

# How To Do Things With Modals

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## Abstract

According to a prominent line of thought, epistemic possibility claims do not communicate propositions; instead, they are proposals to leave certain possibilities open. This idea is at the heart of recent arguments that, to make sense of the dynamics of epistemic modality, we must reject the contextualist account of conversational dynamics, on which the fundamental role of assertions—including “might”-claims—is to communicate information. I argue, on the contrary, that we can capture the dynamics of epistemic modality within the contextualist framework by taking the content of “might”-claims to be determined by the prospective common attitudes of the conversants.

**Keywords:** epistemic modals; semantics; pragmatics; philosophy of language; contextualism

## 1 Introduction

In a brief but trenchant discussion of epistemic modals, Wittgenstein warns against “regard[ing] a hesitant assertion as an assertion of hesitancy.”<sup>1</sup> An epistemic modal claim like “It might be raining,” the thought goes, should not be regarded as an assertion of the speaker’s uncertainty as to whether it is raining, but rather as something quite different in kind: a proposal to treat the possibility of rain as live.

Wittgenstein’s admonition provides a helpful lens for viewing the subsequent debate about the meaning of epistemic modal claims, and the system of communication that these claims fit into. The standard account treats “It might be raining” as expressing an ordinary piece of information, namely that the proposition that it is raining is compatible with some contextually salient piece of evidence. On the face of it, the standard account thus treats modal claims as assertions of hesitancy, in Wittgenstein’s phrase; because of this, it has been taken to task for failing to make sense of what speakers do with modal claims.<sup>2</sup> An array of heterodox accounts have re-engineered not only the standard theory of the meaning of epistemic modals, but also the contextualist theory of communication—on which communication is simply the transfer of information—in order to make sense of the dynamics of modal language.

In this paper I will show that there is a way to walk a line between these two options. It is indeed wrong to view a “might”-claim simply as an assertion of uncertainty. This fails to capture a fundamental observation about the dynamics of epistemic modality, namely, that an assertion of  $\lceil$ Might  $p \rceil$  is in general a proposal to

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<sup>1</sup>“Betrachte nicht die zaghafte Behauptung als Behauptung der Zaghaftheit” (Wittgenstein, 1953, II.x.110).

<sup>2</sup>I will often use “modal claim” for “epistemic modal claim”; my focus in this paper will be exclusively on epistemic modals.

make  $p$  compatible with the *common ground*.<sup>3</sup> It is overhasty, however, to conclude that there is *no* content that we can assign to “might”-claims which will capture this observation. In this paper, I show that we can in fact capture this observation within the contextualist framework. We can do so by assigning  $\lceil$ Might  $p$  $\rceil$  an assertoric content which is about the conversation’s common ground itself. In particular, we maintain that  $\lceil$ Might  $p$  $\rceil$  says that  $p$  is compatible with the common ground as it stands after the claim in question has been made and negotiated. I show that this approach, together with the background contextualist theory of communication, guarantees that an assertion of  $\lceil$ Might  $p$  $\rceil$  amounts to a proposal to make  $p$  compatible with the common ground. In the second part of the paper, I consider the attractions and drawbacks of this approach, arguing that some natural objections can be answered by exploring a parallel between modal claims and performative uses of language.

## 2 Contextualism and its discontents

I begin by sketching the contextualist framework, and the challenge that epistemic modals pose to it.

### 2.1 Contextualism

“Contextualist” is sometimes used to describe a theory of how a particular term works; for instance, any plausible theory of the meaning of “I” will be contextualist, insofar as it will say that the denotation of “I” varies with the context. I will use “contextualist” here in a more general way, to describe a wholesale model of communication.<sup>4</sup> In the contextualist framework, semantics is responsible for compositionally assigning contents (*propositions*) to well-formed declarative sentences (or logical forms), relative to contexts.<sup>5</sup> Pragmatics concerns the application of domain-general reasoning to these semantic outputs. In particular, contextualism commits to a simple theory of the basic thing speakers do with these contents: they use them to coordinate on their information. To model this, contextualism tracks the common commitments in a conversation at a given time—the conversation’s *common ground*—and then says that an assertion of a declarative sentence is a proposal to add the proposition expressed by the sentence at that context to the common ground. An assertion, in other words, is just a proposal for the interlocutors to come to commonly believe the content asserted.

Contextualism provides an elegant model of the dynamics of conversation; and, since it views conversation as the mutual exchange of information, this model is also predictive (at least once we couple it with an independently motivated theory of how agents assimilate new information): on this model, the evolution of conversation just is the evolution of (common) belief.

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<sup>3</sup>The common ground is the set of propositions commonly accepted in a conversation: the set of propositions accepted by all conversants, accepted to be accepted, and so on, where acceptance is an attitude like belief or knowledge (I move freely between talk of belief and acceptance here). Note that the common ground is defined for any number of conversants, including just one. This claim is only *ceteris paribus* because of the purely descriptive uses of modal claims of the kind discussed in Section 5.2 below. I use roman letters to stand for sentences and italic letters to stand for the corresponding propositions; I leave relativization to contexts implicit.

<sup>4</sup>My theory of modals is contextualist in both these senses. On the latter, especially Stalnaker 1970, 1978, Karttunen 1974.

<sup>5</sup>We can model these propositions as sets of possible worlds—intuitively, the set of all and only those worlds which verify the sentence in question—though this modeling choice is independent of the basic framework.

## 2.2 Discontents

Despite its attractions, however, it is easy to get in a mood in which contextualism looks too simple. Conversation is replete with uses of language which, at first blush, go far beyond the simple exchange of information. In the rest of this paper I make a case study of one use of language which poses this problem: epistemic modal claims.

What do speakers do with epistemic modal claims? Focus for now on “might”-claims, like “It might be raining” or “John might be in his office.” Intuitively, a “might”-claim is a way of proposing that some possibility should be taken seriously in inquiry: e.g. “It might be raining” says “Let us take seriously the possibility that it is raining.” In the contextualist framework, we can, at least as a first pass, make this precise by saying that a claim of  $\lceil$ Might  $p$  $\rceil$  is a proposal to make  $p$  compatible with the common ground, and to make this fact itself common ground.<sup>6</sup> Thus an assertion of “John might be in his office” is a proposal to make it compatible with the common ground that John is in his office, and to make this fact itself common ground.

This description of the dynamics of “might”-claims, which I will refer to in what follows as *the guiding observation*, makes sense of intuitions about what speakers are trying to do when they assert a “might”-claim: namely, to ensure that we treat its prejacent (the proposition it embeds) as a live possibility in our investigation of what the world is like. It also makes sense of intuitions about what speakers are doing when they agree or disagree about “might”-claims. If you say that John might be in his office and I object that he cannot be, what we are arguing about is whether to treat as live the possibility that John is in his office: you are saying we should, I am saying we should not. If we treat “must” as the dual of “might,” then the guiding observation also makes sense of the dynamics of “must”-claims, predicting that an assertion of  $\lceil$ Must  $p$  $\rceil$  is a proposal to ensure that  $p$  is *entailed* by the common ground. This, again, conforms to intuitions and makes sense of agreement and disagreement about “must”-claims.

We are now in a position to formulate the challenge epistemic modals pose to contextualism. The issue is that an assertion, on the contextualist theory, is a proposal to accept some piece of information. But, if the guiding observation is right, a “might”-claim does not look like a proposal to accept a piece of information, but rather a proposal to make some piece of information *compatible* with the common ground: in Wittgenstein’s phrase, a hesitant assertion, not an assertion of hesitancy.

To make this more pressing, consider the standard theory of the meaning of epistemic modal claims. On this theory,  $\lceil$ Might  $p$  $\rceil$  means that  $p$  is compatible with a set of accessible worlds: those compatible with a body of evidence or attitude made salient by the context of utterance.<sup>7</sup> At first blush this looks reasonable enough, but, when we try to say more about how the accessibility relation in question is actually determined

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<sup>6</sup>See Stalnaker 1970 and many since. The latter part of this is non-trivial, since something can be compatible with the common ground without this fact itself being common ground. This is one way, in the present framework, that we can make sense of the way in which a “might”-claim is used not only to make its prejacent compatible with the common ground, but also to make this fact salient. As an anonymous referee for this journal helpfully points out, there is no doubt more that is required for an adequate model of the attention-getting role of “might”-claims; such a model will presumably involve something more fine-grained than the Hintikkan approach I am assuming here, e.g. QUDs/partitions (Roberts, 2012; Yablo, 2014; Yalcin, 2012), inquisitive contents (Ciardelli et al., 2009), or covers of attitude states (Willer, 2013). I will stick with a Hintikkan model of attitudes here for the sake of simplicity; while the resulting model of the attention-getting role of “might”-claims is certainly partial, it nevertheless does go some way, I think, towards accounting for the role of epistemic modal claims in coordinating common information.

<sup>7</sup>E.g. Moore 1962, Hacking 1967, Teller 1972, Kratzer 1977, 1981, and many since.

at given contexts, it is hard to see how to bring this theory in line with the guiding observation.<sup>8</sup> A natural first thought would be to take the accessibility relation to be determined by the knowledge of the speaker. Then  $\lceil \text{Might } p \rceil$  would be equivalent to  $\lceil \text{For all I know, } p \rceil$ . But this clearly does not conform to the guiding observation: a claim with the form  $\lceil \text{For all I know, } p \rceil$  is not a *proposal* to treat  $p$  as compatible with the common ground, but a statement that  $p$  *already is* compatible with what you know (and, therefore, with the common ground). This model thus fails to account for the way in which speakers negotiate about modal claims. If you say “John might be in his office” and I reply, “No, he is in England,” I am not disputing that it is compatible with *your* antecedent knowledge that John is in his office (you should know); instead, I am disputing whether this is a good thing for us to leave open in *our* inquiry. Likewise, if I agree, I am not agreeing that it is compatible with your knowledge that John is in his office (again, you should know), but rather that it is a good thing to leave open in inquiry.

