truth of (22b) but incorrectly characterize Bert’s state of
mind.

Further, it won’t do to interpret ‘may’ in (22a) with respect to $P_B$ and interpret
‘may’ in (22b) with respect to $P_e$. This captures the joint truth of the premises but renders the argument invalid.

So, the objection concludes, either we capture the validity of the inference, but not the joint truth of the premises; or we capture the joint truth of the premises, but not the validity of the inference. Either way, we leave the soundness of the inference in (22) unexplained.

David Braun (2012, 2013) uses inferences involving collective and quantified attitude reports to argue against contextualism (cf. Cappelen & Lepore 2005, 2006, Weatherson & Egan 2011). Suppose that neither Lestrade nor Mycroft knows where Holmes is. Each leaves open the possibility that Holmes is in Paris. They are the only people looking for Holmes, and neither of them knows the other exists. Yet it seems we can truly describe their states of mind with (23).

(23) Everyone looking for Holmes thinks that Holmes may be in Paris.

Moreover it seems valid to infer (24) from (23).

(24) There is something that everyone looking for Holmes thinks.

The worry is this. According to contextualism, the semantic content of the complement clause ‘Holmes may be in Paris’ in a context $c$ is, roughly, that the relevant information in $c$ is compatible with Holmes being in Paris. But Lestrade and Mycroft needn’t have the same information or treat the same evidence as relevant to assessing Holmes’s whereabouts. So, there needn’t be any single body of information that correctly characterizes their respective states of mind. So, there needn’t be any single proposition that both of them believe. Moreover, even if the contextualist could capture how (23) targets both Lestrade’s and Mycroft’s respective information in a given context, it would incorrectly predict that (24) has a false reading in that context. So, either the contextualist fails to capture the truth of (23), or fails to capture the validity of the inference from (23) to (24).

4.1.5 Factive attitudes

The final objection I will consider is that epistemic modals behave differently from paradigm context-sensitive expressions under factive attitude verbs — roughly speaking, verbs which imply the truth of their complements (‘know’, ‘realize’). I will draw primarily from analogous objections in Weatherson 2008 and Lasersohn 2009.

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90 Huddleston & Pullum 2002 distinguishes two categories of verbs: factive verbs, which presuppose the truth of their complements, and entailing verbs, which entail the truth of their comple-
Suppose the contextualist can capture how it is Bert’s evidence that constitutes the body of information relevant for interpreting ‘may’ in (1) (§4.1.2).

(1) Bert thinks the test may be Monday.

Assume Bert has reasoned appropriately from his evidence, $P_B$, so that the proposition that he believes, according to contextualism — that $P_B$ is compatible with $m$ — is true and constitutes knowledge. Nevertheless, if we have additional evidence that rules out the test being Monday, we may be unwilling to accept (25).

(25) Bert knows the test may be Monday.

This is surprising given the contextualist’s semantics: if Bert’s belief constitutes knowledge, why can’t we report it as such? PCS-expressions don’t appear to display this sort of behavior. If we accept (26a), and we accept that S’s belief that we are philosophers constitutes knowledge, then we cannot coherently reject (26b).

(26) a. S thinks we are philosophers.
   b. S knows we are philosophers.

Similarly for PCS-expressions that allow being linked to the attitude subject: Suppose we accept (27a) in a context in which ‘local’ is interpreted, roughly, as “local to Weatherson.” Perhaps we accept (27a) because we think that Weatherson is in Ann Arbor, and we attribute to Weatherson the belief that Al is at Ashley’s, a bar in Ann Arbor. In such a context, if we accept that Weatherson’s belief that Al is at Ashley’s constitutes knowledge, there is no inclination to reject (27b).

(27) a. Weatherson thinks Al is at a local bar.
   b. Weatherson knows Al is at a local bar.

Likewise for other PCS-expressions (demonstratives, definite descriptions, quantifiers. Unless otherwise noted I will bracket this distinction. I will use ‘factive’ broadly to describe verbs that are factive or entailing in Huddleston & Pullum’s sense; and I will speak of factive attitude ascriptions “implying” the truth of their complements, where this is neutral on whether the implication is a presupposition or a truth-conditional entailment.

fiers, etc.). This puts pressure on the contextualist’s claim that epistemic modals and PCS-expressions have the same general kind of semantics.

What this objection highlights is that in factive attitude ascriptions epistemic modals seem to be linked both to the discourse context and to the attitude subject. Intuitively, even if Bert’s belief that \( \bigcap (P_B \cup \{m\}) \neq \emptyset \) constitutes knowledge, we cannot report this using (25) since doing so would seem to commit us to leaving open the possibility that the test is Monday. But this dual linking to the attitude subject and discourse context seems incompatible with the contextualist’s semantics, which requires a specific body of information to determine the content of the complement clause. If we interpret ‘may’ in (25) with respect to Bert’s information, \( P_B \), we fail to explain why we resist accepting (25); we accept that \( P_B \) is compatible with \( m \) (and that Bert knows this). But if we interpret ‘may’ with respect to our information, \( P_e \), we incorrectly characterize Bert’s state of mind: Bert might have no beliefs about our information (either de dicto or de re); it might even be common ground that he believes that we have ruled out the possibility that the test is Monday. No single body of information captures both what the truth of (25) commits Bert to and what its felicitous use commits the speaker to. Insofar as some particular value for \( P_e \) figures in the content of the complement clause, there seems to be no way to capture the reading of (25) which implies that \( P_e \) is compatible with \( m \) and that Bert believes that \( P_B \) is compatible with \( m \).

4.2 Embedding solutions

In §4.1 we noted several inadequate contextualist replies. In this section I will show how we can extend the basic Discourse Contextualist framework from Chapter 3 to develop an improved contextualist account of embedded epistemic modals. I will argue that we can derive the embedding phenomena from a particular contextualist interpretation of a standard semantics for modals, independently attested mechanisms of local interpretation, and general features of discourse contexts. We will also see that the literature has been too quick to grant certain of the data. The distinctiveness of epistemic modals’ embedding behavior shouldn’t be overstated.

4.2.1 First-order states of mind

The first objection was that contextualism incorrectly treats attitude ascriptions like (1) as ascribing meta-attitudes about a body of information.
Bert thinks the test may be Monday.

Rather, it seems to characterize Bert’s first-order belief state itself.

First, I want to emphasize that on a Discourse Contextualist semantics there is no reference to the discourse context or “the relevant information,” considered de dicto, in the content of the attitude ascribed (cf. §3.3.4). Descriptive reference to the discourse context or an information state appears, at most, only in the metalanguage, in the theorist’s characterization of how the content of an epistemic modal sentence is determined in context. Rather, ascribes to Bert the logical belief that a certain set of propositions $P$ is compatible with the proposition $m$ that the test is Monday. But how does treating as ascribing to Bert this sort of logical belief capture the intuition that characterizes Bert’s first-order state of mind?

It is well known that many presuppositions can be locally satisfied: they can be satisfied in a context other than the discourse context. In (28), use of the proper name ‘Ursula’ (or the definite description ‘the unicorn’) is felicitous even though the presupposition that a suitable discourse referent exists isn’t “globally satisfied,” i.e. entailed by the discourse common ground.

(28) There are no unicorns, but Fred thinks there are. In fact, he thinks he has a pet unicorn named ‘Ursula’. He thinks Ursula (/the unicorn) can fly.

The existence presupposition associated with ‘Ursula’ (/‘the unicorn’) is, however, satisfied in the expression’s local context, i.e. the context of (what we are presupposing are) Fred’s beliefs (Stalnaker 1988, 2014, Heim 1992, Geurts 1998b). This licenses using the name (/description).  

Positing local (“derived,” “subordinate”) contexts is independently motivated by various phenomena concerning presupposition accommodation and anaphora. It is notoriously contentious how to properly formalize a general notion of local context. Though common in dynamic semantic approaches to presupposition, positing local contexts is neutral between static/pragmatic implementations (Stalnaker 1974, 2014) and dynamic semantic implementations (Heim 1990a) (for extensive recent discussion, see Schlenker 2005, 2010). What will be important for our purposes is simply that concrete states of mind and information states are like concrete discourse contexts in being representable by abstract objects, or sets thereof, which (perhaps among other things) determine semantic values for context-sensitive expressions (e.g., providing salience orderings, domain restrictions, unsaturated premise sets, etc.). This assumption is compatible with various technical approaches to local contexts (accommodation, projection, etc.). For simplicity I will assume that abstract local and global contexts are the same kinds of formal objects, and thus that local contexts figuring in the semantics of attitude ascriptions and suppositional environments can straightforwardly represent concrete states of mind and information states (perhaps among other things). This assumption may be complicated by independent issues with quantifiers (see references above), but such complications shouldn’t affect the substance of the claims made here. See also n. 13 and ch. 3 nn. 35, 37.
Following Geurts (1998b: 584–585), I will understand this phenomenon as a kind of local accommodation. Local accommodation not only allows one to use ‘Ursula’ (‘the unicorn’) in (28) without presupposition failure. It also guides how the expression is interpreted. Likewise, I suggest that we capture the intuition that (1) characterizes Bert’s first-order state of mind in terms of the communicative upshot of locally interpreting the embedded epistemic modal, and locally accommodating a value for $P_e$.

Expressive uses of epistemic modals presuppose a value for the contextual epistemic premise set variable $P_e$; they presuppose a body of information endorsed in the context. With epistemic attitude ascriptions the relevant context is the local context of the attitude state; the locus of endorsement is the attitude subject. In locally accommodating the presuppositions of ‘may’ in (1), one assumes that Bert’s state of mind characterizes a value for $P_e, P_b$, that makes the belief ascription true. Ascribing to Bert the belief that $P_b$ is compatible with $m$ via (1) communicates something about Bert’s information because of how the presuppositions of the epistemic premise set variable are assumed to be locally satisfied.

In this way, the contextualist can avoid the seemingly implausible claim that “an embedded epistemic claim is always about the current investigation of the actual context” (Yanovich 2014: 92). We needn’t treat epistemic attitude ascriptions as ascribing higher-order attitudes, whether about one’s own information, the information of one’s community, or the information accepted in the discourse context.

A natural move is to identify the locally accommodated value for $P_e$ in terms of the attitude verb’s quantificational domain. But as with the case of unembedded uses and the discourse common ground (§3.3.5), this implementation isn’t forced upon us. Context may make salient an alternative way of determining the value for $P_e$ within the local context; the discourse context can highlight an alternative representation of relevant information endorsed by the attitude subject. Consider the following modification of example (11) from Chapter 3 (see also n. 4, ch. 3 n. 20):

(29) [Context: You are standing in front of a locked filing cabinet. You don’t have access to its contents, but you know that it contains the complete evidence about the murder of Klotho Fischer and narrows down the set of suspects. You have partial amnesia, and although you remember that you once held

\[ \text{More precisely, the move would be to treat the value for } P_e, P, \text{ as being such that } \bigcap P(w) = \text{Dox}_{x,w}, \text{ for every world } w \text{ in the global context set, where Dox}_{x,w} \text{ is } x’s doxastic alternatives (the set of worlds compatible with } x’s beliefs) \text{ in } w. \text{ Compare the relativist and dynamic accounts in } \text{Veltman 1996, Hacquard 2006, 2010, Yalcin 2007, 2011, MacFarlane 2011, Rothschild 2012, Swanson 2012a, Silk 2013c; see also Stalnaker 2014 chs. 6–7 for critical discussion.} \]
a bitter grudge against Fischer, you can’t remember if you ended up taking action against him. I ask you whether it’s possible that you did it. You say:] I don’t know. I don’t know whether I might have killed him.

Intuitively, ‘might’ is interpreted with respect to the information provided in the filing cabinet. But the embedded use is still “expressive” in the sense that you treat this information as authoritative and would accept it if you were explicitly presented with its contents. You aren’t simply reporting your state of mind concerning what is possible according to the information in the filing cabinet.

One way of capturing this is as follows. As we saw in §3.3.5, which premise set is relevant for the evaluation of a modal sentence can depend on how things are, or on how things could be or could have been. For this reason it’s standard to index premise sets to an evaluation world, and treat what context supplies for interpretation of a modal as a function from worlds to premise sets. In (29) the relevant information endorsed by the subject is the information provided in the filing cabinet: the value for $P_e$ maps each world $w$ to the set of propositions $P_{fc}(w)$ encoding (among other things) the information in the filing cabinet in $w$. Given your ignorance, what information is provided varies across your epistemic alternatives (the worlds compatible with what you know). Roughly, (29) says that for some worlds $u, v$ in your epistemic alternatives, $P_{fc}(u)$ — the value for $P_e$ given $u$ — is incompatible with your being the killer, and $P_{fc}(v)$ is compatible with your being the killer.

The label ‘Discourse Contextualism’ thus shouldn’t mislead: the relevant context with respect to which epistemic modals (and other CR-expressions) are interpreted needn’t be the global discourse context; it can be the local context characterized by an embedding environment. However, this shouldn’t be taken to imply that the discourse context plays no role in the interpretation of embedded epistemic modals. How the value for $P_e$ is determined within the local context may itself depend on features of the global discourse context. Consider a third-person analogue of the scenario in (29) in which Rudolf is the amnesiac. Suppose we are investigating the murder, and our question is simply whether to rule out Rudolf on the basis of his testimony. In this context it can be appropriate to say (30).

(30) Rudolf thinks he might have done it.

Whether the value for $P_e$ is identified directly in terms of the subject’s attitude state can depend on what issues are relevant in the discourse context. The global context can affect the local linguistic context in which embedded material is interpreted.\footnote{There may ultimately be reasons for treating the value of $P_e$ in terms of a relevant mix of in-}

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In Chapter 3 we noted the importance of distinguishing concrete discourse contexts from the abstract contexts used in compositional semantics that represent them. Analogous points hold concerning local contexts in attitude ascriptions. What is important for the compositional semantics of attitude ascriptions—at least for our purposes (see n. 10)—is that subjects’ states of mind, like conversational situations, can be represented by (sets of) abstract objects which (perhaps among other things) determine semantic values for context-sensitive expressions (e.g., providing salience orderings, domain restrictions, unsaturated premise sets, etc.). The semantics itself leaves open what makes it the case about a subject that such-and-such abstract context represents her state of mind. Given the contextual variability in interpreting embedded (epistemic) complement clauses (more on which below), the semantics may even leave open what exactly the abstract local context of the complement clause represents, and how it is determined as a function of the concrete discourse context.

In §3.3.6 we noted that there may be multiple candidate values for the unsaturated epistemic premise set variable in concrete discourse contexts. An analogous point holds with epistemic attitude ascriptions. In accepting (1) one presupposes that the information Bert accepts is compatible with the test’s being Monday. But our purposes needn’t require us to settle that some particular epistemic premise set represents Bert’s information. There may be a range of live possibilities for what Bert’s state of mind is like. This would be reflected in a context set in which Bert’s state of mind determines different values for \( P_e \) in different worlds. This feature of the use of epistemic modals in concrete contexts is compatible with the compositional semantics taking as given a specific locally accommodated value for \( P_e \) in calculating the semantic value of (1).

We also noted that there may ultimately be reasons for enriching the representation of bodies of information to be sets of (unsaturated) epistemic premise sets. This complication would carry over to the case of epistemic attitude ascriptions. Just as the global context would supply a set of unsaturated epistemic premise sets in the interpretation of unembedded epistemic modals, so too would the local context in the interpretation of epistemic modals embedded under attitude verbs. This move coheres with representations of uncertainty in terms of imprecise credences, sets of probability measures, etc. Again, I won’t pursue this potential complication here.

In any case, to be clear, Discourse Contextualism isn’t itself committed to any particular view about mental representation or mental content. The contextualist account developed in this section is a linguistic thesis about the semantics of epis-
temic modal expressions embedded under attitude verbs. This linguistic account of epistemic attitude ascriptions might help us pose further substantive questions in philosophy of mind, and be used as the basis for an account of the nature of epistemic modal beliefs. But further argument would be required. Theoretical apparatus used to model linguistic understanding might apply more broadly to nonlinguistic entities, but it might not. (We will return to these issues about the semantics and metasemantics of attitude ascriptions throughout the subsequent chapters.)

4.2.2 Obligatory shifting

The treatment of epistemic attitude ascriptions from §4.2.1 effectively reframes the worry from §4.1.2. Even if presuppositions associated with context-sensitive expressions can be locally accommodated in attitude contexts, they don't have to be. Why, then, can't the presupposition associated with the contextual variable $P_e$ be globally accommodated in epistemic attitude ascriptions? Whence this contrast between epistemic modals and paradigm context-sensitive expressions?

I grant that the contextualist semantics (§3.1) doesn't itself exclude interpreting embedded epistemic modals with respect to the information endorsed in the global context. However, I think this is a feature, not a bug. I will show that, contrary to initial appearances, we can construct cases in which the value for $P_e$ is supplied from the global discourse context. The apparent constraint against such “global accommodation readings” can be explained in terms of general pragmatic considerations.

First consider an example from Jennifer Saul (1998: 366). We are talking about people's views on Bob Dylan's singing abilities. I know that Glenda, one of his childhood friends, knows him only under the name 'Robert Zimmerman', and I know she thinks he has a beautiful voice. Yet, since you know him only under the name 'Bob Dylan', I can report Glenda's belief using (31).

(31) Glenda thinks Bob Dylan has a beautiful voice. (Saul 1998: ex. 7)

My use of 'Bob Dylan' is felicitous even though Glenda “wouldn't put it that way.” I can use the name 'Bob Dylan' in characterizing Glenda's belief because (a) what matters for our purposes is Glenda's belief about the individual with whom we associate 'Bob Dylan', (b) it doesn't matter for our purposes what, if anything, Glenda associates with 'Bob Dylan', and, nevertheless, (c) we have reason to express the content that Bob Dylan has a beautiful voice using the name 'Bob Dylan' because it is a convenient way of talking about the individual we want to talk about.

This suggests the following analogous conditions for context to make available a
global accommodation reading of an epistemic belief ascription:

\( a \) What matters for our purposes is the subject's belief about the logical claim in question, as determined by the information endorsed in the discourse.

\( b \) It doesn't matter for our purposes what the subject's information is.

\( c \) Nevertheless, we have reason to express the content of the subject's belief using an epistemic modal.

With epistemic modals, unlike (e.g.) proper names, it is highly unusual for a context to satisfy these conditions. Proper names provide a way for speakers to bring attention to entities in order to communicate something about them. Felicitous use of a proper name thus typically requires that everyone in the conversation associates the same thing with the name. Felicitous use of epistemic modals, by contrast, often doesn't require having explicitly settled on a specific body of information. Indeed, one of the principal features of epistemic modals often regarded as problematic for contextualism is their role in managing speakers' assumptions about what possibilities to treat as live. But if there isn't an agreed-upon body of information salient in the discourse, uttering a non-subject-linked epistemic attitude ascription runs the risk of failing to clearly characterize the subject's beliefs. Explicitly specifying this information — ‘S thinks our evidence is compatible with \((\text{entails})\ \phi\)’ — would make the intended interpretation more readily retrievable. Using a bare epistemic modal instead would thus be dispreferred. Even so, I think we can construct contexts which satisfy the above conditions \((a)-(c)\) and license global accommodation readings.

Suppose we are stuck inside in the lab with no access to windows, phones, internet, etc., and we are wondering what the weather is like outside. Earlier we saw Harry and Ingrid come in with what appeared to be wet rain jackets, and Harry seemed a bit more glum than usual. We are terrible at figuring out what the weather is like given this sort of indirect evidence — what people are wearing, what their demeanor is, etc. — but we know Georgina is excellent at it. So we send Jerry to her office to ask what she thinks. We don't know whether Georgina herself would accept our apparent evidence as reliable — she is a cautious character — but we accept it; we know what we saw. When Jerry gets back, we ask him what Georgina thinks about what the weather must be like, given our evidence. Jerry says:

\( 32 \) She thinks it must be raining. The sprinklers never come on on Fridays. Ingrid never wears a jacket unless it's raining. And Harry hates the rain; it's the only thing that could get him down after his team wins, which they did yesterday.
Jerry’s utterance seems felicitous. First, the \((a)\)-condition is met since we what we are interested in is Georgina’s belief about whether our evidence about Harry and Ingrid would license inferring that it’s raining. Second, the \((b)\)-condition is met since it doesn’t matter for our purposes whether Georgina herself accepts our testimony about the status of this evidence. It is explicit in the conversation that we accept the evidence as genuine. Since it is common ground that Georgina tends to be more skeptical, there is no risk of attributing to her a belief about whether it is actually raining. Third, the \((c)\)-condition is met since we treat Georgina’s belief about the logical features of our evidence as relevant to what we should infer about the weather, and since our mutual acceptance of this evidence is already salient in the context. For these reasons there is no potential confusion about the intended interpretation of ‘must’ or about what belief is being ascribed.

Here is an analogous example with an epistemic possibility modal. Suppose the case is as before, except that earlier we also saw Kate come in with sunglasses. We are considering whether to go for a quick run, and we wonder whether rain is a possibility. When Jerry returns from his conversation with Georgina, we ask what she thinks, given our evidence. Jerry says:

\((33)\) She thinks it may be raining.

Jerry’s utterance seems felicitous. It is clear that the body of evidence relevant for interpreting ‘may’ is the salient evidence accepted in the discourse context. There is no risk of mischaracterizing the nature of Georgina’s commitments.

These cases also provide counterexamples to the alleged requirement that epistemic modals in embedded attitude ascriptions be linked to the subject of the attitude verb that most immediately embeds them. Suppose Lina is watching us and Jerry on a video monitor. Lina can report the beliefs which Jerry expresses in uttering \((32)–(33)\) with \((34)–(35)\), respectively.

\((34)\) Jerry thinks that Georgina thinks it must be raining.

\((35)\) Jerry thinks that Georgina thinks it may be raining.

\((34)\) says that the content of Jerry’s belief is that Georgina thinks that (what is in fact) his/our evidence entails that it is raining. *Mutatis mutandis* for \((35)\). In this context the epistemic modals are linked to Jerry’s evidence, not Georgina’s.

It is a commonplace that conversational factors can affect what readings are available for sentences with lexically underspecified content. I have diagnosed the apparent obligatory subject-linking of epistemic modals in attitude ascriptions as a general preference for locally accommodating a value for the contextual epistemic
premise set variable. However, this interpretive preference isn’t absolute. Though context—including (extra-)linguistic context, discourse structure, and speakers’ beliefs and (non-)discourse-related goals—typically leaves global accommodation readings unavailable, this isn’t always the case. We can provide a unified semantics of epistemic attitude ascriptions like (1) and (32)–(35), along with a conversational explanation for their differences. This is a welcome result for the contextualist.

4.2.3 Epistemic contradictions

The interpretive preference for locally accommodating a value for the epistemic premise set variable also helps explain Yalcın’s data about embedded “epistemic contradictions”—embedded occurrences of sentences such as ‘\(\phi\) and might \(\neg\phi\)’.

First, as with the apparent obligatory subject-linking in attitude ascriptions, I think the literature has been too quick to grant the epistemic contradiction data. **Felicitous embedded epistemic contradictions** are possible. First, note that examples with non-expressive uses are perfectly coherent; consider the following modification of (10) from §3.3.5:

\[
\text{(36)  [Context: We are standing in front of a locked filing cabinet. None of us has had access to the information in it, but we know it contains the police’s complete evidence about the murder of Klotho Fischer and narrows down the set of suspects. We think the police’s investigation is bunk, but we are betting on who might have killed Fischer according to the information in the filing cabinet. You say:]
}
\]

a. Suppose Lara didn’t kill Fischer but she might have. There’s a chance she’ll get screwed by the police.

b. If Lara didn’t kill Fischer but she might have, there’s a chance she’ll get screwed by the police.

Here context makes salient the body of information in the filing cabinet. The possibility we are entertaining is one in which the police’s evidence, which we don’t endorse, is compatible with Lara’s having killed Fischer even though she didn’t.

However, such examples with non-expressive uses may be of limited dialecti-
cal interest; Yalcin might reply that his objection targets specifically expressive uses. The more interesting observation is that felicitous examples with *expressive* uses are possible as well. Consider:

(37) Suppose a tiger might be in the bushes but there actually isn't one. You should still run away. One can never be too careful.

(38) If a tiger might be in the bushes but there actually isn't one, you should still run away. One can never be too careful.

Intuitively, the possibility one is asked to entertain in these examples is one in which one takes it to be possible that a tiger is in the bushes even though there is in fact no tiger there. Analogous retrospective examples are also possible:

(39) If there wasn't a tiger in the bushes but there might have been, you should still have run away. You need to be more careful.

(40) If the test wasn't Monday but it might have been, you're still punished for not studying over the weekend.

Or reconsider our amnesia case from §4.2.2:

(41) [Context: same as in (29). You, the amnesiac, say:] I'm not sure whether I might have killed him. But if I might have killed him and I didn't, there's a chance I'll get screwed.

(42) [Context: same as in (29). I say to you, the amnesiac:] Suppose you might have killed him but you didn't. There's a chance you'll get screwed.

Here the body of evidence relevant for interpreting ‘might’ is even endorsed in the discourse context (§3.3.5). The felicity of these examples would be unexpected if there was a general constraint against (expressive) epistemic modals in suppositional contexts. Moreover, these examples pose a problem for any theory that treats accepting (expressive uses of) 'ϕ but might ¬ϕ' as semantically incoherent. This includes not only Yalcin’s semantics but also various relativist and dynamic semantics.\(^\text{14}\)

\[^{14}\text{E.g., Veltman 1996, Gillies 2001, Hacquard 2006, 2010, Stephenson 2007c, MacFarlane 2011, Yablo 2011, Willer 2013. On Yalcin’s domain semantics, sentences 'ϕ and might ¬ϕ' are contradictions in the sense that they cannot be coherently accepted. When embedded, they place incompatible constraints on an information state parameter in the index; when unembedded, they place incompatible constraints on the context set (see §4.3). See also Dorr & Hawthorne 2013.}\]
I will continue to use ‘epistemic contradiction’ to refer to sentences of the form ‘ϕ and may ¬ϕ’, but we can now see that the label is something of a misnomer. Though such sentences frequently give rise to a “phenomenology of contradiction” (Dorr & Hawthorne 2013) — hence the label — not all “epistemic contradictions” are genuinely contradictory (infelicitous, incoherent).

A contextualist account may seem better situated to explain how the embedding behavior of epistemic contradictions depends on context. Yet, as in our earlier discussions, merely pointing out felicitous examples like (37)–(42) doesn’t suffice for an adequate contextualist response to Yalcin’s puzzle. We still need to explain why, if a contextualist semantics is correct, embedded epistemic contradictions are so generally anomalous and worse than analogous examples where a relevant information state is explicitly specified. Our treatment of epistemic attitude ascriptions suggests a promising strategy.

Start with an unembedded epistemic contradiction, like (12).

(12) #The test is Monday, but it may not be.

Updating with the first conjunct of (12) restricts the global context set to m-worlds in which the test is Monday. However, the second conjunct assumes a value for Pe that is compatible with ¬m. Given that Pe is linked to the discourse common ground, these constraints are incompatible. The truth-conditional content of the non-modalized conjunct and the presupposed content of the modalized conjunct place incompatible constraints on the common ground.

Analogous points hold with epistemic contradictions embedded in suppositional environments. It is well known that conditional antecedents and suppositional verbs, like attitude verbs, establish subordinate information states. Using ‘he’ in (43)–(44) is felicitous even though the pronoun’s existence presupposition isn’t satisfied by the discourse common ground.

(43) Suppose a thief breaks in. He would take the silver.

(cf. Roberts 1989: ex. 13)

(44) If a thief breaks in, he would take the silver.

The suppositional verb in (43) and conditional antecedent in (44) set up local sup-

§3 for critical discussion of alternative ways of explaining the epistemic contradictions data within a broadly relativist framework.

15See, e.g., Karttunen 1974, Stalnaker 1974, 2014, Heim 1990a, Stone 1999, Bittner 2011. For suppositions introduced by a suppositional verb or epistemic possibility modal, the phenomenon is known under the heading of ‘modal subordination’ (Roberts 1989).
positional contexts which include the information that there is a thief. This licenses using ‘he’ in the second sentence or conditional consequent.

In §4.2.1 I treated the value for $P_e$ in belief ascriptions as locally supplied by the subject’s belief state. An analogous move is available with suppositional environments: we can treat the value for $P_e$ as locally supplied by the suppositional context set up by the suppositional verb or conditional antecedent. Linking the epistemic modal to the local suppositional information state predicts the persisting incoherence of embedded epistemic contradictions, like $(13)-(14)$.

$(13)$ #Suppose that [the test is Monday but it may not be].
$(14)$ #If the test is Monday but it may not be, I’m going to fail.

Just as the unembedded epistemic contradiction in $(12)$ places incompatible constraints on the global context, the embedded epistemic contradictions in $(13)-(14)$ place incompatible constraints on the local suppositional context. The ‘if’-clause in $(14)$, for instance, sets up a subordinate suppositional information state. The truth-conditional content of the non-modalized conjunct requires that this local context entail $m$. However, the modalized conjunct presupposes a value for $P_e$ that is compatible with $\neg m$. Given that the value for $P_e$ is locally accommodated, these demands are inconsistent. (*Mutatis mutandis* for $(13)$.)

This account avoids problems with saying that epistemic contradictions are anomalous because ‘$\phi$ and may $\neg\phi$’ is a literal contradiction. ‘$\phi$’ and ‘may $\neg\phi$’ can both be true at a point of evaluation $(c, w)$; it’s possible both for ‘$\phi$’ to be true at $w$ and for $P_e(w)$ to be compatible with $\neg\phi$. ‘May $\phi$’ doesn’t truth-conditionally entail ‘$\phi$’. The incoherence of (embedded or unembedded) epistemic contradictions derives from the presuppositional effects of the epistemic modal on the (local or global) context in which the non-modal conjunct is proposed for acceptance. In an anomalous epistemic contradiction ‘$\phi$ and may $\neg\phi$’, the truth-conditional content of ‘$\phi$’ and the presupposed content of ‘may $\neg\phi$’ place incompatible constraints on the context — local or global. Updating with the truth-conditional content of ‘$\phi$’ requires us to restrict the context to $\phi$-worlds, but accommodating a suitable value for $P_e$ associated with ‘may $\neg\phi$’ requires that the context include some $\neg\phi$-worlds. This holds for the global context in the unembedded case, as well as for the local context in the embedded case.

So far we have been focusing on cases in which the value for $P_e$ is identified in terms of the discourse common ground or local suppositional information state. To the extent that context fails to provide an alternative value for the epistemic premise set variable, to that extent epistemic contradictions will be anomalous. This, along
with the fact that epistemic modals are typically used expressively (ch. 3 n. 22), helps explain the general infelicity of embedded epistemic contradictions in “out of the blue,” or discourse-initial contexts. However, we have seen that context can call for alternative ways of determining the value for \( P_e \), in expressive uses, and even alternative epistemic premise set variables, in non-expressive uses (§§3.3.5, 4.2.1). This correctly predicts the felicity of embedded epistemic contradictions in such contexts, as we saw with (36)–(42).

The non-expressive use in (36) calls for a premise set variable \( P_{fc} \) representing the information in the filing cabinet. More interesting are the expressive uses, interpreted with respect to the variable \( P_e \) representing a body of endorsed information. The deliberative/retrospective character of (37)–(39) makes relevant an information state that leaves open the possibility that there is a tiger is in the bushes. In (37)–(38), we are planning for the possibility that our endorsed information is compatible with a tiger being in the bushes, though there is in fact no tiger there; in (39), we are evaluating courses of action taken in such a possibility. For each world in the local suppositional context, there is no tiger in the bushes but the value for \( P_e \) is compatible with there being one. Examples (41)–(42) show that coherent embedded epistemic contradictions are possible even with a globally accommodated value for \( P_e \). You endorse the information in the filing cabinet, though you don’t know what it consists of (§3.3.5). The possibility being entertained in (41)–(42) is one where this globally endorsed information is compatible with your having killed Fischer even though you didn’t in fact kill him. Unless context makes salient a suitable value for the epistemic premise set variable in one of these ways, embedded epistemic contradictions will be anomalous: identifying the value of \( P_e \) in terms of the discourse common ground would violate an implicature of the supposition (that the embedded proposition isn’t already entailed by the common ground), and identifying the value of \( P_e \) in terms of the local suppositional information state would lead to incoherence in the manner described above.

Dorr & Hawthorne (2013) also provide examples of felicitous embedded epistemic contradictions. They note that such examples pose a challenge — not just for contextualists — for explaining the general infelicity of embedded epistemic contradictions: when a sentence has multiple readings, some but not all of which are vacuously true/false, our typical response is to focus on coherent possible interpretations rather than judge the sentence infelicitous, as we tend to do with epistemic contradictions. Dorr and Hawthorne have a similar aim of providing pragmatic explanations of the variety of epistemic contradiction phenomena using a contextualist semantics. There are important differences in our views — both in our understanding of the specific challenge posed by the broader epistemic contradictions data, and
in our specific semantic and pragmatic accounts. Dorr and Hawthorne’s discussion is rich; I won’t be able to do justice to it here. But I hope that canvassing some of the differences in our views, even if only briefly, will help clarify certain distinctive features of the Discourse Contextualist account developed in this book.

On Dorr and Hawthorne’s (DH’s) contextualist account, most uses of epistemic modals are analyzed as claims about the knowledge of the speaker or a relevant group. However, DH treat epistemic modals as also allowing “constrained” readings which mix narrowly epistemic considerations about a subject’s knowledge with broader non-epistemic considerations. It’s in these terms that DH understand examples like (29): the information relevant for interpreting ‘might’ in (29) would be treated as combining the speaker’s knowledge (the narrowly epistemic considerations) with the information in the filing cabinet (the, on their view, non-epistemic considerations). The bias toward anomalous readings of embedded epistemic contradictions is explained — on my reconstruction of DH’s discussion — in terms of four general claims about conversation and interpretation:

(i) **Hereditary Constraint:** Epistemic modals in conjunctions (disjunctions, conditional consequents) are often given a “hereditarily constrained” interpretation, on which the modal inherits a constraint from the non-modalized conjunct (disjunct, conditional antecedent): sentences of the form ‘ϕ and may/must ψ’ are often interpreted as truth-conditionally equivalent to ‘ϕ and in some/all epistemically possible worlds in which ϕ, ψ’ (with epistemic possibility understood narrowly in terms of some relevant subject’s knowledge).

(ii) **Transparency:** We typically assume that people know what they know.

(iii) **Ignorance Implicatures:** Conditionals with conjunctive antecedents typically implicate that one doesn’t know either conjunct.

(iv) **Preference for Explicitness:** In certain circumstances, there is a general preference for making arguments of expressions linguistically explicit: sentences which introduce contextually supplied arguments are generally dispreferred to sentences which linguistically specify those arguments.

Very briefly: Given Ignorance Implicatures, uttering ‘If ϕ and may ¬ϕ…’ typically implicates that the speaker doesn’t know whether ‘may ¬ϕ’ is true. Because of Transparency, we thus avoid interpreting ‘may’ simply in terms of the speaker’s knowledge. Absent a salient alternative interpretation, we may then focus on a hereditarily constrained interpretation, as per Hereditary Constraint. But ‘ϕ and may ¬ϕ’ is
inconsistent on such an interpretation: ‘may ¬ϕ’ is true at w only if some (epistemically possible) world that matches w regarding the truth value of ϕ is a ¬ϕ-world, hence only if ‘ϕ’ is false at w. Further, we won’t then seek some coherent narrowly epistemic interpretation — on which ‘may ¬ϕ’ is interpreted with respect to some other subject S’s knowledge (≈ ‘S doesn’t know that ϕ’) — since, from Preference for Explicitness, using ‘ϕ and may ¬ϕ’ would be a bad way of expressing any such interpretation. Hence the general anomalousness of ‘If ϕ and may ¬ϕ...’

There are several important differences between DH’s contextualist account and the Discourse Contextualist account developed here — both in the semantics, concerning the specific truth conditions, and in the pragmatics, concerning the interpretive mechanisms and conversational factors responsible for generating the proposed interpretations across contexts. First, concerning DH’s account of the anomalous reading of epistemic contradictions: DH may be correct that epistemic modals in conjunctions often receive something like a “hereditarily constrained” interpretation; however, this descriptive observation is insufficient. DH reject an implementation in terms of modal subordination, which treats the embedded epistemic modal’s quantificational domain in sentences ‘ϕ and may/must ψ’ as directly restricted to ϕ-worlds (883–886), instead favoring an approach which treats the embedded modal claims as equivalent to ‘in some/all epistemically possible worlds that are accurate with regard to whether ϕ, ψ’. Yet no account is given of the specific mechanisms which generate the “hereditary” constraint, or of why the constrained interpretations are typically so salient. The present Discourse Contextualist account avoids appealing to hereditarily constrained interpretations, as DH understand them. Expressive uses of epistemic modals aren’t treated as making claims about the speaker’s (or speaker-including group’s) knowledge (cf. §3.3.4); they are treated as presupposing a body of information endorsed in the context. The anomalousness of ‘ϕ and may ¬ϕ’ is diagnosed, not in terms of truth-conditional inconsistency, but in terms of the incoherence in accepting ϕ and presupposing information compatible with ¬ϕ. The persisting anomalousness in suppositional contexts is then explained in terms of a (pragmatically derived) preference for locally accommodating a value for the variable P_e.

Second, concerning DH’s account of the general bias toward the anomalous reading of epistemic contradictions: The central claim in the account is Preference for Explicitness; it is this which explains why speakers don’t fall back on coherent (narrowly epistemic) interpretations of ‘may ϕ’ about a subject’s knowledge. Of course the preference for linguistically specifying arguments cannot be fully general. As DH are careful to note, we felicitously leave arguments implicit all the time. Indeed it is often felicitous to leave arguments implicit even when no specific contextual res-
olution is especially salient — not only with epistemic modals, as we have seen, but also with other other CR-expressions and with various PCS-expressions (a point to which we will return in §4.4 and in subsequent chapters). Crucial, then, is to specify the relevant circumstances in which the posited interpretive preference holds. DH suggest the importance of considerations of contrast. For instance, in [45] it seems dispreferred to indicate the contrast in locations while leaving one location implicit.

(45) a. It’s not raining over there but it’s raining here.
   b. ?It’s not raining over there but it’s raining.

(Dorr & Hawthorne 2013: ex. 40)

Similarly, insofar as [46a] introduces a contrast between Mary’s attitude and the attitudes of others, there is pressure to explicitly specify Mary in the ‘if’-clause; hence the infelicity of [46b] as a way of communicating the content of [46a].

(46) a. Mary will be thought dull if she isn’t interested in classic literature.
   b. ?Mary will be thought dull if classic literature isn’t interesting.

(Dorr & Hawthorne 2013: ex. 46)

Likewise, DH suggest, ‘ϕ and may ¬ϕ’ introduces a contrast between reality and a subject’s knowledge of it; hence the infelicity of [47b] as a way of communicating the content of [47a], even in discourses which make Sally’s knowledge especially salient.

(47) a. Fred is not on that bus and Sally doesn’t know it.
   b. ?Fred is not on that bus and he might be.

(Dorr & Hawthorne 2013: ex. 49)

I have two concerns with this proposal. First, more needs to be said about the specific notion of contrast in the explanation. It isn’t enough to observe “a wide range of logically complex thoughts which cry out for modes of expression involving explicit rather than tacit reference” (903). The examples in [48] intuitively introduce contrasts — in comparison classes, locations, and domain restrictions, respectively; yet they are perfectly felicitous despite leaving the relevant arguments implicit.

(48) a. This mouse is big [for a mouse], but this rhino isn’t big [for a rhino].
   b. The keys are there [l₁], not there [l₂].
   c. Every sailor [on ship a] waived to every sailor [on ship b].

(cf. Stanley 2005: ch. 3)

Felicitous examples where only one argument is phonologically realized are possible
as well (contrast (45) above):

(49)  a. This mouse is big for a mouse, but this rhino isn’t big.
    b. The keys are there on the table, not there.
    c. Every sailor on that ship waived to every sailor.

    (contrast Dorr & Hawthorne 2013: exs. 40–43)

We need an explanation for why the alleged “contrast… between reality and Sally’s knowledge of it” in (47) is sufficient to trigger the Preference for Explicitness, whereas the contrasts in (48)–(49) are not.

Second, even if such an explanation were provided, I am skeptical that any appeal to contrast will capture “epistemic contradiction”-style phenomena with CR-expressions generally. In §4.1.3 we observed analogous phenomena with ‘tasty’ and ‘tall’:

(50)  #Suppose the brownies are tasty but we all hate them.

(51)  [Context: Ken is 5’6” tall.]

    #Suppose Ken is tall but the standards for tallness are super high.

Interestingly, however, it is much easier to hear analogous examples with normative and evaluative language as felicitous, even though, as we will see in later chapters, these expressions exhibit much of the same apparent context-sensitivity as epistemic modals and arguably have the same general kind of context-sensitive semantics.

(52)  Suppose the Botticellis are beautiful but we don’t like them. (Then we should take an art appreciation class.)

(53)  Suppose infanticide is wrong but we’re all for it.

(54)  Suppose you have to give 10% to the poor but it’s all the same to us whether you do.

DH might say that the “taste/standards contradictions” in (50)–(51) introduce potential contrasts between our tastes/standards and the tastes/standards of some other relevant subject. But saying this would fail to explain the contrast between (50)–(51) and (52)–(54), the latter of which also seem to introduce potential contrasts, namely in evaluative attitudes. We will return to what does explain these broader examples in Chapters 6 and 7. For now suffice it to say that an explanation in terms of “contrast,” and an alleged Preference for Explicitness, is unlikely to do the trick.

The present Discourse Contextualist account provides a different way of under-
standing the challenge posed by the variability in the epistemic contradictions data. Expressive uses of epistemic modals aren’t treated as claims about a subject’s information. So, given that as a descriptive linguistic fact epistemic modals are typically used expressively (ch. 3 n. 22), it’s no surprise that hearers will tend not to “rescue” epistemic contradictions by accommodating some (possibly underspecified) third-party’s information. What is needed is for context to make relevant a way of determining the value for \( P_e \) other than in terms of the discourse common ground or local suppositional information state, like in (37)–(42). Absent such a relevant alternative, epistemic contradictions will be anomalous for the reasons explained above.

Note that this account predicts that making a third-party salient may improve judgments about “CR-contradictions” with CR-expressions which more readily allow non-expressive uses. This prediction seems to be borne out. The following analogue of (50) with ‘tasty’ is perfectly felicitous:

(55) Suppose this cat food is tasty but we all hate it, and it’s the only food left on the planet. Then the cat will be happy, and we’ll probably starve to death.

Context makes clear that the embedded ‘this cat food is tasty’ is describing what tastes good to cats. (We will return to these issues concerning other kinds of CR-contradictions in §§ 5.3.2, 7.5.)

4.2.4 Inferences

Finally, let’s return to the objections concerning inferences (§ 4.1.4) and factive attitudes (§ 4.1.5). These objections raise difficult general issues about validity, quantification, presupposition, and anaphora with context-sensitive language. Since these issues have received independent treatment, my responses will be a bit more schematic than my responses to the previous objections. How precisely one implements the ideas to be described will depend on one’s views about the more general issues.

Contextualism’s “general problem with attitude ascriptions,” according to Schroeder, is that it is unable to capture the soundness of inferences like the following:

\[ \begin{align*}
&\text{a. Bert believes the test may be Monday.} \\
&\text{b. It’s not the case that the test may be Monday.} \\
&\text{c. So, Bert believes something that’s not true.}
\end{align*} \]

The worry is that no potentially relevant body of information, whether ours or Bert’s, makes all the sentences in [22] true.

