Journal of Semantics, 32, 2015: 275–311
doi:10.1093/jos/ffu002
Advance Access publication March 17, 2014

Three Ways to Avoid Commitments: Declarative Force Modifiers in the Conversational Scoreboard

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Abstract

We discuss three English markers that modify the force of declarative utterances: reverse-polarity tags (*Tom's here, isn't he?*), same-polarity tags (*Tom's here, is he?*), and rising intonation (*Tom's here?*). The three are similar in that they seem to render the assertion expressed by the attached declarative tentative in some way. The differences among them are brought out especially clearly in dialogues with taste predicates (*tasty*, *attractive*) and vague scalar predicates applied to borderline cases (*red* for an orange-red object). These differences have consequences for the correct model of conversation, common ground, and speech acts. Our proposal involves a conversational 'scoreboard' that allows speakers to make strong or tentative commitments, propose changes or raise expectations about the Common Ground, propose issues to be resolved, and hazard guesses about other participants' beliefs. This model allows for distinctions among speech acts that are subtle and fine-grained enough to account for the behavior of these three markers.

1 INTRODUCTION

Recent years have seen much research on the semantics-pragmatics interface addressing expressions whose contribution to meaning seems to modify the illocutionary force of an utterance, rather than its truth-conditions. These expressions range from clause-type morphology (e.g. Portner 2007), to utterance-level adverbial modifiers (Potts 2005; Scheffler 2008, among others), to discourse connectives (e.g. Blakemore 2002; Webber 2004), to evidentials (Murray 2009). Here, we consider three such markers: reverse-polarity tag questions **[RP-tags]** (1a), same-polarity tag questions **[SP-tags]** (1b), and non-interrogative rising

intonation **[NI-rise]**[1](1c). Rising intonation is indicated graphically with a question mark; we term the associated declarative utterance the anchor.[2]

(1) a. **[RP-tag]** Sue likes licorice, doesn't she?
b. **[SP-tag]** Sue likes licorice, does she?
c. **[NI-rise]** Sue likes licorice?

We pursue a dynamic approach to speech acts, in which their meaning is explicated by examining the effects they produce on a conversational scoreboard. Following recent work in Inquisitive Semantics (Groenendijk & Roelofsen 2009; Farkas & Roelofsen forthcoming) and building on much prior work in discourse and dialogue (Ginzburg 1996; Roberts 1996; Gunlogson 2003; Farkas & Bruce 2010), we represent a speaker's assertive contributions as changing that speaker's public commitments, and proposing to change the common ground, rather than changing the common ground directly (Groenendijk & Roelofsen 2009; Farkas & Bruce 2010; Farkas & Roelofsen forthcoming, among others). We will argue that the differences in the distribution of the three markers point to subtle differences in the relationship between speakers, hearers, and propositions expressed in the three constructions from (1). In turn, these differences in meaning and function call for a view of context that distinguishes public commitments of the participants, issues raised and additionally allows commitments to be tentative.

We choose to look at these specific three constructions for a few reasons. First, they all seem to indicate some kind of uncertainty of the speaker, and/or a desire to seek confirmation from the addressee, at least on some of their uses. Second, they all represent relatively small modifications to what are otherwise plain declarative utterances—that is, just a change in intonation or just the appending of an interrogative tag. Finally we will see that all of these constructions can be usefully analyzed as involving a notion of projected commitments; taken together, the three constructions illustrate the wide range of functions that projected commitments can serve.

The outline of the remainder of the article is as follows: in the next section, we discuss four general types of contexts which involve varying degrees of speaker and hearer commitment and knowledge, which will be useful in bringing out the differences between the three markers. The

[1] Rising intonation on syntactically declarative sentences (1c) has been extensively discussed in Gunlogson (2003, 2008), among others.

[2] Our examples of RP-tags are all intended to be 'post-nuclear' in the sense of Ladd (1981)—that is, they are part of the same intonational phrase as the sentence they are tagged onto. The entire utterance that includes the tag has a final-rising tune; the rise is on the tag itself. Some of what we say may apply to 'nuclear' tags as well, but we leave that for further work. We are also not considering here the 'falling tune' tag questions discussed by Reese & Asher (2007).

first three of these four context types are exemplified with examples using taste predicates, and the fourth is exemplified with an example using a vague scalar predicate. In Section 3, we describe the general model of conversation that we take as our starting point. In Section 4 and Section 5, we give analyses of the three constructions, along the way arguing for modifications to the starting pragmatic model. Section 6 gives brief comparisons of our analysis with recent work on similar items, and Section 7 contains concluding discussion.

2 CONTEXT TYPES AND CORE EXAMPLES

In this section, we will introduce four core examples that we will refer back to throughout the article. These are chosen to represent four crucial types of discourse contexts, distinguished by whose commitments are most relevant (the speaker's, the hearer's or both) and the reasons for making these commitments.