A natural second attempt would take the accessibility relation to be determined, not by the speaker’s knowledge, but rather the knowledge of the *group* of conversants: the knowledge state that would result if all the individuals in the group *pooled their knowledge*.<sup>9</sup> But this approach still fails to conform to the guiding observation. Suppose we’re in a big group. You see John’s office light on. I ask you where John is. You can say, “He might be in his office”: you are proposing to treat as live the possibility that John is in his office. You are *not* asserting that, if everyone in the group pooled their knowledge, it would remain compatible with our knowledge that John is in his office. Indeed, you may think that, if we pooled all our knowledge, we might well discover that John was not in his office.

These two options do not exhaust the space of possibilities—a point which will play a central role in what follows—but it is tempting at this point to echo Wittgenstein: the standard theory, and the contextualist framework in which it is embedded, makes the mistake of trying to analyze “might”-claims—a special kind of speech act whose aim is to coordinate on which possibilities to treat as live—as assertions of uncertainty. It looks like a mistake to analyze modal claims as any kind of assertion at all; modal claims do not aim to transfer information, but rather constitute a different speech act, something which takes us altogether out of the bounds of the contextualist framework. This pessimistic line is implicit or explicit in much recent work on epistemic modals; here is a characteristic statement:

In general, there is no single proposition one can accept such that one does not rule out  $p$  if and only if one accepts that proposition ( $p$  itself is too strong). So if our language provides the resources to simply express that we do not rule out  $p$ , then it seems we will not be able to understand that bit of language if we confine ourselves to a framework where sentences express propositions. (Rothschild, 2013, p. 50)<sup>10</sup>

<sup>8</sup>See Price 1983, MacFarlane 2011, von Fintel and Gillies 2011, and others.

<sup>9</sup>I.e., the group’s *distributed* knowledge: where  $K_{S,w}$  represents the set of worlds compatible with  $S$ ’s knowledge in  $w$  and  $I$  is a given group,  $\bigcap_{i \in I} K_{i,w}$ . A weaker approach, which takes the accessibility relation to be determined by the *weakest* thing known—i.e., by  $\bigcup_{i \in I} K_{i,w}$ —would fail to make sense of disagreement, like the view just discussed.

<sup>10</sup>Rothschild (2013) himself does not take a stand on this pessimistic conclusion. Another characteristic statement comes in Swanson 2011, p. 251: “Construing subjective uncertainty about whether  $\varphi$  in terms of near certainty about some other proposition seems wrongheaded. But unless the truth conditional theorist [i.e., the contextualist] can find such propositions, there is no reason to suppose that an assertion of a doxastically hedged sentence will inculcate the appropriate partial belief in the addressee. And the project of finding such propositions looks quixotic if not impossible.” Accounts which follow this pessimistic line in rejecting the

### 3 Prospective contextualism

But this pessimistic conclusion is too fast. There *is* a proposition we can assign as the content of  $\ulcorner$ Might  $p \urcorner$  which captures the guiding observation. The basic idea is to preserve the structure of the standard theory, but to have the modal’s accessibility relation determined *by the common ground itself*. In this section I show that, if we do this in the right way, then, thanks to properties of the logic of common ground, an assertion of  $\ulcorner$ Might  $p \urcorner$  will amount to a proposal to make  $p$  compatible with the common ground (and to make this fact itself common ground).

As a first pass at implementing this idea, we could take “It might be raining” to mean that the proposition that it is raining is compatible with the common ground.<sup>11</sup> But this would not have the desired effect. On this view, modal claims would merely *describe* the common ground. Like the views discussed in the last section, this cannot make sense of the way that speakers use “might”-claims to *negotiate* about the common ground. If I say that it might be raining, and you say it is not, we are not arguing about whether the common ground is *presently* compatible with the proposition that it is raining. We know this in part because if you think that the common ground is compatible with  $p$ , then it follows from the logic of the common ground that the common ground *is* compatible with  $p$ .<sup>12</sup> We are, rather, arguing about whether the common ground *should be* compatible with the proposition that it is raining. A parallel point extends to “must.” On the present account,  $\ulcorner$ Must  $p \urcorner$  would say that  $p$  is already entailed by the common ground. That would mean that “It must be raining” could not be used to *inform* one’s interlocutors that it is raining; it could only be truly asserted in a context where it is already accepted that it is raining. This again fails to capture the way in which “must”-claims are used to negotiate about the common ground.

A close variant on this approach, however, avoids these problems. On this view—which I call *prospective contextualism*—“It might be raining” means that the proposition that it is raining *will be* compatible with the common ground as it stands *after* the assertion has been made and either accepted or rejected by all interlocutors (call this the *prospective common ground*).<sup>13</sup> In general, on this view,  $\ulcorner$ Might  $p \urcorner$  means that  $p$  is compatible with the prospective common ground,  $\ulcorner$ Must  $p \urcorner$  that  $p$  is entailed by the prospective common ground.

This approach, together with the contextualist theory of communication, ensures that an assertion of  $\ulcorner$ Might  $p \urcorner$  amounts to a proposal to make  $p$  compatible with the common ground (and to make this fact

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contextualist framework include dynamic accounts such as Veltman 1996; Beaver 2001; von Stechow 2007; Gillies 2007; Willer 2013; Yalcin 2015; expressivist accounts such as Yalcin 2007, 2012, 2011; Rothschild 2011; Swanson 2015; Moss 2015; revisionary contextualist accounts such as Stalnaker 2014, and relativist accounts such as Egan et al. 2005; Stephenson 2007a; Kölbel 2009; Egan 2011; MacFarlane 2011, 2014. For different defenses of contextualism, see e.g. Dowell 2011; Khoo 2015; Stojnić 2016, 2017.

<sup>11</sup>For ideas in this direction, see Groenendijk and Stokhof 1975, Yalcin 2007, MacFarlane 2011.

<sup>12</sup>Models for common ground for a group  $I$  can be constructed by taking the transitive closure of the accessibility relations for acceptance for each  $i \in I$ , where the transitive closure  $R^*$  of a set of relations  $\{R_i : i \in I\}$  is the smallest relation such that  $xR^*y$  just in case there is a sequence of worlds  $\langle w_1 \dots w_n \rangle$  such that  $w_1 = x$ ,  $w_n = y$ , and, for each  $w_j : j \leq n - 1$ ,  $\exists k \in I : w_j R_k w_{j+1}$ . That means that if a  $p$ -world is accessible under  $i$ ’s accessibility relation for any  $i \in I$ , it will be accessible under the accessibility relation for common ground.

<sup>13</sup>What the prospective common ground actually amounts to is of course a vague matter. Importantly, the prospective common ground differs from the common ground at the point just after it has been updated with the fact that the claim has been made (see Stalnaker 1998; von Stechow 2008). Using that common ground to determine accessibility does not avoid the problems just discussed for the non-prospective view.

itself common ground). Here's why. Suppose that  $\lceil \text{Might } p \rceil$  is asserted at time  $t$ ; let  $t'$  be the prospective time, when the assertion has been either accepted or rejected. Suppose first that  $\lceil \text{Might } p \rceil$  is accepted by all parties. In the contextualist framework, that means, again, that its content will be added to the common ground. If  $\lceil \text{Might } p \rceil$  has the meaning attributed to it by prospective contextualism, it follows that it will be common ground at  $t'$  that the common ground at  $t'$  is compatible with  $p$ . In the logic of common ground, assuming that the attitude of at least one party to the conversation is logically consistent, "It is common ground that the common ground is compatible with  $p$ " entails "The common ground is compatible with  $p$ ."<sup>14</sup> In other words, when the common ground consistently thinks something is compatible with it, it is always right. Importantly, this does not follow from substantive assumptions about the logic of the attitudes which constitute the common ground beyond the mild assumption that some underlying attitude is logically consistent, but rather from the structure of the common ground itself. Given this fact about the logic of the common ground, it thus follows that an assertion of  $\lceil \text{Might } p \rceil$  is a proposal which, if accepted, ensures that  $p$  is compatible with the common ground (at the time after the assertion has been negotiated), and that this fact itself is common ground.

Suppose second that  $\lceil \text{Might } p \rceil$  is rejected by all parties to the conversation, in the strong sense that its negation is common ground at  $t'$ . According to prospective contextualism, the negation of  $\lceil \text{Might } p \rceil$  says that the prospective common ground is not compatible with  $p$ ; that is, that it entails  $\bar{p}$ . Thus it will be common ground at  $t'$  that  $\bar{p}$  is common ground. This, again, is not yet what we want, but, once more, the logic of common ground helps us close the gap. Assuming that the underlying attitudes represent themselves as being veridical, it follows that, if the common ground entails that the common ground entails  $\bar{p}$ , then the common ground entails  $\bar{p}$ .<sup>15</sup> In short, when the common ground thinks that it accepts something, it is always right. Thus it follows from the logic of the common ground that, if  $\lceil \text{Might } p \rceil$  is commonly rejected at  $t'$ , then  $\bar{p}$  is common ground at  $t'$ .