First, let’s take up our strategy from Chapters 2–3 and see if we can construct
an analogous objection using paradigm context-sensitive expressions. Recall our Amanda and Billy example from §2.3. Amanda and Billy are watching three children, two white and one non-white. Will and Wilma, the two white children, are laughing, but Nick, the one non-white child, isn’t. Amanda, who is racist against non-whites, says 'Look, the children are laughing!' Upon hearing Amanda’s utterance, Billy might reason as follows:

\[\begin{align*}
\text{(56) } & \quad \text{a. } \text{Amanda believes the children are laughing.} \\
& \text{b. } \text{It's not the case that the children are laughing.} \\
& \text{c. } \text{So, Amanda believes something that's not true.}
\end{align*}\]

Billy’s reasoning seems sound. But, to parrot Schroeder’s objection, it is hard to see how the contextualist can capture it. Interpreting ‘the children’ requires a contextually supplied salience ordering on relevant groups of children. Treating context as determining that the Will+Wilma group is maximally salient captures the truth of \((56a)\) but falsifies \((56b)\). And treating context as determining that the Nick+Will+Wilma group is maximally salient captures the truth of \((56b)\) but falsifies \((56a)\). So, lest we invalidate the argument by introducing a context shift and varying the group picked out by ‘the children’, we cannot both correctly characterize Amanda’s state of mind and capture the truth of \((56b)\).

Considering examples like \((56)\) with PCS-expressions motivates a plausible diagnosis of what is going on in the purportedly problematic examples like \((22)\) with epistemic modals. One of the relevant features of Amanda’s state of mind is that she treats Nick as less salient than Will and Wilma on account of his race. This can motivate locally interpreting ‘the children’ in the belief ascription \((56a)\), and accommodating the salience ordering characterizing Amanda’s state of mind. Adequately characterizing Amanda’s beliefs in Billy’s context calls for interpreting the definite description in the local context of Amanda’s belief state. The referent for ‘the children’ in \((56a)\) is thus the group consisting of Will and Wilma. This is possible even if the global context determines that the group including Nick is maximally salient, and the referent for ‘the children’ in \((56b)\) is the group consisting of Nick, Will, and Wilma. Something similar holds for interpreting the existential quantification in the attitude ascription in the conclusion \((56c)\). In evaluating Amanda’s belief as not true, what is relevant isn’t the content of her belief — the proposition that Will and Wilma are laughing; what is relevant is the problematic feature of her state of mind which determines that this belief is correctly ascribable (in Billy’s non-racist context) using ‘the children’ — the fact that she treats Nick as less salient than Will and
Wilma. So, because of the effects of local interpretation, all the sentences in (56) can be true in the same global context even if different salient orderings are supplied for the interpretation of ’the children’ and different referents are assigned.

Analogous points hold for the inference in (22) with epistemic modals. Suppose Alice is undergoing the reasoning in (22). The relevant feature of Bert’s state of mind, let’s assume, is that it leaves open the possibility that the test is Monday. Adequately characterizing Bert’s state of mind in Alice’s context thus calls for locally interpreting the embedded epistemic ‘may’ in (22a) in the context of Bert’s beliefs (§§ 4.2.1–4.2.2). A locally accommodated value for $P_e$, compatible with the proposition that the test is Monday, is supplied. This is possible even if the global context supplies a value for $P_e$ that is incompatible with the test’s being on Monday. It is this latter value that is presupposed in interpreting the unembedded epistemic modal in (22b). Likewise for the conclusion (22c). For the purposes of evaluating Bert’s state of mind, what is relevant is the incompatibility between the epistemic premise set determined by the local context of Bert’s beliefs and the epistemic premise set determined by the discourse context (cf. §3.4.1). Very roughly, the existential quantification is satisfied by a proposition that would be expressed by the relevant epistemic modal clause in the global context (though see below). In this way, the sentences in (22) are all true in the global context.

Schroeder’s objection is that in order to capture the joint truth of the premises in (22), the contextualist must posit a shift in the content of the epistemic modal clause ’the test may be Monday’, and hence must treat the inference as invalid. The contextualist seems committed to the following argument:

1. Capturing the joint truth of the premises in (22) requires interpreting the epistemic modals with respect to different bodies of information.
2. Context is what determines which body of information is relevant for the interpretation of an epistemic modal.
3. So, capturing the joint truth of the premises in (22) requires interpreting the epistemic modals with respect to different contexts.
4. Assessments of logical validity require interpreting all the sentences with respect to a constant context.

How precisely to implement this depends on difficult general issues about context-sensitive expressions and propositional quantification and anaphora (more on which below). One might treat ’something’ as quantifying over Kaplanian characters (functions from contexts to contents, here propositions), which are then saturated with the global context under the attitude verb. Or over propositions expressed with ”sloppy” variables. Or…
5. So, capturing the joint truth of the premises in (22) requires treating (22) as invalid.

The problem is that the argument equivocates on the relevant notion of context. Assessments of logical arguments for a conclusion require interpreting all the sentences in a constant global context. However, interpreting the epistemic modals in the premises (22a)–(22b) with respect to different bodies of information doesn’t require interpreting the sentences in different global contexts. The global context can determine a value for $P_e$ that is not compatible with the test’s being on Monday, while also determining that the local context of Bert’s belief state determines a value for $P_e$ that is compatible with the test’s being on Monday. The context of utterance can indirectly determine what body of information is relevant for interpreting an embedded epistemic modal by determining a local context that does so directly. Local interpretation can shift the contextual features relevant for interpreting context-sensitive expressions. Hence (22a)–(22b) can both be true in the same global context.

(Although (22) and (56) may not themselves invalidate the argument form in (57), our discussion of the effects of local interpretation shows that, perhaps contrary to initial appearances, (57) is not in fact generally valid — i.e., valid in the sense that for all contexts $c$ and worlds $w$, if the propositions expressed by the premises in $c$ are true are at $w$, then the proposition expressed by the conclusion in $c$ is also true at $w$ (n. 17)).

(57)  
  a. $S$ believes $\phi$.
  b. It’s not the case that $\phi$.
  c. So, $S$ believes something that’s not true.

Suppose ‘$\phi$’ is a context-sensitive sentence that permits local interpretation. The premises in (57) can be true and the conclusion false if the proposition expressed by ‘$\phi$’ in the global context is false, $S$ believes the proposition expressed by ‘$\phi$’ in the local context of $S$’s beliefs, and there is no proposition that isn’t true that $S$ believes.

However, there are restricted senses in which (57) may still be valid. For instance, they are valid if we require the embedded occurrence of the context-sensitive clause ‘$\phi$’ to be interpreted with respect to the global context. This notion of validity is of limited relevance for assessing arguments with epistemic modals because of the general preference for locally interpreting epistemic modals in attitude contexts.


(i) $\alpha_1, \ldots, \alpha_n \models \beta$ iff for all contexts $c \subseteq \alpha_1 \cap \cdots \cap \alpha_n \subseteq \beta \cap$
A more relevant restriction would be on the domain of ‘something’ to reflect the tendency for assessments of epistemic modal claims to target presupposed content (§§3.2–3.4). Roughly, the restriction would require that the conclusion be given the reading on which the subject’s beliefs are assessed in terms of a globally accommodated epistemic premise set (salience ordering, etc.). How precisely one puts this will depend on the details of one’s technical implementation.

Let’s turn to the second objection from §4.2.4 concerning inferences and quantified attitude ascriptions. Braun’s worry, recall, is that contextualism seems unable to capture the soundness of the inference from (23) to (24).

$\text{(23)}$ Everyone looking for Holmes thinks that Holmes may be in Paris.

$\text{(24)}$ There is something that everyone looking for Holmes thinks.

Since Lestrade and Mycroft needn’t have the same information, there needn’t be any single body of information that correctly characterizes their respective states of mind. So, there needn’t be any single proposition that both of them believe. This incorrectly predicts that (24) has a false reading in the relevant context.

This objection raises difficult general issues concerning anaphora, ellipsis, and context-sensitive language. To get a quick feel for some of these complications, consider the following analogous case with a “paycheck pronoun” (Karttunen 1969). Suppose I ask what Mike, Nancy, and Orin did with their paychecks. You say (58), from which I infer (59).

$\text{(58)}$ Everyone deposited it in the bank.

$\text{(59)}$ There is something that everyone did.

This seems natural. But, to parrot Braun’s objection, Mike, Nancy, and Orin deposited different paychecks. So, there is no single object that all of them deposited. So, there is no single act that all of them performed.

An analogous case can be given with modals (cf. Stone & Hardt 1999):

$\text{(60)}$ Phyllis would use a handout if she had to give the keynote. Sarah would use powerpoint. So, both of them would use a visual aid. So, there is something

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18See n. 14. For example, suppose we treated ‘something’ as quantifying over functions from (abstract) contexts to propositions. The restriction could be put as requiring that the functions quantified over be given the global context as argument — more formally, that the conclusion be given the sort of reading in (i), where $C$ is a variable for functions from contexts to propositions:

$$(i) \quad \text{‘S believes something that isn’t true’ is true in c at } w \text{ iff } \exists C[\forall w' \in \text{Dox}_{S,w}; C(c)(w') = 1 \land C(c)(w) \neq 1]$$
that both of them would do.

But, the objection goes, the relevant counterfactual possibilities evoked differ across the candidate speakers. The modal ‘would’ in the first sentence is linked to the possibility that Phyllis gives the keynote, whereas the modal ‘would’ in the second sentence is linked to the possibility that Sarah gives the keynote. So, there is no single act that both of them would perform.

The appropriate response to these pseudo-objections is that the pronoun ‘it’ in (58) doesn’t refer to any particular paycheck, and the modal ‘would’ in (60) isn’t linked to any particular possibility. Informally, ‘it’ in (58) means something like “his/her paycheck.” The relevant reading for (59) is the “sloppy” reading on which what specific act is performed varies with the quantificational subject. Likewise for ‘would’ in (60). The elided ‘if’-clause allows the interpretation of the embedded pronoun to vary with the subject. Which possibility is being talked about shifts depending on which individual is being quantified over. How precisely to capture these points is notoriously contentious. What is important here is simply that resources for capturing the general phenomenon can be utilized by the contextualist to capture how the epistemic premise set relevant for interpreting ‘may’ in (23), and how the relevant proposition believed in (24), vary with the quantificational subject.

4.2.5 Factive attitudes

Our final objection was that epistemic modals behave differently from paradigm context-sensitive expressions under factive attitude verbs. Epistemic modals seem to be linked to the attitude subject when embedded under ‘think’, like in (1), but also linked to the discourse context when embedded under ‘know’.

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19 For survey discussions, see Heim & Kratzer 1998, Büring 2005. For discussion of parallels between the cases with individuals and modals, see Stone & Hardt 1999.

20 Issues concerning local contexts, quantifiers, and modals are fraught. But one initial move might be to treat premise set variables like skolem functions. To a first approximation, linking to the subject would be captured by binding the contextual skolem variable $P_i$ now relativized to an individual $i$. (In ordinary non-quantified cases the individual could be identified with the (possibly plural) center of the context (Lewis 1980).) Truth conditions for (23) could be given as in (ii), where $h$ is the proposition that Holmes is in Paris.

(i) [Everyone looking for Holmes], thinks that Holmes may be in Paris.

(ii) $\forall x[\text{person-looking-for-Holmes}(x) \rightarrow \forall w \in \text{Dox}_{x,w} : \bigcap(P_x(w) \cup \{h\}) \neq \emptyset]$ 

The apparent lack of a false reading for (24) would be treated as a symptom of the general preference for locally accommodating epistemic premise sets in epistemic attitude ascriptions (§4.2.2).

21 Thanks to Bernhard Sallow for helpful discussion of the issues in this section.
Bert thinks the test may be Monday.

Bert knows the test may be Monday.

PCS-expressions don't seem to display this shift in interpretation in factive vs. non-factive attitude contexts. This gives us reason to doubt that epistemic modals have a contextualist semantics.

This objection raises difficult issues about characterizing factive implications with context-sensitive language. There is a contrast between epistemic modals and PCS-expressions, but we should be careful not to overstate it. I will argue that epistemic modals and PCS-expressions in fact pattern similarly, once we control for differences in tendencies for discourse-oriented use: epistemic modals behave in the manner claimed for PCS-expressions when the modals are used non-expressively, and PCS-expressions behave in the manner claimed for epistemic modals when the PCS-expressions are used in a discourse-oriented way. The contrasting behavior of epistemic modals and PCS-expressions in factive attitude contexts is a symptom of the fact that the former, unlike the latter, tend to be used in a discourse-oriented way (§3.3.3; we will return to this in §4.4).

First, epistemic modals embedded under 'know' lose their apparent link to the discourse context when given an intuitively contextualist use (§§3.3.5, 4.1.2). Consider the following modification of Kratzer's example (11) from §3.3.5 (see also n. 4).

(61) [Context: Ralph and Suzy are standing in front of a locked filing cabinet. Neither of them has had access to the information in it, but they know that it contains the police's complete evidence about the murder of Klotho Fischer and narrows down the set of suspects. Ralph, who is innocent, picks the lock, and discovers that the police's evidence doesn't rule him out. He says to Suzy, 'I might have done it.' We, who are watching Ralph and Suzy from a surveillance video, say:]

Ralph knows he might have done it.

Let \( P_{cab} \) be the set of propositions describing the information in the filing cabinet, and \( r \) be the proposition that Ralph is the killer. In this context we accept (62), we accept that Ralph's belief that \( P_{cab} \) is compatible with \( r \) constitutes knowledge, and there is no resistance to accepting (61).

(62) Ralph thinks he might have done it.

Second, contrary to initial appearances, we can construct cases in which PCS-expressions embedded under factive attitude verbs seem linked both to the attitude
subject and to the discourse context. Reconsider our Amanda and Billy example. Suppose Billy accepts (63) in a context in which ‘the children’ is linked to Amanda’s belief state (§4.2.4).

(63) Amanda thinks the children are laughing.

Though Billy accepts (63), and (let’s suppose) he accepts that Amanda’s belief that Will and Wilma are laughing constitutes knowledge, he may resist accepting (64).

(64) Amanda knows the children are laughing.

After all, Billy might say, the children aren’t laughing; Nick is bored out of his mind.

These cases suggest that the resistance to accepting (25) arises because of features specific to expressive uses and what they imply about the global discourse context. Accepting (64) would seem to commit Billy to accepting its complement clause (65).

(65) The children are laughing.

But accepting (65) would commit him to accepting that the most salient group of children excludes Nick. Since Billy rejects this, he may resist accepting the factive attitude ascription in (64). Although what is typically relevant in uses of PCS-expressions is their truth-conditional content, rather than what their use assumes about the features of context which determine that content, this generalization isn’t without exception. Analogous points hold for the epistemic knowledge ascription in (25). Accepting (25) would seem to commit one to accepting (21).

(21) The test may be Monday.

But, assuming ‘may’ is given an expressive interpretation, accepting (21) would commit one to leaving open the possibility that the test is Monday. If one has ruled out this possibility, one may resist accepting the factive attitude ascription in (25).

Generalizing, uttering a factive attitude ascription with a context-sensitive complement clause ‘ϕ’ can express one’s own assumptions about the contextual features determining the content of ‘ϕ’. This can be the case even when the presuppositions of ‘ϕ’ are locally accommodated, and the content of the attitude being ascribed is determined in light of the subject’s state of mind. Speakers may thus resist accepting ‘S knows ϕ’, even when they accept that the subject bears the knowledge relation to the propositional content of ‘ϕ’ (in clocal), in contexts in which they would disagree with the subject about the contextual features plausibly relevant to determining the content of ‘ϕ’. Accepting that S knows that ϕ isn’t always sufficient for accepting ‘S
knows that ϕ.

There are various ways of technically implementing these points about the factivity implications of factive attitude ascriptions with context-sensitive complements. What is important for present purposes is that, on the one hand, epistemic modals under factive attitude verbs aren’t always linked to the discourse context, and, on the other hand, we can observe the same dual linking to both the subject and the discourse context with PCS-expressions as we see with epistemic modals. This gives us reason to be wary of building the dual linking into the semantics of epistemic modals, as on certain relativist semantics (Stephenson 2007c, Moss 2013, MacFarlane 2014). The examples with PCS-expressions are dialectically important, for they provide independent evidence — evidence independent of the behavior of epistemic modals — that characterizing factivity implications isn’t always as straightforward as may have initially seemed. That said, the discussions in this chapter suggest a natural way addressing this issue.

Factive attitude ascriptions imply the truth of their complements. More precisely, a felicitous use of (e.g.) ‘S knows ϕ’ in a context c implies the truth of the complement clause ‘ϕ’ in c, \( J_{\phi} \). However, characterizing the factivity implications in this way needn’t imply that we characterize the contents of the complement clauses in terms of globally supplied values for the relevant contextual parameters. As we have seen, it is precisely features of the global discourse context which can call for interpreting embedded context-sensitive expressions in the local context of the subject’s attitude. Computing the semantic content of (64) in the global context c may require interpreting the embedded occurrence of ‘the children’ in the local context \( c_{l_1} \) of Amanda’s beliefs. Likewise, computing the semantic content of (25) in c may require interpreting the embedded epistemic modal ‘may’ in the local context \( c_{l_2} \) of Bert’s beliefs. The apparent dual linking to the subject and the discourse context is a reflex of how the global context can determine one value for a context-sensitive expression ‘α’, while also calling for interpreting an embedded occurrence of ‘α’ in a local context that determines a different value for ‘α’. The question of why epistemic modals systematically receive this kind of dual interpretation under factive verbs, whereas PCS-expressions do not, then reduces to our more general question of under what circumstances discourse contexts call for locally interpreting embedded context-sensitive expressions (see above in this section and §4.4).

\(^{22}\) For ease of exposition I am being sloppy in distinguishing concrete discourse contexts and the abstract contexts they determine.
4.2.6 Recap

This section has extended our Discourse Contextualist account of unembedded uses of epistemic modals to capture various embedding phenomena with epistemic modals. We can derive the embedding facts from a static contextualist semantics along with general, independently attested principles of interpretation and pragmatic reasoning. Expressive uses of epistemic modals are associated with a contextual variable $P_e$ that represents a body of endorsed information. This generates a presupposition that a suitable value for $P_e$ is contextually supplied. Uses of embedded epistemic modals present the possibility of locally accommodating this presupposition. As with other contextual variables, the value for $P_e$ can be supplied by the context characterizing the embedding environment rather than by the global discourse context. Yet with epistemic modals, unlike paradigm context-sensitive expressions, there is a general preference for local accommodation in attitude ascriptions and suppositional contexts. This interpretive preference needn’t be stipulated in the lexical semantics; it can be derived from sentences’ specific semantic contents and typical features of actual conversations (e.g., concerning questions under discussion, speakers’ (non-)discourse-related goals, etc.). The preference for local accommodation readings with epistemic modals helps explain various embedding phenomena that have seemed problematic for contextualists. However, the distinctiveness of epistemic modals’ embedding behavior shouldn’t be overstated. Similar phenomena can often be observed with paradigm context-sensitive expressions, given relevantly analogous specifications of context. This is a welcome result for contextualists seeking pragmatic explanations of various differences among CR-expressions and paradigm context-sensitive expressions (more on which shortly).

4.3 Aside: Contextualism and relativist content

In this section I would like to briefly compare the Discourse Contextualist treatment of embedding from §4.2 with certain relativist accounts. This will help clarify the dialectical advantages and burdens of a Discourse Contextualist account. Readers less interested in relativism or in comparing contextualist and relativist views may wish to skip to §4.4.

It is helpful in characterizing relativism to begin with a standard two-dimensional semantic framework (Stalnaker 1970, Kamp 1971, Lewis 1980, Kaplan 1989). Following Kaplan’s (1989) terminology, there are two senses of the “meaning” of

\[\text{Thanks to Daniel Rothschild and Paolo Santorio for helpful discussion of these issues.}\]
an expression: its character and its content. Character is a function from contexts to contents; it represents an expression’s linguistic meaning. Content determines an intension, a function from indices (circumstances of evaluation) to extensions. The semantic content of a sentence in context is, roughly, what is conventionally communicated by the sentence in the context, as determined by the language’s composition rules. The extensions of expressions are thus determined in two stages. The context includes parameters that determine content from character, fixing the values of context-sensitive 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 linguistic operators, like modals and attitude verbs.

The index is often treated as consisting of a possible world. Relativism about epistemic modals, in the sense relevant here, adds a parameter for a body of information to the index. The semantic contents of epistemic modal clauses are treated as sets of pairs of worlds $w$ and bodies of information $s$, as in \[66\]. (For simplicity, treat $s$ as a set of worlds.)

\[66\]

\[
\text{[the test may be Monday]}^c = \{ (w, s) : s \cap m \neq \emptyset \}
\]

No particular body of information figures in the semantic content, just as no particular world does.

Many of contextualism’s problems with embedding can be reduced to the problem of capturing how the relevant body of information systematically shifts in embedded contexts, given that this information is supplied by the context coordinate and figures explicitly in the semantic content of the modal clause. An initially attractive feature of relativism is that it treats the semantic content as nonspecific with respect to a relevant body of information, and provides independently motivated mechanisms for capturing these shifts in interpretation. For instance, attitude verbs shift the index. This helps capture the apparent obligatory subject-linking in epistemic attitude ascriptions:

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24 I bracket any potential distinction between a Kaplanian circumstance of evaluation (used in calculating intensions, extensions, and propositions) and a Lewisian index (used in calculating compositional semantic values).

25 It isn’t important for my purposes whether this move is sufficient for counting as “relativist” in any “philosophically interesting sense” (MacFarlane 2005b, 2014). MacFarlane’s variety of relativism distinguishes the index from an added “context of assessment,” and calculates the truth values of epistemic modal sentences relative to the body of information determined by the context of assessment. This complication won’t be relevant here. For discussion see the Appendix and ch. 3 n. 47.
Bert thinks the test may be Monday.

(67) a. \([x \text{ thinks } \phi]^{c,w,s} = 1 \text{ iff } \forall u \in s' : [\phi]^{c,u,s'} = 1\), where \(s' = \text{Dox}_{x,w}\)

b. \([1]^{c,w,s} = 1 \text{ iff } \forall u \in s' : m \cap s' \neq \emptyset \text{ iff } m \cap s' \neq \emptyset\), where \(s' = \text{Dox}_{B,w}\)

This says that (1) is true iff Bert’s beliefs are compatible with \(m\). The epistemic attitude ascription directly characterizes Bert’s first-order beliefs.

Similar points hold for capturing the epistemic contradictions data (n. 14). An individual \(x\) satisfies the imperative in (13) iff \(x\)’s suppositions have the property given in (68), where \(s^*\) is the set of worlds compatible with what \(x\) is supposing.

(13) #Suppose that [the test is Monday but it may not be].

(68) \(\forall u \in s^* : [u \in m \land \neg m \land s^* \neq \emptyset]\)

(13) requires the informational parameter to shift to a set of worlds \(s^*\) such that every world in \(s^*\) is an \(m\)-world and some world in \(s^*\) is a \(\neg m\)-world. Embedded epistemic contradictions place incompatible truth-conditional constraints on the informational parameter shifted by the suppositional verb or conditional antecedent.

Discourse Contextualism mirrors these relativist moves within a contextualist semantics. What relativism captures via an extended conception of the semantic contents of epistemic modals, Discourse Contextualism captures in terms of their presuppositions. Relativism manipulates contents that are nonspecific with respect to the relevant body of information by positing them as the compositional semantic values of epistemic modal clauses. Discourse Contextualism effectively gets access to the same kind of content via general pragmatic reasoning from the requirement that a value for the epistemic premise set variable be given as input to semantic interpretation (cf. ch. 3 n. 11). Such contents can be manipulated in embedded contexts via independent principles of local interpretation.

Although Discourse Contextualism and relativism may ultimately make use of similar kinds of formal objects, this doesn’t render them equivalent. The contrasting mechanisms used in the theories give rise to empirical and theoretical differences. For instance, relativism’s locating the relevant body of information in the index predicts a systematic shift in the interpretation of epistemic modals in (e.g.) attitude contexts and conditional antecedents. Though this generalization might have seemed initially plausible, attention to the broader spectrum of examples shows it to be incorrect (§4.2). This gives the contextualist a dialectical advantage. The burden

\(^{26}\)On this I disagree with sentiments expressed in [Dreier 2009].

120
of proof shifts onto the relativist to introduce distinct, independently motivated semantic mechanisms to handle the different sorts of cases. This undercuts some of the motivations for going relativist in the first place. Moreover, what initially seemed to be a cost of contextualism is shown to be a feature. The varieties of expressive and non-expressive uses can be given a uniform contextualist semantics. Patterns and differences in their interpretation are explained via independent interpretive mechanisms and general pragmatic reasoning, as discussed above. To be clear, contextualism does have explanatory burdens here — indeed, discharging them is the principal project of this book. But given that such explanations are forthcoming, as I am arguing they are, this gives us reason to prefer contextualism’s more unified semantic analysis.

There is certainly much more to be said about comparing various relativist and contextualist theories. My aim in this book is simply to show how certain apparently problematic linguistic phenomena — in this chapter, embedding phenomena — can be handled in a contextualist-friendly way. I leave subsequent progressions of the dialectic to future research.

Before moving on it is perhaps worth noting that one could accept a relativist account of the semantic contents of epistemic modal clauses and still count as contextualist in one relevant sense. It is important to distinguish a sentence’s compositional semantic value from its asserted content. In addition to asking whether a sentence in context is true at a particular index, we can ask whether it is simply true, or true simpliciter. Following Kaplan (1989: 522, 547), one option is to say that a sentence is true in a context iff its semantic content in the context is true at the index of the context, as reflected in (69), where \( w_c \) is the world of the context (cf. Lewis 1975: 14).

\[
\phi \text{ is true in } c \text{ iff } [\phi]_{c, w_c} = 1
\]

(69)


Suppose we accept that epistemic modal sentences have relativist semantic contents, in the manner described above. We can extend the definition of truth in a context accordingly, as in (70), where $s_c$ is the relevant information in the context.

\[(70) \quad \text{‘} \phi \text{’ is true in } c \text{ iff } [\phi]^{c;w,c} = 1\]

As is common, suppose we then identify an utterance’s asserted content with the set of worlds in which it is true, as reflected in (71), letting $[\phi]^{c;w,c}$ be the asserted content of an utterance of ‘$\phi$’ in $c$.

\[(71) \quad [\phi]^{c;w,c} = \{ w : [\phi]^{c;w,c} = 1 \}\]

The resulting sort of view is relativist in its treatment of the semantic contents of epistemic modal clauses. But it is still broadly “contextualist,” in the sense that it treats a particular body of information supplied by the context of utterance as figuring in asserted content. The asserted contents of epistemic modal utterances are ordinary sets of worlds. This kind of view may be of interest to theorists who wish to combine the contextualist’s standard treatment of assertion and informational/representational content with the relativist’s treatment of embedding phenomena via an informational parameter in the index. I won’t speak to this view further here since, independent problems notwithstanding (see n. 27), I have argued that a relativist account of the compositional semantics isn’t called for anyway.

### 4.4 A challenge revisited: Epistemic modals and paradigm context-sensitive expressions

Let’s take stock. We have seen that various phenomena often thought to be problematic for contextualism can arise with paradigm context-sensitive expressions — e.g., phenomena concerning discourse disagreements (§2.3), retraction (§3.4.1), eavesdroppers (§3.4.2), and attitude ascriptions (§§4.2.4–4.2.5). The examples with PCS-expressions provide insight into the seemingly problematic behavior of epistemic modals. But they also raise a challenge (§2.4). The contextualist’s semantics for epistemic modals must be assimilated to the semantics of PCS-expressions in such a way that makes available unified explanations of the phenomena. Yet the semantics cannot be too similar lest we fail to capture the contrasting extents to which the phenomena arise for the two classes of expressions. The challenge is to explain the distinctive features of epistemic modals’ interpretation and use, given that epistemic modals are semantically context-sensitive in the same general way as PCS-expressions. Though
I have addressed this challenge at various points along the way, it will be helpful to summarize the key explanatory moves and reassess the state of the dialectic.

The foregoing chapters have developed a framework for implementing a contextualist semantics and pragmatics, called *Discourse Contextualism*. I have focused first on applying the framework to epistemic modals. The strategy of Discourse Contextualism about epistemic modals is to start with a particular contextualist interpretation of a standard semantics for modal expressions, and then show how this formal semantics generates constraints on the interpretation of epistemic modals and predicts distinctive features of their use. The aim is to derive the distinctive behavior of epistemic modals from an independently motivated static contextualist compositional semantics along with general principles of interpretation and pragmatic reasoning.

Start with the unembedded case (Chapter 3). Expressive uses of unembedded epistemic modal sentences presuppose a value for a discourse-level epistemic premise set variable $P_e$, and assert something about the world given that presupposed value. Sometimes speakers agree on the value for $P_e$, and what is at issue is its logical properties at the actual world; they accept that the concrete discourse context determines a certain function $P_e$ from worlds $w$ to epistemic premise sets $P_e(w)$, but disagree on which world $w$ they are in. For instance, we might agree in identifying $P_e$ with what information is in the filing cabinet (cf. (11) in §3.3.5), but disagree on what information actually *is* in the filing cabinet. Such situations, however, aren’t the norm. The logical properties of particular bodies of information often aren’t what is under discussion in conversation. What is typically interesting in a speaker’s epistemic modal utterance is rather a certain contextual assumption of its felicitous use: that the conversationally endorsed information — the value for $P_e$ — is such as to make one’s utterance true. It is this value that delineates the range of live possibilities in the conversation. Given how skilled we are at inferring one another’s intended contexts, we can use epistemic modals as a way of efficiently managing our assumptions about the conversational situation and what possibilities to ignore and not to ignore.

Contrary to what is often assumed, PCS-expressions can also be used in this sort of discourse-oriented way (§§2.3, 3.4.1, 3.4.2); they can be used to manage speakers’ assumptions about the very contextual features on which the expressions’ interpretation intuitively depends. Such contextual assumptions of uses of PCS-expressions can become the locus of agreement and disagreement. Amanda’s utterance of (72) assumes that Nick isn’t in the most salient group of children on account of his race.

(72) The children are laughing.
Adopting this assumption has rich inferential effects, which can shape the future course of the conversation. Ignoring Nick now on account of his race can encourage similar discriminatory behavior in the future. It can thus become important to settle what the features of context are like that help determine the referent of ‘the children’—i.e., which children are more/less salient than others and why. This sort of scenario, however, isn’t the norm. The norm is for speakers to agree about such content-determining features of context (at least after the production of the speaker’s utterance; see Stalnaker 2002). This agreement can then facilitate the sharing of information about individuals in the domain. Using definite descriptions—pronouns, demonstratives, quantifiers, etc.—provides a principal way for speakers to bring our attention to relevant entities in order to tell us something about them. It is this latter information that is typically of primary relevance and at issue in conversation. The standard use of these expressions is thus to describe certain (classes of) individuals.

In §4.2.2 I offered a pragmatic explanation for the apparent obligatory linking of epistemic modals to the subject of the (closest) attitude verb. This apparent constraint was diagnosed as a pragmatically derivable general preference for locally accommodating epistemic premise sets in attitude contexts. Presuppositions of embedded context-sensitive expressions in attitude ascriptions can be satisfied by the global discourse context or by the local context characterizing the subject’s attitude state. In global interpretation readings of attitude ascriptions with context-sensitive complements, the speaker uses her own assumptions about the world to help characterize the subject’s state of mind. Attitude ascriptions with referential expressions naturally favor such readings. Interlocutors typically agree on what individual is being referred to, and so the speaker can use the expression to describe the subject’s attitude about that individual. By contrast, it is highly unusual for discourse contexts to favor global interpretation readings of epistemic modals in attitude ascriptions. Unless agreement over a certain body of information is salient in the discourse, a non-subject-linked reading may fail to adequately characterize the subject’s state of mind. The speaker’s intended interpretation of the epistemic modal, and hence what information the subject’s attitude is about, may not be readily retrievable. Even when it is manifest what the relevant information endorsed in the discourse is, it is rare in uses of epistemic attitude ascriptions for what is at issue to concern the subject’s attitude about that information. What is at issue is typically the logical properties of the subject’s first-order state of mind itself. (Analogous points hold concerning

29Indeed many languages provide ways of marking this function grammatically, e.g. via overt markers for centering, topic, etc. (e.g., Li & Thompson 1976, Walker et al. 1998, Bittner 2011).
interpreting epistemic modals in suppositional contexts (§4.2.3.).

In these ways, truth-conditional content and presupposed content can each be targeted in uses of epistemic modals and PCS-expressions. Giving the expressions the same sort of contextualist semantics provides a basis for this commonality. What distinguishes epistemic modals (and other CR-expressions) from PCS-expressions is the relative importance and relevance of the one type of content over the other across conversations. This affects the extent to which the expressions are used in discourse-oriented vs. non-discourse-oriented ways; it affects the frequency with which speakers manage their assumptions about the relevant content-determining contextual features in using the expressions and in evaluating the uses and attitudes of others and oneself across time. Differences along this dimension can be explained, at least in part, in terms of (i) the expressions’ specific truth-conditional and presupposed contents, and (ii) generalizations about speakers’ intentions, interests, and goals, and other typical features of contexts of use (§§2.5, 3.2, 3.4, 4.2).

To reiterate, I am not denying that certain differences among CR-expressions and paradigm context-sensitive expressions may ultimately have a grammatical origin (though see §4.2.3). Nor am I claiming that there is a sharp distinction between the class of CR-expressions and the class of PCS-expressions. To the contrary: as we will see in subsequent chapters, there is in fact a continuum along which CR-expressions and PCS-expressions fall with respect to the frequency with which they figure in the various linguistic phenomena considered in these chapters. This fits well with the present conversational strategy of explanation. The distinction between CR-expressions and PCS-expressions does mark a cluster of genuine empirical differences — hence the usefulness of the labels. Yet we shouldn’t overstate their theoretical import or longterm methodological utility. If the arguments of this book are right, the distinction needn’t be reflected in the semantics itself.

Recent literatures in linguistics and computer science have shed light on the varieties of ways in which uses of language both affect and are affected by context. A central aim of this book is to advance our understanding of these issues by examining certain discourse and embedding properties of various context-sensitive expressions. Much further investigation is of course required. For instance, it would be interesting to compare the present account of discourse-oriented uses of CR-/PCS-expressions with treatments of other putative devices of context management (see, e.g., Romero & Han 2004, Taranto 2006, Davis et al. 2007, Potts 2007, Gutzmann & Gärtner 2013); or to consider the examination of epistemic modals’ broadly presuppositional properties from §3.5 in light of recent taxonomies of various projective contents (e.g., Roberts 2011, Tonhauser et al. 2013); or to compare the conversational treatment of embedding phenomena in this chapter with discourse-
based accounts of logophoricity (Kuno 1987, Pollard & Sag 1992). In closing I would like to mention one additional apparent contrast between CR-expressions and PCS-expressions that I find especially pressing.

I have used as my starting point a formal semantics for epistemic modals that associates them with an epistemic premise set variable. It is this variable that triggers the presuppositions which underwrite the explanations of discourse disagreements, embedding phenomena, etc. A central component of these explanations is the claim that the presuppositions in question are frequently easily accommodated — indeed, so easily accommodated that the standard use of epistemic modals is to manage speakers' assumptions about the contextual features that determine the value for the variable. A worry is that this feature of the use of epistemic modals seems to place epistemic modals at odds with other expressions often thought to have free variables in their semantics.

For instance, using a pronoun presupposes that a certain referent is salient in the context. This presupposition isn't readily accommodated. If you comment on how great it smells in the house, I cannot felicitously respond as in (73), intending to refer to the pie that is (unbeknownst to you) baking in the oven.

\[(73) \quad \text{#It is in the oven.}\]

In response to my utterance, you won't be content to infer that I must be assuming some salience ordering or other whose maximal element is in the oven. You will object and want to know what is in the oven. Similarly my use of ‘Draško’ in (74) presupposes that we associate the same thing with the name in the context.

\[(74) \quad \text{#Draško came to class.}\]

If you don't know anyone named ‘Draško', you won't just accommodate that some relevant person or other named ’Draško’ came to class. You will want to know who he is.

These points aren't limited to referential expressions. The presupposition associated with additive expressions (‘too,’ ‘also’) that an alternative, true presupposition is salient in the context also isn't easily accommodated:

\[(75) \quad \text{#Sam is having dinner in New York tonight, too.} \quad (Kripke 2009: 373)\]

Using ‘too’ in (75) is infelicitous if the interlocutors haven't explicitly been talking about someone other than Sam having dinner in New York tonight.

We can press the contrast even further. In Chapter 5 we noted that speakers can often felicitously use epistemic modals even if no particular epistemic premise
set is uniquely salient (§§ 3.3.6, 3.5.2). There may be multiple live representations of context, and hence multiple candidate values for the epistemic premise set variable. Speakers can accept an utterance of (e.g.) ‘May $\phi$’ without needing to commit to some particular value for $P_e$ that is compatible with $\phi$. One might successfully update with ‘May $\phi$’ by transitioning to a context set $\{w_1, w_2, w_3\}$ such that the conversational situation $c_{w_1}$ determines $P_1$ as the value for $P_e$, $c_{w_2}$ determines $P_2$, and $c_{w_3}$ determines $P_3$, where $P_1(w_1)$, $P_2(w_2)$, and $P_3(w_3)$ are each compatible with $\phi$. However, analogous conversational situations with (e.g.) pronouns lead to infelicity, as reflected in (76).

(76)  [Context: We are standing opposite three males. You don’t know any of them, and you don’t think I do either. As far as you’re concerned, they are relevantly indistinguishable, and none is more salient than any other. I say:]
#He is an astronaut.

Even after my utterance, none of the three men is more salient to you, and you cannot infer which of them I must be assuming is uniquely salient. Yet it’s not as if my utterance is completely uninformative to you. You can infer that I take one of the men to be uniquely salient, and that whichever man I take to be uniquely salient is an astronaut. But you won’t rest content with these inferences. You won’t simply update by transitioning to a context set $\{u_1, u_2, u_3\}$ such that the conversational situation $c_{u_1}$ determines $m_1$ as the uniquely salient male, $c_{u_2}$ determines $m_2$, and $c_{u_3}$ determines $m_3$, where $m_1$ is an astronaut in $u_1$, $m_2$ is an astronaut in $u_2$, and $m_3$ is an astronaut in $u_3$. My use of ‘he’ is simply infelicitous.

These examples put pressure on the claim that epistemic modals (and other CR-expressions) have a free variable semantics. There is much independent evidence that (e.g.) pronouns, additives, etc. have a free variable semantics. But certain of their presuppositions cannot be easily accommodated. They impose what [Tonhauser et al. (2013)] call a strong contextual felicity constraint: using them is infelicitous if these presuppositions aren’t antecedently satisfied in the context. If epistemic modals had a free variable semantics, wouldn’t we expect them to be associated with a strong contextual felicity constraint too?

I take this to be a very serious worry. One might quibble about whether pronouns, names, additives, etc. are each to be given a semantics in terms of free variables. But let’s grant for the sake of argument that they are. My aim in response will be modest. I simply want to call attention to several complexities in the general issue concerning free variables and felicity constraints. What exactly to say about this general issue is far from clear. I cannot promise that the best account will be
compatible with the Discourse Contextualist strategy developed here. Nevertheless I think there are good reasons for the contextualist to be optimistic.

First, not all expressions often thought to have a free variable semantics are associated with a strong contextual felicity constraint.\(^3\) The following examples provide felicitous uses involving tense, quantifier domain restriction, and genitives:

(77) John went to a private school. \((\text{Partee 1973: ex. 6})\)
\((\approx \text{John went to a private school, whenever it was that he did.})\)

(78) Everyone came to class.
\((\approx \text{All the relevant people or other who were supposed/expected to be at class came to class.})\)

(79) Sheena's team won the match. \((\text{cf. Partee 1997: ex. 1})\)
\((\approx \text{The team that bears some relevant relation or other to Sheena won the match.})\)

It is generally accepted that at least some of these expressions or constructions are to be given a semantics in terms of free variables (ch. 3 n. 7).

The contrast between (73)–(75) and (77)–(79) raise difficult questions about the metasemantics of contextually supplied variable assignments. Why do some free variables impose strong contextual felicity requirements, while other variables don't? How do we interpret different free variables when context doesn't supply a uniquely salient value? Why in certain cases are we content to allow contextual underspecification? The answers to these questions will likely draw on the semantic type of the variable (e.g., individual-denoting, functional), the specific constraint(s) the variable imposes on context, the availability of alternative means of expression, information structure in conversations (e.g., question under discussion), and speakers' conversational and extra-conversational goals. Though I suspect that the discussions above and in §§3.3.6, 3.5, 4.2.2 will be relevant for developing a specific account, I won't commit to any particular hypothesis here. Suffice it to say that the interpretive properties of epistemic modals in context aren't systematically different from those of all other expressions with variables in their semantics.

Second, we shouldn’t overstate the apparent presence of a strong contextual felicity constraint with (e.g.) pronouns, on the one hand, or the apparent lack of such a constraint with epistemic modals, on the other. An illuminating exception to strong contextual felicity constraints occurs in eavesdropping cases. Suppose you are waiting on line at a coffee shop and you overhear a stranger utter (73) 'It is in the oven.'

\(^3\)Here I am indebted to Kai von Fintel (p.c.) and Beaver & von Fintel 2013.
You won’t interrupt and object (egomaniacs aside). You will infer that there is some salient object they are talking about, which is in the oven, and move on with your life. Though you might want to know what exactly is in the oven, you can’t reasonably expect the speaker to know that you have this goal. Even if she did, you aren’t engaged in any common collaborative endeavor that would give her reason to take it into account.

Contrary to initial appearances, exceptions can also arise when the speakers are engaged in a common conversation. In general, speakers are often quite skilled at maintaining successful communication even when no univocal content is assigned to utterances (e.g., Ginzburg 1994). The following examples—(80) from Barbara Partee, and the naturally occurring discourse in (81) from George Yule—provide an instructive counterpoint to (73).

(80) They haven’t installed my telephone yet. (Partee 1973: ex. 5)

(≈ Whoever it is that is supposed to install my telephone hasn’t installed it yet.)

(81) a. oh everything they do in Edinburgh – they do it far too slowly
b. well I saw a demolition order there actually – a few months ago – they said they were going to demolish some of the flats – which is a pity – I don’t know what they’re doing with Edinburgh though – as long as they don’t do what they did with Glasgow

(Yule 1982: exs. 6–7)

(‘they’ ≈ whoever it is that deals with such issues)

Using the pronoun ‘they’ in (80)-(81) isn’t likely to elicit an objection. Take (80). Upon hearing an out of the blue utterance of (80) we may be content to infer that some relevant individuals or other haven’t installed the speaker’s telephone yet. But this is because for most conversations it wouldn’t matter for our purposes who exactly was supposed to have installed the telephone. The speaker might even know that we don’t know whom she is talking about. Even if we want to know, we needn’t sidestep the conversation by interjecting and requesting clarification. The relevant information is simply that the speaker’s phone doesn’t work. As Yule (1982: 319) puts it, “The identity of the group or its members is not a relevant issue… [T]he interpretation… can be made via the predicated information without a determinable referential assignment for the pronominals.”

Or compare (76) with (82).

31The empirical literature on underspecification is substantial. We will return to this in Chapter 6; see also n. 32, ch. 2 n. 4, and ch. 3 nn. 9, 28.
[Context: We are discussing our technological woes, and I am mentioning ways I screwed up my computer. As far as you are concerned, the shift keys on my computer are relevantly indistinguishable, and neither is more salient than the other. I say:]

The shift key got jelly on it, and now it doesn’t work.

As with (76), even after my utterance, neither shift key on my computer is more salient to you, and you cannot retrieve which object I am talking about. This may even be common knowledge. Yet my use of the definite description ‘the shift key’ and the pronoun ‘it’ can be felicitous. For the purposes of the conversation the relevant information is simply that I have a non-functioning shift key. Precisely which shift key is immaterial. Although we may know that no particular shift key is most salient, we can proceed for purposes of conversation as if I am taking one to be. So, you may be content to infer that I am taking one of the shift keys to be most salient, and that whichever shift key I am taking to be most salient doesn’t work. It can suffice to transition to a context set \( \{ v_1, v_2 \} \) such that the conversational situation \( c_{v_1} \) determines \( k_1 \) as the maximally salient shift key, and \( c_{v_2} \) determines \( k_2 \) as the maximally salient shift key, where \( k_1 \) doesn’t work in \( v_1 \) and \( k_2 \) doesn’t work in \( v_2 \).