2.1 *Taste predicates*

Contexts involving taste predicates such as *tasty* and *attractive* are methodologically useful because they provide a more clear-cut way to distinguish which participant(s) a particular discourse commitment belongs to. As observed by Lasersohn (2005) and others, when X asserts or otherwise presents themselves as believing, e.g. that Y is attractive, this typically conveys that Y is attractive as judged by X, but not necessarily that Y is attractive as judged by other participants in the conversation. In other words, if X is committed to *p* (where *p* contains a taste predicate), this is roughly equivalent to X being committed to '*p* as judged by X'. Stephenson (2007) sketches a pragmatic account of assertion and Common Ground built largely around this observation, which we will be adopting in part in Section 3.3.

For the moment, the main relevant point is this: when the content conveyed with a taste predicate seems to involve the judgment of one particular participant, this should typically mean that a commitment of that participant is involved, possibly indirectly.[3] In the examples below, then, we will be setting up contexts which vary in terms of whose judgments are clearly relevant—only the speaker's judgment, only the hearer's, or both speaker and hearer's.

[3] Note that this principle does not apply to most examples of 'exocentric' readings of taste predicates discussed in the literature, since those involve a relevant judge who is a third party outside the conversation. This third party's commitments are typically not involved.

There is an extra complexity to keep in mind here, however, which is closely related to a notion of dependency of commitments. For cases unrelated to taste, Gunlogson (2008) argues that a person A's discourse commitment to a proposition p may be either independent or dependent, based on whether A has evidence for the proposition separate from the conversation (independent commitment) or whether A's only evidence is from having been told that p by another participant in that same conversation (dependent commitment). On this view, there is an indirect and asymmetrical relationship between having conversation-independent evidence for a proposition p and being in a position to commit oneself to p in a discourse.

The relationship between taking on a discourse commitment towards a proposition involving taste and actually being in a position to make that taste judgment is indirect and asymmetrical in the same way. For instance, if person A has seen person C and judged C to be attractive, A is certainly in a position to commit herself to the proposition that C is attractive. But if A then tells B that C is attractive, then even if B has no basis for a judgment herself, she is still in a position to commit herself to the proposition that C is attractive, provided she has some reason to defer to A's judgment. In other words, it's possible to have a dependent discourse commitment in matters of taste.[4] This would normally happen when B believes A's taste to be similar to B's (so that if C is attractive to A, C will also be attractive to B), or when B is simply assuming that their tastes are similar for the purposes of conversation, which for our purposes amounts to the same thing. Crucially, though, we will assume that if A and B are in a conversation together, and B commits herself to a taste proposition *p* based solely on A's judgment, that A must also be committed to p in that conversation. This follows from the semantics and pragmatics of taste predicates that we adopt from Stephenson (2007).[5]

[4] On Gunlogson's definition, if B later enters a different conversation with person D, B could then make an independent commitment in that conversation to the proposition that C is attractive. This will not affect what we say here.

[5] More precisely, we assume that if B commits herself to *p* based solely on A's judgment, then it must be in the Common Ground (CG) that *p* is true as judged by A, rather than just being merely private knowledge of B's. From this, on the account in Stephenson (2007), it follows that A must have committed herself to *p*, simply by the definition of the CG. Note that this commitment could be achieved in a number of ways. For instance, suppose that *p* is 'Bill is attractive'. One possibility is that A could have asserted *Bill is attractive*, in which case Stephenson's norm of assertion requires it to be the case that Bill is attractive to A; it's generally assumed that this norm is being followed (or at least that the speaker intends to make it common ground that it is being followed), and thus it becomes common ground that Bill is attractive to A. (If other speakers accept the assertion, then it will become common ground that Bill is attractive to all participants in the conversation, not just A, but this doesn't matter for the argument at hand). Another possibility is that A could have directly asserted *I find Bill attractive*, in which case the assertion will be accepted essentially automatically given that A has privileged access to her own taste. Yet another possibility is that another speaker could have asserted *A finds Bill attractive*, and A accepted this assertion, thus committing to it.

Let's turn now to some examples, each representing a general context type. Keep in mind that we are using taste predicates for methodological reasons, because we find the relevant judgments particularly clear; it is possible to illustrate the same context types without taste predicates, as we'll do in examples (5)–(7) below.

First consider (2), which we will also refer to mnemonically as 'Blushing/Innuendo'.[6]

(2) **'Blushing/Innuendo'** Context: A and B are gossiping. A doesn't know anything about B's neighbor. B says, blushing, 'You've GOT to see this picture of my new neighbor!' **Without looking**, A replies:
   a. # A: He's attractive, isn't he?
   b. OK A: He's attractive, is he?
   c. OK A: He's attractive?
   d. # A: He's attractive.