In sum: an assertion of  $\lceil \text{Might } p \rceil$ , according to prospective contextualism, will amount to a proposal which, if commonly accepted, makes  $p$  compatible with the common ground (and makes this fact itself common ground); and which, if commonly rejected, makes  $\bar{p}$  common ground. Assuming "must" is the dual of "might," exactly parallel reasoning shows that  $\lceil \text{Must } p \rceil$  is a proposal which, if accepted, makes  $p$  part of the common ground; and, if rejected, ensures that  $p$  is not common ground, and thus that  $\bar{p}$  is compatible with the common ground.<sup>16</sup>

<sup>14</sup>Interpreting " $\Box_t$ " as "it is common ground at  $t$  that," and " $\Diamond_t$ " as its dual, this is the claim that  $\lceil \Box_t \Diamond_t p \rightarrow \Diamond_t p \rceil$  is a theorem in the logic of common ground, assuming that some underlying attitude of acceptance is individually consistent. Suppose every accessible common ground world accesses some  $p$ -world. Since the relation for common ground is the transitive closure of the individual underlying relations, the consistency of at least one underlying attitude ensures that some worlds are accessible; since the relation is transitive, it follows that, since some accessible world can access a  $p$ -world, the world of evaluation can access a  $p$ -world.

<sup>15</sup>I.e., we assume the C4 axiom,  $\lceil \Box_t \Box_t p \rightarrow \Box_t p \rceil$  (corresponding to the *density* constraint on accessibility relations, which says  $\forall a \forall b : aRb \rightarrow (\exists c : aRc \wedge cRb)$ ). This follows, *inter alia*, from the assumption that accessibility for the underlying attitudes is quasi-reflexive—every world which is accessed by a world accesses itself—corresponding to the intuitive assumption that attitudes of acceptance represent themselves as being veridical, i.e. for  $i \in I$ ,  $\models \lceil \Box_{i,t} (\Box_{i,t} p \rightarrow p) \rceil$ .

<sup>16</sup>We can make this reasoning more formal by modeling the common ground at  $t$  with a consistent, logically closed set of sentences  $\Gamma_t$  (a *common ground set*) in a standard modal language, interpreted:  $p$  is common ground at  $t$  iff  $\lceil \Box_t p \rceil \in \Gamma_t$ . To encode the assumption that monotonicity is presupposed,  $\Gamma_t$  contains  $\lceil \Box_{t'} p \rceil : t' > t$  whenever it contains  $\lceil \Box_t p \rceil$ . An assertion of  $p$  at time  $t$  is a proposal which, if accepted, has the effect of ensuring that  $\lceil \Box_{t'} p \rceil$  is in  $\Gamma_{t'}$ , where  $t'$  is the time at which  $p$  has been accepted or rejected (the *prospective time*);  $\Gamma_{t'}$  is the smallest common ground set which includes  $\Gamma_t$ , updated with the fact that

Prospective contextualism, together with the contextualist model of conversation dynamics, thus predicts that assertions of  $\lceil$  Might  $p \rceil$  and  $\lceil$  Must  $p \rceil$  will have exactly the update properties ascribed to them by the guiding observation. In this framework, given mild assumptions about the logic of the attitudes that compose the common ground, when we accept  $\lceil$  Might  $p \rceil$ , we accept a proposition which says that  $p$  is compatible with our own (prospective) common ground. And to accept such a proposition *just is* to render  $p$  compatible with our common ground. Likewise, when we accept  $\lceil$  Must  $p \rceil$ , we accept a proposition which says that  $p$  is entailed by our own (prospective) common ground. And to accept such a proposition *just is* to make  $p$  entailed by our common ground. Prospective contextualism thus shows that the guiding observation can be reconciled with the contextualist framework: by taking modal assertions to have contents that are themselves about the common ground, we can view modal assertions as proposals to add a proposition to the common ground, yet still make sense of the fundamental dynamics of modal language.

Before moving on, let me note two important features of prospective contextualism. First, prospective contextualism is a theory about the *assertoric content* of unembedded modal claims—what proposition they contribute to the common ground when asserted—not their semantic content (see Ninan 2010 for relevant discussion of the distinction). Thus, while prospective contextualism is committed to the claim that  $\lceil$  Might  $p \rceil$  and  $\lceil p$  is compatible with the prospective common ground  $\rceil$  generally contribute the same proposition to the common ground when asserted, it is no part of prospective contextualism that these have the same compositional *semantic* content, and thus no part of prospective contextualism that they will embed in the same way. This is important, since a little reflection shows that these in fact embed in different ways. There are a variety of different ways we could develop a semantic theory to implement prospective contextualism. I will not address this issue substantively here, but let me very briefly say how I think this might best be done. We could simply build prospective contextualism as a default mode of interpretation on top of the standard Kratzerian theory. That theory, however, has difficulty accounting for certain embedding data, as Groenendijk et al. (1996); Aloni (2001); Yalcin (2007) discuss. In Mandelkern 2019a, I develop a variant of the standard theory which augments it with the assumption that modals come with a constraint that ensures that only worlds in the modal’s *local context* are accessible (on local contexts, see Stalnaker 1974; Karttunen 1974; Schlenker 2009). I argue that this approach accounts for the embedding behavior of epistemic modals. The local context for unembedded claims is the set of worlds compatible with the common ground, of which the prospective common ground will be (presupposed to be) a subset; so the prospective contextualist interpretation will be an admissible interpretation. Absent other clues, this will be an obvious default, since

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the assertion in question has been made and anything that follows from this fact, and which includes  $\lceil \Box_{t'} p \rceil$ . Some revision of the common ground may be necessary to ensure that this set is consistent. The mechanics of such a revision are beyond our scope—although this topic is of special interest for the theory of epistemic modals, since assertions of epistemic possibility claims are a standard tactic for creating such a clash, the question of how such a revision goes, in our framework, is just an instance of the general problem of belief revision (see e.g. C.E. Alchourrón and P. Gärdenfors and D. Makinson 1985). According to prospective contextualism, a claim of  $\lceil$  Might  $p \rceil$  as asserted at  $t$  will be regimented as  $\lceil \Diamond_{t'} p \rceil$ , where  $t'$  is the prospective time. Suppose first that this claim is accepted. Then  $\lceil \Box_{t'} \Diamond_{t'} p \rceil$  is in  $\Gamma_{t'}$ . We assume that our underlying attitudes obey the two assumptions mentioned above: at least one of the underlying attitudes’ accessibility relations is serial, and all are quasi-reflexive. Since  $\lceil \Box_{t'} \Diamond_{t'} p \rightarrow \Diamond_{t'} p \rceil$  is thus a theorem, given that  $\Gamma_{t'}$  is logically closed, it follows that  $\lceil \Diamond_{t'} p \rceil \in \Gamma_{t'}$ . Since  $\Gamma_{t'}$  is consistent, it follows that the  $\lceil \Box_{t'} \neg p \rceil \notin \Gamma_{t'}$ , and thus  $\bar{p}$  is not common ground at  $t'$ , and thus  $p$  is compatible with the common ground at  $t'$ . Suppose second that this claim is rejected (equivalently, that  $\lceil$  Must not  $p \rceil$  is accepted). Then  $\lceil \Box_{t'} \neg \Diamond_{t'} p \rceil \in \Gamma_{t'}$ ; equivalently,  $\lceil \Box_{t'} \Box_{t'} \neg p \rceil \in \Gamma_{t'}$ . Since  $\lceil \Box_{t'} \Box_{t'} \neg p \rightarrow \Box_{t'} \neg p \rceil$  is a theorem given our assumptions, given that  $\Gamma_{t'}$  is logically closed, it follows that  $\lceil \Box_{t'} \neg p \rceil \in \Gamma_{t'}$ , and thus that  $\bar{p}$  is common ground at  $t'$ , and thus that  $p$  is not compatible with the common ground at  $t'$ .

it provides a strong and natural interpretation of what speakers might be trying to do with modal words. But this default can be overridden, which is important for accounting for the fact that, provided suitable contextual set-up, modals may be used simply to describe someone’s state of mind, as in the “stand your ground” cases discussed in Section 5.2, or in “exocentric” readings of modals.<sup>17</sup>

Second, what is essential to prospective contextualism is that it assigns to a modal claim a content which has certain introspective properties with regard to the common ground.<sup>18</sup> Making epistemic modal claims about the prospective common ground is an obvious way of accomplishing this, but there may be other ways—for instance, by making them about the prospective common *evidence*, and adopting introspective constraints regarding evidence. What is really essential to prospective contextualism, then, is not that the content of modal claims be itself about prospective attitudes, but that it be related to those attitudes in the right kind of way. Making the content of modal claims about those attitudes is a simple and natural way to accomplish this, but the basic insights of this approach can thus be extended to any variants which preserve these logical principles. Having said this, I will set aside exploration of such variations for present purposes, focusing on the simple version of the view which I have presented here.

## 4 Performativity

Prospective contextualism shows that we *can* capture the guiding observation within the contextualist framework. It does not follow that we *should* do so. The main claim of this paper is the weaker, first one: that we cannot dismiss contextualism based on its putative inability to capture the guiding observation. I will not argue that prospective contextualism provides the correct theory of the assertoric content of epistemic modal claims; whether it does turns on a wide array of issues which I cannot hope to adequately address in this paper. In the rest of the paper, instead, I will address some obvious concerns about prospective contextualism, trying to bring out some of its attractions along the way.