Like in the eavesdropping case, there is no collaborative endeavor that requires the speaker to explicitly specify a particular referent in (80)–(82). But if there is such an endeavor, we may take ourselves to have reason to object. Suppose we are looking for a new phone service. We might well respond to an utterance of (80) with (83).

(83) Hey, wait. Who hasn’t installed your phone yet? I’m looking for a new phone provider and I want to make sure I don’t get the same one as you.

Likewise for an out of the blue utterance of (73): we might object if we and the speaker are making dinner together; but if all we care about is whether we are going to eat soon, we might opt to hold our tongue. There is a conversational basis for the apparent contrast between (73)/ (76) and (80)–(82).

Analogous points hold with epistemic modals. We shouldn’t overstate epistemic modals’ apparent lack of a strong contextual felicity constraint. As we saw in §§3.2 and 3.3.6, the fact that one can accommodate the nonspecific information that there must be some value or other for \( P_e \) that makes an epistemic modal utterance true is frequently not sufficient to make the utterance felicitous. Often a relevant body of evidence must be salient in the discourse. Recall our example: You are about to make outdoor plans and you ask me what the weather is like. It would be inappropriate for me to reply simply by uttering ‘It must be raining’ or ‘It may be raining’.
I ought to make available to you the evidence which licenses my inference, as with 'must', or which justifies my raising the possibility of rain, as with 'may'. In the case of epistemic possibility modals, although there may be a range of candidate ways of accommodating the possibility described by the prejacent, this range isn't open-ended. Plausible principles of belief revision, even if they aren’t built into the formal semantics or pragmatics, will constrain the set of relevant interpretations. The complexity of the metasemantics of epistemic modals (§3.6) provides a flexible body of additional constraints to further narrow the possibilities for accommodation. The extent to which the range of possible interpretations needs to be circumscribed for communication to proceed successfully will then depend on particular features of the context and speakers’ goals.

Indulge me one final point of speculation. It isn’t hard to conjecture why it might be useful to have expressions like epistemic modals and other CR-expressions that permit some degree of contextual underspecification. Indeed, there are rich literatures on game-theoretic and evolutionary rationales for having expressions with this sort of use. Consider the gradable adjective ‘tall’. To a rough first approximation, ‘tall’ is interpreted with respect to a contextually supplied standard for height. Given an abstract context that sets the standard at, say, 70 inches, ‘Sam is tall’ says that Sam’s height exceeds 70 inches. (We will make this more precise in Chapter 6.) However, we already have expressions that conventionally encode this precise meaning. We can say ‘Sam is 5’10”’. It would be superfluous to have expressions like ‘tall’ if there was a systematic requirement that a particular standard already be accepted in the context. A vague use of ‘tall’ allows us to characterize Sam, and classify him in relation to other individuals, without needing to settle on what his precise height is. Our purposes needn’t require us to commit for the future course of the conversation on some particular standard of precision (more on this in Chapter 6). Likewise for epistemic modals. Epistemic ‘may’ allows us to raise certain possibilities to salience, even if our purposes don’t require us to commit for the future course of the conversation on some particular way of accommodating those possibilities (§§3.3.6, 3.5.2). Again, this isn’t to say that CR-expressions are never used when a specific value for the relevant parameter is accepted in the context. But it may provide a start (emphasis on start) in demystifying why they should be felicitous even when one is not.

To recap, free variables are associated with implications that context supplies a suitable value. In contexts where no specific value is antecedently supplied, uses of expressions with a free variable semantics can elicit various types of responses.

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32 See de Jaegher 2003, Frazee & Beaver 2010, de Jaegher & van Rooij 2011, O’Connor 2013. We will return to this in Chapter 6.
Some expressions tend to elicit a particular sort of response: for instance, uses of pronouns are typically met with objections and requests for clarification, whereas uses of epistemic modals often allow for accommodation of a nonspecific inference. Yet we see both kinds of responses across the range of expressions semantically associated with free variables. How exactly one responds depends on the context — specifically, on the relevance and importance of what information can be retrieved via pragmatic reasoning from the conversational situation and linguistic context, the information structure of the preceding discourse, and the speakers’ conversational and extra-conversational goals. I have suggested that the apparent contrast between (e.g.) pronouns and epistemic modals vis-à-vis strong contextual felicity constraints may derive from their specific contents and general features of the contexts in which they are used. But a more thorough investigation is required about whether, and to what extent, strong contextual felicity constraints may be given conversational explanations. As the preliminary discussion in this section makes clear, a nuanced sensitivity to context will be essential to any such investigation.

4.5 Recap

This completes the central positive chapters of the book. Chapter 2 motivated a general strategy for a contextualist account of CR-expressions by considering analogous discourse disagreements with paradigm context-sensitive expressions as well as related phenomena in collaborative action more generally. Chapters 3–4 developed the proposed Discourse Contextualist framework by applying it to the case of epistemic modals. The aim in these chapters has been to develop an improved contextualist account of epistemic modals and defend it against two prominent classes of objections. This account sheds light on more general features of meaning and communication, the interactions between context and content throughout the process of interpretation, and the relations between semantics/pragmatics and broader philosophical theorizing. It is also theoretically conservative; it can retain traditional treatments of various theoretical notions in philosophy of language — e.g., concerning semantic competence, the relation between truth and meaning, the nature of propositions, assertion, and belief, and the role of context in interpretation. The availability of such an account should be of particular interest to theorists who are compelled by the apparent context-sensitivity of epistemic modals but have concerns about alternative revisionary theories. I haven’t argued that no such alternative can succeed. But having an improved contextualist account of the purportedly problematic uses of epistemic modals generates an important dialectical advantage
over non-contextualist accounts. All parties in the literature grant that epistemic modals sometimes have non-expressive uses which call for a contextualist analysis. Non-contextualist accounts of expressive uses are forced into giving distinct semantics and pragmatics for expressive vs. non-expressive uses. Other things equal, we should prefer the unified contextualist semantics for epistemic modals afforded by Discourse Contextualism. Whether we should prefer it all things considered must await further developments in alternative overall theories and thorough empirical and theoretical comparisons.
Part II

Discourse Contextualism: Extensions
Chapter 5

Extension I: Deontic Modals

The foregoing chapters motivated and developed the Discourse Contextualist framework by applying it to the case of epistemic modals. I have argued that a static contextualist semantics, along general principles of interpretation and cooperative conversation, can explain various allegedly problematic data concerning the behavior of epistemic modals in unembedded and embedded uses. These chapters constitute the core of the book. The remaining chapters apply the Discourse Contextualist account developed thus far to the case of several other CR-expressions. These expressions exhibit many of the same kinds of distinctive phenomena that motivated our Discourse Contextualist account of epistemic modals. Since the general interpretative and explanatory mechanisms concerning these phenomena have already been considered in depth, I won’t reproduce the points in what follows. I trust the reader will fill in relevant details from the analogous discussions in Chapters 3–4. The primary emphasis in the following chapters will be on examining features specific to the particular expressions at hand and highlighting points of contrast among CR-expressions. Doing so will help clarify the prospects and burdens of offering a Discourse Contextualist account for a given expression. Further, we will see various ways in which the proposed Discourse Contextualist accounts provide perspicuous frameworks for theorizing about broader philosophical issues concerning thought and talk with CR-expressions. The goal isn’t to resolve these issues here, but rather to show how a contextualist account of the meaning and use of CR-expressions can be integrated into more comprehensive philosophical theories.

I start in this chapter by extending the Discourse Contextualist account of epistemic modals to the case of deontic modals.
5.1 Introduction

Thus far we have been focusing on epistemic uses of modals and the managing of speakers’ beliefs in inquiry. But communication isn’t merely a matter of sharing and coordinating our beliefs about how the world is. We also take a stance toward acts, attitudes, and states of affairs. We evaluate possibilities as desirable, fitting, horrible, permissible, wonderful. We make demands and grant permissions, emphasize commonality and breed antipathy. In communication we shape our identities as thinkers and feelers in a social world; we coordinate on how to act, what to feel, and whom to be.

Language affords a variety of normative and evaluative resources for doing so. One such resource is the language of modality. This includes modal verbs and adjectives, among others, as in (1)–(2).

(1) Morally speaking, we must help reform our prison system.
(2) Discrimination is morally wrong.

Our evaluation of sentences such as (1)–(2) depends on what moral norms we accept. (1), for instance, can seem acceptable if you accept moral norms requiring us to contribute to prison reform, but unacceptable if you accept norms permitting us not to. Some theorists claim that this dependence of our evaluation of (1)–(2) on what moral norms we accept derives from a dependence of the interpretation of (1)–(2) on a contextually relevant body of norms. Metaethical contextualism treats this context-dependence as a dependence of the semantic contents of sentences such as (1)–(2) on features of the context of use, those features that determine a relevant body of moral norms. To a first approximation, contextualism claims that the content of (1) is the proposition that the relevant moral norms in the discourse context require us to help reform our prison system (we will make this more precise in due course).

Contextualism about normative language, in this sense, often goes under the heading of ‘Relativism’. The view’s past is, shall we say, checkered. As Chris Gowans puts it at the beginning of a recent survey article, “relativism has the unusual distinction — both within philosophy and outside it — of being attributed to others, almost always as a criticism, far more often than it is explicitly professed by anyone” (Gowans 2012). Even in the recent contextualism-relativism debates in philosophy of language, where espousing some form of context-sensitivity has had its heyday,
contextualism for the case of normative language has had few defenders. Serious objections have been raised, both on linguistic and on substantive (meta)normative grounds. Many respond by distinguishing the context-sensitivity of normative language from that of paradigm context-sensitive expressions, or by denying that normative language is distinctively context-sensitive at all.

Contextualist accounts of normative language, few that there are, are typically motivated by normative and metanormative aims—e.g., to capture the connection between normative judgment and motivation, to avoid positing a realm of distinctively normative properties or facts, or to explain the alleged “faultlessness” of fundamental normative disagreement. I will argue that we can motivate metaethical contextualism independently of such broader issues. Discourse Contextualism provides an attractive framework for capturing distinctive roles of normative language in discourse and deliberation. A Discourse Contextualist semantics and pragmatics lays a foundation for further normative and metanormative theorizing.

This chapter begins to develop an improved contextualist theory of normative language. For concreteness I will focus on normative readings of modal verbs, such as in (1). Other categories of normative language are considered in Chapter 7.

The chapter is organized as follows. §5.2 examines the discourse properties of deontic modals in unembedded uses. §5.3 examines the embedding behavior of deontic modals in attitude ascriptions and conditionals. We will see that while epistemic modals and deontic modals share many of the distinctive features that make them apt for a Discourse Contextualist treatment, they also differ in important respects. The Discourse Contextualist account developed in §§5.2–5.3 illuminates crucial roles for normative language in discourse and deliberation, and provides a perspicuous framework for further theorizing about the distinctive practical character of normative language and judgment. §5.4 continues in this vein by examining how Discourse Contextualism about normative language integrates with substantive theorizing about the nature of normativity. Discourse Contextualism provides an attractive basis for a more comprehensive theory of normativity, normative language, and normative judgment. §5.5 recaps the preceding discussion. Finally, §5.6 concludes by briefly examining a second dimension of context-sensitivity with deontic modals: their information-sensitivity. The treatment of epistemic modals from Chapter 3 provides a natural way of integrating this additional layer of context-sensitivity into the account of deontic modals developed in the foregoing sections.

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5.2 Deontic modals in discourse

5.2.1 Contextualism about deontic modals

Modal verbs can receive a variety of readings, not simply epistemic. They can receive different kinds of normative, or *deontic* readings as well, as reflected in (3).

(3) a. According to U.S. law, Carey has to pay her taxes.
   b. In view of the house rules, Timmy can have a piece of cake for dessert.
   c. All things considered, I must give to charity.

Phrases like ‘according to U.S. law’, ‘in view of what morality requires’, ‘given what’s good for you’, etc. specify the relevant body of norms that figures in the interpretation of the modal. Roughly, (3a) says that U.S. law requires that Carey pays her taxes. Like with epistemic modals, the relevant norms aren’t always made linguistically explicit. Sometimes, only a general type of norm is explicitly specified, like in (4) or (5), or none is specified at all, like in (5).

(4) Morally, Sally must give 10% of her income to the poor.
(5) Sally must give 10% of her income to the poor.

Call sentences like (5) *bare deontic modal sentences*; and call deontic modals that occur in such sentences *bare deontic modals*. It is bare deontic modals that will be the focus of this chapter. To fix ideas let’s assume, unless otherwise noted, that all bare deontic modals in our examples are given the same type of normative reading — say, a moral reading, like in (1) or (4).

Contextualists and relativists about deontic modals agree, against invariantists, that the truth value of a deontic modal sentence may vary across parameters of interpretation (contexts of utterance, circumstances of evaluation, contexts of assessment) even if everything else in the world remains constant and a particular type of normative reading for the modal (say, moral) is held fixed. *Contextualists* claim that this potential variation is due to a dependence of the semantic content of a deontic

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Footnote:

3I use ‘deontic’ as a catchall term for any kind of practical normative reading. A distinction is sometimes made between narrowly deontic expressions (‘must’, ‘reason’, ‘permissible’) and evaluative expressions (‘good’, ‘bad’, ‘beautiful’). It isn’t uncontroversial how these families are related (see, e.g., Lemke 1998, Van Linden & Verstraete 2011, Van Linden 2012 for discussion in linguistics). I will use ‘deontic’ and ‘normative’ broadly to cover expressions and readings of both types. In calling a use ‘deontic’ I am not assuming that it need be performative, i.e. involve performing a directive/permissive speech act, such as imposing an obligation or granting a permission; more on this in §5.2.4.
modal sentence on features of the context of utterance. We will see that there are two respects in which deontic modals may be sensitive to context: they can be sensitive to a contextually relevant body of norms and to a contextually relevant body of information. The primary focus in this chapter is on the former sort of context-sensitivity — context-sensitivity concerning what body of norms is supplied. We will briefly return to issues involving information-sensitivity at the end of the chapter.

5.2.2 Agreeing and disagreeing with normative language

Deontic modals are subject to the same sorts of discourse-oriented uses as epistemic modals. Just as epistemic modals can be used to manage which possibilities are live, deontic modals can be used to manage an operative body of norms.

Normative disagreement gets a lot of press. The literature's preoccupation with discourse disagreements has the potential to obscure how normative language typically functions in discourse. Let's start instead with a prototypical collaborative case. Suppose there is an annual charity drive for starving children coming up, and we are deliberating about how much to give. We are modestly well off, but not wealthy by any stretch of the imagination. We are generally financially comfortable, though the stability of our jobs is not entirely secure. We must exercise care in planning for our children's education, ensuring the bills get paid, and so on. I ask you how much you think we are to give, in light of our financial, personal, and family situations, on the one hand, and the severe plights of the poor, on the other. You say:

(6) We must give 10% of our incomes for the children.

Your utterance assumes a body of norms relevant for the particular task at hand, namely, resolving an issue you placed on the conversational table: how much we are morally required to give. Since our plans depend on how this question is resolved, you ought to make available to me your grounds for answering it as you do. So you continue as in (7).

(7) We must give 10% of her income for the children. That should leave us with more than enough for ourselves and our own families. The starving children need it more anyway.

Recognizing your communicative intentions (more on which shortly), I successfully

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4Discussions of "metaethical relativism" target the former sort of context-sensitivity (n. 1). Authors in the recent contextualism-relativism debates have focused primarily on the latter (Kolodny & MacFarlane 2010, Dowell 2013, MacFarlane 2014: ch. 11).
restrict the range of possible interpretations for ‘must’, the basis for your utterance of (6) becomes common ground, and we plan for giving 10%.

The body of norms assumed in your utterance of (7) can affect the interpretation of subsequent utterances. This delimits the interpreter’s computational task of determining the intended contents of future uses of deontic modals, and facilitates a more efficient exchange of information and coordination of plans in future collaborative endeavors (ch. 2 n. 14, ch. 3 n. 9). Suppose we turn to the case of Sue, and consider how much we should give if we were in her shoes. Her financial situation is a bit more uncertain than ours. Her specialized health problems incur additional and sometimes unpredictable medical expenses, and her job security is more precarious. Still, she could make do with less, and her medical treatments aren’t strictly necessary. I ask how much Sue should give. You reply:

(8) I’m not sure. Sue can also give 10%. But maybe, given her medical and financial situation, she only has to give 5%.

The norms that served as the basis for your utterance of (6) prompt my further question about the newly raised case of Sue. Though you cannot resolve this question, you raise additional considerations which are plausibly normatively relevant. Our common normative views are refined so as to be compatible with Sue’s giving 10%, and we plan accordingly.

Now turn to a non-ideal conversation involving disagreement. Suppose Alice and Bert are considering the substantive normative question of how much morality requires Sally to give to the poor. The following dialogue ensues:

(9) Alice: Sally must give 10% of her income to the poor.
    Bert: No, Sally doesn’t have to give that much. She can give less.

Suppose Alice and Bert agree on all the relevant non-normative facts, like how much Sally earns, how stable her job is, what the needs of the poor are like, and so on. Their disagreement is fundamentally normative: they disagree about what moral norms to accept. In uttering (5) Alice proposes that norms requiring Sally to give 10% be accepted in the conversation.

(5) Sally must give 10% of her income to the poor.

In uttering (10) Bert rejects Alice’s proposal, and issues a counterproposal that norms permitting Sally to give less than 10% be accepted.

(10) No, Sally doesn’t have to give that much. She can give less.
This can lead to negotiation about what norms to accept and why.

Deontic modals can be used to manage what norms are accepted in the conversation. The familiar challenge for the contextualist is to explain how this metacontextual, or discourse-oriented use is possible, and why it is so systematic, given that a particular body of norms figures in the contents of deontic modal utterances (§2.1).

5.2.3 A Discourse Contextualist account

Recall our schema for a Discourse Contextualist account from §2.5:

Discourse Contextualism (outline):

1. Compositional semantics: ‘α’ is semantically associated with a relevant contextual parameter or variable x.

2. Interpretive constraints: Utterances of ‘α’-sentences (a) assume that the conversational situation determines a value for x that would make the utterance appropriate, and (b) assert something about the world given this value.

3. Discourse-oriented effects: Assuming that speakers’ assumptions about the value of x are readily retrievable, speakers can manage the value of x by using ‘α’—e.g., in direct affirmations and denials.

Let’s fill this in for the case of deontic modals.

The compositional semantic component from our discussion of epistemic modals applies equally here. Modals are semantically associated with a variable for a set of premises. Different premise set variables correspond to different flavors of modality. Thus far we have been focusing on epistemic premise set variables that represent relevant bodies of information. Deontic readings call for a premise set that encodes the content of a relevant body of norms. Different types of deontic readings are associated with different deontic premise set variables. For instance, in (3a) ‘According to U.S. law, Carey has to pay her taxes’, the modal ‘have to’ is interpreted with respect to a variable P, the value of which in context assigns to every world a set of premises that describes the content of U.S. law in that world. A moral premise set might include propositions like that no one steals, that everyone keeps their promises, etc.

It is common to include in a model of context a parameter representing (roughly) the norms that are accepted for the purposes of conversation.\footnote{See esp. Portner 2007; also Allen 1991, Lochbaum 1998, Portner 2004, Thomason et al. 2006, Starr 2010, Charlow 2011. Cf. ch. 3 n. 2.} In conversation we
not only share information in coordinating our beliefs about how the world is (cf. §2.2.2). We also express our normative views and coordinate our plans. Inquiry is, in part, inquiry about what to do. It is thus natural to link the deontic premise set variable with this discourse-level normative standard parameter, at least for the discourse-oriented uses we have been considering (more on this below). These uses call for a deontic premise set variable $P_d$ that represents the (in this case moral) norms endorsed in the conversation. This reflects the paradigmatic role of deontic modals in communal planning and deliberation. (Hereafter, unless otherwise noted, I will assume our deontic premise sets are specifically moral. There may be reasons to treat the norms parameter as consisting of a sequence of premise sets, representing different types of norms that may be relevant in the conversation (cf. Portner 2007b). As we are focusing on specifically moral readings, I bracket this complication in what follows.)

Treating deontic modals as semantically associated with a deontic premise set variable $P_d$ places familiar constraints on their felicitous use and interpretation. When this variable is free, a value must be contextually supplied for the sentence to have a specific interpretation in context. For communication to be successful, the hearer must be able to infer how the speaker takes the discourse context to be such that it determines such-and-such content for her utterance. An utterance of deontic ‘Must (/May) $\phi$’ assumes a readily retrievably value for $P_d$, $P_d$, and asserts that $\phi$ follows from (/is compatible with) $P_d$. By reasoning from these semantically generated constraints speakers can interpret deontic modals in context and coordinate on what norms to accept. The account of the contextual dynamics of deontic modals parallels the account given for epistemic modals. I won’t bore the reader by reproducing all the details here; for these I refer the reader to Chapter 3. But it will be helpful to have the central moving parts explicitly on the table.

Upon hearing Alice’s semantically underspecified utterance, Bert might reason roughly as follows, where $g$ is the proposition that Sally gives 10% of her income to the poor (cf. §§2.5, 3.2):

(11) “Alice is intending to say something about the possibility $g$. In order to do so, given the grammatical properties of modals, a set of premises must be contextually supplied. Since Alice wouldn’t intend to say something false, she must be assuming a premise set $P$ that entails $g$. The current question under discussion concerns the extent of Sally’s moral obligations to the poor. Since Alice is cooperative, her utterance of [5] must be relevant and realize an intention to provide at least a partial answer to this question. Assuming $P$ as a value for the deontic premise set variable $P_d$, $P_d$, would do
so by ensuring that the moral norms endorsed in the conversation require Sally to give 10%. So, Alice must be assuming a value for $P_d$, $P_{dc}$, and have meant that $P_{dc}$ entails $g$.

The appropriateness of Alice’s linguistic act of uttering (5) requires that the discourse-level moral standard entail $g$. Since it is mutually presupposed that she is obeying the maxims, in uttering (5) Alice implicitly proposes that it become taken for granted that such a standard is endorsed in the conversation. In accepting an utterance one normally accepts what the speaker committed to in uttering it. So, since it is common knowledge that Alice can expect Bert to undergo an abductive reasoning process like in (11), it is also common knowledge that he will object if he has different moral views, given their common goal of settling on what moral views to accept. So if Bert doesn’t object, this will confirm that the context is as the appropriateness of Alice’s act requires, and the discourse-level moral standard can be set to a value that entails $g$.

However, since Bert accepts an incompatible moral view, he ought to object. He replies as in (9). For reasons parallel to those above, his doing so is appropriate only if the discourse moral standard is compatible with Sally’s giving less than 10%. As he expects, Alice goes through an analogous abductive reasoning process and infers that he must wish to take for granted that the discourse moral standard is that way. By assuming a contrary value for the contextual variable $P_d$, Bert fails to accommodate Alice in her assumption about the context, and exerts conversational pressure on Alice to accommodate him instead. By producing utterances that assume incompatible values for $P_d$—i.e., by acting in ways that would be appropriate only if $P_d$ was assigned such-and-such incompatible values—Alice and Bert can negotiate over what body of moral norms to accept.

5.2.4 Features

Various discourse properties of deontic modals are already elucidated by this Discourse Contextualist account. As noted above, I will only briefly describe the more general features of the account which closely parallel those described in Chapter 3 with epistemic modals; see §3.3 for further details.

Justified use and disagreement

First, the account captures the justified use condition and disagreement condition from §2.1. Since Alice and Bert can reasonably expect one another to undergo the
above sort of pragmatic reasoning in (11). (a) Alice can felicitously assume a value for the discourse-level norms parameter, and (b) Bert can respond with a direct denial even though his disagreement is with a presupposition of Alice's utterance. Alice and Bert's disagreement is given a precise representation: their utterances carry incompatible assumptions about what body of moral norms is operative in their context. The locus of their disagreement concerns the very contextual features which determine the contents of their deontic modal utterances.

Moreover, recall that Alice and Bert's disagreement needn't be due to disagreement about the relevant non-normative facts. It's not that Alice and Bert are presupposing the same general norms, but disagree about their specific implications at the actual world. (More formally, it's not that they are assuming the same value for $P_d$, $P_{d'}$, and disagreeing about the logical properties of its value at the actual world, i.e. about whether $P_{d}(w_0)$ entails $g$.) For instance, it's not that Alice and Bert both accept classical utilitarianism but disagree about whether Sally's giving less than 10% would fail to maximize overall happiness. Their disagreement, rather, is fundamentally normative. It concerns what body of moral norms — hence what value for $P_d$, what function from worlds to moral premise sets — is operative in their conversational situation. (We will return to this distinction in greater detail in §5.2.5.)

**Discourse Contextualism vs. speaker subjectivism**

Early contextualist theories of normative language — sometimes called *cognitivist speaker subjectivism* — treated normative sentences as describing speakers' conative attitudes. A sentence like (5) would be treated as saying, roughly, that the speaker approves of Sally's giving 10% of her income to the poor. One of the main motivations for early emotivist theories was that this incorrectly treats normative sentences as *reporting*, rather than *expressing*, speakers' states of mind (e.g., Ayer 1936, Stevenson 1937; see also ch. 4 n. [1]). Discourse Contextualism avoids this problem with cognitivist speaker subjectivism. Alice's utterance of (5) doesn't say that she is in a certain state of mind. The asserted content is simply that such-and-such deontic premise set $P_{d_0}$ entails $g$. However, given Alice and Bert's common goal of settling on what moral norms to accept, by producing an utterance that assumes a certain value for $P_d$ Alice can reasonably expect Bert to infer that she accepts a moral view that requires Sally to give 10%. Alice's utterance expresses her state of mind via what it presupposes, not what it asserts. Discourse Contextualism can capture the core expressivist claim that normative uses of deontic modals express the speaker's state of mind (more on this below).
Normative uses and open questions

Normative language, it is often thought, seems to have a distinctive practical character. Following Stevenson (1937, 1944, 1963a), Allan Gibbard (1990) observes that when making a normative assertion, the speaker “is making a conversational demand. He is demanding that the audience accept what he says, that it share the state of mind he expresses” (172) — albeit in a “more subtle, less fully conscious way” than by issuing an explicit imperative (Stevenson 1937: 26). In making normative assertions we make claims on our interlocutors. “Normative” claims are the claims by which we “give people advice” (Parfit 2011a: 288), the claims which “direct, guide, or obligate us” (Korsgaard 1996: 226).⁶ Discourse Contextualism locates this feature of normative discourse in the presuppositions of normative utterances.

Though the truth conditions of deontic modal sentences are ordinary representational contents, speakers can use deontic modals to communicate normative claims about what norms to accept. Normative uses of deontic modals presuppose a value for the discourse-level deontic premise set variable $P_d$ representing the norms endorsed in the conversation. Making a deontic modal assertion creates a new discourse context in which this assignment to $P_d$ is taken for granted. Failing to object to a deontic modal assertion thus typically communicates that one accepts the value for $P_d$ which it requires. This puts pressure on the hearer to conform her normative views to the assumed deontic premise set. In cooperative conversations this conversational demand will be able to be backed by some normative justification (see, e.g., (7)) or epistemic story about why it would be reasonable to treat one as relevantly authoritative on the issue in question. One implicitly suggests that it would be reasonable for others in the group to rely on the relevant presupposed norms in the conversation and to give them weight in their own deliberation. This can promote normative consensus. Consensus isn’t always in the offing, but that is no different from the ordinary non-normative case.⁷

Like with the case of epistemic modals, we can explain the apparent primacy of this discourse-oriented contribution of deontic modals in terms of our static contextualist semantics and general pragmatic considerations (§§3.3.3, 4.4). The asserted contents of deontic modal utterances are propositions about logical relations between propositions and premise sets. Such logical matters can be at issue when working out the specific content of a general normative ethical view given the non-


normative facts. But this isn't the usual case in normative inquiry. What is typically interesting in a speaker's deontic modal utterance is what value is being assumed for the discourse-level normative standard parameter, i.e. what norms the speaker is presuming to be endorsed in the conversation. So it wouldn't be surprising if the primary function of deontic modals in discourse came to be to facilitate coordination on a body of norms. An ability to capture this is often taken to be a distinctive advantage of relativist, expressivist, and dynamic theories.

Thus far we have been focusing on "expressive" uses of deontic modals, in the sense of §3.3.5. A modal is used expressively, recall, if it presents the speaker as endorsing the considerations with respect to which the modal claim would be true (though see §4.1.2). Expressive uses of deontic modals present the speaker as endorsing the norms that would justify the modal claim. Non-expressive uses fail to present the speaker in this way. Reconsider our example with a non-expressive use of deontic 'have to' from Chapter 3, reproduced below as (12).

(12) Ernie has to be home by 10. Aren't his parents stupid? I'd stay out if I were him.

Intuitively, in (12) it is consistent for the speaker to dismiss the act of getting home by 10 because she isn't endorsing the norms that require it — the rules in Ernie's household. She is simply reporting what these norms require. The claim in (12) can be naturally paraphrased with an explicit 'according to' phrase, as in (13).

(13) According to Ernie's parents' rules, Ernie has to be home by 10.

Like the deontic modals in (9), the deontic modal 'have to' in (12) is interpreted with respect to a contextually supplied set of premises. The difference lies in what premise set variable is supplied. A non-expressive use like in (12) calls for a variable $P_{hr}$ that refers to Ernie's parents' house rules. These rules may be endorsed in the discourse context, but they may not be. Expressive uses, by contrast, call for a discourse-level contextual variable $P_d$ which represents norms commonly accepted in the conversation. Expressive uses don't simply say what is permitted, required,
etc. according to a given body of norms; they assume that the relevant norms are endorsed in the discourse context.

Expressive uses of deontic modals correspond to the uses commonly dubbed “normative” in the literature. Our way of representing the distinction between expressive and non-expressive uses provides a useful framework for further theorizing about the apparent distinctive features of normative language. First, analytic naturalists aside, it is often accepted that normative concepts are irreducible to non-normative concepts. Our semantics reflects this. Even if, say, classical utilitarianism is correct at the substantive normative level, competent speakers can coherently accept (14) without accepting (5); unlike (14), presupposes a body of norms endorsed in the context.

(5) Sally must give 10% of her income to the poor.

(14) Sally’s giving 10% of her income to the poor maximizes happiness.

However, given a context in which the “bridge” principle in (15) is accepted, (5) is accepted iff (14) is.

(15) What maximizes happiness is what must be done.

More generally, given a bridge principle like (15) that identifies the content of the relevant norms accepted in the context, there will be some associated non-normative sentence ‘ψ’ such that ‘Must ϕ’ is accepted iff ‘ψ’ is accepted. Discourse Contextualism captures the intuition that we shouldn’t build particular substantive normative assumptions into the conventional meanings of deontic modals (Silk 2013: 195–204), while also capturing how deontic modals, given their conventional meaning, can be used to express speakers’ particular normative views.

I have suggested that what distinguishes intuitively normative uses of deontic modals from non-normative uses of language is (perhaps inter alia) their interpretation with respect to a contextual variable that represents the norms endorsed in the conversation. This provides a precise way of framing substantive questions about different types of norms and normative language. We can locate these questions in a broader metasemantic account of what it is to accept different types of norms.

\[\text{A notion of acceptance in a context can be defined in the usual way, as in (i). (I simplify by identifying the context } c \text{ with the context set; see also §6.3.4.)}\]

(i) A sentence ‘ϕ’ is accepted in c iff for every world \(w \in c\), ‘ϕ’ is true in c at \(w\)

and to make discourse moves that presuppose such acceptance. What must a concrete discourse context be like for a deontic modal utterance to call for being interpreted with respect to a discourse-level norms parameter? Must the use play a regulative, directive role in the planning and practical reasoning of the speaker or relevant group? What makes it the case that such-and-such deontic premise set (or range of premise sets) represents the norms compatible with what has been accepted in a given conversation? Does accepting a body of moral norms (alternatively: prudential norms, norms of rationality, all-things-considered norms, etc.) essentially involve having certain motivational dispositions or emotional capacities? Does accepting (e.g.) ‘Morally, I must’ — accepting that the value for Pd determined in one’s concrete context entails that one necessarily involve taking oneself to have normative reason to α? Discourse Contextualism provides a framework for further theorizing about the distinctive practical character of intuitively normative uses of language (more in this vein in §§5.3.1, 5.4).

5.2.5 Uncertainty and indecision in normative inquiry

In §3.3.6 we noted that there are often a range of candidate values for the epistemic premise set variable Pe in concrete discourse contexts. The same holds for the deontic premise variable Pd. The compositional semantics takes as given an abstract context that assigns a particular value to Pd. But actual speakers typically aren’t committed to some particular, full specified body of norms. We begin normative inquiry in a state of uncertainty. In normative conversation our normative views evolve, and we become progressively more decided about what to do, how to feel, etc. We refine our normative commitments. In coming to accept (5) ‘Sally must give 10% of her income to the poor’ the context set gets restricted to worlds w in which Pcu(w) entails the proposition g that Sally gives 10%. There may be various ways of enacting this update consistent with our existing normative commitments and ordinary beliefs about the world.

The formalism highlights two potential sources of normative uncertainty or indecision. Sometimes normative uncertainty derives from ordinary factual uncertainty about how the world is. We might accept classical utilitarianism but be unsure about what it entails. In the case of (5), this kind of uncertainty may be reflected in a context set where the discourse context in each world determines the same value for Pd, Pcu, but where some worlds differ in whether Pcu entails g (where Pcu maps every world to the set of propositions describing, roughly, the acts that would maximize overall happiness in that world). Formally, the context set CS would be such that for all worlds u, v ∈ CS, [Pd]uc = [Pd]vc = Pcuc; and for some
worlds $u', v' \in CS \cap P_{cu}(u') \subseteq g$ and $\cap P_{cu}(v') \notin g$ (i.e., for some world $u'$ Sally can't maximize overall happiness without giving 10%, and for some world $v'$ Sally can maximize overall happiness without giving 10%). We are decided about what norms to accept, but we are uncertain about what these norms entail given the circumstances in the actual world.

More interesting is the case where normative uncertainty isn't grounded in ordinary factual uncertainty. Indecision about what to do isn't always derived from uncertainty about the specific content of norms one accepts in the actual world. Indecision can be purely normative. This would be reflected in a context set involving multiple representations of context which determine different deontic (unsaturated) premise sets — i.e., a context set $c$ such that for some worlds $u, v \in c$, $P_{cu} \neq P_{cv}$. In the limiting case where there is no relevant non-normative uncertainty, this would be reflected in a context set in which the only differences among worlds concern the value determined for $P_d$ by the context on those worlds and any contextual or extra-contextual features on which these determinations supervene.

These alternative sources of normative uncertainty correspond to different types of updates resulting from deontic modal utterances. First, call a use of a deontic modal purely descriptive if it distinguishes among worlds solely with respect to their relevant extra-contextual features. Purely descriptive uses are such that if a world is ruled out, so is every world with the same extra-contextual features. For instance, suppose there is agreement in the conversation about what norms to accept: for every world in the context set, the value for $P_d$ determined by the discourse context in that world is (say) the classical utilitarian body of norms $P_{cu}$. A purely descriptive use of (5) in this context distinguishes among worlds based solely on whether Sally's giving 10% maximizes overall happiness in those worlds. Updating with (5) restricts the context set to worlds $w$ such that $\cap P_{cu}(w) \subseteq g$.

Second, call a use of a deontic modal purely normative if it distinguishes among worlds solely with respect to the state of the discourse context, and any other worldly features that might be relevant to determining the value for $P_d$, in those worlds. Purely normative uses are such that if a world is ruled out, so is every world in which the conversational situation determines the same value for $P_d$. For instance, consider a context like the one in (9) in which there is agreement on the relevant non-normative facts. Every world in the context set is identical with respect to how much happiness would result from Sally's giving 10% of her income to the poor, what desires would be satisfied by Sally's giving 10%, etc. Given a particular value for the deontic premise set variable $P_d$, uttering (5) would fail to provide a non-trivial update. It would rule out either all worlds or no worlds from the context set. So, upon hearing an utterance of (5) one can reason that the speaker must be intending to
communicate something about what norms are operative, i.e. what value is supplied for $P_d$. Assuming the speaker is being cooperative, she must be presupposing that the discourse context determines a value for $P_d$ relative to which her assertion is true. If no one objects, the context set will then only include worlds in which the discourse context determines such a value, i.e. worlds $w$ such that $\bigcap [P_d]^{c_w}(w) \subseteq g$. As noted above, there may be various candidate ways of accommodating such a value for $P_d$, given one's existing normative commitments. Accommodating a suitable value for $P_d$ may even call for revisiting previous normative assumptions (see §3.5.2).

To reiterate, the view is not that the semantic value of a deontic modal sentence at a world depends on the existence of a speaker or group at that world (cf. §4.2.1). The compositional semantics makes no reference to the conversational participants. It takes as given a value for the deontic premise set variable, just as for any other variable, and then compositionally determines the semantic value of the larger construction given that value. The semantic content of (5) is simply the set of worlds $w$ in which $\bigcap P(w) \subseteq g$. Descriptive reference to a discourse context or relevant group appears, at most, in a metasemantic account of how the content of a deontic modal sentence is determined in context. The discourse-oriented effects of deontic modal utterances are the product of using sentences with the proposed compositional semantics in concrete conversations.

Finally, in addition to purely descriptive uses and purely normative uses of deontic modals, there are what I will call hybrid uses. Hybrid uses are uses that are neither purely descriptive nor purely normative. They rule out certain combinations of norms and non-normative facts. Hybrid uses constitute the typical case.

It will be helpful to work through a simple example. Consider an utterance of (5). Suppose that prior to the speaker's utterance it is compatible with the common ground that Sally's giving 10% of her income to the poor would produce 125 or 175 utils of happiness. And suppose that some satisficing version of utilitarianism has been accepted, but it hasn't been settled precisely what the relevant threshold is. Normative standards that require Sally to produce 100, 150, or 200 utils are all compatible with what has been accepted thus far. So, the context set includes the following six worlds (or representatives of suitable equivalence classes of worlds), where $c_w$ is the abstract context that represents the conversational situation in $w$; for convenience I will write $[P_d]^{c_w} = P_n$ to mean that, for any world $w$, $[P_d]^{c_w}(w)$ only includes propositions describing acts that produce $n$ utils of happiness in $w$):

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Value for $P_d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$w_1^c$ : 125</td>
<td>$[P_d]^{c_w_1} = P_{100}$</td>
</tr>
<tr>
<td>$w_2^c$ : 175</td>
<td>$[P_d]^{c_w_2} = P_{100}$</td>
</tr>
</tbody>
</table>
Upon hearing an utterance of (5) one will try to infer values for $P_d$ which, given the possible non-normative facts, require Sally to give 10%. For each world in the context set, one checks whether the amount of happiness that would be produced by Sally’s giving 10% of her income to the poor in that world is at least as great as the normative threshold, as encoded in the value of $P_d$, at that world. One might reason as follows (cf. §§ 3.2, 5.2.3):

“If we were in a context in which $P_{100}$ was the value of $P_d$, the semantic content of (5) would be (roughly) that Sally’s producing 100 utils of happiness entails that she gives 10% of her income to the poor — i.e., that Sally can’t produce 100 utils of happiness without giving 10%. Since it is common ground that Sally’s giving 10% would produce either 125 utils or 175 utils, the speaker might be presupposing $P_{100}$ and thus might be presupposing that we are in $w_1$ or $w_2$.

 Alternatively, if we were in a context in which $P_{150}$ was the value of $P_d$, the semantic content of (5) would be that Sally’s producing 150 utils of happiness entails that she gives 10%. This would render (5) false if we were in $w_3$ where Sally’s giving 10% only produces 125 utils. So the speaker must be intending to rule out $w_3$ from the context set.

 Finally, if we were in a context in which $P_{200}$ was the value of $P_d$, the semantic content of (5) would be that Sally’s producing 200 utils of happiness entails that she gives 10%. Since it is common ground that Sally’s giving 10% won’t produce that much happiness, the speaker must be assuming that the norms encoded in $P_{200}$ isn’t operative in the conversation, and thus that $w_5$ and $w_6$ aren’t in fact live possibilities.”

In this way, the speaker’s utterance of (5) assumes that $w_3$ and $w_6$ aren’t live and proposes to remove $w_3$ from the set of live possibilities (cf. ch. 3 n. 14). If the hearer accepts the speaker’s utterance, the context set is set to { $w_1$, $w_2$, $w_4$ }. Updating with (5) in this context thus doesn’t settle either on the relevant body of norms or on the non-normative facts about the consequences of the relevant acts, but it does rule out certain combinations thereof.
To be clear, the discussion in this subsection isn’t intended to constitute a substantive account of the nature of pure normative uncertainty. Discourse Contextualism provides a way of representing different kinds of uncertainty in a dynamics of normative inquiry. It doesn’t itself take a stand on what these states of mind consist in. We will return to this point in §§5.3.1, 5.4.

5.2.6 Recap

This section has developed a Discourse Contextualist account of deontic modals in discourse. Normative uses of deontic modals are semantically associated with a contextual variable representing the norms endorsed for the purposes of conversation. The discourse-oriented effects of these uses arise via general pragmatic reasoning from (inter alia) the requirement that a value for this variable be assumed as input to semantic interpretation. In using deontic modals speakers can exploit their mutual grammatical knowledge, along with general pragmatic reasoning, to manage an evolving normative view. This Discourse Contextualist account provides a framework for clearly articulating further metanormative questions about the distinctive practical character of normative uses of language.

5.3 Embedded contexts and normative thought

The last section applied the Discourse Contextualist framework to capture various discourse properties of deontic modals — how deontic modals are used to manage what norms are accepted in the conversation, how context affects the interpretation of deontic modals, and how using deontic modals changes the context and hence the interpretation of subsequent uses. In this section I apply the Discourse Contextualist treatment of embedded contexts from Chapter 4 to the case of deontic modals. As in the previous section, I won’t reproduce all the details here. What is interesting for present purposes are potential distinctive features of deontic modals in these environments. For this reason I will only consider the objections concerning contextualism’s characterization of the contents of normative attitudes, and concerning an analogue of the epistemic contradictions data. I trust that the reader will be able to make the appropriate adjustments to the responses to the other objections from §4.2. The proposed treatment of deontic modals in belief contexts provides an attractive framework for further theorizing about the nature of normative thought.
5.3.1 Attitudes and attitude ascriptions

First-order states of mind

Call an attitude ascription like (16) with a deontic modal sentence as its complement clause a normative attitude ascription.

(16) Alice thinks Sally must give 10% of her income to the poor.

Insofar as contextualism treats the contextually relevant norms as figuring in the content of a deontic modal sentence, contextualism would seem to treat a sentence like (16) as ascribing to Alice the belief that her moral standards require Sally to give 10% to the poor. The worry is that this incorrectly treats normative attitudes as states of mind about what norms one accepts (see ch. 4 n. 1).

Consider the following example from Silk (2013c: 207–208):

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:

\[(17) \text{Gabriel knows he shouldn't put his fingers into the outlet.}\]

This seems true; you are attributing a certain normative belief to Gabriel. But it is implausible that (17) is true only if Gabriel has a belief about his, or anyone else’s, normative views. He’s just a baby.

As Silk (2013c: 208) puts it, “Whether one can represent or take a certain perspective on normative standards is independent of whether one can have a normative standard.” Likewise, (18) doesn’t ascribe to Bert the sort of attitude ascribed in (19):

(18) Bert fears that he must give 10% of his income to the poor.

(19) *Bert fears that his/our/whomever’s moral views entail that he gives 10% of his income to the poor.

Bert’s fear is about the moral status of his giving 10% to the poor, not about himself or the stringency of his moral views.

So, normative attitude ascriptions don’t seem to ascribe meta-attitudes about a relevant individual/group or their normative standards. They seem to characterize the subject’s first-order normative views themselves. It is (20b), not (20a), with
which has an important semantic connection.

(20) a. $\Diamond$ Alice thinks that, according to her/our/whomever's moral views, Sally must give 10% to the poor.

b. $\approx$ According to Alice's moral views, Sally must give 10% to the poor.

(16) characterizes Alice as accepting moral norms which require Sally to give 10% to the poor. The challenge is to capture this within a contextualist semantics.

(Note that we are still focusing on expressive (normative) uses of deontic modals — uses in which the relevant norms are presupposed to be endorsed by the subject of the attitude. Non-expressive (non-normative) uses of deontic modals in attitude contexts raise no special problems. Modifying our unembedded example above, (21) does ascribe a belief about a certain body of norms.

(21) I think Ernie has to be home by 10. Aren't his parents stupid?

(21) ascribes to the speaker a belief that Ernie's parents' house rules require Ernie to be home by 10.)

(16) ascribes to Alice the logical belief that such-and-such deontic premise set $P$ entails the proposition $g$ that Sally gives 10% to the poor. As in §4.2.1, what communicates something about Alice's first-order normative views is the assumption that this proposition is the content of her belief. Expressive uses of deontic modals presuppose a body of norms endorsed in the context. In attitude ascriptions the relevant context is the local context of the attitude state; the locus of endorsement is the subject of the attitude. So, in using (16) one assumes that Alice's normative views are such as to determine a value for the deontic premise set variable $P_{dA}, P_{da}$, that makes the belief ascription true. One communicates that Alice endorses a body of norms that requires Sally to give 10% to the poor. Ascribing to Alice the belief that $P_{da}$ entails $g$ via (16) communicates something about Alice's first-order normative views because of how the presuppositions of the deontic premise set variable are assumed to be locally satisfied.

Cognitivism, non-cognitivism, and the nature of normative judgment

This account of deontic modals in attitude contexts lends itself to an attractive picture of normative thought, one which may capture intuitions from both cognitivist and non-cognitivist camps.

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12This isn't to say they are equivalent; see Harman 1996: 13, 14, 19 on how an agent's moral standards (to use my terminology) can come apart from her beliefs about morality.
For an expressive normative attitude ascription like (16) ‘Alice thinks Sally must give 10% of her income to the poor’ to be true, two things must be the case. First, Alice must accept some body of norms or other. This is necessary for the presupposition associated with the normative standard variable to be locally satisfied. Second, this body of norms must entail that Sally gives 10% to the poor. This is necessary for the attitude ascription to correctly characterize Alice’s normative views.

The truth in cognitivism is that the content of Alice’s belief is an ordinary representational content. Suppose Alice accepts classical utilitarianism. Then Alice’s belief is true iff Sally’s giving 10% maximizes overall happiness. However, having the normative belief isn’t simply a matter of being in this representational state. Alice must also accept the norms in question. Believing that Sally must give 10% isn’t equivalent in general to believing that Sally’s giving 10% maximizes overall happiness, since the content of the former belief varies across subjects who accept different norms. Moreover, these beliefs aren’t identical even for someone who accepts classical utilitarianism. A precondition for having the specifically normative belief is that one be in a certain state of norm-acceptance. The normative belief, unlike the non-normative belief, requires accepting a certain body of norms (cf. §5.2.4).

This latter component makes room for a way of capturing the common intuition that normative judgment isn’t reducible to non-normative judgment. Expressive normative attitude ascriptions are interpreted with respect a body of norms that are assumed to characterize the subject’s normative views. This suggests that we situate questions about the apparent distinctive practical character of normative judgment in a broader metasemantic account of constraints on the correctness of such assumptions — specifically, in a metaethical account of the psychology of accepting a certain body of norms. (No doubt Gibbard 1990 will be relevant here.) For instance: What makes it the case about an agent that such-and-such deontic premise set (or range of premise sets) characterizes her normative state of mind? Do facts about the agent’s conative, practical, or motivational state play an essential role in this sort of content determination? If so, what role and which facts? Does accepting a body of norms essentially involve having certain motivational dispositions or emotional capacities? These questions will plausibly receive different answers for different types of norms.

Discourse Contextualism thus makes perspicuous how both representational and motivational elements might be built into having a normative belief — the former in the content of the belief, and the latter in psychological preconditions for its counting as normative, or its being ascribable in normative terms. Putting the point in terms of normative belief ascriptions, we can locate the representational component in the semantics — i.e., in the semantic content of the complement clause, given that its presuppositions are locally accommodated; and we can locate the practical
component, depending on one’s broader metaethical views, in the metasemantics—i.e., in what makes it the case about the subject that such-and-such way of satisfying those presuppositions is correct. A broader account of normative judgment developed along these lines may thus be able to capture intuitions driving “hybrid” expressivist views while avoiding some of their apparent counterintuitive commitments—e.g., that everyone who has a certain normative belief must accept the same representational claim (e.g., Boisvert 2008), or that all normative beliefs of a certain type must involve the same motivational attitude (e.g., Ridge 2006, 2007, Boisvert 2008).

In §5.2.5 we noted that there may be multiple candidate values for the (unsaturated) deontic premise set variable in the interpretation of unembedded deontic modal sentences in concrete discourse contexts. This provided a way of representing pure normative uncertainty. Analogous points hold in the case of deontic modals embedded in normative attitude ascriptions. In accepting (5) one presupposes that Alice’s accepts a body of norms that (among other things) requires Sally to give 10%. But our purposes in actual conversations typically don’t require us to settle that some particular (unsaturated) deontic premise set represents Alice’s normative views. There may be a range of live possibilities for what Sally’s state of mind is like, consistent with its requiring Sally to give 10%. This would be reflected in a context set in which Alice’s state of mind determines different values for \( P_d \) in different worlds. All this can be the case even if the compositional semantics takes as given a locally supplied value for \( P_d \) in calculating the semantic value of (5).

To be clear, I am not claiming that Discourse Contextualism commits one to substantive views about the nature of normative thought. It doesn’t. It doesn’t commit one to internalism, or to saying that normative beliefs are essentially practical in ways that non-normative beliefs are not. Nor does it provide a substantive account of the nature of pure normative uncertainty (§5.2.3). These are extra-semantic issues in philosophy of mind and psychology. Discourse Contextualism provides a framework for clearly articulating further metanormative questions about the distinctive features of normative language and judgment; it doesn’t itself require particular answers to them (cf. §5.2.4).

13See Schroeder 2009 for extensive critical discussion of hybrid theories.
14Compare the alternative enriched representation in §3.3.6; see also Silk 2015b: 22n.25.
5.3.2 CR-contradictions?

In §4.1.3 we considered an objection to contextualism from Seth Yalcin (2007) concerning previously unnoticed phenomena involving epistemic contradictions, sentences of the form 'May ϕ and ¬ϕ'. The worry, recall, was that a contextualist semantics is ill-suited to capture the apparent persisting incoherence of epistemic contradictions in suppositional environments, as in (22).

(22) #Suppose the test is Monday but it may not be.

In §4.2.3 I claimed that a similar phenomenon arises with other CR-expressions. The examples in (23)–(24) seem anomalous in much the same way as (22).

(23) #Suppose the brownies are tasty but we all hate them.
(24) [Context: Ken is 5′7″ tall.]
    #Suppose Ken is tall but the standards for tallness are super high.

It is interesting that analogous examples with deontic modals are much easier to hear as consistent. Consider (25)–(26).

(25) Suppose you have to give 10% to the poor but it's all the same to us whether you do.
(26) Suppose you can stay out late but we don't care what you do.

Intuitively, (25) asks one to suppose that one has a certain requirement but doesn't care whether it is satisfied, and (26) asks one to suppose that one has a certain permission but doesn't care whether it is taken up. These requests seem coherent.

The broader spectrum of examples concerning epistemic contradictions considered in §§4.1.3, 4.2.3, along with our subsequent diagnosis of the phenomena, suggests a plausible explanation for this apparent contrast among CR-expressions. Very roughly, the anomalousness of (22)–(24) results from the fact that the non-CR-conjunct asks one to accept something that is incompatible with what the use of the CR-conjunct assumes. Informally, (22) asks one to adopt a state of mind that both accepts that the test is Monday and leaves open the possibility that it isn't. Likewise (23) asks one to adopt a standard of taste that finds brownies tasty but accepts that we all find them disgusting; and (24) asks one to assume a low standard of precision relative to which Ken counts as tall but accept a high standard of precision (more on these examples in subsequent chapters). Call examples like (22)–(26) embedded CR-contradictions. In §4.2.3 we saw that embedded epistemic "contradic-
tions” can be felicitous in non-expressive uses, and in certain expressive uses where (e.g.) there is ignorance about the specific content of the (globally) endorsed information, or where we are evaluating possibilities in which the (suppositionally) endorsed information deviates from the facts. This suggests that judgments about CR-contradictions may improve to the extent that analogous conditions obtain in the context.

Consider predicates of personal taste (“PPTs”). It is plausible that PPTs differ in the extent to which they allow non-expressive readings, and in the extent to which speakers allow that the endorsed tastes may come apart from their attitudes or experiences. This predicts, correctly it seems, that PPTs may differ in the extent to which felicitous embedded “taste contradictions” are possible. Though it is hard to hear as consistent, the following examples seem perfectly coherent.

(27) Suppose this cat food is tasty but we all hate it, and it’s the only food left on the planet. Then the cat will be happy, and we’ll probably starve to death.

(28) Suppose the new wine is exquisite but we all hate it. Then we’ll need to take one of those fancy wine-tasting classes so we don’t embarrass ourselves.

Intuitively, (27) asks one to accept that the cat food tastes good to the cat but not to us. (28) asks one to endorse a taste standard about wine about which one is incorrect. For instance, one might satisfy the imperative by hypothetically accepting that one hates the new wine even though it is unanimously loved by the wine experts, whose judgments one trusts. Differences concerning CR-contradictions can obtain not only across types of CR-expressions but also within a particular type of CR-expression.

With these examples in mind, let’s return to deontic modals. For expository purposes, let’s just focus on issues concerning norm-endorsement in suppositional contexts. Deontic modals differ in the frequency with which they are used expressively vs. non-expressively. For instance, ‘be required to’, ‘be supposed to’, and ‘be allowed to’ are typically used non-expressively; ‘have to’, ‘(have) got to’, and ‘can’ are more flexible; and ‘must’, ‘should’, ‘ought’, and ‘may’ are typically used expressively. This correctly predicts that “normative contradictions” with (say) ‘be supposed to’ will embed felicitously in suppositional contexts, as reflected in (29).

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Suppose you’re supposed to be home by 10 but none of us care whether you are. Then you’ll probably stay out and get grounded.

Likewise for \[\begin{align*}
\text{(25)} & \quad \text{‘have to’} \\
\text{(26)} & \quad \text{‘can’}
\end{align*}\] above with ‘have to’ and ‘can’, respectively. This is because updating with the deontic modal conjunct doesn’t require that one endorse the relevant norms, even hypothetically.

But what about examples like \[\begin{align*}
\text{(30)} & \quad \text{‘must’} \\
\text{(31)} & \quad \text{‘may’}
\end{align*}\] with deontic modals that are typically used expressively?

\[\begin{align*}
\text{(30)} & \quad \text{Suppose you must give 10% to the poor but it’s all the same to us whether you do.} \\
\text{(31)} & \quad \text{Suppose you may stay out late but we don’t care what you do.}
\end{align*}\]

These examples with ‘must’ and ‘may’ seem more marked than the analogous examples with ‘have to’ and ‘can’, but still better than our original epistemic contradictions like \[\text{(22)}\]. I suggest that for deontic modals that are typically, but not obligatorily, used expressively, coherent non-expressive readings are possible given the general availability of plausibly relevant norms that needn’t be endorsed in the context. In most contexts a body of moral norms, legal norms, institutional requirements, rules of etiquette, family rules, etc. can be readily accommodated. So, insofar as non-expressive readings with (say) ‘must’ are possible, \[\text{(30)}\] may seem acceptable given the general preference for coherent interpretations. This isn’t to say that embedded normative contradictions will always be felicitous. For instance, it seems hard to hear the following example with ‘have got to’ as consistent:

\[\begin{align*}
\text{(32)} & \quad \text{‘have got to’}
\end{align*}\]

The use of ‘have got to’ and the specific content of the requirement may make it relatively more difficult to accommodate a plausibly relevant body of non-endorsed norms in this case. (We will return to differences concerning CR-contradictions among broadly evaluative expressions in §7.3.)

The variations among CR-expressions considered in this section provide grounds for reiterating a general methodological assumption guiding our inquiry (§§1.2.4, 4.2.3). The aim of Discourse Contextualism is to capture the distinctive embedding behavior of CR-expressions in terms of general features of context, pragmatic reasoning, and the conventional meaning of context-sensitive language. This includes features of their truth-conditional content and presupposed content. This isn’t to deny that there may be differences among CR-expressions in their embedding be-
behavior, or that some differences among context-sensitive expressions may have a grammatical origin (cf. ch. 4 n. 8). The goal is simply to offer a general explanation for as much commonality among CR-expressions, and context-sensitive expressions more generally, as the data allows.

The upshot of this section is this: The felicity of embedded CR-contradictions can vary given various features of context — linguistic and extra-linguistic, and local and global. A contextualist semantics for CR-expressions is well-placed to capture these sorts of contextual dependencies. The specific Discourse Contextualist account developed thus far provides a precise representation and diagnosis of the differences among CR-expressions in their behavior in embedded CR-contradictions across contexts.

5.4 Realism and normative truth

Compositional semantics takes as given an abstract representation of context that assigns values to variables. This includes the deontic premise set variable. In this chapter I have suggested that we locate various questions about distinctive features of normative language and judgment in the metasemantic question of what makes it the case about an agent or concrete discourse context that a given abstract context (or set of contexts) represents it. In this section I will briefly consider one additional way in which the Discourse Contextualist framework can fruitfully integrate with broader normative and metanormative theorizing (cf. also §3.6).

First, in Silk 2013c I argued that semantic competence with normative language requires being able to say, given a body of norms, whether a certain normative sentence is true with respect to it, and I argued that contextualism is ill-suited to capture this. I now regard this objection as incorrect. Like with epistemic modals, the correct metasemantic story for deontic modals is likely highly complex (cf. §3.6). Detailed descriptions of concrete discourse contexts will likely fail to specify all the contextual features that might be relevant to determining the value of $P_d$. Even given a complete description of plausibly relevant features of context, speakers may disagree about how the relevant norms are determined as a function of these features. This possibility is made all the more likely in light of how substantive normative considerations, and not simply interlocutors’ beliefs about them, might bear on what body of norms is operative in a given conversation. Given a “neutral” or informally described discourse context, speakers may thus arrive at diverging truth value judgments on the basis of substantive normative differences. What is necessary for specifically semantic competence with deontic modals is, rather, a capacity
to deliver truth value judgments given a fully specified representation of context — in particular, given a relevant body of norms. In this way Discourse Contextualism avoids building substantive normative views into the conventional meanings of deontic modals (cf. §5.2.4). We can capture the point in Silk 2013 that semantic competence with normative language doesn't presuppose some particular view about how to live (see also n. 11, ch. 3 n. 47). One needn't be a moral saint to understand moral language.

Delineating questions about the metasemantics of deontic modals suggests precise ways of posing substantive (meta)normative questions about the nature of normativity, and of locating them in an overall theory. For instance: What property, if any, do all and only morally required actions have? Do any normative facts hold independently of the evaluative attitudes of the creatures to whom they apply? Fundamentally, what determines which body of (say) moral norms, and hence value for $P_a$, is operative in a given concrete context? For such-and-such type of contextual norm variable (moral, evaluative, etc.), is a single value determined by all contexts? Or can the relevant standard vary across contexts? What are the relations among different types of norms, and hence among the values for different types of norm variables determined in concrete contexts? Metaethicists can all accept Discourse Contextualism in giving a formal semantics and pragmatics for normative language. Where they will differ is on these sorts of further philosophical questions.

To take one example, consider ethical debates about the universality of morality. To capture common “relativist” claims, one could say that different contexts can determine different moral norms. Conflicting moral judgments about a particular case could thus both be true. If nothing privileges the one context and its moral norms over the other, such conflicting judgments could be equally valid, in some sense, as well. Those who defend the objectivity of morality — or at least the objective purport of moral language — would deny these claims. They could treat the moral norms variable as representing the correct moral norms in force in the conversational situation, determined independently of speaker intentions. If a universal moral standard was correct in all contexts, the same moral norms would be supplied in all contexts. This would be a substantive normative matter rather than something built into the conventional meaning of moral language (more on this below). Questions about the objectivity and universality of morality can thus be teased apart from the semantics, and located in the metasemantics of what determines the value of the moral standard variable in concrete discourse contexts.

Let’s consider these options in a bit more detail. On the one hand, for all that I have said, in some cases there may nothing in the world, independent of our intentions and what we accept in our conversation, that determines precisely which
body of norms is supplied. Even if there isn’t, this needn’t undermine normative disagreement. Suppose the disagreement between Alice and Bert about Sally’s moral obligations to the poor is such a case. Alice might have good reason to persist in her original claim that Sally must donate 10% of her income. As we saw above, previously accepted norms can serve as a basis for interpreting subsequent normative claims. Alice might think, “Why is Bert being so lax? Sally is so much better off than nearly everyone in the world. Would Bert be so stingy if he were in Sally’s place? I don’t want to live in a world where people think someone in her shoes can’t spare 10%. I’m not letting this one slide.” If Bert comes to agree with Alice, perhaps he won’t learn any facts that held independent of their conversation (again, for all that has been said thus far). But what norms he accepts will have changed — arguably for the better. What norms we accept matters to us. Persisting disagreement needn’t imply realism.¹⁶

I want to emphasize that even if deontic modals are interpreted with respect to contextually variable bodies of norms, this needn’t imply that normative matters are merely “matters of taste,” that normative disagreement is essentially “faultless,” or that people cannot be normatively mistaken. Discourse Contextualism is a soberly linguistic framework. It offers a way of representing the conventional meanings of deontic modals (at a relevant level of abstraction), and of modeling how uses of deontic modals conventionally change the context. It doesn’t tell us what context to be in.

On the flip side, I raised the possibility above that the correct metasemantics for deontic modals may entail that, for particular types of normative readings, the same body of norms is determined in all contexts. Even if such a metasemantics is correct, Discourse Contextualism (about those types of readings) needn’t collapse into a form of invariantism. Call the question of whether the same body of norms (of a given type) is supplied in all contexts ‘the question of universality’. Discourse Contextualism locates the question of universality in the metasemantics. No assumption of universality is built into the conventional meaning of deontic modals. This makes room for an alternative view, one we might plausibly call ‘invariantism’, that builds universality into the very semantics of deontic modals.

There are a number of ways of implementing such a view. One option would be to maintain the standard general treatment of modal verbs as context-sensitive, and include a substantive lexical constraint on certain types of normative readings that a particular body of norms, the universally correct one, be supplied as a function of

the world of evaluation. Different bodies of norms would then correspond to dif-
ferent languages, i.e. fully formally precise languages in the sense of Lewis (1970, 1975). Rather than treating deontic modal utterances as presupposing a value for a body of norms variable, the invariantist could treat them as presupposing that a particular language is being spoken. This “presupposition” would simply be the general assumption in interpretation that interlocutors are speaking the same language, i.e. that certain strings of sounds or letters correspond to certain words with certain lexical entries. Discourse-oriented effects could then be understood in terms of presuppositions about which language is being spoken.

This type of invariantist view bears important similarities to Discourse Contextualism. The possibility of such a view makes salient the need for further investigation of the metasemantics of deontic modals, of general ways in which the interaction between semantic and metasemantic accounts in a domain can constrain theory choice, and of the bases for positing semantic context-sensitivity in natural language. Much progress has been made on this last issue, but the former issues remain ill-understood.

In these sections we have seen that a variety of Discourse Contextualist-based accounts of normative thought and talk are possible depending on one's broader philosophical commitments. This isn’t a trivial feature. Modifying a point of Kaplan’s in a related context, by delineating various issues concerning the meaning of deontic modals and the nature of normativity, of normative uses of language, and of normative judgment, “the result can only be healthy for all… disciplines” (1989: 537). Distinguishing these further issues from the semantics proper can free up our normative and metanormative investigations. This can motivate clearer answers and a more refined understanding of the space of possible views (cf. §§ 3.6, 5.2.4).

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1⁷ Cf. Bar-Hillel (1954: 370–371): “Let me… mention a brand of dependency which embraces even the non-indexed sentences. I mean the fact that any token has to be understood to belong to a certain language… In this sense, no linguistic expression is completely independent of the pragmatic context. But just because this kind of dependence is universal, it is trivial.” Compare Perry 2001 on the “pre-semantic” role of context, and Stanley & Szabo 2000 on the “grammatical” role of context.


1⁹ For points in a similar spirit, see Forrester 1989 chs. 2, 13; Plunkett & Sundell 2013b: 275–277; Silk 2013c, 2015d; Plunkett & Shapiro 2015.
5.5 Recap

Let’s recap. This chapter has applied the Discourse Contextualist framework to the case of deontic modals. Normative, expressive uses of deontic modals assume a semantically unspecified value for a discourse-level parameter representing a body norms operative in the conversation. Insofar as these assumptions are mutually manifest, speakers can coordinate their normative commitments and manage the value of this parameter by using deontic modals. Discourse Contextualism resolves two of the central challenges facing contextualist accounts: capturing the discourse properties of deontic modals in unembedded uses and the behavior of deontic modals in embedded contexts. Normative disagreement can be diagnosed in terms of speakers’ incompatible assumptions about what value for the contextual norms variable is determined by their conversational situation. Normative belief ascriptions can be treated in terms of independently attested mechanisms of local interpretation: normative belief ascriptions characterize a subject’s normative views by assuming a locally accommodated value for the norms variable that represents those views and makes the ascription true. These accounts provide perspicuous ways of posing further normative and metanormative questions about the nature of normativity, normative language, and normative thought. For instance, questions about the practical character of normative language and judgment can be situated in broader philosophical and social-psychological accounts of the nature of norm-acceptance and what is involved in making discourse moves that presuppose such acceptance. Questions about the nature of normativity, morality, etc. can be located in the metasemantics of what determines the values of different types of norm variables in concrete contexts. Delineating these issues can help refine our understanding of the space of overall theories and motivate more fruitful ways the dialectics may proceed. A Discourse Contextualist semantics and pragmatics provides an empirically adequate and theoretically attractive basis for a broader account of normative discourse and practice.

5.6 Information-sensitivity

The focus in this chapter has concerned context-sensitivity in the normative aspect of the interpretation of deontic modals, i.e. in which body of norms is supplied. But there is a second respect in which deontic modals appear to be sensitive to context: they appear to be sensitive to a contextually relevant body of information or evi-
It is well known that we can ask not only about what we ought to do in light of all the facts, known and unknown, but also about we ought to do in light of the evidence. A contextualist about the latter sort of talk says that the relevant body of evidence is supplied by the context of utterance and figures in the derivation of semantic content.

Disagreement worries parallel to the ones from §§2.1, 5.2 can be constructed for the contextualist about information-sensitivity in deontic modals (Kolodny & MacFarlane 2010: 122–123, 142–143; MacFarlane 2014: 284–285). Consider the following case adapted from Gibbard 2005: You are speeding to the hospital down a country road, and you approach a blind intersection. You don't know whether a car is coming. The chances are low, but the consequences will be disastrous if one is coming and you speed through. You say, correctly, it seems:

(33) I must slow down.

Now suppose that, unbeknownst to you, an advisor — conveniently named ‘Advisor’ — has been tracking your location. She calls you and says she has excellent evidence that the intersection is clear. She says:

(34) No, you must speed through.

Advisor’s use of ‘no’ to mark her disagreement is felicitous. The now familiar worry for contextualism is that if we treat the relevant information to be the speaker’s, then we fail to capture how Advisor can reasonably disagree with you, or how Advisor is disagreeing with you in uttering (34); and if we treat the relevant information to be the pooled information of a larger group, including Advisor, then we obscure how you were in a position to utter (33), which, intuitively, you were.

The remainder of this chapter sketches one way of extending our Discourse Contextualist account and going contextualist about the relevant norms and the relevant information. I have simplified discussion by treating modals as interpreted with respect to a single premise set, e.g. epistemic or deontic. But it is common in linguistic semantics to interpret modals with respect to two premise sets—one describing a body of relevant background facts $F$ (a “modal base”), and another describing a rele-

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vant ideal $G$ (an “ordering source”) \cite{Kratzer-1981, Kratzer-1991}. The epistemic premise sets that figured in our account of epistemic modals are a kind of modal base. The deontic premise sets in this chapter are a kind of ordering source.

We can extend our Discourse Contextualist account of deontic modals by incorporating both types of premise sets. Uses of deontic modals presuppose values $F$, $G$, for the premise set variables $F$, $G$. ‘Must $\phi$’ says that $\phi$ follows from every maximally consistent subset of $F(w) \cup G(w)$ that includes $F(w)$ — or, adopting the simplifying notation in Definition \ref{max}, that $\phi$ follows from every set in $\text{max} (F(w), G(w))$. ‘May $\phi$’ says that $\phi$ is compatible with some set in $\text{max} (F(w), G(w))$.

**Definition 1.** $\text{max} (F(w), G(w)) := \{ P : \text{cons}(P) \land F(w) \subseteq P \subseteq F(w) \cup G(w) \land \forall P' [P \subseteq P' \subseteq F(w) \cup G(w) \rightarrow \neg \text{cons}(P')] \}$, where, for a set of propositions $S$, $\text{cons}(S)$ iff $\bigcap S \neq \emptyset$

**Definition 2.** ‘Must $\phi$’ is true in $c$ at $w$ iff $\forall P \in \text{max} (F_c(w), G_c(w)) : \bigcap P \subseteq \phi$

**Definition 3.** ‘May $\phi$’ is true in $c$ at $w$ iff $\exists P \in \text{max} (F_c(w), G_c(w)) : \bigcap (P \cup \{ \phi \}) \neq \emptyset$

Expressive uses of deontic modals can now be expressive in two ways. They can present the speaker (in the unembedded case) as endorsing the relevant body of information and/or the relevant body of norms that would verify the modal claim. This reflects the dual role of deontic modals in information-sharing discourse and planning. (Hereafter I will assume we are only considering uses that are “doubly expressive” in this way.)

The accounts of information-sensitive deontic modals in discourse and embedded contexts can proceed straightforwardly as in §§5.2–5.3. I will spare the reader from repeating the analogous details. But working through the disagreement example with Advisor in \cite{Skrzypacz-2013} will be helpful in getting a feel for the dual role of deontic modals in conversation. The interaction between information and norms raises distinctive issues.

Start with the following relatively informal characterization. Your utterance of \cite{Skrzypacz-2013} presupposes a body of information and body of norms, and asserts that your slowing down is entailed by this information given these norms. There may be various plausibly relevant combinations of information and norms that would render

\footnote{This bifurcation has a rich history in deontic logic. See, e.g., \cite{Hansson-1969, Lewis-1974, Prakken-Sergot-1990, 1997, Hansen-2005, Hory-2012}; compare the Kratzerian semantics below with the semantics in \cite{Goble-2013}: 280–281, 287.}

\footnote{This still makes the limit assumption in assuming that ordering the consistent subsets of $F(w) \cup G(w)$ which include $F(w)$ by set inclusion $\subseteq$ yields a set of subsets that are $\subseteq$-maximal.}
your utterance true and appropriate. Suppose Advisor infers that you are presupposing (a) a body of information that is compatible with the intersection's not being clear, and (b) a body of norms that (i) enjoins speeding through given confirming evidence that the intersection is clear and (ii) enjoins slowing down given a lack of such evidence. Since Advisor has confirming evidence that the intersection is in fact clear, she utters \[34\]. In response you go through an analogous abductive reasoning process. There may be various plausibly relevant combinations of information and norms that would render her utterance true and appropriate. Advisor might be wishing to presuppose an incompatible body of information or an incompatible body of norms. In principle, she might wish to leave open that another car is approaching the intersection but accept risky norms that call for you to speed through regardless. Nevertheless, you infer (correctly, let's suppose) that she is presupposing the same norms but an alternative body of information that entails that the intersection is clear. If you accept Advisor's justification for her denial, it can become presupposed that the context is as her linguistic act requires. The context set can be restricted to worlds in which the intersection is clear and the relevant norms enjoin speeding through. But if you have reason to doubt Advisor's evidence, negotiation can ensue over what information is endorsed in the context. In using deontic modals, you and Advisor can manage evolving bodies of information and norms.

There are various ways of precisely modeling these conversational dynamics and of encoding the combinations of information and norms presupposed by uses of deontic modals. Here are two options (see Silk\[2013a, 2014b, 2015b\] for relevant discussion).

First, one option is to follow Kratzer\[1981, 1991\] in treating deontic modals as interpreted with respect to a circumstantial modal base\[23\]. Consider the following simplified circumstantial modal base and deontic ordering source in (35)–(36). Let evidence be the proposition that there is confirming evidence that the intersection is clear, speed be the proposition that you speed through the intersection, and slow be the proposition that you slow down; and let \(w_E\) be a relevant evidence-world and \(w_F\)

\[23\]The distinction between epistemic and circumstantial modal bases needn't be a sharp one. Kratzer herself\[2012, ch. 2\] no longer endorses her earlier attempt to provide a semantic characterization of epistemic vs. circumstantial modal bases. Instead, following Hacquard\[2006, 2010\], she distinguishes epistemic and root modals in terms of the type of event (or situation) argument made available in different parts of the syntax. (Saying this still raises the question of how to distinguish the relevant types of events, though settling this perhaps needn't be a task for the language faculty proper.) This treatment still favors interpreting the modals in our examples in terms of a circumstantial modal base. This is because the modals are so-called "ought to do" deontics, a kind of root modal, which Hacquard argues target the relevant circumstances of the VP event participants.
be a relevant ¬evidence-world. (As before, \(w_E\) and \(w_T\) can be treated as representatives of suitable equivalence classes of worlds. It wouldn’t be misleading to think of \(w_E\) as a world with the sorts of features that would determine a value for \(P_e\) (body of relevant evidence) which entails that the intersection is clear (more on this shortly). The subscript ‘c’ on the modal base is for ‘circumstantial.’)

\[
(35) \quad [F_c]^c = F_c \\
\quad F_c(w_E) = \{\text{evidence}\} \\
\quad F_c(w_T) = \{\neg\text{evidence}\}
\]

\[
(36) \quad [G]^c = G_1 \\
\quad G_1(w_E) = \{\text{speed}\} \\
\quad G_1(w_T) = \{\text{slow}\}
\]

\(F_c\) is a circumstantial unsaturated premise set that treats whether there is confirming evidence as among the relevant facts. \(G_1\) is a deontic unsaturated premise set that enjoins you to speed through given that there is confirming evidence that the intersection is clear, and enjoins you to slow down given that there isn’t such evidence. Suppose that you intend your utterance to be interpreted with respect to \(F_c\) and \(G_1\). The semantic content of \((33)\) in your intended context is thus the proposition that is true at those worlds \(w\) such that \text{slow} follows from \(F_c(w)\) and \(G_1(w)\) (à la Definition 2). Advisor correctly infers this, and reasons that you must be proposing to exclude \(w_E\) from the context set.

However, since Advisor has confirming evidence that the intersection is clear, she wishes to object. She utters \((34)\). There are various combinations of information and norms that might render her utterance true and appropriate. In principle she might be assuming the following alternative value for \(G\), \(G_2\), which enjoins you to speed through irrespective of what the relevant evidence is like:

\[
(37) \quad [G]^c = G_2 \\
\quad G_2(w_E) = G_2(w_T) = \{\text{speed}\}
\]

But you correctly infer, instead, that Advisor is assuming you are in the context \(c\) that supplies the same unsaturated premise sets \(F_c\) and \(G_1\). The content of \((34)\) in \(c\) is the proposition true at those worlds \(w\) such that \text{speed} follows from \(F_c(w)\) and \(G_1(w)\). So, you infer that Advisor must be proposing to exclude \(w_E\) from the context set. If you don’t object, the context set will be updated accordingly and it will become presupposed that there is confirming evidence that the intersection is clear.

I would like to highlight three interrelated points about this implementation.
First, the circumstantial modal base isn’t doing any independent work. $F_c$ encodes that what our evidence is like is among the relevant facts. But the dependence of what to do on the relevant evidence is already encoded in the function that constitutes the deontic unsaturated premise set $G_i$. Worlds in which we have confirming evidence that the intersection is clear are mapped to a deontic premise set that entails that we speed through, whereas worlds in which we lack such evidence are mapped to a deontic premise set that entails that we slow down.

Second, the discourse-oriented effects of information-sensitive uses of deontic modals, and the apparent way in which they affect the relevant epistemic premise set, arise indirectly. Information-sensitive deontic modals, on this line, aren’t themselves interpreted with respect to the epistemic premise set variable — now written ‘$F_e$’ — that figures in the interpretation of epistemic modals. However, the relevant norms are treated as depending on the same contextual features relevant to determining the value for $F_e$. This captures the intuitive connection between epistemic modals and information-sensitive deontic modals, as reflected in (38).

(38) I must slow down. A car might be coming.

Given the norms encoded in $G_i$, updating with your utterance of the first sentence restricts the context set to $¬$evidence-worlds like $w_E$. Your utterance of the second sentence ‘A car might be coming’ then presupposes that we are in a context in such a world; it presupposes that we are in a context which determines a value for $F_e$ that is compatible with a car’s coming. Your use of deontic ‘must’ assumes a body of norms that are conditional on precisely the information assumed by your use of epistemic ‘might’.

To reiterate, information-sensitive unsaturated deontic premise sets, on this line, don’t directly depend on the value of the epistemic premise set variable $F_e$. (This point will become relevant shortly.) The value of $G_i$ at a given world — what act is enjoined — depends on features of that world. The apparent information-sensitivity arises from the fact that these features are assumed to be the same features that help determine the value for $F_e$.

Third, the disagreement between you and Advisor is represented at the level of asserted, truth-conditional content even though it concerns the features of context which determine a body of relevant information (and hence a value for $F_e$). You both accept the same information-sensitive norms, $G_i$. The asserted contents of your utterances are roughly as follows. (I simplify by bracketing the role of the circumstantial modal base. I will continue with the simplifying assumption that our ordering sources are consistent.)
You and Advisor disagree about whether you are in a world in which the context determines a body of information that is compatible with a car’s coming. The way in which the dependence on contextually relevant information is encoded in the presupposed norms $G_1$ locates this disagreement at the level of truth conditions.

An alternative way of encoding the interaction between the relevant information and norms is to treat deontic modals (on expressive, information-sensitive readings) as directly interpreted with respect to the epistemic premise set variable $F_e$. One way of doing so is to revise the standard premise semantics by treating ordering sources as determined by an evaluation world and a body of information. What act is enjoined by the deontic premise set, on this view, may depend on global features of the given information state.

Returning to our examples, consider the following simplified epistemic modal bases, where $clear$ is the proposition that the intersection is clear, $w_{cl}$ is a relevant $clear$-world, and $w_{\neg cl}$ is a relevant $\neg clear$-world:

\begin{align}
\text{\{clear\}} & = F_{e_{1}}(w_{cl}) = \emptyset \\
\text{\{clear\}} & = F_{e_{2}}(w_{cl}) = \{\text{clear}\}
\end{align}

We can represent the information-sensitivity of the relevant norms with an analogue of $G_1$, $G_1^R$:

\begin{align}
\text{\{clear\}} & = G_{1}(w_{cl}(F_{e_{1}}(w_{cl}))) = G_{1}(w_{cl}(F_{e_{2}}(w_{cl}))) = \{\text{slow}\} \\
\text{\{speed\}} & = G_{1}(w_{cl}(F_{e_{2}}(w_{cl}))) = \{\text{speed}\}
\end{align}

Intuitively, $G_1^R$ maps information states that reflect uncertainty about whether a car is coming to a deontic premise set that entails that you slow down, and maps inform-

\[\text{(39)}\ \ [33]^{c} = \{ w : G_1(w) \subseteq \text{slow} \} \]

\[\text{(40)}\ \ [34]^{c} = \{ w : G_1(w) \subseteq \text{speed} \} \]

\[\text{(39)}\ \ [33]^{c} = \{ w : G_1(w) \subseteq \text{slow} \} \]

\[\text{(40)}\ \ [34]^{c} = \{ w : G_1(w) \subseteq \text{speed} \} \]

\[\text{In ordering semantics terms, the only role of the modal base, on the standard semantics, is to restrict our attention to different subsets of the preorder } \leq_{G(w)} \text{ determined by the ordering source.} \]

\[\text{(i) } w' \leq_{G(w)} w'' \iff \forall p (w'' \in p \in G(w) \Rightarrow w' \in p) \]

Modals quantify over the maximal elements of $\leq_{G(w)} \cap I(w)^{2}$. Since this is just a subpreorder of $\leq_{G(w)}$, specifying a modal base doesn’t change how the remaining worlds are ranked. The ordering source is treated as independent of which worlds are relevant [SILR 2014b].
information states that reflect certainty about the fact that the intersection is clear to a deontic premise set that entails that you speed through. $G^r_i$ is thus “information-sensitive” in the sense that it maps different bodies of information to different deontic premise sets.

You and Advisor agree in presupposing the information-sensitive norms $G^r_i$ as the value for $G^r$. You disagree, however, on the relevant value for epistemic premise set variable $F_e$. Upon hearing your utterance of (33), Advisor infers that you must be assuming we are in a context like $c_1$ that determines a value for $F_e, F_{e1}$, that leaves open whether the intersection is clear. Since Advisor has confirming evidence that settles this issue, she objects and utters (34). You infer — correctly, let’s suppose — that Advisor is assuming we are in a context like $c_2$ that determines the same norms, $G^r_i$, but a contrary value for $F_e, F_{e2}$. If you don’t object, the context set will be updated accordingly, and set to worlds in which the intersection is clear and the context supplies confirming evidence that this is so.

Unlike the previous implementation, first, the epistemic modal base does non-trivial work in specifying the truth conditions of (33), (34). The dependence of what to do on the relevant evidence is encoded by treating bodies of norms $G^r$ as functions from this evidence (inter alia). The relevant deontic premise set depends directly on the value of the epistemic premise set variable $F_e$. Second, information-sensitive uses of deontic modals are treated as affecting the relevant epistemic premise set directly. Speakers manage the value of $F_e$ in these uses the same way they manage its value in uses of epistemic modals, namely, by presupposing a (readily retrievable) value. Third, the disagreement between you and Advisor is represented in the same way as epistemic modal disagreements and the normative disagreements from § 5.2, i.e. at the level of presupposed content. Specifically, the disagreement is located in incompatible presuppositions about what value for $F_e$ (what body of evidence) is determined by the conversational situation.

I won’t attempt to adjudicate among these alternative ways of implementing information-sensitivity here. However, I would like to mention one further issue that will be plausibly relevant: information-sensitivity in deontic conditionals. Following Kolodny & MacFarlane 2010, the literature on the Miners Puzzle has focused largely on this issue and the challenge it raises for the standard semantics.

Though you accept (44), you might also accept (45).

(44) I should slow down.

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[^25]: Compare the “information-reflecting preorders” in Silk 2014b.
If the intersection is clear, I should speed through.

The deontic modal 'should' in the consequent of (45) seems to be interpreted, the thought goes, as if the information that the intersection is clear is available (ch. 4 n. 5). The worry is that the standard semantics fails to capture this when coupled with standard (static) analyses of conditionals. For instance, on Kratzer's (1991) familiar “restrictor” analysis, the function of the antecedent ‘if φ’ is simply to restrict the modal base ∩ F(w) to φ-worlds. This seems to predict that (45) is false. Roughly, this is because what is entailed by (say) G₁ at an evaluation world w depends on what our evidence is in w, rather than on the content of that evidence. Even if the intersection is in fact clear, if we lack confirming evidence that it is, the norms in G₁ will fail to entail that you speed through. The putative datum is that (45), and not simply (46), is accepted.

If I learn that the intersection is clear, I should speed through.

The ordering source needs to be sensitive to the content of the information carried by the antecedent of (45) — or so the worry goes.

There are many things to be said in reply to this worry. I mention it just to put it aside. In other work I argue that the challenge raised by Miners Puzzle-style cases turns on features specific to so-called “weak” necessity modals (‘ought’, ‘should’), in contrast to strong necessity modals like ‘must’ (Silk 2013a). Since these issues are orthogonal to the present discussion of contextualism, I won’t attempt here to defend this claim or the non-revisionary premise semantic implementation described above. Either implementation is compatible with the Discourse Contextualist treatment of deontic modals developed in this chapter.
Chapter 6

Extension II: Gradable Adjectives and Degree Vagueness

“The one thing he could not tolerate was vague relations, possibly because his own feelings were so indecisive.”†

Thus far we have been focusing on modal verbs. In this chapter I would like to switch gears and examine CR-expressions of a different category: gradable adjectives. Gradable adjectives not only raise by-now-familiar issues about discourse-oriented uses of context-sensitive expressions. They also constitute a principal source of vagueness. Investigating their discourse properties sheds light on more general issues concerning the role of context in vagueness phenomena, the function of vagueness in natural language, the relation between truth and acceptance, and the logic and dynamics of vagueness in discourse and reasoning. The Discourse Contextualist account of gradable adjectives developed in this chapter will provide resources for the treatment of predicates of personal taste and evaluational adjectives in Chapter 7.

6.1 Introduction

It is notoriously difficult to give a general theory-neutral characterization of vagueness. Somewhat metaphorically, vagueness is an apparent fuzziness in the bound-

†“Shut a Final Door,” Truman Capote
aries of things. Some have claimed that the world itself can be vague. More common is to treat vagueness as a fundamentally linguistic phenomenon. Linguistic vagueness concerns an apparent fuzziness in the proper application of a term. Consider the predicate ‘tall’. Even when all the relevant facts are in, we may be hard pressed to say whether a man who is 5′10″ is tall. Such borderline cases, and the intuition that small changes in height don’t incur changes in whether one is tall, can lead to the so-called sorites paradox (to be described). Ostensibly, vague terms are terms like ‘tall’ — ‘bald’, ‘rich’, ‘old’, etc.

One important source of vagueness is what [Alston (1967: 219)] calls “degree vagueness,” a fuzziness concerning a relevant standard (threshold, cutoff point) along some dimension. Standard-sensitivity associated with gradable adjectives (‘tall’, ‘rich’, etc.) will constitute my primary focus in this chapter.

Our evaluation of sentences that exhibit degree vagueness can depend on what standards we accept. If Harry has only some small patches of hair, then (1) can seem acceptable under low standards but unacceptable if the standards are raised.

(1) Harry is bald.

Contextualists claim that this dependence of our beliefs about vague claims on what standards we accept derives from a more basic dependence of the semantic contents of vague sentences on features of the context of utterance, those features that determine a relevant standard. To a rough first approximation, the content of (1) in a context is the proposition that the standards operative in the context count Harry as being bald. The content of (1) can vary across contexts even if everything in the world — e.g., everything’s degree of hairiness — remains constant.

It is important to be clear on the relevant sense in which a sentence like (1) is claimed to be context-sensitive. It is a commonplace that gradable adjectives are in-

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1For surveys of “ontic” or “metaphysical” vagueness, see Keefe & Smith (1997a: §§5, Barnes (2010), and references therein.

2For the moment I follow common practice in speaking of “vague terms” (predicates, expressions, language). We will ultimately see reason for resisting this way of characterizing the phenomenon. But I get ahead of myself…

3Gradable adjectives are adjectives that can (inter alia) form comparatives (‘taller’, ‘richer’) and take degree modifiers (‘very tall’, ‘quite rich’). I will focus mostly on so-called “relative” gradable adjectives (Kennedy & McNally (2005, Kennedy (2007)). In this chapter I will focus on gradable adjectives in their unmodified or “positive” form (‘tall’, ‘bald’, ‘rich’); I consider comparatives in Chapter 7. I will sometimes call positive form gradable adjectives ‘predicates’. This shouldn’t be taken to prejudge whether the predicative form is basic or derived; we will return to this in §5.2.1. For empirical and theoretical survey discussions of adjectives, see, e.g., Huddleston & Pullum (2002) and Morzicki (2015), respectively.
terpreted with respect to a comparison class, or a set of paradigm/contrasting cases (see n. 3). In one context (1) might say that Harry is bald for a Johnsen, while in another context (1) might say that Harry is bald for a man. All parties can grant that gradable adjectives are context-sensitive in the sense of being sensitive to a contextually supplied comparison class. Everyone can be contextualists about this.