I will begin by addressing a natural worry about prospective contextualism. The worry is that there is something very *weird* about prospective contextualism. It captures the guiding observation in a way which is both structurally and normatively implausible. According to prospective contextualism, an assertion of an epistemic modal claim is a proposal about how the common ground *should* evolve which is made by saying something about how it *will* evolve. This looks structurally roundabout: the *truth conditions* in this account look like idle wheels. And this looks normatively implausible: speakers can assert modal claims without having any idea of what will actually happen to the common ground, and thus without knowing or believing the content which prospective contextualism assigns to modal claims. Given that you generally have to believe what you say, prospective contextualism cannot be the right theory.

I will address this worry by arguing that the method of negotiation which I have attributed to epistemic modal claims—making a proposal about how some contextual parameter *ought* to be set by making a truth

<sup>17</sup>See Egan et al. 2005; von Stechow and Gillies 2008; Kratzer 2012. Prospectivity may still play an important role in the interpretation of embedded modals; thus e.g. “If p, then must q” might, as a default, be interpreted as saying that q is true in all the p-worlds of the *prospective* context, which lets us understand how speakers negotiate with these (restricted) modal claims; thus in particular an assertion of “If p, then must q” would have the same update effect as an assertion of “Not p or q” (despite having a different semantic value).

<sup>18</sup>In particular, that it has the properties that “□<sub>t</sub> (Must<sub>t</sub> p)” entails “◇<sub>t</sub> p”; and that “□<sub>t</sub> (Must<sub>t</sub> p)” entails “□<sub>t</sub> p”.



conditional claim about how it *will* be set—is in fact widespread in natural language. In particular, epistemic modal claims, on this approach, recapitulate the structure of a wide variety of performative assertions.<sup>19</sup> This shows that there is nothing suspicious about the structure which prospective contextualism attributes to epistemic modal claims. It also puts us in a position to address the normative issue for prospective contextualism, by arguing that performatives in general are governed by norms which do not require one to know or believe their content.

#### 4.1 Performatives in natural language

We can very roughly characterize performatives as assertions which aim in the first instance not to describe the world, but rather to change it. There are many different kinds of performative, and there has been much debate about their structure.<sup>20</sup> I will focus here on one kind of performative which involves a particularly simple formulation, and thus is, I think, particularly revealing about the structure of at least some performatives. These are performatives which are made using sentences which appear to have ordinary truth conditions: sentences which can be used in a purely descriptive manner, simply to describe the world; but can also be used performatively.

To see the kind of thing I have in mind, suppose Mark tells Mary, “This afternoon, John will be cleaning the rabbit cage.” There is nothing unusual about this claim, and it has straightforward truth-conditions: it is true just in case John will be cleaning the rabbit cage this afternoon. Now suppose that Mark says the same thing (*modulo* a change of “John” to “you”) to John: “This afternoon, you will be cleaning the rabbit cage.” Assume that Mark has the right kind of authority over John to tell him what to do. In that circumstance, this sentence can be used to not (just) inform John about the future, but to *make* that future come about: to make it the case that John *will* clean the rabbit cage, by establishing normative facts about what John *may* do. And, crucially, the assertion in question does this by making a claim about what he *will* do. When Mark tells John that he will be cleaning the rabbit cage this afternoon, Mark (according to the contextualist model I am assuming) communicates to John that Mark believes John will be cleaning the rabbit cage this afternoon. If John had no prior intention to clean the rabbit cage, but John thinks that Mark has the authority to determine what John will do this afternoon, then John will reason that Mark would only believe that John will clean the rabbit cage if Mark is requiring that he do so; and thus John (assuming he recognizes Mark’s authority to impose requirements on him) will change his plans to accord with Mark’s beliefs.

What is nice about performatives like this one is that they wear their structure on their sleeves. There is no obvious reason to think that Mark’s sentence in the second (performative) use is semantically different from his sentence in the first (descriptive) use. It is natural to think that these sentences have the same content in the two contexts: it is just that, in the second context, Mark’s assertion serves not just to describe the world, but also to bring about the state of affairs which it describes. By describing what the future will be like in the right normative setting, Mark’s assertion functions to bring about the future that he is describing.

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<sup>19</sup>This treatment of epistemic modal claims as performatives can be seen as an extension of the approach in Lewis 1979, which treats some uses of deontic modals in this way.

<sup>20</sup>“Performative” is sometimes reserved for more specific kinds of speech act, but I aim here to bring out parallels that narrower usage might obscure. For some of the debate, see e.g. Austin 1962; Cohen 1964; Strawson 1964; Searle 1968, 1969; Bach 1975; Bach and Harnish 1979; Davidson 1979; Bach 1994.

One could, of course, maintain that sentences like this are ambiguous between a purely descriptive meaning, on which they have ordinary truth-conditions; and a performative meaning, on which they do not. One argument that this would be the wrong tack comes from the fact that, in many cases, a single assertion of a sentence like this can serve to *both* describe the world and change it. Anscombe (1963) gives an example along these lines. Imagine a doctor telling a patient, in the presence of a nurse, “The nurse will now take you to the operating theater.” In this context, the doctor’s claim is both a description of what is going to happen—a claim that the world will be one in which the nurse takes the patient to the operating theater—and a means by which she makes it the case that the world will be this way—given the background normative conditions in play in the context, the nurse, in hearing the doctor’s claim, will be required to act so as to bring it about that her claim is made true. If the doctor’s sentence was ambiguous between a descriptive and a performative meaning, then we would not be able to derive both meanings from a single assertion. On the face of it, there is just one thing going on here: an assertion which both describes a certain future and (thereby) brings it about.<sup>21</sup>

What is helpful about examples like this is that they attest the same structure that I am attributing to epistemic modal claims. They make claims with ordinary truth conditions. But these claims also amount to proposals to change the world—proposals which are made by way of a claim with ordinary, but prospective, truth conditions, which, if accepted, ensures that the change in question takes place. And so these kinds of assertions show that the performative structure that prospective contextualism attributes to modal claims is, in fact, widely attested in natural language.<sup>22</sup> This should allay fears that that structure is implausibly roundabout.<sup>23</sup>

## 4.2 Conversational norms: The perspective from performatives

It also helps us answer a natural objection concerning norms of assertion. The concern, again, is that, if modal claims have the content I am ascribing to them, then speakers will often be able to assert epistemic modal claims without knowing, or even believing, that their content is true. I can propose, for instance, to make the common ground entail that Sue is in her office, by asserting “Sue must be in her office,” without knowing or even believing that the common ground will come to entail this: for all I know, you may fail to accept my proposal, in which case the content ascribed to it by prospective contextualism will be literally false. If assertions in general were governed by a norm along the lines “Only assert what you believe [or know],” as is widely accepted, prospective contextualism would leave it puzzling how people could assert epistemic modal claims in ordinary circumstances. I will argue in this section that a similar puzzle arises for performatives in general, and suggest that performative assertions are not governed by a belief or knowledge norm of this form in the first place, but rather by a norm oriented towards what agents do with their words.

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<sup>21</sup>We cannot, of course, assume that all performatives have the same structure, and thus these examples do not show that *all* performatives have truth-conditions, or more generally share the structure of these performatives (though I think these performatives suggest that it would be fruitful to look for an account along those lines); it is consistent with everything I say here that some performatives lack truth conditions.

<sup>22</sup>See Truckenbrodt 2009, Eckardt and Schwager 2009, Eckardt 2009 and Condoravdi and Lauer 2011 for similar ideas about performatives.

<sup>23</sup>These cases are explicitly marked out as being about the future, whereas epistemic modal claims are not, which may make the analogy I am drawing seem strained. But note that prospective contextualism does not claim that modal claims are interpreted *in the future tense*, but simply that they are assigned accessibility relations in a way which references the future.

This provides a principled explanation of how, and when, we can reasonably assert epistemic modal claims even if we do not know or believe their contents.

Let us consider first performatives like those discussed in the last subsection, such as “This afternoon, you will be cleaning the rabbit cage.” Could a performative like this be governed by a norm along the lines: Assert  $p$  only if you believe (or know)  $p$ ?<sup>24</sup> Clearly not. Mark may well tell John that he’ll be cleaning the rabbit cage as an *attempt to get him to do it*, even though he knows this attempt may not be successful. One way to see this point is to compare a sentence like “You will be cleaning the rabbit cage” to “You have to clean the rabbit cage.” In many contexts, these sentences play the same role: to try to get John to clean the rabbit cage. It would be implausible to think that the latter of these can be asserted only if the speaker knows the addressee will clean the rabbit cage. And it seems no more plausible to hold that such a norm governs the former. This, of course, is in stark contrast to non-performative assertions: if Mark asks John what he was doing in the morning, then it is generally *not* permissible for John to say that he was playing outside, if he does not believe this to be true.<sup>25</sup>

This is *prima facie* puzzling. But these observations are not hard to make sense of. Performatives are used to *do* things, and so the norms that govern their production (and negotiation) will concern in the first instance what the performative is being used to *do*, and only derivatively the speaker’s doxastic relation to its content. In short, I propose that performatives are governed by a very general norm along the lines: Assert  $p$  only if the action which you aim to accomplish with your assertion is permissible. Call this the *Speech Act Norm*. This norm rightly predicts that whether or not Mark may tell John that he will be cleaning the rabbit cage depends on whether it is permissible for him to require John to clean the rabbit cage—*not* whether he knows, or believes, that John will clean the rabbit cage. In general, I propose that the best way to make sense of the observations just adduced is to hold that performatives are in the first instance governed only by the *Speech Act Norm*, and are governed by more specific doxastic norms only when those follow from the *Speech Act Norm*. In some cases, more specific norms will indeed follow. But in the cases under consideration, nothing in the *Speech Act Norm* entails that speakers must know or believe the contents in question.

This should, I think, be fairly uncontroversial. I suspect that a bolder claim is also true: that what goes for performatives of the kind under discussion goes also for assertions in general. In other words, I think it is plausible that the *Speech Act Norm* governs assertions in general, not just performative assertions. The fundamental norm governing assertions, I propose, cares in the first instance about what is done with those assertions. Assertions can have diverse goals; it is natural to think that the norms which govern assertions should be sensitive to that diversity, and should in the first instance target the basic kind of thing that assertions are—speech acts. More specific norms, however, may follow from the *Speech Act Norm*, given

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<sup>24</sup>As in e.g. Williamson 2000; Lackey 2007. It does not matter for present purposes which of these mental states is the relevant one.

<sup>25</sup>One reaction to these observations is to argue that performative “assertions” are not really assertions in the fullest sense: we should reserve “assertion” for the class of speech acts which are governed by doxastic norms. This dispute seems essentially terminological: there are cross-cutting taxonomies which we can bring to bear on speech acts, which may be useful for different purposes. I will continue to use “assertion” here to refer to the class of speech acts which are attempts to update the common ground with a given content; this class includes both non-performative assertions and performative ones, since performatives of the kind I have been discussing, both epistemic and non-epistemic, are at least in part proposals to update the common ground with their content. (For instance, “This afternoon, you will be cleaning the rabbit cage” is a bid to get John to clean the rabbit cage, but it is an attempt to do this which goes by way of an attempt to update the common ground with its content.)

ancillary normative assumptions. For instance, in most situations, it is not permissible to take actions that mislead others. In those situations, it follows from this normative fact, together with the *Speech Act Norm*, that an assertion will be permissible only if it does not mislead others. Indeed, it is plausible that in many situations a more demanding Gricean norm is in play, which requires that an assertion contribute to coordination on common knowledge or belief. Call this norm, which follows from the *Speech Act Norm* plus independent assumptions about the general norms of communication, the *Common Ground Norm*.

The *Common Ground Norm*, in turn, entails a limited norm of the kind familiar from the literature on norms of assertion, again given plausible ancillary assumptions. Consider a sentence whose content is exclusively about a state of affairs which does not depend on the assertion of the sentence. Given the *Common Ground Norm*, you plausibly should assert a sentence like this only if you know and believe it: since an assertion is a proposal to update the common ground with the asserted content, an assertion of something you do not know, or do not believe, will not generally be conducive to the end of coordinating on common knowledge. It follows that you should know what you assert (or at least believe it, if we take a more subjective approach to norms), when what you assert is not a performative.

But when it comes to performative assertions—assertions which aim to bring about a state of affairs, not just describe one—nothing in the *Common Ground Norm* entails that one must know or even believe the content of the assertion when asserting it. Indeed, it is easy to see that in many cases knowing or believing the asserted content may be positively inconsistent with the *Speech Act Norm*: sometimes the best thing to do—even in cases in which a conversation is generally speaking aiming at the truth—is to assert something which one does not believe or know, in the hopes (or the knowledge) that it will *become* true in virtue of your assertion (as e.g. in the rabbit cage or nurse case above). The *Common Ground Norm* does entail that one’s claim should generally contribute, or at least not detract, from the good epistemic standing of the conversation. It follows that performatives should generally be such that, *if they are accepted*, they will be commonly known.<sup>26</sup> But it does not follow that performatives have to be known—or believed—*antecedently*: one can assert risky performatives, performatives the speaker does not know will be accepted (and thus does not know will be made true), provided the aim of the assertion is a permissible one. This is particularly clear, I think, in the case of the practical performatives we considered in the last section. But, from the perspective of the *Speech Act Norm*, it is also very plausible in the case of epistemic performatives of the kind I am arguing epistemic modal claims may be. Sometimes an epistemically useful assertion can be one whose content is not antecedently known, provided that its content will be known if it is accepted; and that the assertion serves the purpose of coordinating on the conversants’ common knowledge. Epistemic modal claims, in the

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<sup>26</sup> Among other things, this suffices to explain the infelicity of performatives which command the addressee to do something that is not in their power, like “You will win the lottery,” said as a command to buy a lottery ticket. It also goes some way towards explaining the infelicity of Moore sentences containing performatives as a conjunct: “You’ll clean the rabbit cage but I do not know you will” cannot amount to common knowledge, even if it is accepted (provided the time interval relative to which “know” is evaluated includes the prospective time). In theory, this does not rule out performative Moore sentences if care is taken to ensure that the interval relative to which “knows” is evaluated does not include the prospective time. Sentences like this seem to be ruled out on independent grounds, however: you should not tell someone to do something, and then say you are not sure if they will. To see this, note the oddity of “You have to clean the rabbit cage, but I do not know if you will,” or “Clean the rabbit cage! I do not know if you will.” See Silk 2015, 2018 for this observation. The data here are subtle, but there does seem to generally be something marked about these conjunctions, something which can be brought out by contrasting these with corresponding weaker modal claims, like “You should clean the rabbit cage, but I do not know if you will.” It seems as though, in trying to get someone to do something, you must act as if you are confident that they will; see Mandelkern 2018b for further discussion.

framework of prospective contextualism, have just this profile. One need not antecedently know these claims in order to assert them; one need only know (or have sufficiently good reason to believe) that the proposals these claims make are epistemically valuable.

There is much more to do in exploring this perspective on the norms of conversation, but I will leave the discussion at this sketch for the present. The key point for our purposes is that this approach to the norms of conversation makes sense of intuitions about both when ordinary, non-performative claims can be asserted, as well as when broadly performative claims can be asserted. And, if epistemic modal claims are performatives, as prospective contextualism maintains, then, given the normative regime that governs performatives in general, we can resolve the normative concern about prospective contextualism. According to prospective contextualism, one can often assert modal claims without knowing their content to be true. But if modal claims are performatives, we can give a principled account of why this should be so: they are in the first instance used to *do* things—make proposals about what entailment and compatibility properties the common ground should have—and thus that they are governed by norms which look, in the first instance, at those actions, rather than at agents' relation to the truth conditional content of those claims.

It may be objected at this point that, although the prospective contextualist framework is technically within the bounds of contextualism, it has abandoned one of the principle attractions of contextualism: namely, that in a contextualist framework, we can view assertions as aiming at coordination on the speakers' knowledge and beliefs. If you can assert propositions without believing them, the thought goes, we lose this attractive feature of contextualism. But this is mistaken. The normative framework I have sketched here still views conversation as (among other things) aiming at the coordination of speakers' knowledge and beliefs. It just turns out that—when the truth of a given content depends on the speech act of asserting that content—you need not know or believe that content in advance of it being accepted in order for your assertion to contribute towards epistemic coordination.

## 5 Loose ends

This completes the core of my presentation of prospective contextualism. In this section, I will briefly address a few remaining issues.

### 5.1 Comparisons

The discussion in the last section showed that prospective contextualism's treatment of epistemic modal claims is more plausible than it might first seem: provided we pay careful attention to the phenomena of performativity in natural language in general, we can make sense of the way that speakers assert, and negotiate about, epistemic modal claims within the prospective contextualist framework. A natural question to ask at this point is whether prospective contextualism does a better job of this than competitor views, like expressivism, relativism, or dynamic semantics. I will not try to answer this question here. I will instead briefly compare prospective contextualism with just one other view in the literature, namely that given in Stalnaker 2014. My view owes a substantial debt to Stalnaker's, and is similar in many ways to his, but has

some important differences.<sup>27</sup> The comparison with his proposal will help bring out what is distinctive about prospective contextualism.

Stalnaker adopts the standard Kratzerian semantics for epistemic modals, and then proposes that epistemic modal claims are coupled with a special force rule, which specifies that an epistemic modal claim is to be interpreted as a proposal to make the prospective common ground verify the modal claim: in other words, as a proposal to make it the case that, if the modal claim is evaluated relative to the set of worlds in the intersection of the prospective common ground, the claim comes out true. Stalnaker's proposal nicely conforms to the guiding observation, along very similar lines to prospective contextualism. But the proposal diverges from the contextualist framework in an interesting way, by associating epistemic modal claims with a distinctive force rule. Stalnaker's proposal and mine are essentially routes to the same end. But where prospective contextualism is set within the contextualist framework laid out above, in treating updates with epistemic modal claims in the same way as updates with non-modal claims, Stalnaker's approach diverges from it: instead of assimilating modal updates to other kinds of propositional updates, Stalnaker introduces a special force rule that applies only to modal updates.

This move, in my view, has some drawbacks. First, the multiplication of force rules in Stalnaker's account adds complexity to the pragmatic framework which looks unmerited from the point of view of prospective contextualism, which has only one force rule—the standard assertoric update rule—for both modal and non-modal claims. This multiplication of force rules also entangles the pragmatic theory with lexical semantics in an unattractive way: on Stalnaker's view, what triggers the distinctive prospective force rule is a claim's being an epistemic modal claim. This pragmatic rule thus makes reference to specific lexical items—modal words—rather than to the output of the semantic operations.<sup>28</sup> A closely related, more technical point concerns sentences which involve both modal and non-modal constituents. Consider a disjunction with the form  $\lceil p \text{ or might } q \rceil$ . What update rule applies to this sentence? The prospective update rule simply does not make sense in application to the first disjunct; but the ordinary update rule will bleach out the proposal-like quality of the second conjunct. It looks like to make sense of assertions like this (and similar conjunctions) we need a single update rule which applies to both modal and non-modal sentences.