What is at issue is an apparent variation in standards that isn't wholly traceable to a difference in comparison class. As has been well observed, vagueness phenomena persist even when the relevant comparison class is made explicit. 'Bald for a man' is no less vague than 'bald'; 'rich for an American' is no less vague than 'rich'; and so on. Further, disagreement with gradable adjectives can persist even when the relevant comparison class is made explicit and there is agreement about the relevant worldly facts. Settling that by 'rich' we mean “rich for an American,” and agreeing on the relevant socio-economic facts, needn't resolve the dispute in (2).

(2) A: Rita is rich.
   B: No way, Rita isn't rich.

A and B's disagreement may concern what it is to count as rich, or what standard for richness to accept. Our question is whether, given a specific comparison class, a contextually supplied degree standard figures in the semantic content.

For simplicity I will focus on context-sensitivity and vagueness along a single dimension of application. Many adjectives can be used to measure items along multiple dimensions ('clever', 'large', 'healthy', 'skillful'). Whether something counts as "large" can depend on some combination of its height or volume, among other things. Which dimensions are relevant, and how they compare, can depend on context and become subject to negotiation. In many cases it can be underspecified or indeterminate. Since this latter kind of underspecification/indeterminacy is neither necessary nor sufficient for vagueness, I bracket it here. (We will briefly return to issues concerning multidimensionality in Chapter 7.)

There is a terminological issue concerning the label 'contextualism about vagueness' that is worth clarifying up front. I take it that many accounts in the vagueness literature classified as "contextualist" are neutral between contextualism and relativism in the senses used in this book. Contextualism about vagueness is often

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characterized as a view about the *extensions* of vague terms, or the *truth values* of vague sentences. Here is Stewart Shapiro:

The main feature of the present [contextualist] account is that the extensions (and anti-extensions) of vague terms also vary in the course of a conversation, even after the external contextual features, such as the comparison class, are fixed. (Shapiro 2006: vi)

Contextualists… hold that… the truth values of the sentences in question shift with context. (Shapiro 2006: 3)

But saying that the truth value shifts with context leaves open whether this shift is due to a shift in semantic content or a shift in the value of a parameter used in determining extension from content. Diana Raffman (1994) is particularly clear on this neutrality:

The sorites… is solved independently of any particular meaning analysis of the predicate… [A]ll that is required to solve the puzzle is a claim about the correct application or *extension* — as opposed to the meaning analysis or *intension* — of the predicate at issue. (Raffman 1994: 58)

We will address Raffman’s point about the sorites in §6.3.3. For the moment I simply want to flag that any advantages for resolving the paradox from treating the truth values of vague sentences as shifting with context won’t uniquely favor a contextualist semantics, as understood here.⁷

From one perspective it may seem puzzling for a book on CR-expressions to include a discussion of vagueness. As we will see, even if gradable adjectives are sensitive to a contextually relevant degree standard, this context-sensitivity isn’t itself sufficient for vagueness. Speakers *could*, after all, settle on a specific, perfectly precise standard. However, it isn’t for no reason that gradable adjectives have figured both in the literature on vagueness and in the largely distinct literature on contextualism/relativism in philosophy of language. Gradable adjectives’ standard-sensitivity not only gives rise to the sorts of distinctive discourse phenomena we have observed with epistemic and deontic modals — hence their inclusion in this book. It also provides a principal source of vagueness phenomena, given certain features of typical

contexts of use (to be described). Examining the context-sensitivity of gradable adjectives sheds light on the role of context in vagueness phenomena and the function of vagueness in language and communication. Or so I will argue.

The remainder of the chapter is organized as follows. §6.2 examines discourse phenomena concerning the varieties of uses of gradable adjectives in adjusting contextually operative standards and in communicating ordinary information about the world. I show how to apply the Discourse Contextualist framework to capture these phenomena, utilizing a particular contextualist interpretation of a standard degree semantics for gradable adjectives. The account carves out a crucial role for gradable adjectives in discourse and reasoning, and gives precise expression to the idea that in using vague language we can refine our concepts and coordinate on what standards to adopt. Though we will see that standards-sensitivity isn’t itself sufficient for vagueness, in §6.3 I show how the Discourse Contextualist account of gradable adjectives from §6.2 motivates an attractive diagnosis of various phenomena characteristically associated with vagueness. I focus especially on the sorites paradox and borderline cases. The resulting treatment of context in vagueness phenomena sheds light on more general issues concerning the logic, semantics, and dynamics of vagueness in discourse and reasoning. The account developed in this chapter provides the basis for an overall theory of vagueness that combines features many have thought incompatible: a classical semantics, and a non-epistemic treatment of vagueness. §6.4 concludes and considers several further issues concerning gradability and vagueness phenomena in natural language.

6.2 Gradable adjectives in discourse

Vague language affords a crucial tool in inquiry. It allows us to refine our understanding of the world in stages. We can classify someone as rich without needing to settle on a fully general, precise account of what it is to be rich. Mark Richard puts the point well:

Suppose that I assertively utter 'Mary is rich,' when it is not antecedently settled for conversational purposes whether Mary is in the term’s extension. My statement, that Mary is rich, is as much an invitation to look at things in a certain way, as it is a representation of how things are. In saying that Mary is rich, I am inviting you to think of being rich in such a way that Mary counts as rich. If you accept my invitation — that is, if you don’t demur, and carry on the conversation — that sets the standards for wealth, for the purposes of the conversation, so as to make
what I say true… [A]n assertion can be as much an invitation to conceptualize things in a certain way, as a representation of how things are.

(Richard 2004: 226)

In using (e.g.) gradable adjectives we can adjust the contours of our concepts “on the fly,” as our interests, conversational and extra-conversational goals, and broader views about the world develop. The question is whether a contextivalist semantics can capture this discourse role for gradable adjectives. Richard (2004, 2008) argues that it can’t (see also Kölbel 2010). But our developments of Discourse Contextualism show that contextivalists have more resources at their disposal than one may have thought.

### 6.2.1 Standards and scoreboards

Gradable adjectives are interpreted with respect to a relevant standard or threshold along some dimension. Standards can become operative in context in several ways.

As in the previous chapters, let’s start with prosaic collaborative cases of gradable adjectives in discourse. Suppose we are baking brownies. There are two mixing bowls on the table, one a bit bigger than the other. I am about to mix together the ingredients before placing the batter in the oven. I say:

(3) Hand me the big bowl.

The conversational situation has established a contextually-specific contrast between two salient bowls with respect to size. My use of the definite article ‘the’ signals that the presumed standard for bigness must be such as to distinguish the salient bowls in the context and identify a unique one. Too high a standard and neither bowl will count; too low a standard and both bowls will count. Clearly, knowing the average, typical, or normal size of bowls in general is irrelevant to your being able to interpret my utterance and carry out my request. As is any standard for bigness that may have been previously operative in the conversation. Rather, in uttering (3) I am assuming a standard that is relevant for the particular task at hand: distinguishing the two bowls so that you will hand me the larger one. Recognizing this, you successfully restrict the possible interpretations for ‘big’ and hand me the bigger bowl.

The standard assumed by my utterance of (3) can then affect the interpretation of subsequent utterances (cf. ch. 3 n. 8). Suppose that after we place the batter in the pan there is still a bit left over. I say:

(4) Can you get me a small tupperware too?
Again, I am not requesting that you consult your general knowledge of tupperware size. Rather, the previous standard for bigness can serve as a default for your interpretation of (4). For example, you can infer that my presumed standard must not be such that a cup bigger than the bigger of the two bowls counts as small. Positively, you can adopt a standard such that a tupperware of some smaller size suitable for the task at hand — storing the remaining batter — counts as small. The default status of a previous standard delimits interpreters’ computational task of determining the intended contents of vague utterances, and allows for a more efficient exchange of information in broader collaborative enterprises. By integrating relevant features of the past, present, and projected future linguistic and extra-linguistic context, speakers can interpret vague terms and coordinate on a body of evolving standards.

The above examples highlight the systematic interdependencies in the interpretation of vague terms in the unfolding of a discourse. Consider also the following example adapted from Lewis 1979b. Suppose that after an invigorating round of the cloud shape game we turn to classifying countries by shape. You utter (5), and I agree. This can secure our being in a context, one with a low standard, in which my utterance of (6) is also accepted.

(5) Italy is boot-shaped.
(6) France is hexagonal.

Gradable adjectives aren’t simply context-sensitive in a lexically specific way; it’s not that particular standards are independently associated with specific lexical items. This would obscure why accepting (5) renders (6) acceptable as well (cf. Partee 2004a:153). Rather, gradable adjectives are semantically associated with a discourse-level body of standards. It is this body of standards that affects the interpretation of vague terms and is in turn affected by their use. Just as context keeps track of interlocutors’ beliefs and norms (among other things), so too what standards are operative in the conversation.

There are various ways of capturing in the compositional semantics gradable adjectives’ sensitivity to a contextual body of standards parameter (“standards parameter”). To fix ideas it will be helpful to have a specific semantics at hand. Though I will assume a Kennedy-style degree semantics in what follows, this isn’t essential to a Discourse Contextualist account. The following implementation can serve as a model which may be adapted depending on one’s broader views on gradable adjectives’ compositional semantics (see n. 8).

The strategy of Discourse Contextualism, recall, is to start with an independently motivated formal semantics, and give it a particular sort of contextualist in-
terpretation. In Chapters 3–5 we saw how classic premise semantic frameworks for modals provide the basis for Discourse Contextualist accounts of epistemic and deontic modals. Classic degree semantic frameworks can play an analogous role in a Discourse Contextualist account of gradable adjectives.

Gradelable adjectives, on these frameworks, are treated as associating individuals with degrees, conceived as points on a scale. I will assume specifically that gradable adjectives denote *measure functions*, or functions from individuals to degrees (Bartsch & Vennemann 1973, Kennedy 1999, 2007; see n. 8). For instance, ‘tall’ denotes a function from individuals to (positive) degrees of height, i.e. the individual’s maximal height; ‘hot’ denotes a function from individuals to (positive) degrees of temperature, i.e. the individual’s maximal temperature; and so on. Treating gradable adjectives as denoting measure functions yields a straightforward interpretation of comparatives. Roughly, (7) says that the degree to which Alice is tall is greater than the degree to which Bert is tall, as reflected in (8), where *tall* is a function that maps each individual to its height, a degree in the height scale.

(7) Alice is taller than Bert.
(8) [7] is true in c iff tall(Alice) > tall(Bert)

The positive (bare, morphologically unmarked) form is treated as relating a degree to a contextually determined threshold, or *degree standard*. Following Kennedy 2007, I treat this degree standard as determined by a variable s, the value of which in a context c, s_c, is a function that maps adjective denotations — measure functions — to a degree standard associated with the adjective in c. For instance, s_c(tall) is the standard of tallness in the context c, i.e. the least height that something can have for it to count as tall. (9) is true in c iff the (maximal) degree to which Alice is tall is at least as great as s_c(tall), the degree standard of tallness in c.

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*Details of the compositional process which delivers these truth conditions won’t be crucial here. For instance, first, I bracket how gradable adjectives are converted into predicates of individuals in the positive form and how the positive form is related to the comparative form. Many degree-based theories derive the positive form by combining the gradable adjective with a null morpheme, ‘pos’, to yield a predicate of individuals — namely, the predicate that is true of those individuals that have a degree of the relevant gradable property at least as great as the standard picked out by ‘pos’ (e.g., Bartsch & Vennemann 1973, Cresswell 1977, von Stechow 1984, Kennedy 1999, 2007; for alternatives, see, e.g., Neeleman et al. 2004, Rett 2008).

Second, there are issues concerning how degree standards are determined as a function of the linguistic and extra-linguistic context. Many theorists incorporate comparison classes explicitly into the semantics (cf. Bartsch & Vennemann 1973, Cresswell 1977, Klein 1980, von Stechow 1984, Kennedy 1999, Fara 2000, Solt 2011, Bylinina 2014). One option is to treat standards as context-
Alice is tall.

Following our discussion in §6.2.1, I suggest that we interpret the contextual variable \( s \) as representing a discourse-level body of standards. This reflects the paradigmatic role of gradable adjectives in coordinating interlocutors’ conceptualizations of the world and facilitating communal inquiry and planning.

(Hereafter I will assume we are only considering predicative occurrences of gradable adjectives; so, unless otherwise noted, by ‘gradable adjective’ I will mean ‘positive form gradable adjective.’ I will assume that all uses are expressive, and hence interpreted with respect to the discourse-level variable \( s \). I will typically call the function \( s \), an overall standard, or body of standards, and call its value given an adjective denotation a degree standard for that adjective. I will use ‘standard’ sometimes in referring to an overall standard, sometimes to a particular degree standard; context will disambiguate. For simplicity I will bracket potential intensionality from world-indexing measure functions and standards, but this should be understood.)

Sensitive functions from measure functions and comparison classes to degrees. Another option, compatible with the sparser representation in the main text, is to capture the sensitivity to a relevant comparison class via domain restriction on the adjective denotation (Kennedy 2007, Bale 2008). Alternatively, one might leave all the work in deriving the relevant degree standard to the extra-linguistic context, and treat standards as provided directly by a contextual degree variable rather than a contextually provided function (see Kennedy 1999, 2007, Glanzberg 2009 for critical discussion). There will certainly be principles governing particular degree standards and relations among degree standards for different adjectives — e.g., that, relative to a particular standard, nothing can count as both bald and hairy, that anything with less hair than something that counts as bald also counts as bald, etc. (Fine 1975, Klein 1980, Kennedy 1999, Fara 2000). Some of these principles will be captured directly in the scale structure. Others may be specified as substantive lexical constraints, or as pragmatic principles about what values for \( s \) are plausibly supplied by context.

Third, an alternative to treating gradable adjectives as denoting measure functions (type \( \langle e, d \rangle \)) is to treat them as denoting relations between individuals and degrees (type \( \langle d, e \rangle \) or \( \langle e, dt \rangle \), depending on the syntax). For developments, see, e.g., Cresswell 1977, von Stechow 1984, Heim 1985, Bhatt & Pancheva 2004, Kennedy & McNally 2005. See Barker 2002 for a semantics that references degrees in the metalanguage instead of incorporating them into the type system, and treats gradable adjectives as ordinary predicates (type \( \langle e, t \rangle \)). For general discussion of degree-based analyses, see von Stechow 1984, Kennedy 1999, Morzycki 2015. I choose a degree-based analysis utilizing measure functions simply for concreteness.

Relevant to issues of vagueness are choice points concerning the representation of standards and degrees — e.g., whether they are treated as points (like in the main text) or as sets of points, possibly intervals. I return to this in §6.4.3. For simplicity I assume that the scales of the adjectives we are considering are associated with a single dimension along which the domain of degrees is totally ordered (§6.1).
6.2.2 Discourse dynamics

With this formal semantics at hand, let’s turn to modeling the conversational dynamics of gradable adjectives. Many of the details and explanatory mechanisms are directly analogous to those from Chapters 3, 5. I won’t reproduce them here. But getting the main points on the table will help elucidate the discourse role of gradable adjectives. This will set the stage for our discussion of the sorites in §6.3.

Consider ‘rich’. ‘Rich’ denotes a function from individuals to degrees of wealth. For simplicity, assume the wealth scale represents a single dimension, yearly monetary income. The more money one earns, the greater one’s degree of wealth. Uttering (11) presupposes a value for the overall standards variable \( s \), \( s_c \), and asserts that Rita’s degree of wealth is at least as great as the degree standard for being rich:

\[
(11) \quad \text{Rita is rich.}
\]

\[
(12) \quad \text{(11) is true in } c \text{ iff } \text{rich}(Rita) \geq s_c(\text{rich})
\]

Suppose we are interested in the yearly income of full-time working adults over thirty. Uttering (11) expresses both one’s commitments about what counts as rich for such individuals, and one’s beliefs about Rita’s income. Successfully updating with (11) takes one to a context set consisting of worlds \( w \) in which the discourse context in \( w \) determines a standard \( s_{cw} \) such that Rita’s yearly income in \( w \) is at least as great as the degree standard of wealth \( s_{cw}(\text{rich}) \).

In Chapters 3 and 5 we observed a distinction among expressive uses of modals, based on whether the update targeted the relevant value for \( P_e/P_d \) or the specific content of an agreed-upon value for \( P_e/P_d \) at the actual world (§§3.3.5, 5.2.5, 5.6). A similar distinction can be made among expressive uses of gradable adjectives. First, suppose the prior context set consists of the following worlds (units on income intentionally suppressed):

\[
(13) \quad CS = \{w_1, \ldots, w_6\}
\]

<table>
<thead>
<tr>
<th>Income</th>
<th>Value for s</th>
<th>Degree standard</th>
</tr>
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<tbody>
<tr>
<td>( w_1 ): 90</td>
<td>( s_{cw_1} = s_1 )</td>
<td>( s_1(\text{rich}) = 95 )</td>
</tr>
<tr>
<td>( w_2 ): 110</td>
<td>( s_{cw_2} = s_2 )</td>
<td>( s_2(\text{rich}) = 96 )</td>
</tr>
<tr>
<td>( w_3 ): 130</td>
<td>( s_{cw_3} = s_3 )</td>
<td>( s_3(\text{rich}) = 97 )</td>
</tr>
<tr>
<td>( w_4 ): 90</td>
<td>( s_{cw_4} = s_4 )</td>
<td>( s_4(\text{rich}) = 98 )</td>
</tr>
<tr>
<td>( w_5 ): 110</td>
<td>( s_{cw_5} = s_5 )</td>
<td>( s_5(\text{rich}) = 99 )</td>
</tr>
<tr>
<td>( w_6 ): 130</td>
<td>( s_{cw_6} = s_6 )</td>
<td>( s_6(\text{rich}) = 100 )</td>
</tr>
</tbody>
</table>
We are unsure whether Rita’s annual income is 90, 110, or 130. And we haven’t settled on precise standards for richness; incomes between 95 and 100 are all live possibilities, as far as we have committed ourselves thus far. Nevertheless an utterance of (11) in this context distinguishes among worlds in the context set based solely on Rita’s income in those worlds. Successfully updating with (11) in this context restricts the context set to \{w_2, w_3, w_5, w_6\}. Regardless of whether the context determines \(s_1, s_2, \ldots, s_n\) as the relevant standard, Rita won’t count as rich by our lights if she only earns 90/yr.

This case highlights three important features of the role of vague uses of language. First, we can use ‘rich’ to communicate information about Rita’s wealth without needing to settle on a perfectly precise standard for what counts as rich. Relatedly, second, the vague use affords a means of making progress in our inquiry about the world without requiring us to know precisely how much Rita earns. Using ‘rich’ both reinforces our commitment to treating at least 95/yr as the threshold for richness, via the presuppositions of (11), and rules out possible ways the (extra-contextual) world might have been, via the resulting truth-conditional content.

Third, we have seen that context-sensitive expressions vary in the frequency with which they are used in a discourse-oriented way, i.e. in managing the value of a relevant contextual parameter. On one side of the spectrum are ordinary referential expressions, like pronouns, which are rarely used in this way. On the other side are epistemic modals, whose discourse-oriented contribution is nearly always primary. Yet, though CR-expressions tend to be used discourse-orientedly whereas paradigm context-sensitive expressions tend not to be, there is variation among expressions in each class. The prevalence of descriptive uses of gradable adjectives bring out this variation among CR-expressions. As the above examples highlight, the truth-conditional contribution of vague sentences is frequently relevant in discourse. (See Chapters 3–5 for explanations of such variations among context-sensitive expressions in terms of their specific truth-conditional and presupposed contents and typical features of contexts of use.)

Now suppose, alternatively, that there is agreement in the conversation about Rita’s income — say, that her annual income is 90. Given a particular value for the variable \(s\), uttering (11) in such a context would fail to provide a non-trivial update. Degree standards of 90 or less would rule out no worlds, and degree standards greater than 90 would rule out all worlds. Nevertheless, an utterance of (11) can still communicate information in certain contexts. It can communicate something about what standards might be operative. Suppose the prior context set is as follows:

(14) \[ CS = \{w_7, w_8, w_9, w_{10}\} \]
Upon hearing an utterance of (11), one can infer that the speaker must be presupposing that the discourse context determines a value for $s$ relative to which Rita counts as rich. If the discourse context was represented by $c_{w_7}$ or $c_{w_8}$, the speaker would say something true: the content of her utterance would be that Rita’s income, 90, is at least as great as 89 or 90, respectively. But if the discourse context was represented by $c_{w_9}$ or $c_{w_{10}}$, the speaker would say something false: the content of her utterance would be that 90 is at least as great as 91 or 92, respectively. Assuming the speaker is being cooperative, one can infer that she must be assuming that the discourse context isn’t represented by $c_{w_9}$ or $c_{w_{10}}$, and thus that $w_9$ and $w_{10}$ aren’t in fact live possibilities. If one doesn’t object, the context set will be set to $\{w_7, w_8\}$, i.e. those worlds $w$ such that Rita’s degree of wealth in $w$ is at least as great as the standard for richness, $s(rich)$.

Call the use of ‘rich’ in this latter context purely standards-oriented. It distinguishes among worlds based solely on what value for the standards variable $s$ context determines in those worlds. Purely standards-oriented uses don’t communicate ordinary information about the world, but they don’t serve no purpose at all. They express our views about how to conceptualize the world. One’s use of ‘rich’ doesn’t add to our information about Rita or her income. But it does express one’s assumptions about what it is to count as rich. One’s utterance can thus have rich inferential potential, given the ways in which our concept of richness may interrelate with various other descriptive and evaluative concepts.

Suppose I deny your utterance of (11) and counter by uttering (15).

(15) No, Rita isn’t rich. She’s practically poor. 90/yr wouldn’t even be enough to afford a house on X Street, let alone Y Street.

My utterance would only be appropriate if a higher degree standard for richness was operative in the context. By assuming a contrary value for $s$ I fail to accommodate you in your assumption and exert conversational pressure on you to accommodate me instead. At this point you have several options. You might accommodate, in which case the context set would be set to $\{w_9, w_{10}\}$. But you might wish to object. Suppose your income is around the same as Rita’s. As we saw above, previously ac-

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<th>Income</th>
<th>Value for $s$</th>
<th>Degree standard</th>
</tr>
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<tbody>
<tr>
<td>$w_7$: 90</td>
<td>$s_{w_7} = s_7$</td>
<td>$s_7(rich) = 89$</td>
</tr>
<tr>
<td>$w_8$: 90</td>
<td>$s_{w_8} = s_8$</td>
<td>$s_8(rich) = 90$</td>
</tr>
<tr>
<td>$w_9$: 90</td>
<td>$s_{w_9} = s_9$</td>
<td>$s_9(rich) = 91$</td>
</tr>
<tr>
<td>$w_{10}$: 90</td>
<td>$s_{w_{10}} = s_{10}$</td>
<td>$s_{10}(rich) = 92$</td>
</tr>
</tbody>
</table>
cepted standards form the backdrop for the interpretation of subsequent utterances. So, if you accept my utterance of (15), you place yourself in a context in which you yourself may not count as rich, and may even count as poor. This may be an unwelcome result, given further inferences likely to ensue. You might think to yourself, “What a snob. Why should having enough money to live on X Street be the marker for what counts as rich? How could one be in the top (say) 0.1% of income earners in the world and somehow fail to be rich? That guy needs a reality check.” Your rejecting my utterance can lead to negotiation over the state of context — specifically, over what standard for richness is operative and why.

Note that, for all I have said thus far, there may nothing in the world, independent of what we accept in our conversation, that determines which standard is supplied and which of our utterances is true (more on this in §6.3.3). Even if there isn’t, you may still have reason to persist in your objection. If I come to agree with you, I might not learn any facts about the world that held antecedent to our conversation. But my way of conceptualizing the world will have changed — and for the better, I take it. We can capture within a contextualist semantics the idea that “when we argue about the application of concepts, about their boundaries and borders, we are not arguing about what possible world we are in, but about what possible world we are to be in” (Richard 2008: 120; cf. 111–124, 2004: 238–241). Sometimes, where we draw the line matters.

6.2.3 Attitude ascriptions

In Chapters 4–5 I suggested that we understand the behavior of epistemic and deontic modals in certain embedded contexts in terms of independently attested mechanisms of local accommodation and interpretation. This account carries over straightforwardly to the case of gradable adjectives. I will spare the reader from plodding through the analogous details. But there is one point of contrast in embedding behavior that I would like to mention. We saw above that the truth-conditional contribution of sentences with gradable adjectives is often relevant and at issue in conversation. This places gradable adjectives at the other end of the spectrum from epistemic modals with regard to their tendencies for discourse-oriented use. This

*There can also be hybrid uses of gradable adjectives, uses that are both descriptive and standards-oriented (cf. §5.2.5). Compare Barker’s (2002) distinction between “descriptive” and “metalinguistic” uses of vague predicates. I avoid calling the latter uses ‘metalinguistic’ since they needn’t just concern whether a predicate applies — e.g., whether ‘rich’ applies to Rita. More fundamentally, they can concern what standards to have, or what it is to be rich, tall, bald, etc. (see §3.3.2; cf. Richard 2004: 211, 227–228, 2008: 94–95, 100).
difference is manifested at the level of embedding potential as well. Here is one example (see also §§ 4.2.3, 5.3.2, 7.6).

One common objection to contextualism about epistemic modals is that, unlike paradigm context-sensitive expressions, they seem to be obligatorily linked to the subject in attitude ascriptions (§ 4.1.2). I argued in § 4.2.2 that this apparent constraint has a conversational basis, and can be derived from features of the semantics of epistemic modals and typical properties of contexts of use. Readings where the relevant information state is supplied from the global discourse context are possible, but they are often dispreferred for general pragmatic reasons. A further motivation for this conversational strategy is that non-subject-linked readings are more readily available with gradable adjectives. This is to be expected given the greater relevance of their truth-conditional contribution across contexts.

Suppose that yesterday we were having a stimulating discussion with Alice about how many hairs are on Harry’s head. It turns out she actually counted; there were 114. Now we’re at a party, and Bert, who wasn’t party to our conversation with Alice yesterday, says he just saw “a bald man” across the room, but he isn’t sure if the man’s name is ‘Harry’ or ‘Gary’. Bert thinks that Alice, unlike us, is well acquainted with Harry. So he asks us, as a way of discovering the man’s identity, whether she thinks Harry is bald. Knowing that Bert accepts a high standard, and hence that having 114 hairs wouldn’t suffice for baldness by his lights, it seems we can truly say:

(16) Alice thinks Harry isn’t bald. The man you saw must’ve been Gary.

We can do so even if we have no idea about what standard Alice accepts.

The conditions for global accommodation readings to be available (§ 4.2.2) seem more easily satisfied with gradable adjectives: First, it doesn’t matter for our purposes what standard for baldness Alice accepts. Second, what matters for our purposes is Alice’s belief about Harry’s (negative) degree of hairiness, and the relation between this degree and the standard accepted in the discourse context. Third, we have reason to express the content of Alice’s belief using ‘bald’ for the same reason we usually have to use vague language; greater specificity is unnecessary for addressing Bert’s question concerning the identity of the man in question. So, there is no risk of confusion about the intended interpretation of ‘bald’ in (16) or about what belief is being ascribed. We can use Bert’s high standard, which we have accepted for the purposes of conversation, to characterize Alice’s beliefs about the state of Harry’s head. This supports the conversational explanation offered in § 4.2.2 for the apparent constraint against non-subject-linked readings with epistemic modals.

(Subject-linked readings with gradable adjectives can be explained, as expected,
in terms of locally accommodating a value for the contextual standards variable \( s \). I return to subject-linked readings in §6.3.4.

### 6.2.4 Recap

The compositional semantics of predicative uses of gradable adjectives takes as given a contextually supplied body of standards. This semantics for gradable adjectives generates constraints on their interpretation in context. By reasoning from these semantically generated constraints — along with facts about the conversational situation, the interpretations of prior utterances, and one another’s (non-)discourse-related goals — speakers can successfully interpret uses of gradable adjectives. In using gradable adjectives we can manage our assumptions about what standards to accept, and coordinate our beliefs, actions, and ways of conceptualizing the world.

It is often noted in the vagueness literature that using vague uses of language change context in ways that affect the interpretation of subsequent uses. But little is often said about the precise mechanisms responsible, or about how these dynamic effects relate to the conventional meanings of the expressions. Discourse Contextualism explains how the discourse properties of gradable adjectives can be derived from ordinary features of their semantics — their presupposed and truth-conditional content — and general conversational principles. In this respect my goal is similar to that in Barker’s (2002) dynamic semantics and Richard’s (2004, 2008) and Lassiter’s (2011) relativist semantics. Introducing dynamic semantic values, or enriching semantic contents to include quantification over standards or perfectly precise languages, might be called for on other grounds. But it isn’t necessary to capture the discourse phenomena with gradable adjectives considered in this section (though see §6.4). A contextualist semantics can capture how we “work out the details of our concepts while using them” (Richard 2008: 99). Moreover by treating standards as presupposed we can explain something that previous accounts either stipulate or fail to consider: that standards are “adjusted (sharpened) as discourse develops only as a side-effect of an assertion” (Barker 2002: 28; emphasis added). Theories — like Barker’s, Lassiter’s, and Richard’s — which model standards-oriented updates in the same way as ordinary assertive updates are ill-suited to capture this (terminology varies among authors). Discourse Contextualism derives the discourse-oriented potential of gradable adjectives via general pragmatic reasoning from the requirement that a value for the standards variable be assumed as input to semantic interpretation.

The Discourse Contextualist account begun in this section elucidates a crucial role for gradable adjectives in language learning and use. Given the ease with which
hearers can retrieve speakers’ assumed value for the standards variable, using gradable adjectives presents a streamlined, efficient way of managing standards and imparting information in inquiry and collaborative action. This includes information about the context itself. Speakers needn’t oscillate in patterns of semantic ascent and descent (Quine 1960). We can use gradable adjectives to refine our understanding of the world without needing to settle on fully precise standards or ways things might be. Having expressions apt for vague use, like gradable adjectives, enables us to make do with a smaller, more flexible lexicon. This point will be important in the following section.

6.3 Vagueness as contextual indecision

In the last section we observed several roles for gradable adjectives in communication. This section examines more closely the relation between the discourse phenomena with gradable adjectives considered in §6.2 and certain paradigmatic vagueness phenomena.

Let’s start by distinguishing three ways in which the interpretation of (11) seems to depend on context.

(11) Rita is rich.

First, there is the familiar sensitivity to a comparison class. Though there are difficult questions about how to implement this sensitivity in the compositional semantics (n. 8), such questions are orthogonal to the issues in this chapter. Sensitivity to a comparison class is neither necessary nor sufficient for vagueness; and all parties can agree in treating it as a dependence of semantic content on features of the context of utterance (§6.1).

Second, there is the sensitivity to a degree standard or threshold. It is this form of apparent context-sensitivity that has been targeted in contextualism/relativism debates, and has earned gradable adjectives their status as CR-expressions. According to contextualists, the relevant standard is determined solely by the lexical semantics and context of utterance, and figures in the derivation of semantic content. This formal semantics raises puzzles about how speakers adjust standards in using gradable adjectives. These are the puzzles which occupied our attention in §6.2.

Standards-sensitivity is insufficient for vagueness. Speakers could intend to settle on perfectly precise standards. The speakers in (2) might wish to presuppose a particular degree standard for richness, but disagree about which precise standard to accept (cf. §6.2.2).
Questions about how speakers adjust discourse-level standards persist in the absence of vagueness.

This isn’t to say that standards-sensitivity is unrelated to vagueness. In this section I will show how speakers’ failing to settle on a precise standard can lead to phenomena characteristically associated with vagueness. It is this third kind of context-sensitivity — sensitivity to features of concrete contexts — I will argue, which is responsible for vagueness phenomena.

I will argue that the contextualist account of the meaning and use of gradable adjectives from §6.2 motivates an attractive diagnosis of the sorites paradox and other paradigmatic vagueness phenomena. I want to make explicit up front that the treatment of vagueness developed in this section neither entails nor is entailed by the foregoing Discourse Contextualist account. My claim is simply that certain discourse phenomena elucidated by Discourse Contextualism — e.g., concerning the roles for vague uses of gradable adjectives, how speakers adjust discourse-level standards in using gradable adjectives, and how using gradable adjectives changes context and the basis for interpreting subsequent uses — also suggest an attractive way of understanding various puzzles of vagueness. The resulting treatment of context in vagueness phenomena sheds light on more general issues concerning the logic, semantics, and dynamics of vagueness in discourse and reasoning.

6.3.1 The sorites

Some people are rich, but someone with only one cent isn't one of them. Moreover, giving one cent to someone who isn't rich won't make them rich. These points seem obvious enough. But they seem to entail a contradiction:

\[(17) \quad \text{Sorites Paradox} \]
\[(P1) \quad \text{Someone with one cent isn’t rich.} \]
\[(P2) \quad \text{If you give one cent to someone who isn’t rich, she still won’t be rich.} \]
\[(C) \quad \therefore \text{No one, no matter how much money they have, is rich.} \]

A bit more formally, where \(x_n\) is an individual whose annual income is \(n\):

\[(18) \quad (P1) \quad x_1 \text{ isn’t rich.} \]
\[(P2) \quad \text{For all } n, \text{ if } x_n \text{ isn’t rich, then } x_{n+1} \text{ isn’t rich.} \]
\[(C) \quad \therefore \text{For all } n, \text{ } x_n \text{ isn’t rich.} \]
The premises seem true, and the argument seems valid. But the conclusion is false. Bill Gates is rich.

This is the sorites paradox. The argument is validated not only by mathematical induction, but by any transitive consequence relation that validates modus ponens and universal instantiation. And we know that the first premise is true and the conclusion is false. But the inductive premise (P2) seems essential to our very notion of vagueness. As Crispin Wright puts it, vague predicates are “tolerant”: “there is… some positive degree of change… insufficient ever to affect the justice with which [they are] applied to a particular case.” One cent can’t make the difference as to whether someone is rich. Even if it could, it seems incredible that this should be encoded in the very meaning of ‘rich.’ Some have concluded that our language is incoherent (Dummett 1975, Rolf 1981). For the rest of us, the challenge is to explain where the argument goes wrong and yet why it seems so compelling.

Let’s reformulate the sorites argument in terms of the semantics presented in §6.2.1. Given a context c, the content of the argument is as follows:

\[\begin{align*}
(19) & \quad (P1) \quad \text{rich}(x_n) \not\in s_c(\text{rich}) \\
& \quad (P2) \quad \forall n[(\text{rich}(x_n) \not\in s_c(\text{rich})) \rightarrow (\text{rich}(x_{n+1}) \not\in s_c(\text{rich}))] \\
& \quad (C) \quad \therefore \forall n[\text{rich}(x_n) \not\in s_c(\text{rich})]
\end{align*}\]

Abstract representations of contexts, recall, assign specific values to variables (§3.3.6). This includes the standards variable s. Hence the inductive premise is false given any abstract context c. (For instance, if we assume a context c_1 such that s_c_1(\text{rich}) = 100, then n = 99 provides a counterinstance: x_{99}’s degree of wealth isn’t at least as great as the degree standard of richness in c_1, but x_{100}’s is.) So, for any abstract context c, the argument is valid but unsound.

Our formal semantics locates the problem with the sorites argument in the inductive premise. This result is of little comfort, however. If the inductive premise is false in any context, why do we find it so plausible? Why are we so inclined to accept it if, no matter what context we might be in, it is false? If saying that the inductive premise is false in any context is sufficient to dissolve the paradox, what should we say about the fact that the premise’s classical equivalent — the “sharp boundaries claim” in (20) — is true in any context? [11]

\[\begin{align*}
(20) & \quad \text{Sharp boundaries} \\
& \quad a. \quad \text{There is an } n \text{ such that } x_n \text{ isn’t rich and } x_{n+1} \text{ is rich.}
\end{align*}\]


[11]Cf. Wright’s (2001: 97–98) “misconceived conditional”: \(\exists x_n[Fx_n \land \neg Fx_{n+1}] \rightarrow F\) is not vague.
As Fara (2000) puts it, any account that locates the problem with the sorites argument in the inductive premise must answer the following questions:

The Semantic Question
If the inductive premise isn’t true, what about its classical equivalent that there is an $n$ such that $x_n$ isn’t rich but $x_{n+1}$ is rich? Is this “sharp boundaries” claim true? If so, how can we capture how vague terms have borderline cases?

The Epistemological Question
If the inductive premise isn’t true, why can’t we say which of its instances isn’t true?

The Psychological Question
If the inductive premise isn’t true, why are so inclined to accept it? What is it about vague terms that makes them seem “tolerant,” in Wright’s sense?

Simply saying that the inductive premise is false in any context, or no matter how the conversation might evolve (Shapiro 2006), or on any competent way of applying ‘rich’ (Raffman 2014), is insufficient.

The solution, I suggest, lies in the relation between typical concrete discourse contexts and the precise abstract representations of context that figure in the compositional semantics. Recall our prototypical vague uses of gradable adjectives from §6.2.1. We are baking brownies, and I want you to hand me the larger of the two bowls on the table. I ask you to hand me “the big bowl.” Later, seeing that there is still some batter left over, I ask you for “a small tupperware.” We can coordinate our actions using ‘big’ and ‘small’ without needing to commit to some particular degree standard of size for bowls or for tupperware. Baking is hard enough as it is. Likewise, as we saw in §6.2.2, we can accept that Rita is “rich” while leaving open what precise standard for richness to accept. We can make progress in our inquiry, and successfully rule out various ways things might be, without needing to settle for the future course of the conversation on some specific standard for richness.

These examples highlight an important feature of discourse noted in our discussions of epistemic and deontic modals: there are typically multiple live representations of context. This point is crucial for understanding vagueness phenomena. Conversations are forward-looking (cf. ch. 3 n. 9). In making an assertion one commits to its truth for the remainder of the conversation. In accepting we settle not only that Rita is rich, but that anyone with at least as much money as Rita is rich.
Rita is rich.

Depending on Rita’s income, we might not wish to impose such a strong restriction on the development of the conversation. Our conversational and extra-conversational goals typically don’t require us to commit for the future course of the conversation to a specific degree standard for richness. So, given speakers’ indecision about what standards to adopt, there will typically be a range of suitable values for the variable s. Moreover the nature of this indecision is typically such as to leave open precisely how small changes along the relevant dimension may affect the applicability of the predicate — e.g., how small changes in an individual’s wealth may affect whether or not she counts as rich. Call a concrete context typical if it is compatible with a range of candidate standards in this way. Vagueness phenomena, I suggest, are the product of the interplay between a fully precise compositional semantics and uses of language in typical conversational situations.

Start with the sharp boundaries claim. The following is a plausible constraint on acceptance in a concrete discourse context, couched in terms of the more familiar notion of acceptance given an abstract context:

\[(21) '\phi' \text{ is accepted in a concrete discourse context } C \text{ only if for all live abstract representations of } C, c, '\phi' \text{ is accepted given } c.\]

a. '\phi' is accepted given c iff \(\forall w \in CS : w \in [\phi]^c\)

(Hereafter I will say that sentences are accepted/true in a concrete context C, and accepted/true given an abstract context c.) The condition in \[(21)\] requires that the sentence be accepted in the familiar sense — i.e., true throughout the context set — no matter how the conversation might evolve. If, for all we have settled thus far, standards for richness include 90 and 100, and we accept that Rita’s income is 95, we can’t be said to accept \[(11)\].

We are inclined to deny the sharp boundaries claim because no instance of it is accepted in typical concrete contexts. There isn’t any n such that ‘\(x_n\) isn’t rich and \(x_{n+1}\) is rich’ is accepted no matter how the conversation might evolve. For instance, suppose we have left open whether the degree standard for richness is 90 or 91; there are \(u, v \in CS\) such that \(s_u(\text{rich}) = 90\) and \(s_v(\text{rich}) = 91\). For \(n \leq 89\), the sharp boundaries instance isn’t accepted because the second conjunct isn’t accepted (whether because it isn’t accepted given each of \(c_u\) and \(c_v\), as for \(n < 89\), or because it isn’t accepted just given \(c_v\), as for \(n = 89\)); and for \(n \geq 90\), the instance isn’t accepted because the first conjunct isn’t accepted (whether because it isn’t accepted just given

\[\text{\footnotesize{\textsuperscript{12}}I leave open whether this condition also constitutes a sufficient condition. See also §6.3.3.}\]
\(c_u\), as for \(n = 90\), or because it isn't accepted given each of \(c_u\) and \(c_v\), as for \(n > 90\).

It is in this way that we can capture the thought that the sharp boundaries claim is incompatible with vagueness and borderline cases. Apparent “borderline cases” are cases where the different ways we might resolve our indecision about what standards to accept lead to different verdicts about whether the predicate applies. A borderline case of richness, \(x_i\), is a case where ‘\(x_i\) is rich’ is accepted given some live degree standard of richness, but rejected given some other live degree standard. The “hesitancy, silence,… and even confusion” (Keefe 2000: 155) characteristically associated with borderline cases, even given all the relevant worldly facts, are diagnosed as persisting indecision about what standards to accept. Borderline cases are incompatible with the sharp boundaries claim in the sense that no instance of the sharp boundaries claim is accepted in any concrete discourse context which allows borderline cases.

Conversely, I suggest that the inductive premise seems so compelling by virtue of having the following dynamic acceptance property in typical contexts. We noted above, first, that uses of gradable adjectives affect the standards relevant for the interpretation of subsequent uses, and, second, that small changes in wealth typically aren't sufficient, given our purposes, to affect whether a person counts as rich. Hence in typical contexts, for any \(n\), accepting ‘\(x_n\) is (/is not) rich’ lands one in a concrete context in which it would be arbitrary, given one's purposes, to reject ‘\(x_{n+1}\) is (/is not) rich’. Informally, in considering an instance of the inductive premise, one might think something like “If \(x_n\) is not rich, then, assuming \(x_{n+1}\) must be something, \(x_{n+1}\) must also be not rich.” Typical contexts (understood as above) are such that accepting ‘\(x_n\) isn’t rich’ changes the context in such a way that precludes not accepting ‘\(x_{n+1}\) isn’t rich’, given that one is forced to take a stand on it.

This point can be extended to the case of conditionals given independent principles of local interpretation. As noted in previous chapters, it is common in linguistic semantics to treat the consequent of a conditional as interpreted with respect to the local context \(c^+\) set up by the antecedent — i.e., with respect to the “global” context hypothetically incremented with the antecedent. The inter-sentential mechanisms described in the previous paragraph can operate internal to the interpretation of the conditional sentence itself. Processing the antecedent of an instance of the inductive premise shifts the context relevant for the interpretation of the consequent to a local context \(c^+\) that accepts ‘\(x_n\) isn’t rich’. Relative to this local context, the consequent ‘\(x_{n+1}\) isn’t rich’ can't fail to be accepted, given that the context is typical. So, any instance of the inductive premise ‘If \(x_n\) isn't rich, then \(x_{n+1}\) isn't rich’ is accepted in typical contexts. It is in this way that the inductive premise encodes the idea that small changes typically don't matter for the application of ‘rich’.

Interestingly, these points about the inductive premise suggest that modus po-
nens can fail for acceptance in a concrete context. Since the consequent of a con-
ditional is interpreted with respect to its local context, the standard relevant for the
interpretation of ‘rich’ in the consequent of an instance of the inductive premise can
be sensitive to how the hypothetical acceptance of the antecedent updates the local
context. This local update needn’t be reflected in the global discourse context. As
a result, holding fixed a given typical concrete context $\mathcal{C}$, it can be the case (i) that
the minor premise ‘$x_1$ isn’t rich’ is accepted in $\mathcal{C}$, and (ii) that every instance of the
inductive premise is accepted in $\mathcal{C}$, although (iii) there is some $i$ such that ‘$x_i$ isn’t
rich’ isn’t accepted in $\mathcal{C}$, indeed some $i$ such that ‘$x_i$ is rich’ is accepted in $\mathcal{C}$.