This is not to say that there is not something right at a *descriptive level* about Stalnaker's characterization of the force of modal claims. A comparison with performatives like “This afternoon, you will be cleaning the rabbit cage” is, again, helpful. There are prescriptive uses of this sentence, and also descriptive uses. These uses have different effects, and, at the level of descriptive taxonomy, it is helpful to distinguish them. But I do not think there is reason to say that these uses are associated with distinctive *force rules* from the perspective of formal semantics and pragmatics. Instead, it seems preferable to adopt a unified force rule that predicts that which of these different uses (prescriptive or descriptive) is brought out in a given occasion of use depends on varying background conditions (the normative authority of the speaker, their relationship to the addressee, and so on). Things are parallel for epistemic modals. While there is, at a descriptive level,

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<sup>27</sup>Stalnaker's own presentation is brief, and there are different ways to interpret it; the present interpretation at least provides a useful foil for my own view, whether or not it is precisely what Stalnaker had in mind. For an earlier intimation of Stalnaker (2014)'s approach, see Stalnaker 1993.

<sup>28</sup>See Szabó 2016 for related criticism. Importantly, this is in part because the meaning of modal claims will be *structurally* just like other propositions; compare the situation with questions or imperatives, which are standardly associated with distinctive force rules, but also have contents with distinctive semantic types.

something right in saying that modal claims have a distinctive force, in that they have a characteristic update effect of making a proposal about how the prospective common ground will look, I am inclined to think that we should not encode this in our pragmatic system; if we are to make sense of mixed modal/non-modal disjunctions and conjunctions, then, from the perspective of our general pragmatic system, we need a single unified force rule for both modal and non-modal claims. Together with an appropriate account of the assertoric content of modal claims, the relevant descriptive generalization of the force of modal claims will then fall out as a consequence, rather than being stipulated.

These points help bring out the differences between my proposal and Stalnaker’s, and one central attraction of the prospective contextualist framework. In the prospective contextualist framework, modal claims, like all assertions, express propositions, and updating with a modal claim just is updating with an ordinary proposition—in other words, coming to accept a piece of information. Once we have a theory of belief revision in place, we will thereby have a fully explicit theory of how such updates will go. By contrast, in most revisionary theories, modal claims do not express propositional contents, or else (as we have just seen in Stalnaker’s account) come along with an idiosyncratic update rule; and thus modal updating cannot be assimilated to belief updating in general. Those theories can, of course, propose rules that connect modal updating and belief revision. My point here is the simple and *pro tanto* one that those theories must give an account of the connection between modal updating and belief revision, whereas on prospective contextualism, there is no such obligation: modal updating simply *is* belief revision, and so a theory of the latter will suffice for a theory of the former.<sup>29</sup>

## 5.2 Descriptive uses

According to prospective contextualism, epistemic modal claims have truth-conditions; it is in virtue of those truth conditions’ prospective nature, and the interlocutors’ privileged position with respect to determining features of the common ground, that epistemic modal claims have the force they have. One feature of the truth-conditional performatives we looked at in Section 4.1 was that, in the right contexts, those sentences had clearly distinguishable descriptive content, and could be used in a purely descriptive fashion: thus, for example, if the nurse has already been told what to do and is out of earshot, “The nurse will now take you to the operating theater” is purely descriptive. This leads us to expect that, if prospective contextualism is correct, epistemic modal claims, even in their performative uses, have descriptive content; and, furthermore, that they will have purely descriptive uses (cf. Lewis (1979)’s claim that deontic modals likewise can have

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<sup>29</sup>For an illustration of this point, consider dynamic semantics. Consider an update with  $\lceil \text{Must } p \rceil$ , in a context  $c$  which does not entail  $p$  or  $\bar{p}$ . The most natural update rule we could associate with dynamic semantics simply says that, when a sentence  $q$  is asserted in context  $s$ , we move to context  $s[q]$ , where  $[q]$  is  $q$ ’s context change potential. This is a fully deterministic update rule. But if we applied this rule in the present case, an assertion of  $\lceil \text{Must } p \rceil$  would take us to the empty set. Presumably dynamic semanticists will invoke some kind of pragmatic rescue mechanism to avoid this result. (Willer (2013)’s variant on dynamic semantics avoids this particular problem, but faces a related version of the problem: in a context in which  $\lceil \text{Might } p \text{ and might not } p \rceil$  has been accepted, any subsequent assertion of  $\lceil \text{Must } p \rceil$  will take the context to the empty set.) The point is not that there is nothing that can be said here, just that something must be said that goes beyond the simple update rule under consideration. A similar point, *mutatis mutandis*, can be made in the case of Yalcin’s expressivism. On that view, an assertion of a sentence is a proposal to move to a context that accepts that sentence. This means in particular that an assertion of  $\lceil \text{Might } p \rceil$  is a proposal to move to a context that is compatible with  $p$ . But which context? Nothing in the system answers that question. Again, there are responses available here; my point is simply that something must be said to fill out these theories to cover the case of modal updates.

both descriptive and a performative uses). In this section I will explore the case that this is the correct prediction, concluding that things are not altogether clear here.<sup>30</sup>

Let me first make a case that epistemic modal claims do have descriptive content which can be distinguished from their performative force. The first part of the case is based on the “stand your ground” cases discussed in von Fintel and Gillies 2011. Suppose Ann says “The keys might be in the car”; Bill accepts her claim. Then, sometime later, they both discover that the keys are not in the car. If Bill takes Ann to task for not knowing where the keys were, Ann might reply: “Look, I didn’t say they were in the car. I only said they might be there—and they might have been.” Here, we can interpret Ann as standing by the truth-conditions of her claim—namely, that the prospective common ground in her conversation was compatible with the keys being in the car—even if she no longer stands by the proposal that she made to leave it open that the keys were in the car.

Cases like this thus seem to provide evidence that epistemic modal claims do indeed have a descriptive content which can be distinguished from their performative function, and which plays an independent role in conversational practice. In this sense they seem parallel to the truth-conditional performatives I discussed above. In particular, compare overtly epistemic performatives, like “Ok, we now all recognize that we’re in agreement that the keys are in the car.” Suppose that Ann says this as a way to make it the case that the group recognizes that they agree that the keys are in the car. If Mark then discovers the keys are not in the car, he can say: “You were wrong about the keys!” Ann might concede that the group was wrong to agree that the keys were in the car, but she could also fall back on the descriptive content of her claim: that is, she could point out that it *was* true that the group recognized they agreed that the keys were in the car. This case seems parallel to the stand your ground case: in both cases, speakers can stand their ground on the descriptive content of their claim, even if they no longer endorse the proposal it was used to make.<sup>31</sup>

Do modal claims also have purely descriptive uses, like other truth-conditional performatives? Consider a claim of the form “Ok, we now all recognize that we as a group leave it open that the keys are in the car.” This has performative uses, but it also has purely descriptive uses: Ann could assert this as a way, not of getting her interlocutors to recognize that it is compatible with the common ground that the keys are in the

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<sup>30</sup>Thanks to two anonymous referees for this journal for very helpful comments on these issues.

<sup>31</sup>An anonymous referee for this journal points out that the parallel looks more limited when we look at a broader range of “stand your ground” cases. For instance, suppose that Bill rejects Ann’s claim, and shows her that the keys are in the kitchen. It still seems like Ann can say “I only said the keys might be in the car.” But in this case, the descriptive content ascribed to Ann’s claim by prospective contextualism is false, since the prospective common ground did not end up being consistent with the keys being in the car. Presumably we want a unified explanation of this kind of case with the kind of case introduced in the main text. One response to this worry sticks with the line taken in the main text, and holds that in cases like the one just described, Ann is insisting that we interpret her claim as not being prospective at all, but rather as describing the context as it stood when she made her claim. A worry with this line of response is that “stand your ground” responses seem available in most cases, so this seems to undermine the claim of this paper that a prospective interpretation is the default one. But we could couple the present response with something along the lines of von Fintel and Gillies (2011)’s cloudy contextualism, maintaining that what proposition modal claims express is typically underdetermined; that, when all interlocutors are content with it, the prospective interpretation is the default one; but that interlocutors may fall back on a weaker, non-prospective interpretation when pressured to do so as in cases like this one. On this way of thinking, both “stand your ground” cases given here do indeed point to the descriptive component of epistemic modal claims, even though, after the interlocutors’ negotiation, only the first case has a prospective interpretation. A second response is to explain all the “stand your ground” cases in a different way—as drawing attention, not to some true descriptive content, but rather to the relative weakness of the proposal they made (namely, as proposals to leave a content open, not to accept it). If we go this way, then of course “stand your ground” cases do not have the dialectic force of pointing to a descriptive content of epistemic modal claims separable from their performative force. However, independent support for this comes from the Mastermind cases below.



car, but rather as a way of simply stating something that is already commonly known. Moreover, Ann need not herself think there is any chance that the keys are in the car in order to felicitously assert this. Do we find parallels in the modal domain?