To be clear, I am not denying that the sorites argument is valid in the sense of
necessarily preserving truth at a point $(c, w)$, or in the sense of necessarily preserv-
ing acceptance given an abstract context $c$. For all I have said, if the premises are
true given $c$ at $w$, then the conclusion must be true given $c$ at $w$, and if the premises
are accepted given $c$, then the conclusion must be accepted given $c$. The violation
of modus ponens is a property of acceptance in a typical concrete context. Moreover
it is a static property. ‘$x_1$ isn’t rich’ and ‘Bill Gates is rich’ can be simultaneously
accepted in the same typical concrete context, along with every instance of the in-
ductive premise, as long as the repeated applications of modus ponens aren’t treated
as updating the global context.

This latter qualification is important. So far we have been focusing on the stan-
dard static version of the sorites paradox. But processing premises in discourse and
reasoning can change context in ways that affect the acceptability of subsequent
steps. With this in mind it will be instructive to turn to the so-called dynamic, or
points about tolerance and the discourse properties of gradable adjectives are per-
haps even more well suited here.

The dynamic sorites considers a competent speaker $S$ progressing through a
sorites series. At each step she must give some single categorization of the item;
for simplicity, suppose the options are just “rich” or “not rich.” On pain of seman-
tic incompetence, $S$ classifies the clear case $x_1$ as not rich. Since $x_2$ only earns one
cent more per year than $x_1$, it seems she must classify $x_2$ as not rich too. So on for
$x_3$, $x_4$, etc. Eventually, however, $S$ will presumably stop in classifying individuals
as not rich. After all, she already accepts that (say) Bill Gates is rich. So, it seems
that $S$ must either land herself in incoherence — or at least gross error — or classify

---

13There may be other reasons for denying the validity of modus ponens in (one or more of) these
senses (for relevant discussion, cf. McGee 1985, Gillies 2009, Kolodny & MacFarland 2010,
Yalcin 2012d, Silk 2014b). Note that what is at issue here is the logic of the natural language
indicative conditional.
some adjacent pair differently, thereby violating the dynamic version of the inductive premise:

\[(22) \quad \text{Dynamic Sorites} \]

\[
\begin{align*}
(P1) & \quad \text{S accepts } \neg x_1 \text{ isn't rich.} \\
(P2) & \quad \text{For all } n, \text{ if S accepts } \neg x_n \text{ isn't rich, then S must accept } \neg x_{n+1} \text{ isn't rich.} \\
(C) & \quad \therefore \text{ S must accept } \neg x_n \text{ isn't rich, for any } n.
\end{align*}
\]

Our discussion above provides a promising diagnosis of forced march cases. Suppose you accept ‘\(x_{80} \text{ isn't rich.}\) Your application of ‘not rich’ to \(x_{80}\) affects the interpretation of subsequent uses. Shifting your classification at this particular point would place a strong restriction on the future course of the conversation. Not only would it commit you to accepting \(81\) as the precise standard for richness. It would also put pressure to revise your judgment about \(x_{80}\) and accept ‘\(x_{80} \text{ is rich.}\) Instead. After all, mere differences of one cent seem insufficient to affect whether someone is rich, and you wouldn’t want to appear arbitrary. Moreover you might not wish to set a precedent for imposing precise standards for the application of other potentially vague terms. (“You said that one cent was enough to affect whether someone is rich. Why shouldn’t one day be enough to affect whether a fetus is a person?”) All this puts pressure to continue your original pattern of classification and accept ‘\(x_{81} \text{ isn’t rich,}\) and so on down the line. Eventually, however, this pressure will give way to the pressure to avoid classifying clear cases incorrectly. Predictable arbitrariness is one thing; gross stupidity is another. The artificial instructions set up by the forced march experiment can thus give you reason to place yourself in a non-typical context — at least for a time. Suppose you switch at \(x_{90}\) and accept ‘\(x_{90} \text{ is rich.}\) Considerations of arbitrariness may then lead you to accept ‘\(x_{80} \text{ is rich.}\) as well, if the direction is reversed. After all, you don’t genuinely accept a sharp cutoff between \(x_{80}\) and \(x_{90}\). You just needed one for the purposes of the experiment. Shifting cutoffs across runs and directions of the forced march thus affords a manner of indicating one’s indecision about what degree standard to accept, given the constraints imposed by the instructions of the forced march.\]

Note that tolerance — the point that, considered pairwise, incrementally different items in a sorites series aren’t to be judged differently — isn’t built into either the formal semantics or the formal pragmatics. Semantically, the inductive premise is false, given any abstract context. Pragmatically, not every concrete context need accept every instance of the inductive premise. Sometimes our purposes can override

\[14\] Such hysteresis effects play an important role in the theories in Raffman 1994, 1996, 2014, Shapiro 2006. For experimental evidence, see Raffman 2014: ch. 5 and references therein.
concerns about arbitrariness. Avoiding incoherence is plausibly one such purpose.

In sum, vagueness, on this view, is diagnosed as a form of *contextual indecision*. Vagueness phenomena are a symptom of our unwillingness to commit to specific degree standards. The sharp boundaries claim seems incompatible with vagueness because no instance of it is accepted in discourse contexts that have failed to settle on a precise standard. “Borderline cases” are diagnosed as cases where our indecision about what standards to adopt leads to different verdicts about whether the predicate applies. The inductive premise — the classical equivalent of the sharp boundaries claim — encodes how small changes in (e.g.) wealth typically don’t matter, given our purposes, for whether an individual counts as rich. In typical contexts, for every instance of the inductive premise, accepting the antecedent lands one in a (local) context committed to accepting the consequent.

So, in response to the Semantic Question, the inductive premise is false and the sharp boundaries claim is true, given any abstract representation of context. Our *semantics* is classical. But, in response to the Psychological Question, there are important senses in which the sharp boundaries claim isn’t acceptable, and the inductive premise is, in actual conversations. Hence, in response to the Epistemological Question, we may not be able to point to any instance of the inductive premise which we reject, or any instance of the sharp boundaries claim which we accept.

6.3.2 Vagueness, meaning, and use

I have suggested that vagueness phenomena — apparent borderline cases, sorites-sensitivity, etc. — result from *using* expressions with a precise formal semantics in typical concrete contexts. Although semantic standard-sensitivity isn’t itself sufficient for vagueness, speakers’ failing to settle on a precise standard can lead to phenomena characteristically associated with vagueness. A speaker may be unable to commit to a precise degree standard for richness, and hence may be hard-pressed to accept either (11) or its negation. She may distinguish among degree standards less finely than she can distinguish among individuals with respect to wealth, and hence may find herself in paradox. This diagnosis helps further clarify the relation between the vagueness phenomena considered in this section and the discourse phenomena with gradable adjectives considered in §6.2.

Even if the compositional semantics requires a particular overall standard, our purposes typically don’t. It is thus important to distinguish issues concerning the compositional semantics of gradable adjectives from vagueness phenomena which result from their use. Williamson writes, “Vagueness and context dependence are separate phenomena… Vagueness remains even when the context is fixed” (1994:196).
Vagueness remains even when a concrete context is fixed. The conventional meanings of gradable adjectives, however, abstract away from the conditions that give rise to vagueness. The compositional semantics takes as given a particular body of standards as part of a broader abstract representation of context. What is necessary for semantic competence with (e.g.) ‘rich’ is a capacity to deliver truth-value judgments given a particular degree standard of wealth (among other things). Vagueness phenomena with gradable adjectives are a consequence of using them in contexts in which the speakers’ purposes, interests, commitments, etc. aren’t sufficiently fine-grained to distinguish among a range of candidate degree standards. A precise contextualist compositional semantics for gradable adjectives can give rise vagueness in their use. The interplay between semantics and pragmatics at its best.

Vagueness isn’t a specifically semantic phenomenon (cf. Lewis 1969, 1975, Burns 1991). It is a result of the interaction between the semantics and properties of typical contexts of use. It is thus misleading to speak of expressions like ‘rich’, ‘bald’, ‘tall’, etc. themselves as vague (as I have been deliberately sloppy in doing, but no longer). Pace Wright, it’s not the case that “[a]nyone must agree that vagueness pervades the lexicon of natural languages” (2003: 84; emphasis added). What is vague, rather, are certain uses of languages in concrete contexts.

That said, I agree that there is something importantly right in the thought that certain expressions are “essentially vague” (Wright 1975: 330). Wright’s remarks here are worth quoting more fully:

[T]he utility and point of the classifications expressed by many vague predicates would be frustrated if we supplied them with sharp boundaries. (If it is an empirical truth that stress diseases are more widespread in highly concentrated populations, it is doubtful whether it would survive an exact numerical definition of ‘highly concentrated’).… [S]uch predicates are essentially vague… [L]ack of sharp boundaries is not just a surface phenomenon reflecting a hiatus in some underlying set of semantic rules…; it is a product of the kind of task to which an expression is put, the kind of consequences which we attach to its application or, more deeply, the continuity of a world which we wish to describe in purely observational terms. Lack of sharp boundaries is semantically a deep phenomenon. It is not generally a matter simply of lacking an
With a bit less gravitas, here is Raffman:

[V]agueness seems essential to our ability to communicate using natural language; vague words allow us to communicate easily, in a quick and casual way, without having to count grains of sand or dollars and cents of salary. (Raffman 2014: 7)

What these quotes bring out is that part of the fundamental point of having certain expressions is that they give rise to vagueness.¹⁷ Having concepts with unclear boundaries is crucial for how we conceptualize the world and progress in inquiry (§6.2; cf. §4.4). This is compatible with giving the relevant expressions a precise semantics. Indeed, as we have seen with gradable adjectives, it is precisely features of their semantics, the ways in which they are conventionally context-sensitive, that lends them so naturally to vague use.

The gradable adjective ‘rich’ fails to conventionally encode any specific degree standard for richness. For this reason using ‘rich’ typically places greater computational burdens on an interpreter than using a corresponding precise, non-context-sensitive expression. But, on the flip side, given how skilled we are at general abductive, pragmatic reasoning, we can use ‘rich’ to communicate information, both about the world and the context itself, without needing to presuppose some particular standard (§6.2). Given an abstract context that sets the degree standard for richness at (say) 100, the semantic content of (11) is (roughly) the proposition that Rita’s yearly income is at least 100. But typical concrete contexts are rarely quite so specific. Having the gradable adjective ‘rich’ at our disposal allows us to characterize Rita, and classify her in relation to other individuals, without needing to settle either on her exact degree of wealth or on a specific standard for richness.

Wright is quite right: given the kinds of creatures that we are, the kinds of purposes that we have, and the kinds of circumstances we find ourselves in, having expressions fit for vague use is essential. Building vagueness into the very meaning of these expressions is not.

6.3.3 Logic, metaphysics, and epistemology of vagueness

The Discourse Contextualist-based treatment of the sorites in §6.3.1 bears obvious similarities to various positions in the vagueness literature, but there are important differences. Clarifying these differences will help bring out the commitments of the proposed account.

First, our treatment of acceptance in a concrete context, as in (21), is reminiscent of the quantification over precisifications in supervaluationism. However, unlike in many supervaluationist accounts, no novel apparatus is introduced into the formal semantics itself. No appeals are made to special semantic notions like “supertruth,” or “truth on all admissible standards.” Truth is plain old truth-in-a-context. Our semantic metalanguage is classical. Vagueness phenomena are explained as pragmatic effects of using expressions with the given semantics in typical concrete discourse contexts.

The point about retaining classical logic and semantics is worth emphasizing. It is often assumed that non-epistemic theories of vagueness must abandon classical logic. Here is Williamson:

Most work on vagueness has taken it for granted that [epistemicism is] absurd. It therefore rejects the original supposition that an utterance of ‘TW is thin’ [for a borderline case, TW] is either true or false. (Williamson 1994: 185)

Retaining a classical semantics, it is often thought, commits one to accepting sharp boundaries:

[I]f all borderline statements are either true or false..., then vague words have sharp boundaries. (Rosenkranz 2003: 449)

Epistemic theorists retain classical logic... This commits them to sharp boundaries to the extensions of our predicates. (Keefe 2000: 62)

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19See, e.g., Fine 1975, Kamp 1975, Klein 1980, Ballweg 1983, McGee & McLaughlin 1994, Keefe 2000, Sassoon 2013b. I regard supervaluationism as neutral among contextualist, relativist, or invariantist implementations. See Kamp & Sassoon 2015 for survey discussion of ways of developing supervaluationism which avoid introducing a notion of supertruth and retain classical logic. Insofar as the condition in (21) on acceptance in a concrete discourse context merely provides a necessary condition, I leave open whether the logic of this attitude validates all classical theorems, e.g. all instances of excluded middle, as in supervaluationism; for recent experimental work, see Alxatib & Pelletier 2011, Serchuk et al. 2011, Égré et al. 2013.
These assumptions are false. We can combine a non-epistemic treatment of vagueness with a classical logic and semantics. There may be independent reasons for going non-classical, but doing so isn’t necessary for capturing the vagueness phenomena examined here.

Nevertheless our Discourse Contextualist-based account locates a place for work on non-classical logics of vagueness, namely, in the conversational dynamics. We can understand this work as providing accounts of the logic of acceptance in concrete discourse contexts, and models of the accommodation mechanisms operative in the dynamics of vague utterances (cf. §6.3.6). For instance, an utterance of (23) may fail to be either accepted or rejected in a concrete context; TW may be a “borderline case” of thinness in the sense of §6.3.1.

(23) TW is thin.

This is compatible with the compositional semantics being such that (23) is either true or false given any abstract context \( c \), and with \( \text{J} (23) \) having a determinate semantic value. A classical semantics for natural language can give rise to a non-classical logic for its use. Similarly we saw in §6.3.1 that there may be reasons to think that modus ponens is invalid on a static notion of consequence defined in terms of acceptance in a typical concrete discourse context. This can be the case even if the sorites argument is semantically valid. The logic of vagueness in discourse can come apart from the semantics of the expressions themselves.

An analogous point can be made concerning probabilistic treatments of vagueness. These theories retain classical logic by interpreting expressions with respect to probability distributions over possible degree standards. An adequate model of actual discourse dynamics indeed mandates an account of speakers’ probabilistic beliefs about the context. This includes probabilities about candidate values for the standards variable \( s \). We can locate a crucial role for research on probabilistic reasoning and interpretation with gradable adjectives without building the probabilistic apparatus into the semantics itself.

It is standard in the literature to characterize vagueness phenomena in terms of truth. Fara’s Semantic, Epistemological, and Psychological Questions (§6.3.1) ask whether the sharp boundaries claim is true, whether the inductive premise is not true. Epistemicists respond by claiming that the world systematically determines the truth or falsity of intuitively vague sentences, though we may not be in a position to know which. On the other extreme are degree theories, which posit an infinite

domain of truth values. Contextualists likewise characterize their views as making claims about the truth values of sentences, though they allow that these truth values may shift across contexts within a world (cf. §6.1): in some contexts, “if [a competent speaker] judges \( Pa \) [where \( a \) is a borderline case of a predicate \( P \)]…, then this sentence thereby becomes true, in that context. Similarly, if she judges \( \neg Pa \), then that sentence becomes true” (Shapiro 2006: 61). When considering adjacent pairs in a sorites series, the “extension… of the predicate changes” (Soames 1999: 213). Indeed, it is the very act of considering an adjacent pair in a sorites series that “render[s] true the… instance [of the inductive premise] we are considering… [A]ny instance of [the inductive premise] we consider is in fact true at the time we consider it” (Fara 2000: 59).

As the reader may expect, the present Discourse Contextualist-based account doesn’t itself require taking a stand on these matters (cf. §§3.6, 5.2.4, 5.3.1, 5.4). In neither the semantics nor the subsequent treatment of vagueness did we need to commit to claims about the truth values of sentences in neutral or informally described discourse contexts. What is required for semantic competence with (e.g.) ‘rich’ is a capacity to deliver truth-value judgments given a particular degree standard of wealth. We needn’t couch discussions of the sorites in terms of whether (a given instance of) the inductive premise or sharp boundaries claim is true; or characterize the effects of context shifts in terms of shifts of extension; or understand “borderline cases,” “tolerance,” etc. in terms of whether object language predicates (even novel predicates like ‘borderline \( F \)’) are true of certain objects or sequences of objects. Given the above diagnosis of vagueness and its relation to the semantics of natural language, it may be more helpful to theorize about these matters at the level of acceptance/rejection in concrete contexts. Indeed, framing the discussions in terms of truth has the potential to obscure the dialectic, as by running together questions about the semantics of natural language, the logic and dynamics of its use, and the metaphysics/metasemantics of content determination in concrete contexts.

For instance, the label ‘contextualism about vagueness’ is standardly used for views according to which the truth values of intuitively vague sentences can vary across contexts, even when familiar contextual factors (comparison class, etc.) are held fixed (§6.1). Contextualists about vagueness, in this sense, often take their theories to provide an improved explanation of the sorites’s intuitive appeal. Roughly,


the thought goes, though it’s not the case that all instances of the inductive premise are true in any single context — the inductive premise is false — each instance is true when we consider it in its own context. Confronting different pairs in a sorites series can change the context in such a way as to affect the truth values of the relevant sentences. However, if the Discourse Contextualist-based account developed in this section is correct, these distinctive metasemantic claims about the shifting of truth value across contexts aren’t essential to a diagnosis of the sorites. We can capture the phenomena without taking a stand on what in fact determines which body of standards is operative, and hence without taking a stand on the truth values of the relevant sentences across concrete contexts. A contextualist semantics and account of vagueness phenomena needn’t be held hostage to a contextualist metasemantics.

On the flip side, delineating the variety of phenomena intuitively associated with vagueness can help clarify precisely what is at issue among competing theories. Consider epistemicism. Epistemicists claim that facts about competent use determine precise extensions for intuitively vague terms (Sorensen 1988, Williamson 1994, Barker 2002). In terms of the present degree semantics, epistemicists can be understood as treating the overall standard not as a contextual parameter, but as determined by the world of evaluation. Presuppositions about standards, on this line, are to be analyzed as ordinary presuppositions about what (formally precise) language is being spoken (cf. §5.4). This leaves room for a related contextualist theory that treats every context in a world as determining the same overall standard, but fails to build this into the lexical semantics. Sentences with gradable adjectives would be interpreted with respect to a contextual standards variable. Though the same value would be supplied in every context in a world, this wouldn’t be encoded in the grammar, or conventions of the language (cf. §5.4).

Typical existing contextualist theories, by contrast, can be understood as accepting a metasemantics on which what standard is supplied can vary across contexts within a world. We can locate differences among these views in terms of what features of context are relevant to determining what standard is supplied, and whether these features are sufficient to determine a unique standard in each context. Contextualist theories may differ on the metasemantic role of speakers’ interests (Fara 2000, 2008), internal psychological states or verbal dispositions (Raffman 1994, 1996, 2005), and prior (and perhaps even present) discourse moves (Kamp 1981, Soames 1999, Richard 2004, 2008, Shapiro 2006). These differences can lead to

23 See Keefe 2007, Akerman 2013 for similar sentiments.
24 My referencing these views shouldn’t be taken to imply that they are committed to a contextualist semantics. I take many of them to be neutral on contextualist vs. relativist implementations (see §6.1). Raffman’s new view (2014) is explicitly not contextualist. Richard’s view is explicitly relativist.
different specific ways of characterizing vagueness phenomena.

For example, an epistemicist variant of contextualist might treat each context as determining a particular overall standard; yet the standard may be determined by factors independent of speaker intentions or dispositions in such a way that specific degree standards are unknowable (cf. Fara 2000). In cases of discourse disagreement, like in (2), one speaker must be saying something false. Alternative contextualist theories may assign greater role to linguistic dispositions and information structure in discourse. One might say that, bracketing speaker intentions about how to apply the relevant terms, context fails to determine a specific standard. “Borderline cases” would be treated as cases where this kind of contextual underdetermination leads to underdetermination of truth value. Speaker attitudes or discourse moves, however, may be sufficient to resolve this underdetermination. In disagreements about borderline cases, each utterance could be true in its respective context. Disagreement about borderline cases would be “faultless” in the sense that, bracketing facts about the interlocutors’ intentions and previous discourse moves, neither speaker need be saying anything false (cf. Raffman 1996, 2014, Soames 1999, Shapiro 2006). This property of the metasemantics might be built into the grammar, as via some substantive lexical principle, but it need not be.

Our discussion of these broadly metasemantic issues locates a place for metaphysics in an overall theory of vagueness. Semantic theories of vagueness often treat the conventions of the language as determining precise extensions, anti-extensions, and (on partial predicate analyses) cases for which the predicate is undefined, relative to a given context. A common initial worry is that this treatment seems to miss something important about vagueness. It isn’t just that there doesn’t seem to be a clear boundary between the individuals who are (say) rich and those who are non-rich; it’s that there isn’t a clear boundary “between cases where it is definitely correct to apply [a vague] predicate and cases of any other sort” (Wright 1975:330). Even the category of borderline cases seems fuzzy. These observations typically go under the heading of higher-order vagueness (more on which shortly). A common response among semantic theories of vagueness is to apply their accounts to higher-order predicates like ‘is in the determinate extension of ’F’’, ‘is a member of what the linguistic conventions determine that ’F’ applies to’, ‘is in the extension of ’F’’ on some competent way of applying ’F’’, ‘is a competent user of ’F’’, etc. I don’t deny that a theory should be able to be coherently applied to technical predicates such as these. But I am also sympathetic with the thought that some questions about indeterminacy in the meaning/use of language are just that — metaphysical questions about the possibility of indeterminacy in the world, not just metalinguistic questions about (vagueness in) ‘determinately’ sentences. The present framework leaves room
for this; we can locate such questions in metasemantic theorizing about the extent and depth of indeterminacy of content in concrete contexts. What makes it the case about an agent or concrete discourse context that a given standard is operative? Can it be indeterminate which standard, or even range of standards, is operative in a concrete context? Questions about metaphysical (in)determinacy may have a place in theorizing about linguistic vagueness.

6.3.4 Vagueness in language and thought

In §6.2.3 we briefly considered attitude ascriptions with gradable adjectives, focusing on readings where the relevant standard is supplied from the global discourse context. In this section I would like to briefly consider the alternative case where the relevant standard is linked to the attitude subject. This will provide an opportunity to clarify the respect in which I am taking vagueness to be tied to language.

Consider (24), on the reading where the degree standard associated with ‘rich’ is linked to the subject, Damian.

(24) Damian thinks Rita is rich.

An utterance of (24) on this reading, assumes that Damian’s standards are such as to determine a value for the standards variable s, sD, and ascribes to Damian the belief that rich(Rita) ≥ sD(rich). What communicates something about Damian’s standards is the assumption that this proposition is the content of his belief. Ascribing the belief that rich(Rita) ≥ sD(rich) to Damian using (24) communicates something about what standards he accepts because of how the presuppositions of s are assumed to be locally satisfied (cf. §4.2.1).

This account of attitude ascriptions with gradable adjectives provides a framework for further theorizing about the nature of vague thought. We can frame various questions about vagueness in mental content in terms of the metasemantic question of what determines a value for s in the local context of a subject’s belief state. The compositional semantics of an attitude ascription like (24) takes as given a particular value for the variable s that characterizes the subject’s standards. But actual subjects needn’t accept particular degree standards, let alone a fully precise overall standard. Damian’s state of mind may underdetermine a specific body of standards. For the case of Rita it might be that she counts as rich relative to each standard compatible with Damian’s state of mind; (24) may still be accepted. For other individuals, however, different degree standards may give different verdicts as to whether they count as rich, even given their specific degree of wealth. This seems to be exactly
what happens with vague thought.

Suppose one’s state of mind underdetermines a precise degree standard of richness. Let $R_s$ be the set of degree standards of richness compatible with one's state of mind. Suppose also that there is a set $V$ of possible yearly incomes that Victor might have, for all one believes. To think that it’s vague whether Victor is rich is to be such that for any $v \in V$, there is some $d \in R_s$ such that $v \geq d$ and some $d' \in R_s$ such that $v \not\geq d'$. It is to be such that for any of Victor's possible (maximal) degrees of wealth compatible with one's beliefs, there is some degree standard compatible with one's beliefs relative to which Victor counts as rich, and some degree standard compatible with one's beliefs relative to which he doesn't.

I have offered an account of vagueness on which vagueness is neither an epistemic nor a purely semantic phenomenon. In this respect the account is similar to Lewis's (1969; cf. Burns 1991). On one way of reading the Lewis-style view, vagueness is a fundamentally linguistic phenomenon which results from systematic underdetermination of which formally precise language a given group of speakers is speaking. Putting the view this way naturally raises the question of what vagueness in thought could be (assuming for the sake of argument that vague states of mind needn’t always be characterized in terms of a language-of-thought). Our discussion of various metasemantic issues suggests a natural avenue of response. The metasemantics of gradable adjectives in attitude ascriptions raises the question of what makes it the case about an individual that such-and-such way, or ways, of locally accommodating the presuppositions of $s$ is appropriate. Importantly, this is a question in the philosophy of mind. It is a question of what it is to be in a (non-)vague state of mind.

This suggests a way of providing a common basis for vagueness in language and thought. The content of (11) ‘Rita is rich’ depends on what value for $s$ is globally supplied. Similarly the content of Damian's belief ascribed in (24) depends on what value for $s$ is locally supplied. So, just as what content an utterance of (11) has depends on the metasemantics of what makes it the case about a concrete discourse context that such-and-such degree standards for richness might be operative in it, likewise what the content of the belief ascribed in (24) is depends on the metasemantics of what makes it the case about a subject that such-and-such degree standards for richness are compatible with her state of mind. It isn't implausible that the very same kinds of attitudes, dispositions, etc. will figure in both metasemantic accounts. After all, the candidate values for the contextual variable $s$ across worlds in the context set represent the standards for what counts as rich, etc. that the speakers treat as live — the standards they leave open, fail to rule out, are undecided about. These seem to be exactly the sorts of attitudes relevant for determining the contents of
the subjects’ beliefs that so-and-so is (isn’t) rich, and for determining which cases they take to be vague. The attitudes that help determine the contents of a subject’s standards-sensitive beliefs and determine which cases a subject takes to be vague are plausibly the very same attitudes that help determine which standards characterize concrete discourse contexts and figure in the contents of vague utterances. Again, this leaves open the question in the philosophy of mind about what precisely these attitudes consist in. But however this question gets answered, they seem to be the kinds of attitudes suitable for providing a common underlying account of linguistic and mental vagueness.

6.4 Conclusion

Let’s recap. §6.2 developed a Discourse Contextualist account of gradable adjectives. I argued that we can derive various discourse properties of gradable adjectives from a certain contextualist implementation of an independently motivated degree semantics, along with general principles of pragmatic reasoning. The account explains how in using gradable adjectives speakers can refine their concepts and adjust their standards for richness, tallness, etc. Since gradable adjectives are a prototypical source of linguistic vagueness, §6.3 turned to developing a Discourse Contextualist-based account of degree-based vagueness. Though gradable adjectives’ potential for discourse-oriented use doesn’t itself entail that they are vague, I argued that the discourse roles of gradable adjectives elucidated in §6.2 motivate an attractive diagnosis of various vagueness phenomena. Vagueness, on this account, is diagnosed as a kind of contextual indecision — indecision about what standards to accept. The compositional semantics of gradable adjectives takes as given a particular body of standards. However, our purposes, interests, goals, etc. often leave open a range of standards. Indeed it is largely for this reason that gradable adjectives play such an important role in discourse and reasoning: they allow us to communicate information about the world without having to settle on precise degree standards. The range of candidate standards is typically less fine-grained than the distinctions we are able to draw among the objects themselves along the relevant dimensions. It is this that gives sorites reasoning its intuitive appeal. Vagueness phenomena with gradable adjectives result from the interplay between their semantics, which presupposes a particular degree standard, and typical features of concrete contexts of use.

This Discourse Contextualist-based account provides a framework for further theorizing about vagueness — for instance, in metasemantics concerning what determines the value for the overall standard variable in concrete contexts, in philos-
ophy of mind concerning what it is to leave open a range of standards, in metaphysics concerning the extent of indeterminacy/underdetermination in these latter matters, and in logic concerning the dynamics of vague utterances and the logic of acceptance in concrete contexts. Contrary to initial appearances, these issues can be treated as independent from the central explanatory claims in an account of the sorites. Distinguishing such broader issues from the semantics proper can refine our understanding of the space of overall theories of vagueness. Indeed our discussion brings into relief a kind of overall theory which combines features often regarded as incompatible: a non-epistemic, non-purely-semantic theory of vagueness which retains a classical logic and semantics. This constitutes an important feature of the present account.

In closing I would like to mention several limitations of the foregoing discussion and possible avenues of development.

6.4.1 Beyond gradable adjectives

This chapter has examined various phenomena involving standard-sensitivity and vagueness. Starting with gradable adjectives was dialectically promising, for the dominant theories of gradable adjectives in linguistic semantics are readily subject to a Discourse Contextualist implementation. It is independently plausible that predicative uses of gradable adjectives are interpreted with respect to a contextual parameter that supplies degree standards for those adjectives. This parameter is naturally interpreted as representing a discourse-level body of standards. However, an overall theory of vagueness and standards-oriented uses shouldn’t turn on features specific to gradable adjectives. Vagueness phenomena aren’t limited to expressions of a single category. They can arise with nominals (‘heap’), adverbs (‘very’, ‘quietly’), prepositional phrases (‘in five minutes’, ‘at 1 o’clock’), quantifier phrases (‘fifty students’, ‘a few dogs’), measure phrases (‘five feet tall’), and so on. Expressions of these categories can also plausibly be used to adjust discourse-level standards.

Extending the account to other categories of expressions raises difficult questions about the unity/diversity of vagueness phenomena in natural language. One might posit systematic semantic association with a contextual parameter representing a discourse-level overall standard. This overall standard would determine not just degree standards for gradable expressions, but standards of application more generally (cf. Morzycki 2011, 2015) — standards for what counts as a heap, what counts as five minutes, and so on. This move would be in the spirit of many classic theories of

vagueness in the philosophical literature, which offer uniform treatments of vague-
ness. (Compare the general apparatus of supervaluations or many-valued/fuzzy log-
ics, or the general claims of epistemicists about metasemantic complexity and im-
perfect knowledge of meanings.) However, I think we should be cautious about this
line of response, at least absent much further linguistic investigation. Introducing
contextual parameters has non-trivial implications for the compositional semantics
and hence makes non-trivial predictions (e.g., concerning binding phenomena, in-
teractions with different kinds of modifiers, etc.). Recent work in linguistic seman-
tics has stressed the importance of distinguishing various loci of apparent vagueness
phenomena, whether by distinguishing kinds of vagueness or by distinguishing gen-
ue cases of vagueness from imprecision or “loose talk.” More investment is
needed about how and to what extent standards ought to be implemented into the
semantics of other types of expressions that appear to exhibit vagueness phenomena.

6.4.2 Higher-order vagueness

One important question about vagueness beyond gradable adjectives concerns the
semantics of degree modifiers, for this bears directly on another central issue in the
vagueness literature: so-called higher-order vagueness. Higher-order vagueness is
vagueness concerning borderline or clear cases. Just as it might be fuzzy whether

26For the former option, see Sauerland & Stateva 2007, 2011. For the latter, see Lasersohn
epistemicist-friendly analysis of nominals like ‘heap’ on which different precise extensions are as-
signed across relevantly indistinguishable worlds (cf. § 6.3.3), but an analysis invoking (something
like) contextually supplied standards of precision for gradable predicates like ‘rich.’

Research on gradability in language more generally will also be especially relevant, as gradable ex-
pressions come in various syntactic categories (e.g., adverbs (‘(more) quickly’), verbs (‘hate (x more
than y does’), determiners (‘(more) ice cream’), nouns (‘(more of a) runner’)). One important dis-
cussion is Sassoon 2013b. Drawing on both linguistic and psychological evidence, Sassoon argues
that all predicates are gradable, including nouns (cf. Kamp & Partee 1995, also Blome-Tillmann
2008: 45–48). She treats nouns and adjectives alike in being semantically associated with a degree
function that maps individuals to degrees, and attempts to derive the differences among them in
terms of their respective type of degree function (i.e., one based on a mean operation, as with nouns,
or one based on a Boolean operation, as with adjectives). If Sassoon is correct in treating all pred-
icates as interpreted with respect to degree functions, this would provide independent evidence for
introducing contextual standards variables into the semantics more generally. A second potentially
relevant account is Rett 2008, which implements standards-sensitivity in terms of a degree modifier
‘eval.’ In contrast to the more commonly posited positive morpheme ‘pos,’ ‘eval’ can take as argument
any set of degrees. This broadens its potential application in the semantics. The full extent to which
vagueness phenomena could be captured in either of these terms warrants detailed investigation.
Gradable adjectives can combine with degree modifiers, including epistemic modifiers like ‘clearly’, ‘very’, ‘-ish’, and, most notoriously, ‘definitely’. But these expressions can themselves be modified. (25) isn’t equivalent to (26); A isn’t simply repeating herself in (27).

(25) Rita is definitely rich.
(26) Rita is clearly/definitely definitely rich.
(27) A: Rita is definitely rich.
    B: Are you sure?
    A: Yeah, she’s definitely definitely rich. She makes more than anyone I know.

Examples such as these suggest that modifiers like ‘definitely’ are themselves gradable expressions. At least on the face of it, this speaks against a simple univocal treatment of ‘definitely’ as expressing epistemic necessity, understood in terms of universal quantification over a set of epistemically accessible worlds: there is nothing vague about the universal quantifier. Instead we might treat ‘definitely’ as also being interpreted with respect to the standards variable $s$. There are various ways of implementing this idea.

One option is to treat ‘definitely’ as modifying the degree standard of the given adjective by some contextually given degree. This suggests the following first-pass truth conditions for (25) (for simplicity, assume the richness scale has enough structure to make the subtraction operation well-defined):

(28) $\text{(25)}$ is true given $c$ iff $(\text{rich}(Rita) - s_c(\text{rich})) \geq s_c(\text{definitely})$

(28) says, roughly, that (25) is true iff Rita’s income exceeds the degree standard for richness at least by a certain amount, where this amount and the standard for richness are set by the value of the standards variable $s$ given $c$. Though the compositional semantics takes as given a particular amount given by $[s]^{c}(\text{definitely})$, concrete contexts may leave open a range of such amounts, corresponding to a range...
of live values for \( s \). Standards-oriented uses and vagueness phenomena with ‘definitely’ could then be given analogous treatments to those in §§6.2–6.3 for the case of gradable adjectives.

The treatment in (28) may be apt for the use of ‘definitely’ as an intensifier, similar to ‘very’ or ‘really’. But it seems to leave opaque the connection between this use of ‘definitely’ and an ordinary epistemic use, like in (29).

(29) Rita is definitely coming to the party.

One way of unifying these uses would be to treat ‘definitely’ in terms of a contextually supplied degree standard of probability. Truth conditions for (25) and (29) could be given in (30) and (31), respectively, where \( Pr_c \) is the contextually supplied probability function and \( s_c(\text{definitely}) \) the contextually supplied probability threshold.

\[
\text{(30) (25) is true given } c \text{ iff } Pr_c(\text{rich}(\text{Rita}) \geq s_c(\text{rich})) \geq s_c(\text{definitely}) \\
\text{(31) (29) is true given } c \text{ iff } Pr_c(\text{coming}(\text{Rita}) \geq s_c(\text{definitely})}
\]

Note that this makes ‘definitely’ context-sensitive in two dimensions: in what probability function is relevant, and in what high threshold of probability is relevant. This predicts, correctly, that ‘definitely’ can be subject to discourse-oriented uses targeting either or both dimensions. In using ‘definitely’, speakers can manage their assumptions about the probabilities of ordinary worldly propositions, or about the relevant threshold, or both. This suggests a natural way of integrating the account of gradable adjectives and vagueness in this chapter with the account of epistemic modals in Chapters 3–4 in forming a broader Discourse Contextualist account of gradable (epistemic) modals. (We will return to epistemic adjectives briefly in the next chapter.)

This (very!) preliminary discussion suggests a strategy for providing an account of higher-order vagueness without recourse to a definiteness operator or vague metalanguage. This would constitute an important advantage over prominent alternative accounts. That said, the implementation still turns on the apparent gradability of modifiers like ‘definitely’. What to say about non-gradable expressions that appear to exhibit vagueness still waits to be seen. Detailed investigation of gradability and various kinds of degree modifiers must also be left for future work.

### 6.4.3 Vagueness and degree semantics

§6.3 diagnosed vagueness phenomena as a consequence of using language with a precise semantics in typical concrete contexts marked by indecision about what stan-
dards to accept. An alternative is to build vagueness into the formal degree semantics itself. Though I have been assuming a degree semantics on which degrees and degree standards are represented as points on scale (§6.2.1), this implementation wasn’t forced upon us. One alternative would be to treat degrees and degree standards as sets of points, perhaps (fuzzy) intervals, with the size of the (fuzzy) interval representing a measure of granularity or imprecision. However, I suspect that this move may be of limited long-term value for representing vagueness in the semantics. For instance, it invites the question of whether overall standards map adjective denotations to intervals of a specific size (or, on the fuzzy interval option, to intervals whose elements are associated with a precise real-valued degree of membership). The dialectic about higher-order vagueness is then off and running. The prospects for this kind of approach will depend on more general issues concerning (e.g.) the semantics and pragmatics of granularity and approximate interpretations, the relation between imprecision and vagueness, the putative advantages of retaining a classical logic and semantics, and the treatment of higher-order vagueness.

Another interesting alternative might involve treating scales as having the structure of a semiorder (Luce 1956). Semiorders have been used fruitfully in choice theory for modeling intransitive indifferences and in measurement theory for modeling inexact measurements. The apparent intransitivity that leads to the sorites paradox raises the possibility that semiorders might also be helpful in modeling the meanings of gradable adjectives. It is interesting that Fara’s (2003) semantics for gradable adjectives utilizes a relation of “being significantly greater than,” which is precisely the interpretation typically given to semiorders in preference theory and measurement theory. This strategy for giving a logic and semantics of vagueness, as it arises with gradable expressions, warrants careful investigation. We will return to it in the next chapter.

Chapter 7

Extension III: Predicates of Personal Taste and Evaluation

This final chapter examines a class of CR-expressions that has received much attention in contextualism/relativism debates: so-called “predicates of personal taste” (PPTs), like ‘fun’ and ‘tasty’. The interpretation of PPTs combines features of gradable adjectives and deontic modals considered in Chapters 5–6. As such PPTs provide a nice way of rounding out the applications of Discourse Contextualism examined in this book. Though many PPTs are gradable adjectives, there are also verbs which seem intuitively similar in expressing personal tastes — e.g., ‘rocks’, as in ‘That roller coaster rocks!’ To keep the discussion manageable I continue to focus specifically on gradable adjectives.

I will argue that PPTs are distinguished from the gradable adjectives considered in Chapter 6 in being context-sensitive along two relevant dimensions (§§7.1–7.2). Like other gradable adjectives, PPTs are sensitive to a contextually supplied degree standard when in the positive form. However, I show that the distinctive discourse properties and embedding behavior characteristic of CR-expressions occurs with PPTs not only in predicative uses but also in non-predicative constructions, like comparatives. With PPTs, the adjective itself, and not simply the positive form, is context-sensitive. It is sensitive to a contextually supplied body of tastes — what I will call an evaluational perspective.

I show that these two loci of context-sensitivity associated with PPTs give rise to two distinct kinds of vagueness phenomena (§7.3). PPTs give rise to sorites series which differ in a crucial respect from the sorites series considered in Chapter 6 with
These two kinds of sorites series haven’t been clearly distinguished in the literature. Vagueness phenomena with PPTs raises special challenges for the treatment of vagueness developed in Chapter 6.

The literature on PPTs in philosophy of language and formal semantics has focused on a surprisingly limited range of expressions — ‘tasty’, ‘fun’, and, well, that pretty much covers it. This narrow focus has led to hasty generalizations and problematic theoretical conclusions about the syntax and semantics. Focus on PPTs apparent “subjectivity” has led many theorists to eschew examining how their theories may apply to other types of broadly normative language. I will argue that this restriction of attention is misplaced. PPTs are an instance of a more interesting general category of (what I call) evaluational predicates (§7.4). This includes PPTs, aesthetic predicates, moral predicates, and even epistemic predicates, among others. These expressions can be given a unified Discourse Contextualist formal semantics and pragmatics. Apparent differences among them in “subjectivity” can be located at the level of metasemantics (§7.5). These metasemantics differences can lead to various differences in patterns of use. I consider four, as concerning first-person experience requirements, attitude-dependence, Yalcin-style “evaluative contradictions,” and discourse disagreements.

Considering the broader range of evaluational adjectives poses problems for certain alleged diagnostics of PPTs and “subjectivity” (§7.6). I focus on one such diagnostic: the felicity of embedding under ‘find’. More careful attention to context shows that we see felicitous embedding under ‘find’ with a variety of adjectives, not all of which we might intuitively classify as “subjective” or as concerning matters of taste. I suggest that we characterize felicitous embedding under ‘find’ not in terms of subjectivity, but in terms of a specific sort of use of a context-sensitive complement. The discussions in this book of the varieties of context-sensitive uses of language shed light on the broader array of embedding data with ‘find’.

Investigating evaluational adjectives sheds light on the varieties of evaluative resources which language affords. The hope is that the preliminary discussion in this chapter may serve as a helpful corrective to the literature's preoccupation with ‘fun’ and ‘tasty’. Examining the broader spectrum of examples can suggest more fruitful directions for the dialectic and new avenues for future research.

7.1 Three sources of context-sensitivity

Predicates of personal taste (PPTs) such as ‘fun’ and ‘tasty’ are gradable adjectives. Like other gradable adjectives they are interpreted with respect to the contextual
body of standards variable $s$ introduced in Chapter 6. Consider ‘tasty.’ The value of $s$ given a context maps the denotation of ‘tasty’ to a degree standard of tastiness—the least tastiness something can have for it to count as tasty. Speakers can adjust the degree standard of tastiness in using ‘tasty’ much as they adjust the degree standard of height in using ‘tall.’ Suppose we are sampling ice cream cakes for a friend’s birthday. We try one and have similar gustatory experiences. If you say (1) and I accept, this ensures that the standard of tastiness in the context is set to a degree at least as great as the cake’s agreed-upon degree of tastiness.

(1) This cake is tasty.

There may of course be multiple such candidate degree standards of tastiness compatible with what has been accepted in the conversation thus far. Accepting (1) needn’t commit us to a particular degree standard of tastiness any more than accepting ‘Alice is tall’ need commit us to a particular degree standard of height.

What degree standard of tastiness to accept can become subject to negotiation. Even if we settle that by ‘tasty’ we mean “tasty for an ice cream cake,” have the same gustatory experiences, and agree on the relevant circumstances, this needn’t resolve our dispute in (2).

(2) 
Me: This cake is tasty.
You: No it isn’t. Let’s keep looking. We can find a better cake for Chip.

We disagree about about how tasty a cake needs to be for it to count as tasty.

So far, so familiar. What distinguishes PPTs from the gradable adjectives considered in Chapter 6 is that their typical discourse-oriented use isn’t to manage the relevant degree standard. It is to manage what degree of the relevant property (tastiness, fun) things have in the first place. Unlike in (2), the basis of our disagreement in (3) needn’t concern what standard of tastiness to accept, i.e. what degree of tastiness something needs to have for it to count as tasty.

(3) 
Me: This cake is tasty.
You: No it isn’t. It’s gross. It’s way too sweet.

We may agree that things count as tasty only if they have such-and-such degree of tastiness. Our disagreement is about how tasty the cake even is. The disagreement targets, not the value of $s$ given tasty (the degree standard of tastiness), but the value of tasty given the cake (the cake’s degree of tastiness). The basis of our disagreement is what measure function to associate with ‘tasty’; it concerns the identity of tasty itself.
One way of bringing out this point is to look at comparatives. First, the context-sensitivity of ‘tall’ dissipates in the comparative, as reflected in (4).

(4) [Context: A and B agree about everyone’s heights — say, that Alice is 70″ and Bert is 67″ — and about all other relevant worldly facts.]
   A: Alice is taller than Bert.
   B: No, Bert is taller than Alice.

It is hard to imagine what could be at issue between A and B in (4). The context-sensitivity of PPTs, by contrast, persists in the comparative. (5) is subject to the same sort of contextual negotiation as (1), as reflected in (6).