I think we do. von Fintel and Gillies (2008) supply a useful illustration. Pascal and Mordecai are playing Mastermind, and Mordecai has given Pascal some hints. It is compatible with all these hints that there are two reds. Pascal says, “There might be two reds.” Mordecai can accept Pascal’s claim, even if he knows that there are not two reds. Likewise, Mordecai could himself assert “There might be two reds,” as a way of summarizing the hints he has given to Pascal. In both cases, it seems that Mordecai is simply *describing* the information jointly available to the interlocutors; in light of Pascal’s limited information, Mordecai knows it will remain compatible with the common ground that there are two reds, even though Mordecai himself knows that there are not two reds. This seems like a good candidate for a purely descriptive use of an epistemic modal claim.

On the other hand, in this case, although it is intuitive to describe Mordecai as simply describing the group’s limited information, it is not as though Mordecai *objects* to leaving it open that there are two reds: he rather recognizes that it is part of the norms of the game that he must keep Pascal’s information limited. So—while this case provides further support for the claim that epistemic modal claims have descriptive content which can be distinguished from their performative force—it is somewhat less clear whether this case provides support for the claim that epistemic modal claims have uses which are purely descriptive and not at all performative. To really distinguish a purely descriptive use from a performative one, we should see whether speakers can use epistemic modal claims while positively objecting to the proposal that they make. Suppose that Ann is absolutely convinced the keys are in the car, and Mark is convinced they might be upstairs. Ann tries to convince Mark that they are in the car, but she recognizes that Mark simply will not rule out the possibility that they are upstairs. Could Ann say, “Ok, fine. The keys might be upstairs. Let’s check”?

It certainly seems acceptable for Ann to say this. It is hard to diagnose exactly what is happening when she does, however. One perspective on this is that Ann is simply describing the common ground, and thus that this is indeed a purely descriptive modal claim. On the other hand, we might view this simply as a concession by Ann to Mark, and thus as having performative force. I do not see a clear way to decide between these two options; but the pattern here at least looks consistent with the existence of purely descriptive modal claims.<sup>32</sup>

One way to try to distinguish these options is to make Mark’s claim a totally outlandish one, to make it clearer that Ann is not just conceding the point. Suppose that Mark is convinced that there might be monsters under his bed and wants Ann to check for him. Ann knows that there are not monsters under Mark’s bed, and does not even entertain this possibility. It seems that she might, however, say “Fine, so there might be monsters under your bed. What do you want me to do about it?” This kind of unendorsed “might”-claim—which has much in common with Egan et al. (2005)’s “exocentric” modal claims—seems like a clear candidate for a clearly descriptive “might”-claim.

In some more outlandish cases, a purely descriptive reading is at least *prima facie* harder to get. To take

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<sup>32</sup>We might try to distinguish these by noting that Ann *cannot* say, “Ok, well the keys are not upstairs, but they might be.” We might expect this to be acceptable if a purely descriptive reading were available. But this test will not work because there are independent reasons (based on embedding behavior) to think that sentences like this are contradictions; see Mandelkern 2019a.

a case suggested by an anonymous referee for this journal, suppose that Ann and Mark take a pill which in ten seconds time will change their beliefs, so that they will leave it open that they are on Mars. In this context, Ann could truly assert “It will shortly be compatible with the common ground that we are on Mars.” But it does not seem that Ann could truly assert here “We might be on Mars.”

I am not sure what to say about this case, but let me sketch two possible responses. The first is to note that timing is important. The prospective time of Ann’s assertion is by definition whatever time negotiation finishes, and it is that time that “might”-claims target on my account. In ordinary conversations, agreement is immediate or at least very fast—extended negotiation is the exception. So if Ann says “We might be on Mars” and Mark immediately agrees before the drug kicks in, then her claim will be descriptively false. It only has a shot at being descriptively true if the drug kicks in before the negotiation is finished. And if we think about the situation this way, it is less clear to me that Ann’s claim is unacceptable. Suppose that Ann knows the drug will kick in at exactly 10 pm. She is watching the second hand on the clock, and, just before it hits 12, she says “We might be on Mars starting. . .now!” (with “now” asserted at exactly 10 pm). Here her assertion, though still odd, sounds less strange to me. The prospective time is not just any time in the near future: it is usually a very proximal time. When we adjust the case so that the prospective time really is a time at which the interlocutors leave it open that they live on Mars, the modal claim is improved.

A second response to cases like this one and the preceding one would be to argue that epistemic modal claims, *unlike* the truth-conditional performatives above, have some kind of mandatory performativity built in. Given the parallels surveyed so far, I am somewhat disinclined to go this way. However, let me note that, if we did go this way, we could do so in a way that left intact many of the features of prospective contextualism. Consider again performatives like “I am commanding you to clean the rabbit cage.” A sentence like this can be used in a performative sense, as a way of getting someone to clean the rabbit cage; or in a purely descriptive sense—say, if you have just ordered someone to clean their rabbit cage in a language they do not understand, and you are explaining to them what you have just done. But adding “hereby” rules out the purely descriptive sense: “I am hereby commanding you to clean the rabbit cage” cannot be a description of an order you have just given in another language; it must itself be the performance of an order. There is much to say about how “hereby” brings this about (see Eckardt 2012 and citations therein for discussion). But it is natural to think that the fundamental dynamics of a performative like “I am hereby commanding you to clean the rabbit cage” are not all that different from those of a performative without “hereby,” like “I am commanding you to clean the rabbit cage” (used as a performative): I think it is plausible (though of course not uncontroversial) that these operate in similar ways, are governed by similar norms, and so on.<sup>33</sup> So if we did want to say that epistemic modal claims encode a kind of mandatory performativity, one option would be to do so by building on the truth conditions of prospective contextualism and saying that epistemic modals also encode something like a “hereby” operator. Such an account could leave intact much of the picture put forward here, in particular the truth-conditions of epistemic modal claims, the mechanism by which they can change the context, and the norms that govern them, and would simply augment this account with the stipulation that they must be used in a performative way. This move does not seem implausible. Having said that, it would complicate the picture; and I am not convinced it is necessary, given the cases discussed above

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<sup>33</sup>Although “hereby” seems not to sit well with truth-conditional performatives like those considered above, other adverbials seem to have the same effect in those cases, e.g. “You will *in virtue of this utterance* clean the rabbit cage.”

which provide at least some evidence that epistemic modal claims do have purely descriptive uses.

### 5.3 Disagreement and retraction

A final issue concerns disagreement with, and retraction of, modal claims. Some kinds of reactions along these lines have motivated relativism about epistemic modals. If I overhear Sue saying, “John might be in his office,” and I know that John is not in his office, then relativists claim that it is appropriate for me to respond to Sue by saying “No” or “That’s not true,” *even if I am not part of Sue’s conversation*. This is a *prima facie* puzzle for any brand of contextualism, including prospective contextualism, which predicts that Sue’s assertion is a proposal to leave it compatible with *her* common ground that John is in his office, not with *my* common ground. Puzzles like this have led some to reject contextualism, arguing that truth is determined relative not only to a world but also to a judge or information state supplied by the context of assessment.<sup>34</sup>

This challenge is complicated, both theoretically and empirically. I will, again, not attempt to fully address it here, but let me make two brief remarks about it. The first is that there are theoretical reasons to resist a move to a relativist framework. When we move to a relativist framework, we must abandon the view of conversation as figuring out, together, which world we are in, since, from a relativist perspective, different conversants are in different “worlds”—different relativist points of evaluation. This makes it hard to see what the point of conversation is and how we should model its dynamics; although there have been some attempts to answer these challenges, I do not think they have been entirely successful.<sup>35</sup> This makes it worthwhile to explore whether the move to relativism can be resisted within a contextualist framework.

The second point is that, by giving a contextualist model of the basic intra-contextual dynamics of modal claims, prospective contextualism may provide a theoretical foundation for a successful model of the cases which have motivated relativism. Whether it can do so depends on what exactly the empirical picture is,

<sup>34</sup>See e.g. Egan et al. 2005; Stephenson 2007b,a; Lasersohn 2009; MacFarlane 2011.

<sup>35</sup>Cf. Stojanovic 2007 for related criticism. See Egan 2007; Stephenson 2007a,b for attempts to answer these challenges. Egan proposes that ‘‘Might  $p$ ’’ is evaluated relative to world-individual pairs, and true just in case  $p$  is compatible with what’s in the ‘‘epistemic reach’’ of the individual at that world. He models the common ground as a set of world-individual pairs, and models assertions as adding information to the common ground by intersection. For this to make sense, Egan shows that there must be a presupposition in place that all conversants are relevantly the same with respect to their epistemic reach (otherwise, assertions will end up ‘‘stranding’’ conversants). Egan argues that this is plausible, since it is just part of the notion of epistemic reach that if I am talking to someone for whom  $p$  is entailed by what’s in their epistemic reach, then  $p$  is entailed by what’s in *my* epistemic reach. But such a strong notion of epistemic reach leads to trouble. Egan argues that you must believe what you assert; thus to assert ‘‘Might  $p$ ’’ in Egan’s system, a speaker would have to believe that  $p$  is compatible with what’s in her epistemic reach; it follows from this strong notion of epistemic reach that she would have to believe  $p$  is compatible with what *everyone* in the group knows (since whatever someone knows is, presumably, entailed by their epistemic reach). But, like the group contextualism considered and rejected in Section 2.2, this makes the assertion of ‘‘might’’-claims implausibly demanding. Stephenson’s account avoids this issue by arguing that the content one must *believe* in order to assert ‘‘Might  $p$ ’’ is substantially weaker than the content that gets added to the common ground. Stephenson (2007a, p. 509) writes:

[I]n order for a speaker A to assert a sentence S, it must be the case that for all of A’s doxastic alternatives  $\langle w', t', x \rangle$ , S is true at the index  $\langle w', t', x \rangle$ . . . this means that A must believe that S is true as judged by A, but does not need to believe that S is true as judged by the whole group of conversational participants. Thus the norm of assertion is crucially weak. . . In order for A to assert that S, A only needs to believe that S is true as judged by A, but if A’s assertion is accepted by the other speakers and added to the common ground, it has the same effect as adding the proposition that S is true as judged by the group of conversational participants.

This mismatch between asserted content and updated content avoids the problem I raise for Egan, but it seems *ad hoc*: we lose the simple contextualist picture on which what gets added to the common ground is the same proposition that is believed.

which turns out to be complicated. Recent work in Knobe and Yalcin 2014; Khoo 2015 suggests that, contrary to early relativist literature, subjects are not actually much inclined towards cross-contextual truth-value contestations: that is, if I overhear Sue saying that John might be in his office, subjects do *not* find it to be particularly appropriate for me to reply “That’s not true” (they find this to be markedly less appropriate than in corresponding non-modal cases). That finding is in line with the predictions of prospective contextualism, and contextualist approaches to epistemic modals more broadly speaking.<sup>36</sup> But that same work shows that expressions of disagreement (“No, Joe is at home”) and subsequent retraction (“Scratch that, Joe is at home”) are generally felt to be reasonably acceptable in contexts like the one described, which remains a *prima facie* challenge for contextualism.

Khoo (2015), however, has provided a persuasive account of how a contextualist account can make sense of these facts. The basic idea is that, *if* a contextualist account can predict the guiding observation, then “might”-claims will be felt to be proposals to make their prejacent compatible with the common ground, and cross-contextual or retrospective disagreement can target exactly this proposal. To reject or retract a “might”-claim is, on this approach, to signal that one does not stand behind the proposal made by the “might”-claim in the first place. Thus a response of the form “No, Joe is at home!” can be interpreted as, essentially, saying that it is a bad idea to leave open the possibility that Joe is in his office—what Sue is proposing in saying “Joe might be in his office.” Khoo provides a careful exposition of this idea; I refer readers to the paper for details.

Crucially, Khoo notes that the plausibility of this response is contingent on finding a version of contextualism which predicts the guiding observation. He writes: “No contextualist theory has attempted to predict the dynamic update effects of uttering epistemic modal sentences” (Khoo, 2015, p. 529). But prospective contextualism does just this, showing how we can make sense of the dynamics of epistemic modality within a contextualist framework. Thus, in concert with a story about (dis)agreement along the lines Khoo gives, prospective contextualism provides a promising platform for responding to the relativist challenge to contextualism. There is, of course, much more to explore with respect to this complicated empirical domain, but this discussion shows that, insofar as it accounts for the guiding observation, prospective contextualism provides substantial new resources to the defender of a contextualist theory of conversation against relativist challenges.<sup>37</sup>

Let me close this section by addressing a kind of *intra*-contextual disagreement which appears to pose a particular challenge to my view, brought to my attention by an anonymous referee for this journal and Robert Stalnaker: persistent modal disagreement. Suppose that Sue is convinced that the keys might be under the

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<sup>36</sup>To the degree that subjects still find it to be slightly appropriate, there remains something to be explained here. Here are two possibilities which seem plausible to me: first, expressions like “That’s (not) true” can sometimes serve simply to register broad (dis)agreement, rather than to contest a truth-value. (E.g. note that expressions like this can be used in response to questions. “Have you done a follow-up examining cross-cultural variations in this result?” “That’s true, that would be an excellent line to pursue.”) Second, pronominal expressions like “That” or “What S said” may in some cases refer to something other than the proposition expressed by S. It is well known that pronouns in general have “sloppy” uses (see Karttunen 1969), and it seems perfectly plausible that this goes for these pronominal expressions, too: they may be able to pick out something like a function from assignments of contextual parameters to propositions, rather than a proposition. There are obvious limits to the extent to which this is possible, limits which I think are fairly straightforward to make sense of within standard theories of the  $\varphi$ -features of pronouns, but that is a topic for another time.

<sup>37</sup>One area for further exploration comes from interesting recent work in Beddor and Egan 2018, which suggests that the question under discussion in the context of assessment plays a key role in how speakers interpret epistemic modal claims.

bed. Louise has already looked under the bed, and did not find them. Sue does not trust Louise's ability to find things, however, and Louise knows this. Sue says, "The keys might be under the bed!" Louise says, "No, they cannot be. I searched carefully." Sue stands her ground: "They still might be. You might have missed them!" Louise stands her ground: "No, you are wrong. They cannot be." And so on. If Sue and Louise are suitably conflictual, we could imagine this going on for a while. The question for my account is what Louise is doing here. If Louise *knows* that Sue is going to stubbornly stand her ground, then she knows that the prospective common ground will remain consistent with the keys being under the bed. But then she knows that what she is asserting is false. Why is it nonetheless acceptable for Louise to go on asserting that the keys cannot be under the bed?

Here (following a suggestion by the same referee) it is helpful to compare the situation to one of practical negotiation. Suppose that Mark is convinced that John will not clean the rabbit cage: John never has in the past, is chronically disobedient, and so on. It somehow nevertheless seems permissible for him to say to John "You *will* clean the rabbit cage tonight." For the sake of practical negotiation, it seems that Mark is able to suspend his disbelief and operate under the assumption that there is at least a possibility that this time will be different (whether this is a rational strategy or pathology no doubt depends on the particular relationship). I suspect that something similar is going on in the case of Sue and Louise. Despite being confident that Sue will remain intransigent, it seems that Louise is able to suspend her disbelief and operate under the assumption that there is some chance that Sue will change her position—and thus some chance that what Louise is saying will turn out to be true. I do not have a theory of exactly why this kind of suspension of disbelief seems to be acceptable in cases like this; but the comparison with the practical case suggests that it is indeed possible.

## 6 Conclusion

Prospective contextualism makes sense of the fundamental dynamics of epistemic modality within the bounds of contextualism. This shows that we can preserve contextualism's elegant model of communication as information transfer while still making sense of the way in which speakers use modal claims to negotiate about what possibilities to treat as live.

That we can do so does not mean that we should. I have addressed an obvious objection to prospective contextualism, arguing that the performative structure which prospective contextualism attributes to modal claims is widely attested in natural language, a fact which also helps us make sense of the norms of assertion within the prospective contextualist framework. I have also brought out some attractive features of prospective contextualism. Whether prospective contextualism is the correct theory of epistemic modal claims depends on a range of further questions involving the semantics and pragmatics of epistemic modals, some of which I flagged above. One of these questions, which I take up in Mandelkern 2019b,a, concerns their embedding behavior. Another concerns relativist challenges. Yet another concerns the pragmatic role of "must." I have focused here on "might"-claims, but "must"-claims have peculiarities which must be accounted for by any theory of epistemic modals (see e.g. Karttunen 1972; von Stechow and Gillies 2010). On my theory, an assertion of  $\lceil \text{Must } p \rceil$  is predicted to have the same main update effect as an assertion of  $p$  alone. This is broadly plausible, but there are also subtle but important differences; see Mandelkern 2017b,

2018a for an attempt to account for these differences within the present framework.<sup>38</sup>

In concluding, I would like to suggest that the framework I have sketched here can be generalized to analyze not just epistemic modal claims but also a wide variety of other constructions that we use to negotiate matters that depend, in part or in whole, on parameters of the context. The extension to probability modals like “Probably,” which have much in common with epistemic modals, will be straightforward. These can be seen as making claims about what the contextually provided measure structure will be like at the prospective time; provided the identity of that measure structure depends on what it is commonly accepted to be, then probability modals can be used to negotiate about what measure structures to coordinate on. Deontic modals can receive a similar treatment. The standard theory of deontic modals faces a similar puzzle to that raised at the outset for the standard theory of epistemic modals: how do speakers use deontic modals to negotiate about what to do? If I say we should go to Chinese, and you disagree, we are clearly not disagreeing about what norms are accepted by me or you. Instead, it looks like we are disagreeing about what norms *to accept*. We can capture this by saying that we are making assertions about what norms will be commonly accepted at the prospective time; provided the identity of those norms depends on what is commonly accepted about them, deontic modals can be used to negotiate about what norms to coordinate on.<sup>39</sup> A similar treatment may be available for a variety of other phenomena, such as negotiation about standards of vagueness, matters of taste, and performatives of the kind discussed in Austin 1979, like “I promise.” It is tempting to think that phenomena involving negotiation of this kind take us beyond the contextualist framework, since in these cases we seem not to be *describing* how things are vis-à-vis some contextual parameter, but rather *proposing* how they ought to be. But the contextualist framework can make sense of this if we take these constructions to describe the way that parameter will be. Provided that the identity of the parameter depends in the right way on what the interlocutors accept it to be, constructions which describe how the parameter will be amount to performative proposals about how the parameter ought to be.

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<sup>38</sup>One issue which von Fintel and Gillies discuss is whether  $\lceil \text{Must } p \rceil$  entails  $p$ . On my account, the answer to this question will depend on whether we treat the common ground as factive or non-factive, which I have not taken a stand on.

<sup>39</sup>Cf. Khoo and Knobe (2018)’s contextualist approach to normative negotiation and disagreement. I think that an approach like the one I am suggesting would fit naturally into the overall picture they advocate. Their approach essentially supervaluates over contexts instead of talking about prospective contexts; as far as I can tell, the resulting picture is very similar to the picture that would result from spelling out the idea I am suggesting here.

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