(5) Alice’s cake is tastier than Bert’s.
(6) Me: Alice’s cake is tastier than Bert’s.
    You: No way. Alice’s is too sweet. Bert’s cake is right on the money.

The comparative uses in (6) seem to depend on context in precisely the same way as the predicative uses in (3). They depend on a relevant body of tastes — what I will call a taste perspective.

A second motivation for distinguishing the context-sensitivity of PPTs concerns their embedding behavior under certain types of attitude verbs. Many have observed that the matrix verb ‘find’, in constructions of the form ‘find x PRED’, only licenses complements exhibiting certain kinds of context-sensitivity. Complements with context-insensitive predicates like ‘vegan’ or ‘prime’ are infelicitous:

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1Some have argued that comparatives with ordinary gradable adjectives can be vague (e.g., WILLIAMSON 1994, KEEFE 2000, SASSOON 2013b). Even if this is right, it doesn’t speak against the present contrast between ‘tall’ and ‘tasty’. The context-sensitivity of ‘tasty’ in (5) concerns what tastes to adopt. It would remain if we fixed on a relevant measure of granularity/imprecision in mapping objects to their degrees of tastiness. I return to vagueness in comparatives with PPTs in §7.3.

2See esp. SÆBØ 2009, BOUCHARD 2012, BYLININA 2014; see also STEPHENSON 2007c, KENNEDY 2013, MCNALLY & STOJANOVIC 2014. The relevant sense of ‘find’ is the one which licenses small clauses and is stative. There are other senses of ‘find’ which lack the apparent restriction to certain sorts of context-sensitive complements, as in (i)–(ii).

(i) After closely examining the contents of my dish, I found my trippa alla romana to be vegetarian, and so not actually trippa alla romana at all. (KENNEDY 2013: 261n.6)

(ii) A research team based at Princeton University found that physical activity reorganizes the brain so that its response to stress is reduced and anxiety is less likely to interfere with normal brain function. (www.lifescience.net/news/60/exercise-reorganizes-the-brain-to-be-more-resilient)
It is contentious precisely what types of complements are licensed under ‘find’. We will address this issue in §7.6. For the moment I simply want to highlight the following contrast. Although certain predicative uses of ‘tall’ are felicitous under ‘find’, as reflected in (9), comparative uses, like in (10), are generally infelicitous.

(9) [Context: Some adolescents are talking about who has and hasn’t had a growth spurt yet. They mention Robb, who shot up four inches over the summer alone. Ed, trying to play this off like it’s nothing, says that Robb “isn’t tall” (for a boy in their grade) — he’s “only” 5’7”. Height is quite the point of pride, after all, and Robb isn’t cool enough to be in their group. Most of the other kids go along with Ed, but Sam won’t have it. He says:] You might not find Robb tall. But I find him tall.

(10) #I find Robb taller than Ed.

Positive and comparative uses of PPTs, by contrast, are equally felicitous under ‘find’:

(11) Fritz finds the cake tasty.

(12) Fritz finds Alice’s cake tastier than Bert’s cake.

We will return to the basis for this contrast in §7.6. What is important here is that the context-sensitivity of PPTs isn’t rooted simply in a feature of the positive form.

Finally, with some adjectives, perspective-sensitivity can be rooted in part in multidimensionality (ch. 6 n. 5). For instance, whether a cake counts as tasty can depend on various factors — sweetness, richness, texture, etc. Which dimensions are relevant, and how they compare, can depend on context and become subject to negotiation, as in (13).

(13) Me: Alice’s cake is tastier than Bert’s. It’s nice and sweet.

You: No, Bert’s cake is tastier. You’re a sugar fiend. Sweetness counts for something, but texture is more important. Bert’s cake hits it right on the money.

However, this third kind of context-sensitivity — call it dimensional-sensitivity — is neither necessary nor sufficient for perspective-sensitivity with PPTs. It isn’t sufficient, since there are non-evaluative multidimensional adjectives. Whether something counts as ‘large’, for instance, can depend on some combination of its height...
or volume. Dimensional-sensitivity also isn’t necessary. The disagreements in (3) and (6) can occur even if we agree that there is a single relevant dimension of tastiness. We may simply disagree about what this dimension is; or we may agree on the dimension, but disagree about the cakes’ respective measures of it.

We have seen three potential sources of context-sensitivity in uses of adjectives: standard-sensitivity, or sensitivity to a relevant degree standard; perspective-sensitivity, or sensitivity to a relevant body of tastes; and dimensional-sensitivity, or sensitivity to a relevant set of dimensions and weights. These loci of context-sensitivity have not been consistently distinguished in the literature. (Hereafter, since dimensional-sensitivity is neither necessary nor sufficient for the sort of distinctive context-sensitivity associated with PPTs, for simplicity I will bracket complications from multidimensionality and assume that PPTs are associated with a single scale and dimension. We will briefly return to issues concerning multidimensionality in §7.6.)

7.2 Matters of taste in discourse and thought

I have argued that PPTs are sensitive to a body of tastes, or taste perspective. A contextualist treats the relevant taste perspective as supplied from the context of utterance as figuring in the semantic contents of PPTs (see ch. 1 n. 1). One way of implementing this in the present degree-semantic framework is as follows.

The lexical semantics of ‘tall’ determines a particular measure function tall as its semantic value; what heights things have isn’t up for contextual negotiation. ‘Tasty’, by contrast, can be treated as semantically associated with a context-dependent measure function. The adjective itself, and not simply its positive form, is context-sensitive. Semantic competence with ‘tasty’ requires a capacity to map objects to their degree of tastiness given a certain body of tastes. No particular mapping from objects to their degree of tastiness is built into the linguistic meaning of ‘tasty’. As far as conventional meaning is concerned, the relevant tastes in (1) or (5), and hence the sentences’ semantic contents, may vary across contexts even if all the relevant worldly facts — e.g., concerning the cakes’ microphysical properties — remain constant.

For instance, Barker 2013, Bylinina 2014, McNally & Stojanovic 2014 treat PPTs as essentially multidimensional and diagnose their context-sensitivity (at least partly) in these terms. For accounts which, in my view, fail to clearly distinguish standard-sensitivity and perspective-sensitivity, see, e.g., Glanzberg 2007, Barker 2013. For observations about the context-sensitivity of PPTs going beyond the standard-sensitivity associated with the positive form, see Ballweg 1983: 73, Laser-Sohn 2008: 308, Bouchard 2012: 211–212, Fleisher 2013, Kennedy 2013, Sassoon 2013 B: 122–123, Bylinina 2014: ch. 2, MacFarlane 2014: 2–3; n. 7. However, these authors either don’t offer a specific formal semantics, or pursue different implementations from the ones developed below.
Call a measure function from objects to their degree of tastiness a *taste perspective*. Expressive uses of 'tasty' call for a taste perspective variable $T_t$ that represents the tastes endorsed for the purposes of conversation.*⁴ (This variable might be linked to a discourse-level parameter for a sequence of perspectives (taste perspectives, fun perspectives, etc.).) The value of $T_t$ given a context $c$, $T_c$, maps objects to their (maximal) degree of tastiness, according to the tastes endorsed in $c$. When $T_t$ occurs free, a value must be contextually supplied for the adjective to have a specific interpretation in context. Accordingly, an utterance of (1) 'This cake is tasty' (a) assumes values for $T_t$, $T_c$, and $s_c$ — a taste perspective and degree standard for tastiness — and (b) asserts that the cake's degree of tastiness according to $T_c$ is at least as great as the degree of standard of tastiness given by $s_c$, as reflected in (14), where $k$ is the object denoted by 'this cake' in $c$.

(14) (1) is true given $c$ iff $T_c(k) \geq s_c(T_c)$

For the comparative in (5), the context-dependence associated with the positive form is absent, but the perspective-sensitivity associated with the adjective remains. (5) assumes a value for $T_t$, $T_c$, and asserts that this taste perspective maps Alice's cake to a greater degree of tastiness than Bert's, as reflected in (15), where $a$ and $b$ are Alice's and Bert's cakes, respectively.

(15) (5) is true given $c$ iff $T_c(a) > T_c(b)$

Unlike with 'tall', the context-sensitivity of 'tasty' arises from the semantics of the lexical item itself and hence is present in both positive predications and comparatives.*⁵

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*As in the previous chapters, for concreteness I couch the account in terms of variables. For related discussion about whether PPTs take an experiencer/judge argument, see esp. Lasersohn 2005, 2009, 2008, 2007, 2009; Sæbø 2009; Glanzberg 2007, 2009; Schaffer 2011; Collins 2013; Bylinina 2014; see also Stephens 2007b; Stojanovic 2007; Molmants 2014, 2012; Bouchard 2012; Pearson 2013, McNally & Stojanovic 2014. The perspective variables utilized here could be understood as filling an argument place for an experiencer/judge in uses where no experiencer is linguistically specified (as by a 'to'/'for'-phrase). In the present framework a judge could serve as the locus of an evaluational perspective. To streamline the semantics I avoid introducing this middleman.

*To simplify discussion I continue to bracket complications from intensionality and world-indexing overall standards and taste perspectives. In §7.1 we noted that measures of taste (cleverness, largeness, etc.) can sometimes depend on multiple dimensions. Which dimensions are relevant and how they compare can become subject to negotiation. This suggests that multidimensional adjectives in general also have context-sensitive measure functions. There are difficult questions about how exactly to implement this in the syntax and semantics. One option would be to treat context as supplying a triple of a set of dimensions (properties) $D$, a (possibly partial) preorder $\preceq$ on $D$ representing the relative priority of these dimensions, and a function $f$ mapping this preordered set $(D, \preceq)$ to the
The above semantics treats predicative uses of PPTs as interpreted with respect to two contextual variables: they are sensitive not only to a contextually relevant body of standards, like other positive form gradable adjectives, but also to a contextually relevant taste perspective. This correctly predicts that PPTs can be used to manage speakers’ assumptions about what tastes to accept, what standards to accept, or both, depending on the context. I will spare the reader from explicitly considering examples for each combination. For space purposes I will simply work through one example — a use of (1) that is discourse-oriented along both dimensions of context-sensitivity. This example can provide a model for the other kinds of use. The central explanatory mechanisms parallel those given in greater detail in Chapters 3–6; I won’t reproduce them here.

Suppose we haven’t settled on how tasty the cake is. For all we have said, the cake’s degree of tastiness might be 5, 8, or 9. (I will use integers to represent degrees on a tastiness scale.) We also haven’t settled on a precise standard of tastiness. Standards between 7 and 9 are live possibilities. A simplified representation of the state of the conversation is given in (16), where CS is the prior context set, \( T_n \) indicates that the cake’s degree of tastiness \( T_n(k) = n \), and \( s_n \) indicates that the degree standard of tastiness \( s_n(T) = n \). (Assume the cake’s physical properties are the same in each world.)

\[
(16) \quad CS = \{w_1, \ldots, w_9\}
\]

<table>
<thead>
<tr>
<th>Value for ( T_1 )</th>
<th>Value for ( s )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( w_1 : ) ( T_1^{c_{w_1}} = T_5 )</td>
<td>( s_{c_{w_1}} = s_7 )</td>
</tr>
<tr>
<td>( w_2 : ) ( T_1^{c_{w_2}} = T_8 )</td>
<td>( s_{c_{w_2}} = s_7 )</td>
</tr>
<tr>
<td>( w_3 : ) ( T_3^{c_{w_3}} = T_9 )</td>
<td>( s_{c_{w_3}} = s_7 )</td>
</tr>
<tr>
<td>( w_4 : ) ( T_1^{c_{w_4}} = T_5 )</td>
<td>( s_{c_{w_4}} = s_8 )</td>
</tr>
<tr>
<td>( w_5 : ) ( T_5^{c_{w_5}} = T_8 )</td>
<td>( s_{c_{w_5}} = s_8 )</td>
</tr>
<tr>
<td>( w_6 : ) ( T_6^{c_{w_6}} = T_9 )</td>
<td>( s_{c_{w_6}} = s_8 )</td>
</tr>
<tr>
<td>( w_7 : ) ( T_1^{c_{w_7}} = T_5 )</td>
<td>( s_{c_{w_7}} = s_9 )</td>
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<td>( w_8 : ) ( T_8^{c_{w_8}} = T_8 )</td>
<td>( s_{c_{w_8}} = s_9 )</td>
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<tr>
<td>( w_9 : ) ( T_9^{c_{w_9}} = T_9 )</td>
<td>( s_{c_{w_9}} = s_9 )</td>
</tr>
</tbody>
</table>

measure function associated with the adjective. Alternatively, one might leave such additional structure for an extra-semantic account of how speakers settle on multidimensional adjectives’ measure functions in context, and treat PPTs and non-evaluative multidimensional adjectives as semantically alike in having context-dependent measure functions, as determined by a relevant type of perspective variable. Given our purposes, in what follows I will bracket potential complications in the semantics from multidimensionality, and stick with the simpler semantics in the main text. (For further discussion, see, e.g., Sassoon 2013b, Bylinina 2014, Silk 2015a.)
Upon hearing an utterance of (1) ‘This cake is tasty’ one will try to infer values for \( T_t \) and \( s \) which render the utterance true and appropriate. For each possibly relevant world, one checks whether the cake’s degree of tastiness, given the contextually determined taste perspective in that world, is at least as great as the degree standard of tastiness determined by the context in that world. Assuming the speaker is being cooperative, one can infer that she must be assuming that the discourse context isn’t represented by \( c_1, c_4, c_7, \) or \( c_8, \) and thus that \( w_1, w_4, w_7, \) and \( w_8 \) aren’t in fact live possibilities. If no one objects, the context set will be set to \( \{ w_2, w_3, w_5, w_6, w_9 \} \), i.e. the set of relevant worlds \( w \) such that the cake’s degree of tastiness in \( w \), \( [T_t]^{\omega}(k) \), is at least as great as the degree standard for tastiness determined by \( [s]^{\omega} \) given \( [T_t]^{\omega} \).

There is an important feature of this example that I would like to highlight. Our updating with (1) settles neither on the cake's degree of tastiness nor on the relevant degree standard (though it does rule out certain combinations thereof). For all we are presupposing, the cake might be tasty to degree 8 or 9, and the degree standard of tastiness might be 8 or 9. Our indecision targets both dimensions of context-sensitivity in ‘tasty’. This feature of the example brings out a surprising prediction of our degree-based Discourse Contextualist treatment of PPTs concerning vagueness with PPTs. We will examine this prediction in the next section.

In Chapters 3–5 we distinguished expressive and non-expressive uses of epistemic and deontic modals. A modal is used expressively, recall, if it presents the speaker as endorsing the considerations that would verify the modal claim. It is used non-expressively if it doesn’t present the speaker in this way. A similar distinction is available with uses of PPTs. So far we have focused on expressive uses of PPTs. Expressive uses of ‘tasty’ call for the discourse-level taste perspective variable, \( T_t \), which represents the tastes endorsed in the conversation. An expressive use of (1) doesn’t simply make a claim about what is tasty according to a certain perspective on taste; it assumes that this perspective is endorsed in the conversation. Non-expressive uses, by contrast, correspond to intuitively contextualist readings — readings where the PPT is interpreted as if there was an implicit prepositional phrase (‘to/for NP’). PPTs readily allow non-expressive uses given a suitably salient taste perspective, as in (17). B’s utterance may be paraphrased as in (18).

\[
\begin{align*}
(17) & \quad A: \quad \text{How’s that new brand of cat food you bought?} \\
& \quad B: \quad \text{It’s really tasty. Our cats have been eating it all up.} \\
(\text{cf. Stephenson 2007b: ex. 34})
\end{align*}
\]

The new brand of cat food tastes good to the cats.

(Further, it is possible that certain PPTs may be used to make claims about the speaker more often than other CR-expressions, which are typically used to express the speaker’s state of mind (cf. §§ 3.3.4, 4.2.3). This would be in keeping with the intuition that “there are plenty of cases where one of a pair of people says ‘That is fun’ and the other, referring to the same thing, says ‘That is not fun’, but where we have no significant intuition of contradiction between the two assertions” (Cappelen & Hawthorne 2009: 109; cf. Stanley 2005: 144n.9). Consider (19).

[Context: A and B are going to a party tonight. A has to be the caterer.]

A: The party isn’t going to be fun. I have to cook hors d’oeuvres all night.

B: Bummer. It’s going to be fun for me. I get to meet lots of school buddies that I haven’t seen in a long time.

(cf. Cappelen & Hawthorne 2009: 109)

One diagnosis of this example is that A isn’t intending to presuppose a body of commonly endorsed tastes, and B’s use of ‘for me’ is simply making explicit what is implicit in A’s claim. On this diagnosis, although there is pressure for B to add the overt speaker-relativization, this is simply to ward off a potential misunderstanding of disagreement. That said, we shouldn’t underestimate the degree to which speakers presuppose common perspectives, at least for purposes of conversation, in interpretation generally (see, e.g., Barr & Keysar 2005, Kecskes 2008). One might diagnose (19) as a case where A’s utterance is expressive, and, although it is implicitly rejected by B, both speakers readily fall back on speaker-relativized claims as a point of agreement. We will return to this phenomenon in §7.5.)

Non-contextualists about PPTs grant that PPTs can sometimes receive contextualist interpretations, as in (17)–(18) (and arguably (19)). The present Discourse Contextualist account has the advantage of giving ‘tasty’ as it occurs in (3) and (17)–(18) a unified contextualist semantics. Like expressive uses, non-expressive uses of PPTs are interpreted with respect to a contextually supplied perspective. The difference lies in what taste variable occurs; conversational differences follow in turn. The non-expressive use in (17) calls for a variable $T_{cats}$ that refers to the cats’ tastes. Thankfully, these tastes needn’t be endorsed in the discourse context. The truth conditions for (17) can be given as in (20), where $b$ is the new brand of cat food.

(20) (18) is true given $c$ iff $T_{cats}(b) \geq s_c(T_{cats})$

B’s non-expressive use of ‘tasty’ in (17) simply describes what tastes good to the cats.
Pearson (2013: 12–13) objects to Stephenson’s (2007b) relativist semantics for PPTs that it cannot account for “mixed” expressive and non-expressive uses (in my terminology). She argues that Stephenson’s view cannot capture how your utterance in (21) “carries commitments” about both your and Mary’s tastes.

(21) [Context: You are watching Mary enjoying a piece of cake and infer from her behavior that the cake must be tasty. You say:]
The cake must be tasty, because Mary seems to be enjoying it.

No such objection applies to the Discourse Contextualist account developed here (see §3.3.5 for analogous examples with epistemic modals). Intuitively, your uses of ‘must’ and ‘tasty’ in (21) are both expressive: they express what information and tastes you endorse. ‘Must’ is interpreted with respect to the discourse-level epistemic premise set variable $P_e$, and ‘tasty’ is interpreted with respect to the discourse-level taste perspective variable $T_t$. Roughly put, the asserted content of your utterance is that for all relevant worlds $w$ compatible with $P_e$, the cake counts as tasty by the endorsed tastes in $w$, $T_{t_e}$. The commitment about Mary’s tastes follows from the evidential basis for your assertion about the tastiness of the cake. The implicit premise can be reflected in a bridge principle that relates Mary’s tastes to the tastes endorsed in the context — e.g., that what tastes good to Mary is tasty (more formally, that if $T_M(x) \geq s_M(x)$, then $T_c(x) \geq s_c(x)$). Hence, we can capture how your utterance in (21) updates the possible values of both $T_t$ and $T_M$ — the former via the use of ‘tasty’, the latter via the implicit grounds for your assertion. Others’ tastes sometimes bear on what tastes to accept ourselves.

This point can also help us capture the core intuition driving generic analyses of PPTs — namely, that it is sometimes “rational to give evidence on which to base one's opinion about whether [something] is tasty and... rational to ask a third party for theirs” (Pearson 2013: 19; cf. Keshet 2005, Moltmann 2010, 2012). We can capture the relevance of others’ views in matters of taste without treating PPT ascriptions themselves as claims about what is “tasty [fun, etc.] to people in general.” This is for the better given the contrasts between PPTs and generics, noted even by Pearson herself (2013: 18–21, 38–42; cf. Lasersohn 2003: 653–654, Stephenson 2007c: 55–58). Sometimes we just take facts over and above our own subjective gustatory experiences as relevant to what taste perspective (value for $T_t$) to endorse. (We will return to this point in §7.5.)

Contrary to what Pearson seems to assume, embedding the PPT under an epistemic modal isn’t necessary to raise the worry, but I will follow her specific example.
The distinction between expressive and non-expressive uses also appears in attitude ascriptions with PPTs, as it does with other CR-expressions. The non-expressive use in (22) simply ascribes to B a belief about the cats’ tastes — namely, that $T_{cats}(b) \geq s(T_{cats})$, i.e. that the cat food $b$’s degree of tastiness, according to the cats, is at least as great as the relevant threshold for tastiness.

(22)  $B$ thinks the cat food is tasty.

In contrast, expressive uses of PPTs in attitude ascriptions present the subject of the attitude as endorsing the tastes that verify the embedded clause (see §§4.2.1–4.2.2). The relevant taste perspective in (23) is Ricardo’s.

(23)  Ricardo thinks the cake is tasty.

On this reading the value of the taste perspective variable $T_t$ is locally accommodated in the context of Ricardo’s belief state. Using (23) assumes that Ricardo’s tastes characterize a taste perspective $T_R$, which serves as the value for $T_t$, and ascribes to Ricardo the belief that $T_R(k) \geq s_R(T_R)$ (also assuming a locally accommodated value for $s$). Ascribing this belief to Ricardo using (23) communicates something about his tastes because of how the presuppositions of $T_t$ are assumed to be locally satisfied.

7.3 Vagueness with PPTs

In Chapter 6 I argued that indecision concerning what degree standards to accept can in certain contexts lead to paradigmatic vagueness phenomena. Treating PPTs as sensitive to two degree-based contextual parameters would seem to predict that we should see vagueness phenomena with PPTs associated with both of these dimensions of context-sensitivity. In particular, by treating PPTs as subject to a degree-based context-sensitivity that goes beyond the familiar standard-sensitivity associated with the positive form, we predict that PPTs should give rise to vagueness phenomena in comparatives. This would be surprising; it is often denied that comparatives give rise to vagueness.

These denials are incorrect.

Suppose the only factor that we care about in assessing how good cake tastes is sweetness. Up to a point at least, the sweeter the better. An ordinary bakery cake tastes better than a cake without any sugar at all (if such there be). Alas, however, our powers of discrimination concerning sweetness are limited. Adding one microgram

\[^{8}\text{E.g., COOPER 1993: 246; KENNEDY 2011: 74, 93; VAN ROOIJ 2011a: 65–69 (though cf. n. [1]).}\]
\[^{9}\text{Cf. ARMSTRONG 1939, 1948, LUCE 1956 for related classic discussions in preference theory.}\]
of sugar to a cake won’t make it taste better. These points seem plausible enough. But they seem to entail that any cake with even a modicum of detectable sweetness is the tastiest cake. Let \( x_K \) be an arbitrary cake with an ordinary amount of sugar, \( x_0 \) be a cake with no sugar, and \( x_n \) be a cake with \( n \) micrograms of sugar:

\[(24) \text{ Comparative Sorites (A)} \]

- (P1) \( x_K \) tastes better than \( x_0 \).
- (P2) For all \( n \), \( x_n \) tastes as good as \( x_{n+1} \).
- (P3) For all \( a, b, c \), if \( a \) tastes better than \( b \), and \( b \) tastes as good as \( c \), then \( a \) tastes better than \( c \). (PI-transitivity)
- (C) \( \vdash \) For all \( n \), \( x_K \) tastes better than \( x_n \).

Alternatively, we could combine premises (P2) and (P3) as follows — you can rest easy, if your cake lost in the bake-off, it still would have lost even if you had added one microgram of sugar to it.

\[(25) \text{ Comparative Sorites (B)} \]

- (P1) \( x_K \) tastes better than \( x_0 \).
- (P2′) For all \( n \), if \( x_K \) tastes better than \( x_n \), then \( x_K \) tastes better than \( x_{n+1} \).
- (C) \( \vdash \) For all \( n \), \( x_K \) tastes better than \( x_n \).

Penchants for revisionism aside, ‘tastes better than’ isn’t symmetric: \( x_K \) doesn’t taste better than itself. Moreover our choice of \( x_K \) was arbitrary. This implies that every cake that tastes better than a cake without any sweetness is itself the tastiest cake. But not every cake can taste the best. Such is life.

Let’s reformulate these comparative sorites arguments in terms of the formal semantics from §7.2. Given a constant context \( c \), the contents of the arguments in \[(24)\)–\((25)\] are as follows:\( ^{10} \)

\[(26) \]

- (P1) \( T_c(x_K) > T_c(x_0) \)
- (P2) \( \forall n[T_c(x_n) = T_c(x_{n+1})] \)
- (P3) \( \forall a \forall b \forall c[(T_c(a) > T_c(b)) \land (T_c(b) = T_c(c)) \rightarrow (T_c(a) > T_c(c))] \)
- (C) \( \vdash \forall n[T_c(x_K) > T_c(x_n)] \]

\[(27) \]

- (P1) \( T_c(x_K) > T_c(x_0) \)
- (P2′) \( \forall n[(T_c(x_K) > T_c(x_n)) \rightarrow (T_c(x_K) > T_c(x_{n+1}))] \)
- (C) \( \vdash \forall n[T_c(x_K) > T_c(x_n)] \)

\(^{10}\)I assume an “equally good” reading of the equative (see Bhattacharyya & Pancheva 2007, Rett 2008 for discussion).
As with the original version of the sorites paradox, the challenge is to explain where the argument goes wrong and yet why it seems so compelling (§6.3.1). We know that the first premise is true and the conclusion false. But \((P_2)/(P_3)\) (on the A-version of the argument) and \((P_2')\) (on the B-version) seem essential in reflecting our limited capacities of distinguishability in matters of taste. Further, note that PI-transitivity is simply a weakening of the transitivity of ‘tastes at least as good as’. Given the degree semantics for gradable adjectives, denying \((P_3)\) would require rejecting the transitivity of scales. This is incompatible with standard assumptions about scale structure in contemporary degree semantic frameworks.

In sum, then, the comparative sorites paradox is this: \((P_1)\) is true. Denying \((P_2)\) would seem to ascribe to us powers of discernibility unfit for mere mortals, and \((P_3)\) is simply a weakening of transitivity. \((P_2')\) encodes these dual properties. Moreover the argument seems valid. And yet the conclusion \((C)\) is false.

I assume that accepting the truth of \((P_1)\), the falsity of \((C)\), and the validity of the arguments is non-negotiable. We will consider possible revisions to the general degree semantic framework below; for the moment, however, let’s assume, for the sake of conservativeness, a standard representation of scales. This leaves only \((P_2)/(P_2')\) as possible culprits. Prima facie, the situation here doesn’t seem dissimilar to the situation with the ordinary version of the sorites paradox. This shouldn’t be surprising; the B-version of the argument in \([25]\) has the same surface form as the sorites arguments in Chapter 6, with ‘tastes worse than \(x_K\)’ as the intuitively vague predicate. However, the comparative sorites with PPTs raises a distinctive challenge.

Our response to the sorites in Chapter 6 located the problem in the inductive premise. We treated the inductive premise as false given any abstract representation of context, though still acceptable in a certain specified sense in typical concrete contexts. Treating the inductive premise as semantically false was motivated by the idea that semantic competence with (e.g.) ‘\(x\) is rich’ requires being able to say whether it is true in a situation given a particular degree standard of richness. Typical contexts may leave open a range of candidate standards in such a way that makes the inductive premise with ‘rich’ seem plausible, but it is at least possible to settle on a precise standard of richness. One can coherently deny the inductive premise, throwing vagueness and worries about arbitrariness to the wind. Treating the compositional semantics as taking as given particular degree standards, while allowing multiple representations of context in concrete conversations, captures both of these features of the meaning and use of gradable adjectives like ‘rich’.

With PPTs, by contrast, there don’t seem to be analogous motivations either for treating the semantics as maximally discriminating/precise or for capturing vagueness phenomena in terms of some associated feature of contexts of use. On the se-
mantics side, it would seem to do violence to our ordinary notion of taste to require that tastes not be indifferent among alternatives which differ in the underlying property (e.g. amount of sugar) taken to be relevant for determining the taste property in question (e.g. tastiness). Sure enough, adjacent cakes $x_n$ and $x_{n+1}$ in the series differ in their microphysical properties; $x_{n+1}$ has one more microgram of the relevant sweetness-producing substance than $x_n$. But this needn't imply that $x_{n+1}$ tastes better than $x_n$. Plausibly it needn't have this implication even as an idealization. We can imagine an ideal super-taster who can distinguish the sweetness of adjacent cakes but simply doesn't take levels of sweetness corresponding to one microgram of sugar as significant enough to affect whether the one cake tastes better than the other. This speaks against building into the semantics that taste perspectives be maximally discriminating and opinionated in such a way that every taste perspective locate some falsifying instance of (P2)/(P2'). Likewise, on the pragmatics/vagueness side, it isn't just that (P2)/(P2') seem acceptable in typical contexts. Only a maximally opinionated super-taster could sincerely deny them. Abandoning concerns about vagueness and arbitrariness isn't sufficient for rejecting (P2)/(P2') and escaping the paradox.

So, we seem to be in a dilemma. On the one hand, the comparative sorites appears to be a special instance of the familiar sorites argument form. This would seem to favor giving the comparative sorites the same sort of diagnosis and treatment given in Chapter 6. Yet, on the other hand, the meanings of PPTs and the semantics of the comparative form seem to preclude us from doing so. Our concerns from §6.4.1 about tying vagueness phenomena too closely to specific features of positive form gradable adjectives may be coming back to haunt us.

I take this objection to pose a serious challenge. One possible response is to reject the worries described above with treating the taste perspectives utilized in the semantics as maximally discriminating. One might say something like this: “It is common to make idealizations in formal semantics and pragmatics for the purposes of representing speakers’ semantic competence and modeling how uses of language conventionally change discourse contexts. Of course we might be able to imagine a taste perspective that is “ideal” in the sense of being sensitive to even the smallest changes in sweetness, and yet fails to take every such change as significant with respect to tastiness. But for the purposes of the semantics we should put even this sort of perspective to the side. For the purposes of the semantics we should consider only “maximally ideal” taste perspectives that are maximally discriminating in such a way that excludes susceptibility to comparative sorites arguments. This doesn’t imply that there is no place for representations of ordinary tastes — tastes which either are insensitive to small differences in sweetness, or don’t always take them to be sufficient for affecting how tasty something is. Such tastes can be represented with
sets of maximally ideal taste perspectives. These sets can figure in the representation of concrete discourse contexts or states of mind in the usual ways, and the account of vagueness phenomena with PPTs in comparatives can proceed as in Chapter 6.

It would be nice if this reply was successful; but, I confess, I find it strained. Developing it would plausibly call for some more general theoretical account of the role of idealizations in formal semantics. This is a difficult issue, and I won't attempt to address it here. Instead in the remainder of this section I would like to sketch an alternative revisionary response, one which grants the above objections and revises the formal semantics accordingly. Questions about how to adjudicate among these options must be left for future research.

The strategy is to revise our degree semantics in such a way that permits taste perspectives to be less than maximally discriminating or opinionated. I noted in § 6.4.3 that semiorders have been used fruitfully in preference theory for modeling intransitive indifferences. Abstracting away from a specific interpretation in terms of preference, intransitive indifferences are what seem to underly the comparative sorites. The broader work in preference theory and measurement theory on semiorders may thus provide independently motivated apparatus to incorporate into the semantics.

One way of pursuing this strategy is to treat scales — or at least the scales associated with certain adjectives — in terms of semiorders. Very roughly: Suppose we continue to treat PPTs like ‘tasty’ as denoting measure functions, understood as functions from objects to degrees on a scale. But now we treat the domain of degrees as coming with a semiorder (rather than, say, a total order) — that is, we treat a scale as a structure $(D, >)$, where $D$ is the set of degrees and $>$ is a semiorder on $D$. Formally, a semiorder $>$ is an interval order that satisfies semitransitivity (Luce 1956, Scott & Suppes 1958):

$$
\text{(28)} \\
\text{Irreflexivity: } \forall x: x \not> x \\
\text{Interval-order: } \forall x, y, z, w: (x > y \land z > w) \rightarrow (x > w \lor z > y) \\
\text{Semitransitivity: } \forall x, y, z, w: (x > y \land y > z) \rightarrow (x > w \lor w > z)
$$

Equivalently, $>$ is a semiorder iff there is a real-valued function $f$ such that $x > y$ iff $f(x) > f(y) + \epsilon$, for some fixed positive number $\epsilon$. We can interpret $\epsilon$ a threshold of indifference. For the predicate ‘tasty’, the threshold of indifference $\epsilon$ represents an amount of sweetness relevant for distinguishing items with respect to their tastiness (still letting sweetness be the sole property relevant for tastiness). Intuitively, for degrees $x$ and $y$, ‘$x >_T y$’ says that the degree of sweetness $x$ is significantly more than

11See Luce 1956, Halpern 2008, van Rooij 2011a for alternative appeals to semiorders for capturing vagueness phenomena.
the degree of sweetness \( y \). From \( > \) we can then define an indifference relation \( \sim \): \( x \sim y \) iff \( x \not> y \land y \not> x \). Effectively, ‘\( x \sim_T y \)’ says that the difference in sweetness between \( x \) and \( y \) is less than the relevant threshold \( \epsilon \). Crucially, although \( \sim \) is reflexive and symmetric, it needn’t be transitive. To a first approximation, truth conditions for the comparatives and equatives can be given as follows (n. 110):

\[(29) \quad \text{‘a tastes better than b’ is true given } c \quad \text{iff } T_c(a) \succ_T T_c(b) \quad \text{iff } f_{T_c}(T_c(a)) > f_{T_c}(T_c(b)) + \epsilon\]

\[(30) \quad \text{‘a tastes as good as b’ is true given } c \quad \text{iff } T_c(a) \sim_T T_c(b) \quad \text{iff } |f_{T_c}(T_c(a)) - f_{T_c}(T_c(b))| \leq \epsilon\]

A response to the comparative sorites follows straightaway. We can (a) accept that \( T(x_K) >_T T(x_0) \) (that \( x_K \) tastes better than \( x_0 \)), and (b) allow that \( T(x_0) \sim_T T(x_i) \land \ldots \sim_T T(x_{K-1}) \sim_T T(x_K) \) (that adjacent cakes in the series aren’t distinguished with respect to tastiness), and yet (c) because of the intransitivity of \( \sim_T \), still maintain that \( T(x_K) \not> T(x_K) \) (that it’s not the case that \( x_K \) tastes better than itself). The inductive premise comes out false. Intuitively, the falsifying instance occurs when we reach a cake whose degree of sweetness is within the indifference threshold of sweetness (represented by \( \epsilon \)) from \( x_K \). More precisely, the falsifying instance occurs with a cake \( x_i \) such that \( f_{T_i}(T(x_K)) - f_{T_i}(T(x_{i+1})) = \epsilon \). For \( n = i \), \( x_K \) tastes better than \( x_i \) (since \( f_{T_i}(T(x_K)) > f_{T_i}(T(x_i)) + \epsilon \)), but \( x_K \) doesn’t taste better than \( x_{i+1} \) (since \( f_{T_i}(T(x_K)) = f_{T_i}(T(x_{i+1})) + \epsilon \)).

But if the inductive premise is false, why are we so inclined to accept it? What should we say about the apparent sharp boundary between cakes that taste worse than \( x_K \) and cakes that don’t? There are several things one might say here. One might say that we find the inductive premise compelling because we fail to distinguish it from the true claim that adjacent cakes in the series are indistinguishable with respect to tastiness, i.e. that \( T(x_0) \sim_T T(x_i) \land \ldots \sim_T T(x_{K-1}) \sim_T T(x_K) \). Second, the value \( \epsilon \) locates a place for assimilating the treatment of the comparative sorites with the account of vagueness as contextual indecision developed in the last chapter: we can apply our remarks about overall standards to the threshold of indifference value \( \epsilon \).

Suppose we treat the indifference threshold as a contextual parameter, \( \epsilon_c \), with different contexts determining different levels of indifference. Intuitively, the greater the value of \( \epsilon \), the less distinguishing we are in levels of sweetness — either because we can’t detect smaller differences in sweetness, or because we don’t take them to be
significant enough for measuring tastiness. For the maximally opinionated super-
tasters among us, context may supply a value of $\epsilon_c = 0$. This is the limiting case. For
the rest of us, context supplies $\epsilon_c > 0$ and the comparative sorites is off and running.
The account of vagueness phenomena with comparatives can then proceed in the
manner of the account in Chapter 6. In brief: Although the compositional seman-
tics takes as given a particular threshold value $\epsilon_c$, our purposes typically don't re-
quire us to commit for the remainder of the conversation to a particular such value.
Given speakers’ indecision, there will typically be a range of suitable values for $\epsilon$.
Consequently, typical contexts will be characterized by borderline cases. A border-
line case of "tastes worse than $x_K$," $x_j$, is a case where 'x_j tastes worse than $x_K$' is
accepted given some live $\epsilon_{c_1}$, but rejected given some other live value $\epsilon_{c_2}$; it is a case
for which the different ways we might resolve our indecision about what value of $\epsilon$
to accept lead to different verdicts about whether the relevant comparative claim is
true. No instance of the sharp boundaries claim 'There is an n such that $x_K$ tastes
better than $x_n$ but doesn't taste better than $x_{n+1}$' is accepted in typical concrete con-
texts. Conversely, the inductive premise seems so compelling because, in typical
contexts, accepting 'x_K tastes better than $x_n$' lands one in a (local) context — with
an updated range of values of $\epsilon$ — committed to accepting the consequent 'x_K tastes
better than $x_{n+1}$'. Given the nature of our indecision about the indifference thresh-
old $\epsilon$, we may not be able to point to any instance of the inductive premise we reject,
or any instance of the sharp boundaries claim which we accept. Pressures to avoid
incoherence, however, as in the dynamic sorites, can override this indecision and
force acceptance of a sharp cutoff, at least for the duration in which those pressures
are explicitly present.

This sketch of a revision to the degree semantic framework is just that — a sketch.
Many questions remain. Questions concerning higher-order vagueness, interactions
between comparatives and positive predications, and more general implications for scalar semantics deserve careful investigation. Moreover there is the linger-
ing concern that we are still addressing vagueness phenomena piecemeal in terms of
features specific to the semantics of gradable expressions — here, semiorders and in-
transitive indifferences. Whether we should prefer a more unified account of vague-
ness phenomena in natural language more generally still waits to be seen (§6.4).

7.4 Adjectives of normative and epistemic evaluation

It is common in the literature to treat the category of "predicates of personal taste" on an intuitive level. One might wonder what distinguishes PPTs from other eval-
uative expressions—e.g., expressions of aesthetics (‘beautiful’), desirability (‘won-
derful’), value (‘bad’), humor (‘hilarious’), morality (‘wrong’), epistemic evaluation
(‘likely’), etc.—and whether the intuitive category of PPTs constitutes an interesting
lexical class. Many in the contextualism/relativism literature on PPTs have eschewed
generalizing their accounts because of potential (meta)normative implications con-
cerning antirealism, subjectivity, and the like. For instance, Lasersohn (2005)
motivates his relativist account of PPTs on the ground that they don’t concern “mat-
ters of fact”; hence he continues, “The status of predicates such as good or beautiful
immediately raises fundamental issues for ethics and aesthetics… Accordingly, we
will… leave open the status of more philosophically ‘charged’ predicates like good
and beautiful” (644–645).

I will argue that this restriction of focus is misplaced. PPTs are an instance of a
more interesting general category of (what I will call) evaluational predicates. In this
section I show that non-PPT evaluational adjectives share the linguistic features of
PPTs that distinguish them from gradable adjectives like ‘tall’. In the next section I
show how the proposed unified formal semantics for evaluational adjectives is itself
neutral on the relevant broader (meta)normative issues. However, we will see that
speakers’ substantive assumptions about these issues can lead to various differences
among evaluational adjectives in patterns of use. (Unless otherwise noted I continue
to assume that the adjectives are associated with a single scale or dimension. All
examples can be assumed to involve expressive uses.)

Start with an aesthetic adjective such as ‘beautiful. Like with other positive form
gradable adjectives, ‘beautiful’ in (31) is interpreted with respect to a contextually
supplied degree standard of beauty.

(31) This painting is beautiful.

In using (31) speakers can manage their assumptions about what degree of beauty is
sufficient for something to count as beautiful. Yet, like with ‘tasty’, and unlike with
‘tall’, ‘beautiful’ can also be used in managing speakers’ assumptions about what de-
gree of beauty things have. Our disagreement in (32) doesn’t concern how beautiful
the painting would need to be for it to count as beautiful; it concerns how beautiful

12 One exception is Silk (2013c), which motivates a relativist semantics for normative language
on independent grounds and denies that the putatively problematic (meta)normative implications
follow from the semantics. Kölbel (2002) extends his relativist account to the case of moral lan-
guage but accepts the apparent (meta)normative implications. “Moral relativists”—as the label is
commonly used in metaethics (ch. 5 n. 1)—accept these implications as well.

13 See also, e.g., Kölbel (2002, 2003, 2009, Stephenson 2007b, Bouchard 2012, Fleisher 2013,
the painting is.

(32)  
Me: This painting is beautiful.
You: No it isn't. My dog could have painted that.

Comparative judgments like (33) are no less contestable:

(33)  This painting is more beautiful than that one.
(34)  
Me: This painting is more beautiful than that one.
You: No way. The balance in this one is all off.

Expressive uses of 'beautiful' can target what degree of beauty objects have. Indeed this is their typical use.

Analogous points hold with adjectives of epistemic evaluation such as 'likely'. Our disagreement in (35) needn't target how likely Sally's winning would need to be for it to count as likely. More plausibly, it concerns how likely her winning is.

(35)  
Me: It's likely that Sally will win.
You: No way. Thom is the real frontrunner.

The disagreement extends to comparative likelihood judgments.

(36)  
Me: It's more likely that Sally will win than that Thom will.
You: No way. Thom is the real frontrunner.

Uses of epistemic adjectives can target what degree of probability propositions have. In using evaluational adjectives speakers manage their assumptions about what aesthetic values, epistemic norms, etc. to accept.

Non-PPT evaluational adjectives also pattern with PPTs concerning vagueness phenomena. Our sensitivity to normatively relevant features of objects is often limited. Even when we are sensitive to changes in the relevant features, we might not think every degree of change matters. These features of our normative standpoints give rise to vagueness phenomena with normative comparatives.

Suppose you are forced to decide between saving your best friend and saving some number of strangers. Plausibly we have some special obligations to those close to us, so that it is morally better for you to save your friend than to save two strangers. But there doesn't seem to be any precise number of strangers that would tip the balance. Now consider the following argument:

(37)  (P1) Your saving your friend is morally better than your saving 2 strangers.
(P2) For all \(n\), if your saving your friend is morally better than saving \(n\) strangers, then your saving your friend is morally better than saving \(n + 1\) strangers.

(C) \(\therefore\) For all \(n > 2\), your saving your friend is morally better than saving \(n\) strangers.

No one's friends are that important.

Or suppose classical utilitarianism is correct, and the only factor relevant to an act's moral value is how much pleasure or pain it produces. Morally speaking, other things equal, the more pleasure an act leads to, the better it is, and the more pain it leads to, the worse it is. Giving an innocent person electric shocks is no doubt morally reprehensible. But not all acts of shock-giving are equally bad. Giving 100 volts of shock is morally worse than giving someone 10 volts of shock. Yet our sensitivities to pleasure and pain are limited. Shocking someone with \(n\) nanovolts of shock produces no more pain (let's suppose) than shocking them with \(n - 1\) nanovolts of shock; the acts are morally indistinguishable. But now consider:

(38) (P1) Giving 1 nanovolt of shock is morally better than giving 100 volts of shock.

(P2) For all \(n\), if giving \(n\) nanovolts of shock is morally better than giving 100 volts of shock, then giving \(n + 1\) nanovolts of shock is morally better than giving 100 volts of shock.

(C) \(\therefore\) For all \(n\), giving \(n\) nanovolts of shock is morally better than giving 100 volts of shock.

Milgram's subjects couldn't get off the hook so easily.

Comparative sorites arguments get their force from apparent intransitive indifferences. Other things equal, a cake with \(n\) micrograms of sugar seems just as tasty as a cake with \(n + 1\) micrograms of sugar; giving someone \(n\) nanovolts of shock seems morally indistinguishable from giving someone \(n + 1\) nanovolts of shock (given classical utilitarianism); and so on. This might seem to predict that comparative sorites arguments with epistemic comparatives won't be as compelling. The underlying epistemic scale, a scale of probability, is rich enough in structure to make even the most fine-grained distinctions. Any such distinctions would seem to matter in making comparative likelihood judgments. Though I agree that, for this reason, it is harder to generate comparative sorites arguments with epistemic evaluational adjectives, I don't think it is impossible.

Suppose you are in a weightlifting competition. The competition is fierce: within your weight class, every weight within one microgram of the next is represented.
Moreover the only relevant difference among your competitors concerns how much total muscle mass they have. For any weightlifters with muscle mass \( n \) and \( n + 1 \), the only relevant difference between them is that the one has one more microgram of muscle than the other. You look around the gym, assessing your prospects, when you spot Thom. Thom is looking pretty scrawny. You think you are more likely to win than he is. Scoping out Thom\(_{n+1} \)—the competitor who in fact has one more microgram of muscle than Thom but is otherwise relevantly indistinguishable from him—you think he seems just as scrawny as Thom. So you think you are also more likely to win than he is. You continue this process for some time until you find yourself accepting a most wonderfully optimistic conclusion. And yet you lose.

Intuitively, you just forced march yourself. We might represent the (static) contents of what you ended up accepting as follows:

\[
\begin{align*}
(P1) & \text{ I am more likely to win than Thom}_n (=\text{Thom}). \\
(P2) & \text{ For all } n, \text{ if I am more likely to win than Thom}_n, \text{ then I am more likely to win than Thom}_{n+1}. \\
(C) & \therefore \text{ For all } n, \text{ I am more likely to win than Thom}_n.
\end{align*}
\]

There was an underlying property—muscle mass—which you took to be relevant for assessing an individual’s probability of winning. Your judgments about this property formed the basis for your epistemic comparative judgments. The insensitivities to small differences in muscle mass then led to corresponding indifferences in comparative likelihood.

One might object that you don't in fact accept the inductive premise (P2). After all, small changes in muscle mass make some difference in an individual’s chances of winning. So, for any adjacent pair in the series, Thom\(_i\), Thom\(_{i+1}\), you would plausibly accept that it's more likely that Thom\(_{i+1}\) will win, even if only by a bit. However, it is important to keep in mind that the individuals are considered de re. You are looking at your competitors and forming likelihood judgments on the basis of your perceptions. (This is why I originally presented the case dynamically.) It is only from your subjective epistemic point of view that the comparative sorites need have its force.

In §7.1 we appealed to embedding behavior under ‘find’ as a third motivation for distinguishing the perspective-sensitivity of PPTs. As noted there, discussions of the broader embedding data are fraught; we will return to this in §7.6. For now simply observe that a variety of evaluational adjectives pattern with PPTs in felicitously embedding under ‘find’ in both positive and comparative uses:

\[
(40) \quad \text{[Context: We are on a class field trip to the art museum. We have to find}
\]

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five paintings and evaluate them in their beauty.

A: I find this painting beautiful.
A': I find this painting more beautiful than the last one.

(41) [Context: A and B are both welfare monists. A takes the only basic factor affecting well-being to be pleasure, whereas B takes it to be desire-satisfaction. They consider the cases of Pat, who is very happy, thinking his family loves him, though they in fact hate him, and Sal, who is less happy but not so deluded. B appeals to Pat as an apparent problem case for A’s hedonism. A disagrees and says:]

A: I find Pat well-off.
A': I find Pat more well-off than Sal.

(42) [Context: We are discussing what is likely to result from the recent political protests.]

A: I find peace likely.
A': I find peace more likely than war.

In these ways, the apparent context-sensitivity of non-PPT evaluational adjectives patterns in certain distinctive ways with that of PPTs. Giving them a unified kind of semantics helps capture this. The contextualist semantics for ‘tasty’ from §3.1 can be naturally extended to other evaluational adjectives. Consider ‘beautiful’.

On the proposed view, not only is the degree standard of beauty associated with the positive form dependent on context; so is the measure function associated with the adjective itself. Let B be a contextual aesthetic perspective variable. The value of B given c, B_c, is a measure function that maps objects to their degree of beauty, according to the aesthetic values endorsed in c. Truth conditions for (31) and (33) can be given as in (43) and (44), respectively.

(43) (31) is true given c iff B_c(p) ≥ s_c(B_c)
(44) (33) is true given c iff B_c(p) > B_c(q)

The positive predication in (31) says that the given aesthetic perspective B_c maps the designated painting p to a degree of beauty at least as great as the degree standard of beauty operative in the context. The comparative in (33) says that the given B_c maps p to a degree of beauty greater than the degree of beauty to which it maps the non-proximal painting q. The context-sensitivity of ‘beautiful’ is thus present in both positive and comparative uses: both presuppose a contextually determined aesthetic perspective, or value for B. Via this presupposed content, speakers can use
‘beautiful’ to manage their assumptions about what aesthetic views to adopt.

Similarly, let E be a contextual epistemic perspective variable, the value of which in context, $E_c$, is a probability measure mapping propositions to a degree of probability. Truth conditions for (45) and (47) follow accordingly, where $s$ is the proposition that Sally will win and $t$ is the proposition that Thom will win:

\[(45) \text{ It's likely that Sally will win.}\]
\[(46) \text{ (45) is true given } c \text{ iff } E_c(s) \geq s_c(E_c)\]
\[(47) \text{ It's more likely that Sally will win than it is that Thom will win.}\]
\[(48) \text{ (47) is true given } c \text{ iff } E_c(s) > E_c(t)\]

(45) says that the contextually determined probability measure $E_c$ maps Sally’s winning to a degree of probability at least as great as the operative probability threshold. (47) says that $E_c$ maps Sally’s winning to a greater degree of probability than it maps Thom’s winning. The truth conditions of the positive predication and comparative thus both depend on a contextually determined value for E. Via this presupposed content, speakers can use ‘likely’ to coordinate their subjective probabilities.

(The account of attitude ascriptions with PPTs also carries over to evaluational adjectives generally. I leave it to the reader to make the appropriate adjustments.)

### 7.5 Taste and normative evaluation

The linguistic commonalities between PPTs and evaluational adjectives more generally motivate a uniform semantic treatment. However, contrary to what is often assumed in the literature, providing such a semantics needn’t imply that broadly evaluational discourse is, in general, merely a “matter of taste.” In the previous chapters we saw how a Discourse Contextualist semantics and pragmatics can remain neutral on various broader substantive philosophical issues. The same holds for a Discourse Contextualist account of evaluational predicates.

Compositional semantics with evaluational adjectives takes as given specific evaluational perspectives — values for the various evaluational perspective variables — which figure in calculating the conventional contents of complex expressions. Just as semantic competence with ‘tasty’ requires a capacity to deliver truth-value judgments given a relevant body of tastes (i.e., a value for $T_t$), so too does semantic competence with (e.g.) ‘beautiful’ require a capacity to deliver truth-value judgments given a relevant view on aesthetics (i.e., a value for $B$). Our representation of the conventional meanings of evaluational adjectives thus leaves open the metasemantic
question of what determines the values of perspective variables in concrete discourse contexts; it leaves open what makes it the case that such-and-such evaluational perspectives characterize a given concrete context. This question locates a place for theorizing about the nature of, and relations among, evaluational perspectives supplied across contexts.

For instance, consider issues about universality. To capture common “relativist” claims about matters of taste, one could say that different concrete contexts can determine different taste perspectives. Conflicting taste judgments about a certain object could thus both be true. However, whereas it isn’t implausible that different contexts determine different taste perspectives, the same might not hold for every type of evaluational perspective. Perhaps the correct metasemantic-cum-metaethical story entails that every context determines the same moral perspective. Even so, this universality needn’t be built into the meanings of moral predicates themselves (though see §5.4). As far as the conventions of the language go, every context might determine the same evaluational perspective, but perhaps not.

Likewise, a treatment of attitude ascriptions with evaluational adjectives provides a framework for theorizing about the nature of different types of normative and evaluative thought (cf. §§5.2.4, 5.3.1). For instance, we can locate questions about potentially distinctive features of (e.g.) aesthetic judgment in the metasemantics of what makes it the case about a subject that a certain aesthetic perspective — value for B — characterizes her state of mind. These questions include questions concerning the apparent practical character of aesthetic judgments, the relation between one’s aesthetic judgments and one’s ordinary descriptive beliefs, the nature of aesthetic uncertainty, whether aesthetic judgment essentially involves certain emotions, whether any such emotions are specific to aesthetic judgment, and so on. Different types of perspective variables (aesthetic, moral, etc.) may receive different metasemantic accounts. This would reflect differences in the psychology of the associated kinds of evaluative judgment.

In this way, questions about “subjectivity,” “realism,” etc. with evaluational adjectives can be located in the metasemantics of what determines the values of perspective variables in concrete discourse contexts. Potential (meta)normative differences concerning matters of taste, aesthetics, morality, etc. needn’t be reflected in the formal semantics itself — our representation of the expressions’ conventional meaning and use. Investigation of such differences can be left for broader philosophical theorizing. Giving evaluational adjectives the same kind of context-sensitive semantics needn’t imply that evaluative matters are all merely “matters of taste.”

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Treating evaluational adjectives as having a unified formal semantics (at the relevant level of generality) doesn’t imply that there are no linguistic differences among them. Speakers’ substantive assumptions about what determines the relevant perspectives in particular contexts, and about relations among the perspectives determined across contexts, can lead to differences in patterns of use among evaluational adjectives. In the remainder of this section I consider four examples, concerning (a) first-person experiences, (b) attitude-dependence, (c) felicity in Yalcin-style “evaluative contradictions,” and (d) discourse disagreements. I will focus on PPTs, aesthetic adjectives, and moral adjectives.

First, there is apparent variation among evaluational adjectives concerning the degree to which they are associated with certain subjective experiences. It is hard to hear an ascription ‘x is tasty’ as felicitous unless the speaker has had a relevant kind of first-personal experience with x, as reflected in (49).

(49) ??This cake is tasty, but I haven’t tried it.

Such examples improve with aesthetic adjectives, like ‘beautiful’. Suppose Highbrow hears Philistine dissing the new Botticelli exhibit at the art museum. Philistine isn’t one for art criticism, but he knows what he doesn’t like. Highbrow hasn’t seen the Botticelli paintings, but he has heard the experts praising them, and he is apt to defer. A dialogue ensues:

(50)  
Philistine: I’m never getting dragged to the art museum again. All that supposedly famous Botticelli stuff was trash.
Highbrow: You’re wrong. The Botticellis are beautiful. I haven’t seen them myself, but I’ve heard enough about them to know that you don’t know what you’re talking about.
Philistine: Yeah right. My kid could have done that.
Highbrow: Not a chance. The mastery with symmetries, color, balance, classical themes that I read about — that’s enough for me to know

For discussion of the alleged “direct experience requirement” with PPTs, see Stephenson 2007c, Pearson 2013, Bylinina 2014, MacFarlane 2014; see also note 20.
they’re beautiful.

I find it harder to construct an analogous context to improve the judgment with ‘tasty’ in (49). For moral adjectives it is hard to know what the relevant kind of experience would need to be. Regardless, (51) is felicitous.

(51)   God: Coveting thy neighbor’s wife is wrong.

A second variation concerns the extent to which speakers can consistently allow for the possibility that the evaluational adjective applies while denying that they have the associated taste, value, attitude, etc. Examples with ‘tasty’ are marked, whereas examples with the moral adjective ‘permissible’ are perfectly coherent:

(52)   ??We don’t care for the cake, but maybe it’s actually tasty.

(53)   Like you, I’m repulsed at the idea of killing an infant, but maybe infanticide is actually permissible.

Aesthetic adjectives appear to be somewhere in the middle, but felicitous examples seem possible. We can imagine Philistine on the cusp of a cultural transformation saying:

(54)   I still can’t see what’s so great about those paintings, but maybe they’re actually beautiful.

A third difference concerns the extent to which CR-contradictions with evaluational adjectives can felicitously embed in suppositional environments. We have already seen differences among PPTs, aesthetic adjectives, and deontic modals in this respect (§§4.2.3, 5.3.2). Whereas it is hard to hear (55) with ‘tasty’ as consistent, (56) with ‘wrong’ is perfectly natural:

(55)   ??Suppose the cake is tasty but we all hate it.

(56)   Suppose infanticide is wrong but we’re all for it.

Consistent examples with ‘beautiful’ also seem possible, as reflected in the continuation in (57).

(57)   Suppose the Botticellis are beautiful but we don’t like them. Then we should take an art appreciation class.

Finally, a fourth difference among evaluational adjectives concerns the extent to which speakers tend to weaken their assertions in the face of disagreement. In
discourse disagreements with ‘tasty’; it isn’t uncommon for speakers to fall back on explicitly relativized claims as a point of agreement. The disagreement with ‘tasty’ in \([3]\) might plausibly continue as in \([58]\).

\[(58)\]

\begin{tabular}{l}
Me: This cake is tasty. \\
You: No it isn’t. It’s gross. It’s way too sweet. \\
Me: No way. What do you know about sweet? \\
You: Well, it doesn’t taste good to me. \\
Me: Fine. I think it tastes great.
\end{tabular}

Though we disagree about how tasty the cake is, settling the question isn’t a matter of grave concern. Better to put the question aside and fall back on related claims on which we agree. I can agree that the cake doesn’t taste good to you, and you can agree that the cake tastes good to me.

By contrast, speakers may be more inclined to persist in disagreements about certain moral matters. Consider \([59]\).

\[(59)\]

\begin{tabular}{l}
Me: It’s always morally worse to abort a fetus than to let it live. \\
You: No, you’re wrong. Sometimes it’s better to have an abortion. \\
Me: Absolutely not. Abortion is murder. \\
You: Sorry, I disagree. I’m not backing down on this one. \\
Me: Neither am I. \\
You: This is going nowhere…
\end{tabular}

Here we refuse to fall back on related claims about our own respective moral views. We may regard questions about the moral status of abortion as deeply important and hence prefer to leave the issue unresolved. Registering our views may be more significant to us than finding common ground. (I suspect that the frequency of persisting disagreement with aesthetic adjectives is also somewhere between that with PPTs and moral adjectives.)

To be clear, I am not claiming that these patterns of judgments hold without exception across contexts. They are tendencies. These tendencies do reflect non-trivial differences in use among evaluational adjectives. Yet we shouldn’t assume, absent much further investigation, that these differences are reflected in the syntax or semantics. Classifying predicates as ‘predicates of personal taste’, ‘aesthetic predicates’, ‘moral predicates’, etc. may be harmless for some purposes, but it has the potential to mislead. Such intuitive classifications may or may not be conventionalized in distinct lexical classes. (It is interesting that merely replacing ‘tasty’ with ‘taste good’ in \([49],[52],[27]\) seems to improve judgments.)
For instance, it isn’t implausible that certain of the discourse differences described above reflect differences in interlocutors’ assumptions about whether the relevant perspective may be determined by factors external to the individual’s or group’s attitudes. Judgments about improve to the extent that one allows that what values (tastes, norms) to endorse may come apart from one’s own subjective experiences or attitudes. This needn’t imply that substantive assumptions about attitude-(in)dependence are built into the lexical semantics. In the case of discourse disagreement, we may be less willing in persisting moral disputes to take the question off the conversational table and conclude on a point of agreement. Setting whether something is morally wrong is typically more important to us than settling whether something is tasty. This needn’t imply that it is built into the conventions of the language that a single, invariant moral perspective is determined by every context. Sometimes it is the moribus, not the gustibus, which non est disputandum. Disagreements about taste might persist, and disagreements about morality might not. This is no different from the case of ordinary factual disagreements. Sometimes it just depends on what we care about.

In this way, there may be interesting generalizations concerning features of conversations which give rise to various discourse differences among evaluational adjectives — e.g., concerning speakers’ substantive normative views and (non-)discourse-related goals. Not all discourse differences need be reflected in our accounts of the conventional meaning and use of evaluational adjectives. (This, of course, isn’t to deny that there may be further data supporting grammatical differences among them.15)

### 7.6 ‘Find’ and “subjectivity”

In §§7.1 and 7.4 I appealed to various linguistic phenomena involving comparatives to motivate distinguishing the context-sensitivity associated with evaluational adjectives from the context-sensitivity associated with gradable adjectives generally. In this section I want to return to the data concerning embedding under ‘find’, as this has been used extensively in the recent literature as a “diagnostic” (Fleisher 2013, Kennedy 2013) for PPTs and other putatively “subjective” expressions (see n. 2). I find much of the reported data to be problematic. (Even the previous sentence is a counterexample to several accounts.) Given the theoretical implications that have been drawn, it may be worthwhile to detail some of these concerns. Doing so will

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help further clarify the various sources of context-sensitivity in adjectives, and shed light on the variety of ways in which context-sensitivity can affect the interpretation of complex constructions.

In §7.1 we noted that the matrix verb ‘find’ only licenses complements exhibiting certain kinds of context-sensitivity. All parties in the literature agree that ‘find’ licenses (positive and comparative) PPTs, as in (60), but is typically infelicitous with ordinary context-insensitive predicates, like ‘vegan’ and ‘prime’, as in (61) – (62).

(60)  
  a. Fritz finds the cake tasty.
  b. Fritz finds this cake tastier than that one.

(61)  #Fritz finds the cake vegan.

(62)  #Fritz finds 7 prime.

In light of this contrast, felicitous embedding under ‘find’ has been used as diagnostic of a distinctive kind of “subjectivity” (“judge dependence,” etc.) in natural language. However, there is little agreement either about precisely what this putative “subjectivity” amounts to, or about what the broader embedding data with ‘find’ even is. Some have claimed that ‘find’ disallows ordinary positive form gradable adjectives, like ‘tall’, and only licenses PPTs (Fleisher 2013, Kennedy 2013); others that ‘find’ allows ordinary positive form gradable adjectives and PPTs (Sæbø 2009, Bouchard 2012) but disallows non-PPT evaluational adjectives (McNally & Stojanovic 2014); still others that ‘find’ allows ordinary positive form gradable adjectives, PPTs, and multidimensional non-PPT evaluational adjectives (Bylinina 2014). The alleged embedding data have been used to support a wide range of syntactic and semantic conclusions — e.g., concerning argument structure (in both positive and non-positive forms), thematic experiencer arguments, contextualism vs. relativism, and multidimensionality in evaluative predicates.

These reactions have been premature. More careful attention to context shows that we can see felicitous embedding under ‘find’ with various types of evaluational and non-evaluational adjectives (§§7.1, 7.4): with ordinary unidimensional positive gradable adjectives (even given a fixed comparison class), as in (63); with positive/comparative non-evaluational multidimensional adjectives, as in (64); with positive/comparative PPTs (even given a particular dimension), as in (65); and with positive/comparative non-PPT evaluational adjectives (even given a particular dimension), as in (66) – (69).

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16Terminology varies among others. Sæbø 2009 and Bouchard 2012 don’t distinguish among evaluational adjectives and lump them all together as PPTs.
[Context: Some adolescents are talking about who has and hasn't had a growth spurt yet. They mention Robb, who shot up four inches over the summer alone. Ed, trying to play this off like it's nothing, says that Robb “isn't tall” (for a boy in their grade) — he's “only” 5'7”. Height is quite the point of pride, after all, and Robb isn't cool enough to be in their group. Most of the other kids go along with Ed, but Sam won't have it. He says:]

You might not find Robb tall. But I find him tall.

(64)  
A: I find Sheena's baby similar-looking to Tim's baby.  
B: I find Sheena's baby more similar-looking to Tim's baby than Pat's is.

(65)  
[Context: We are sampling cakes at the bake-off. We agree in making sweetness the only relevant factor.]  
A: I find this cake tasty [with respect to sweetness].  
A': I find this cake tastier [with respect to sweetness] than that one.

(66)  
[Context: We are on a class field trip to the art museum. We have to find five paintings and evaluate them in their beauty with respect to a number of dimensions — symmetry, balance, fineness of detail, etc.]  
A: I find this painting beautiful [in its use of symmetries].  
A': I find this painting more beautiful than that one [in its use of symmetries].

(67)  
[Context: We are discussing the university’s new sexual harassment policy. We turn to the morality of its attitudes toward women.]  
A: I find the new policy morally reprehensible [in its attitudes toward women].  
A': I find the new policy morally reprehensible [in its attitudes toward women] — even more reprehensible than the previous policy.

(68)  
[Context: A and B are both welfare monists. A takes the only basic factor affecting well-being to be pleasure, whereas B takes it to be desire-satisfaction. They consider the cases of Pat, who is very happy, thinking his family loves him, though they in fact hate him, and Sal, who is less happy but not so deluded. B appeals to Pat as an apparent problem case for A’s hedonism. A disagrees and says:]  
A: I find Pat well-off.  
A': I find Pat more well-off than Sal.

(69)  
[Context: We are discussing what is likely to result from the recent political protests.]
A: I find peace likely.
A′: I find peace more likely than war.

These examples are problematic for existing accounts of ‘find’. Felicitous embedding under ‘find’ cannot be used as diagnostic of PPTs, and it fails to distinguish a class of intuitively “subjective” predicates more generally. Perhaps at the end of the theoretical day we might recover a notion of “subjectivity” which our use of ‘find’ is tracking. But we shouldn’t expect a pretheoretic notion of subjectivity to play a genuine explanatory role in explicating the lexical semantics of ‘find’.

My primary aim in this section is simply to establish this negative conclusion, in the hope of serving as a corrective to the previous literature. However, the above body of examples lends interesting additional support to our typology of relevant forms of context-sensitivity from §7.1. In the remainder of this section I will offer several preliminary speculations about how this typology may provide the basis for a more adequate account of the licensing conditions of ‘find’.

I said above that ‘tall’ can felicitously embed under ‘find’. There are several illuminating exceptions. First, as we saw in §7.1, although ordinary unidimensional gradable adjectives can be felicitous under ‘find’ in the positive form, as in (63), they are marked in the comparative (though see n.1):

(70) #I find Robb taller than Ed.

Our accounts from §§7.1–7.4 locate a salient contrast between (70), and (63)–(69). (70) isn’t sensitive to a contextual parameter. By contrast, in (63)–(69) the positive form adjectives are sensitive to a contextual degree standard, and the comparative adjectives are sensitive to a contextual perspective (and possibly an independently represented dimensional element (n.5)).

This might seem to suggest that sensitivity to a contextual parameter is what characterizes complements felicitously embedding under ‘find’.

Simply saying this, however, would fail to exclude ordinary uses of paradigm context-sensitive expressions. (61) is infelicitous even though the complement includes the definite description ‘the cake’ and is sensitive to (something like) a contextual salience ordering on cakes. Further, importantly, not all uses of ‘tall’, even in the positive form, are felicitous under ‘find’. Purely descriptive uses (§§5.2.5, 6.2.2) are infelicitous:

(71) [Context: It’s common ground that the standard for tallness is 6’’. We are talking about how much Robb grew over the summer and how tall he is.]

\footnote{7Thanks to Daniel Rothschild for helpful discussion of the following issues.}
A: Robb isn’t tall. He’s only 5’7”.
B: #You might not find Robb tall. But I find him tall.

This suggests that what is relevant for licensing under ‘find’ isn’t simply semantic context-sensitivity but a certain sort of use of context-sensitive expressions: they must be used in a discourse-oriented way. It must be the case that updating with the complement would (non-trivially) distinguish among worlds in the context set based on the representation of context in those worlds; it must be that updating with the complement would adjust the live values for the relevant contextual variable.

Note that the relevant representation of context targeted in felicitous uses of ‘find’ needn’t be that of the global discourse context. Using ‘find’ can be felicitous if the use distinguishes among values for the relevant contextual variable within a relevant local context, as in (72).

(72) Me: We all agree that the painting is beautiful. What does Katie think?
You: Katie finds it beautiful too.

Here it is common ground that the painting is beautiful, i.e. that \([B](\text{the-painting})\) is at least as great as the degree standard for beauty. What is at issue is what value for B is determined by the local context characterizing Katie’s state of mind. Your utterance in (72) is felicitous insofar as it distinguishes among live values for B determined by the local context of the attitude.

In light of these examples, I offer (73) as a tentative account of the felicity conditions for the relevant sense of ‘find’ (n. 2) — where, for a world w in the context set CS, W_w is an equivalence class of worlds in CS with the same relevant extra-contextual features as w; c_w represents the conversational situation in w; and c_{S_w} represents the subject S’s state of mind in w. (Note that, in (ii), the relevant contextual features determining the set W_w will include features that help determine how the local context c_S representing the subject’s state of mind is characterized. CS is the context set before the acceptance or rejection of the utterance’s asserted content (cf. §3.3.3.).

(73) An utterance of ‘S finds \(\phi\) ’ is felicitous only if

(i) for some \(u \in CS\), \(\phi^c_{u,u} = 0\), and
for some \(v \in W_u\), \(\phi^c_{v,v} = 1\),
or
(ii) for some \(u \in CS\), Dox_{S,u} \nsubseteq \phi^c_{u}, and
for some \(v \in W_u\), Dox_{S,v} \subseteq \phi^c_{v}.

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This says that ‘find’ is felicitous only if the use distinguishes among live representations of context, local or global.

In closing I would like to mention two further predictions of this account. First, the condition in (73) doesn’t explicitly mark the complement’s context-sensitivity as being due to a CR-predicate. This predicts that discourse-oriented uses of paradigm context-sensitive expressions should also be felicitous under ‘find’. This prediction appears to be borne out. We can imagine Billy saying (74) to Amanda (§2.3):

(74) I find the children not happy.

Second, we began this section with an apparent contrast between ‘tasty’ and ‘vegan’/‘prime’ under ‘find’. The condition in (73) suggests that examples with context-insensitive predicates should improve to the extent that the predicate’s conventional meaning can be readily associated with some kind of scale, such that the predicate can be coerced into having a discourse-oriented use. This prediction also seems to be borne out:

(75) [Context: We have been discussing the rights of animals and the ethics of food. Neither of us eats meat, but you are much stricter in your dietary habits, and vocally so. For something to count as properly “vegan,” by your lights, it can’t even be produced by a company that makes animal products. We agree that the cake doesn’t itself contain any animal products, though the company that makes it also sells meat. I take a slice of the cake.]

  You: How can you eat that cake? It isn’t vegan.
  Me: Well, I find it vegan. Just relax.

Plausibly what is happening in (75) is that ‘vegan’ is being coerced into a gradable adjective, with a denotation in the domain of s (cf. ch. 6 n. 28). Other things equal, food produced by companies that make animal products is treated as “less vegan” than food produced by companies that don’t. We agree about the ingredients in the cake, but we disagree about “how vegan” something needs to be for it to count as vegan. Analogous examples with ‘prime’ seem harder to come by. This cline of difficulty is predicted: it is hard to imagine a relevant scale with which to associate primeness.¹⁸

¹⁸But perhaps not impossible. Consider the following, adapted from an example due to Max Bane (cited in Klecha 2014: 64 n. 13):

(i) [Context: A and B are considering different ways of ranking integers in terms of Euler’s totient function \( \phi(n) \), which equals the number of integers less than or equal to \( n \) that are co-prime with \( n \). A suggests considering the difference between \( n \) and the nearest \( n' \) to \( n \) such that

\[
\frac{n}{\phi(n)} \approx \frac{n'}{\phi(n')}
\]
Let’s recap. Many theorists have appealed to felicitous embedding under ‘find’ as a “diagnostic” for PPTs and other “subjective” expressions. However, much of the assumed data, and subsequent theoretical conclusions that have been drawn from them, are problematic. Embedding under ‘find’ is tracking something, just not what has been claimed. My aims in this section have been twofold: first, to provide a more adequate body of data concerning embedding under ‘find’; and, second, to illustrate how the accounts of context-sensitivity developed in this book may help illuminate the broader array of data. I offered a preliminary proposal about the licensing conditions for embedding under ‘find’ in terms of discourse-oriented uses of context-sensitive complements. Yet there is still much to be explained. For instance, although the full range of gradable, evaluational, and multidimensional adjectives can occur in complements under ‘find’, not all embeddings seem equally well attested (see McNally & Stojanovic 2014 for preliminary corpus searches).

Detailed investigation of distributional differences among context-sensitive expressions — both CR-expressions and paradigm context-sensitive expressions — under ‘find’ is called for. A complete account would need to explain how to derive these distributional differences from the licensing conditions of ‘find’, the expressions’ specific semantic contents, and features of concrete contexts of use. I hope the preliminary discussion here may provide a richer body of data to be incorporated in future accounts, as well as a fruitful framework for theorizing about these data.

7.7 Recap

Chapters 6–7 have developed a Discourse Contextualist account of two sources of context-sensitivity in uses of adjectives. Chapter 6 focused on positive form gradable adjectives and degree-based vagueness phenomena that arise in their use. This chapter extended the account from Chapter 6 to cover what I have called evaluational adjectives. This category includes not only predicates of personal taste but also predicates expressing various kinds of normative and epistemic evaluation — aesthetic, moral, probabilistic, etc. Like ‘tall’, positive form adjectives such as ‘tasty’, ‘beautiful’, and ‘likely’ are interpreted with respect to a contextually supplied degree standard — a threshold relative to which things count as tasty, beautiful, likely, etc. What distinguishes evaluational adjectives is that the adjective itself, and not simply the positive form, is context-sensitive. This captures how even in comparative

\[ \phi(n') = n' - 1 \]

B suggests using the quotient \[ \phi(n)/(n-1) \]. Observing A and B, you say:

B finds 6 less prime than 8.
constructions these adjectives continue to give rise to various distinctive linguistic phenomena often associated with context-sensitive gradable adjectives. Such phenomena include discourse-oriented use, felicitous embedding under ‘find’, and, surprisingly, vagueness phenomena like sorites-sensitivity.

On the degree-based implementation adopted here, what distinguishes evaluational adjectives from adjectives such as ‘tall’ is that their lexical semantics fails to associate them with a specific context-independent scale or measure function. Evaluational adjectives denote context-sensitive measure functions — what I have called evaluational perspectives — which map items to their degree of taste, beauty, likelihood, etc. Expressive uses of evaluational adjectives presuppose a semantically unspecified discourse-level perspective (body of tastes, values, norms, probabilities, etc.). Given plausible semantic and pragmatic competencies, interlocutors can manage their assumptions about the values of discourse-level perspective variables, and hence their evaluative and epistemic views, in using evaluational adjectives.

Standard-sensitivity and perspective-sensitivity provide two potential sources of vagueness. Though a degree-based implementation would seem well placed to capture the dual loci of vagueness with evaluational adjectives, vagueness phenomena with evaluational comparatives raises special challenges. The treatment of vagueness in terms of contextual indecision developed in Chapter 6 may not carry over straightforwardly to the case of evaluational adjectives. Though I have offered several strategies of reply, the issue warrants more thorough investigation.

Our discussion of various sources of context-sensitivity in uses of adjectives can inform recent accounts of the licensing conditions of ‘find’. More careful attention to context shows that we can observe felicitous embedding under ‘find’ with the full range of gradable adjectives examined in Chapters 6–7. To help capture the broader array of examples, I suggested that what licenses embedding under ‘find’ is a certain sort of discourse-oriented use of a context-sensitive complement.

I have argued that we can maintain a common core Discourse Contextualist formal semantics and pragmatics among evaluational adjectives. Though there may be other grammatical and lexical differences among them, evaluational adjectives are semantically unified in denoting context-sensitive measure functions. Contrary to what is often assumed, providing such a context-sensitive semantics needn’t imply that broadly evaluational issues are merely “matters of taste.” Apparent differences among evaluational adjectives in “subjectivity” — universality, attitude-dependence, etc. — needn’t be encoded in the conventional meaning and use of the expressions themselves. Speakers’ substantive assumptions about these issues can lead to certain differences among evaluational adjectives in patterns of use. A variety of Discourse Contextualist-based accounts are possible depending on one’s commitments.
in metasemantics, (meta)normative theory, epistemology, and philosophy of mind. Discourse Contextualism provides an attractive basis for broader theorizing about matters of taste and normative and epistemic evaluation.
Appendix

Taxonomy

Labels like ‘contextualism’ and ‘relativism’ have been used in a bewildering number of ways. This not only poses a challenge to the interested reader attempting a foray into the literature; it also creates the potential for dialectical confusion. Though the aim of this book has been to develop and defend a version of contextualism, it will be useful to distinguish a range of contextualist and relativist views. This can help situate the proposed view in the literature.

We can delineate a range of views in terms of their answers to the following questions concerning semantic content, asserted content, and truth-in-a-context. These questions are certainly not the only questions relevant for distinguishing overall theories. The following taxonomy is by no means complete, but it should be a start. To fix ideas I will couch the discussion in terms of the (positive form) gradable adjective ‘tall’ in a sentence such as (1).

(1) Alice is tall.

Throughout, assume that we are abstracting away from context-sensitivity regarding comparison classes, etc., and that we are only considering “relevant” contexts which are equivalent with respect to these contextual features.

First, is it part of the conventional meaning of the positive form ‘tall’ that the world of evaluation determines a particular degree standard of tallness? If so, then the semantic content of (1), given an abstract context, can be treated as (determining) an ordinary possible worlds proposition. As a matter of linguistic meaning,

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expresses the same possible worlds proposition in every context (again, assum-
ing we are holding fixed the usual contextual features like comparison class, set of
paradigm/contrasting cases, etc.). Our linguistic dispositions, interests, etc. don’t
affect the content or truth value of [1]. I’ll call this option Realist Invariantism.
(Epistemicism is a kind of realist invariantism.)

Answering ‘no’ to our first question yields some variety of contextualism or rel-
ativism. Note that accepting some variety of contextualism or relativism doesn’t
itself entail a denial of invariantism, even if entails a denial of Realist Invariantism.
Suppose the correct metasemantic view entails that every relevant context within a
world determines the same degree standard of tallness. Although [1] would have a
constant content and truth value across contexts in a world, this wouldn’t be built
into the lexical semantics itself. Contextualists and relativists differ in how they an-
swer the following further sorts of questions.

Does a particular contextually supplied standard figure into the semantic con-
tent of [1]? Contextualists answer ‘yes’. They claim that [1] is like sentences with
paradigm context-sensitive expressions in having different semantic contents in dif-
ferent contexts. [1]’s contribution to the truth conditions of more complex sen-
tences can vary across contexts which determine different standards of tallness. Dif-
fences in the truth value of [1] at an evaluation world are traced to differences in
semantic content in different contexts.

We can subdivide contextualist views in terms of what sort of context is treated
as relevant for determining the semantic content of [1]. What I’ll call Utterance
Contextualists say that the context of utterance supplies the relevant standard. Ut-
terance Contextualists are contextualists of the familiar kind. By contrast, what I’ll
call Assessment Contextualists interpret positive gradable adjectives with respect to
an additional context of evaluation, and claim that it is the standard operative in the
context of evaluation that determines the content of [1]. Hybrid views are possi-
ble as well. A hybrid view would treat the semantic content as determined by some
function of both the context of utterance and the added context of evaluation.

Consider the following toy scenario: Suppose that the context of utterance for
[1] is one in which a low standard is accepted, but we are evaluating [1] in a context
in which a high standard is accepted. Suppose also that Alice counts as tall with
respect to the former low standard but not with respect to the latter high standard.
Accordingly, [1] is true (at the actual world) according to Utterance Contextualism,
but false (at the actual world) according to Assessment Contextualism.

\footnote{Cf. \textsc{Cappelen 2008, Weatherson 2009}.}
\footnote{Cf. \textsc{MacFarlane 2008}.}
Turning from contextualism, Relativism denies that any particular standard figures in the semantic content of (1). In one sense, relativists treat standards like possible worlds. No particular world figures in the semantic content of (2).

(2) Boston is in Massachusetts.

(2) expresses the same proposition in contexts in different worlds; it is just that this proposition is true at worlds in which Boston is in Massachusetts and false at worlds in which Boston isn’t in Massachusetts. Similarly, relativists claim that (1) has the same semantic content across contexts. To a first approximation, the semantic content of (1) is the set of pairs of worlds \( w \) and overall standards \( s \) such that Alice’s degree of tallness in \( w \) is at least as great as the degree standard of tallness \( s(tall) \). A particular degree standard is used in determining the truth value of the content of (1), but doesn’t itself figure in that content.

We can subdivide relativist views in terms of how they define a monadic truth predicate, or a notion of truth-in-a-context. (Note that this question is not equivalent to the question of how one might define an object-language monadic predicate ‘true.’) Though we can assess whether sentences (in context) are true or false at certain worlds given certain standards, we can also assess whether they are simply true, or true *simpliciter*. One option, following Kaplan (1989: 522, 547), is to say that an ordinary factual sentence is true in a context iff its content in the context is true at the world of the context. By extension, what I’ll call Utterance Relativists say that what standard is relevant in determining whether (1) is true simpliciter is the standard accepted in the context of utterance.⁴ Utterance Relativists treat the overall standard parameter like an ordinary parameter in the circumstance of evaluation. By contrast, what I’ll call Assessment Relativists assess (1) for monadic truth with respect to an added context of evaluation.⁵

Suppose again that (1) is uttered in a context in which low standards are accepted, and is evaluated in a context in which high standards are accepted. Utterance Relativists say that (1) is true iff Alice’s actual height is at least as great as \( s_{low}(tall) \), whereas Assessment Relativists say that (1) is true iff Alice’s actual height is at least as great as \( s_{high}(tall) \). Utterance and Assessment Relativists agree that no particular degree standard figures in the content of (1). They disagree on whether evaluations of truth simpliciter are made with respect to the standards of the context of utterance.

⁴See ch. 4 n. 27 and the discussion in §4.3.

⁵See, e.g., MacFarlane 2003, 2014. I am sympathetic with MacFarlane’s (2014: 89n.24) claim that many self-labeled relativists don’t take a stand on the sorts of philosophical issues that would distinguish (what I’m calling) Utterance Relativism and Assessment Relativism.
or the standards of an added context of evaluation. Note that Utterance Relativism and Assessment Relativism share Contextualism’s burden of needing an account of how standards are determined as a function of context.

It is important to distinguish questions about the semantic contents of sentences from questions about what utterances of those sentences assert in context (see §4.3, ch. 4 n. 28). It is in principle open to the contextualist to deny that the proposition that is the semantic content of (1) is also asserted by an utterance of (1). However, such a move would presumably be based on general views about the relation between semantic content and asserted content (see Soames 2005). The distinction between semantic content and asserted content becomes more interesting in relativist semantics. Even if no particular degree standard figures in the semantic content of (1), this leaves open the question of whether some particular standard figures in the asserted content. What I’ll call Relativist Pragmatics answers ‘no’. What I’ll call Non-Relativist Pragmatics answers ‘yes’.

Relativist semantics which accept a Non-Relativist Pragmatics can treat the asserted content of (1) as an ordinary possible worlds proposition — the possible worlds proposition that results from saturating the semantic content with a particular standard from the relevant context. In our above scenario, for the Utterance Relativist this would be the proposition that Alice’s height is at least as great as $s_{low}(tall)$. For the Assessment Relativist, it would be the proposition that Alice’s height is at least as great as $s_{high}(tall)$. Though relativists accepting a Non-Relativist Pragmatics agree with contextualists about the asserted content of an utterance of (1), they differ on the compositional semantic question of what contribution (1) makes to the semantic contents of larger constructions.

Relativist Pragmatics revises the standard picture of assertion to accommodate more fine-grained asserted contents. On a standard Stalnakerian model, an assertion updates the context by intersecting the previous context set with the asserted content to yield a new context set. Relativist Pragmatics enriches the representation of context to be a set of pairs of worlds and standards, those combinations of worlds and standards that are compatible with what has been accepted in the conversation. With this enriched notion of context set, one can retain the standard force rule for assertions in terms of set-intersection. Successfully asserting (1) removes from the context set those world-standard pairs $(w, s)$ such that Alice’s height in $w$ is less than $s(tall)$. In asserting (1) one proposes, among other things, that we be a group with respect to whose standards Alice counts as tall. Relativist Semantics and Pragmatics treats standards and assertions of (1) fully analogously to possible worlds and
assertions of ordinary factual sentences.

This leaves us with the following taxonomy of views. (I use the toy scenario described above for characterizing their commitments about content and truth value.)

- **Realist Invariantism**: \(1\) semantically expresses an ordinary possible worlds proposition. The semantic and asserted content of \(1\), given any context (of utterance or assessment), is the proposition true at those worlds \(w\) such that \(\text{tall}_w(Alice) \geq s_w(\text{tall})\), where \(s_w\) is the overall standard determined by the evaluation world \(w\). \(1\) is true simpliciter iff \(\text{tall}_{\@}(Alice) \geq s_{\@}(\text{tall})\).

- **Utterance Contextualism**: The semantic (and asserted) content of \(1\) depends on the overall standard determined by the context of utterance. The semantic (and asserted) content of \(1\) is the proposition true at those worlds \(w\) such that \(\text{tall}_w(Alice) \geq s_{\text{low}}(\text{tall})\). This proposition is true.

- **Assessment Contextualism**: The semantic (and asserted) content of \(1\) depends on the overall standard determined by the context of evaluation. The semantic (and asserted) content of \(1\) is the proposition true at those worlds \(w\) such that \(\text{tall}_w(Alice) \geq s_{\text{high}}(\text{tall})\). This proposition is false.

- **Utterance Relativism + Non-Relativist Pragmatics**: No particular standard figures in the semantic content of \(1\): the semantic content of \(1\) is the set of world-standard pairs \((w, s)\) such that \(\text{tall}_w(Alice) \geq s(\text{tall})\). Whether \(1\) is true simpliciter depends on the standards determined in the context of utterance. The asserted content of \(1\) is the possible worlds proposition that results from saturating the semantic content with the standard determined in the context of utterance: the asserted content of \(1\) is the set of worlds \(w\) such that \(\text{tall}_w(Alice) \geq s_{\text{low}}(\text{tall})\). \(1\) is true.

- **Assessment Relativism + Non-Relativist Pragmatics**: No particular standard figures in the semantic content of \(1\): the semantic content of \(1\) is the set

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6I regard Richard’s (2004, 2008) and Stephenson’s (2007b) “relativism,” Yalcin’s (2007, 2011, 2012a, 2012b) “expressivism” or “nonfactualism,” and Swanson’s (2012c; cf. Moss 2015) “constraint semantics,” among others, as being in this camp. Compare also the dynamic semantic accounts in Veltman 1996, Willer 2013. I won’t subdivide versions of Relativist Semantics + Pragmatics regarding the question of monadic truth since this notion plays no role in the formal semantics or pragmatics, even if it might conceivably play a role in some other aspect of the overall theory (e.g., concerning norms for assertion). Yalcin (2011: 327–330) explicitly rejects the postsemantic project of defining a notion of truth-in-a-context for epistemic modals, and distinguishes his “nonfactualism” from “relativism” on this basis.
of world-standard pairs \( (w, s) \) such that \( \text{tall}_w(Alice) \geq s(\text{tall}) \). Whether (1) is true simpliciter depends on the standards determined in the context of evaluation. The asserted content of (1) is the possible worlds proposition that results from saturating the semantic content with the standard determined in the context of evaluation: the asserted content of (1) is the set of worlds \( w \) such that \( \text{tall}_w(Alice) \geq s_{\text{high}}(\text{tall}) \). (1) is false.

- **Relativist Semantics + Pragmatics:** No particular standard figures in the semantic or asserted content of (1). Contexts can be represented by sets of pairs of worlds and overall standards, those compatible with what is taken for granted for the purposes of conversation. So, the semantic and asserted content of (1) is the set of world-standard pairs \( (w, s) \) such that \( \text{tall}_w(Alice) \geq s(\text{tall}) \).

Discourse Contextualism is a version of Utterance Contextualism.


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