In (2), B's judgment of attractiveness is at issue and A's is not. Therefore a felicitous effect of A's move must have something to do with B's commitments to the anchor proposition. Here an RP-tag is infelicitous (2a), as is a plain declarative (2d), while an SP-tag or NI-rise is fine (2b, 2c). This suggests that both SP-tags and NI-rises involve independent commitments of the addressee, and may or may not involve dependent commitments of the speaker.

Next consider (3) 'Seeking agreement'.

(3) **'Seeking agreement'** Context: A and B are discussing various traits of their mutual acquaintances. B says, 'I think Bill, more than anything else, is just a really nice guy'. A replies:
   a. OK A: (But) he's attractive too, isn't he?
   b. # A: He's attractive too, is he?
   c. # A: He's attractive too?[7]
   d. OK A: He's attractive too.

Of course, we're relying on Stephenson's arguments for her view here. It's beyond the scope of this paper to defend that particular view of taste predicates against competitors. Readers skeptical of Stephenson's account may remember that our argument here will not rely solely on examples with taste predicates.

[6] Throughout, the judgments reported are those of four native speaker informants, two naive and two linguists.

[7] We intend the context of (3) to be one where B's statement clearly implicates that Bill is not attractive. As a reviewer points out, (3c) becomes acceptable on an interpretation where A is trying to confirm whether B really intended to create this implicature. This is as expected, since in that situation speaker A is unsure whether or not her assertion of Bill's attractiveness makes sense as a rejoinder to A's statement. In that case, the example becomes like (4) 'Unsure of Move', below.

Here, both A's and B's judgments are at issue, and they are establishing points of agreement. An RP-tag or plain declarative is felicitous (3a, 3d), while an SP-tag or NI-rise is not (3b, 3c). This suggests that RP-tags and plain declaratives involve independent commitments of both speaker and hearer.

Finally, consider (4) 'Unsure of move'.

(4) **'Unsure of move'** Context: B hasn't met A's neighbor, and asks, 'What do you think of your new neighbor?' A isn't sure if B wants to know about neighborliness or suitability for dating. A replies:
   a. # A: He's attractive, isn't he?
   b. # A: He's attractive, is he?
   c. $^{\text{OK}}$ A: He's attractive?
   d. $^{\text{OK}\Box}$ A: He's attractive.

Here only A's judgment is at issue, but A is unsure what sort of judgment is called for. An NI-rise is felicitous (4c) while tags are not (4a, 4b). A plain declarative (4d) is fine but doesn't express A's intended uncertainty (indicated by $^{\text{OK}\Box}$). This suggests that NI-rises and plain declaratives both involve independent speaker commitments, and may or may not involve dependent hearer commitments.

Note that the same context types can be illustrated without using taste predicates.[8] The pattern of acceptability is the same in each case. For instance, the example in (2) 'Blushing/Innuendo' (informed hearer, and uninformed speaker making a guess as to potential hearer commitment) works the same way with *single* instead of *attractive*.

(5) **'Single'** Context: A and B are gossiping. A doesn't know anything about B's neighbor. B says, blushing, 'You've GOT to meet my new neighbor!' A replies:
   a. # A: He's single, isn't he?
   b. $^{\text{OK}}$ A: He's single, is he?
   c. $^{\text{OK}}$ A: He's single?
   d. # A: He's single.

Similarly, the example in (3) 'Seeking agreement' (both speaker and hearer are informed, speaker is expressing an opinion and seeks agreement) can be replicated as in (6).

(6) **'Conference'** Context: A and B are organizing an interdisciplinary conference, and discussing various people who are suited to

[8] We are grateful to an anonymous reviewer for suggesting that we include examples without taste and vague-standard predicates.

chair the different talks. B says, 'We can make John the chair for the first session, since he's a linguist' A responds:

a. [OK] A: (But) he's a philosopher too, isn't he?
b. # A: (But) he's a philosopher too, is he?
c. # A: (But) he's a philosopher too?
d. [OK] A: (But) he's a philosopher too.

Finally, the example in (4) 'Unsure of move' (informed speaker is committed to the propositional content of the anchor, but unsure of the whole move) is a classic NI-Rise in (7). Note that a tagged version (either positive or negative) is infelicitous, while a plain declarative is acceptable but fails to convey tentativeness.

(7) **'My name'** (Pierrehumbert & Hirschberg, 1990, p. 290)
(to a receptionist) Hi, my name is Mark Liberman?

2.2 *Vague scalar predicates*

Vague scalar predicates such as *tall* or *red* are also methodologically useful because they allow for cases where discourse commitments pertain to the appropriate standards of application rather than to objective facts (see, e.g. Barker 2002). In some situations, making sure two people apply the same standard is more important than what exactly that standard is. In that case, a speaker may be free to commit to a standard with conviction or to tentatively suggest one and check that the hearer approves before committing to it. In particular, consider (8) 'Borderline paint'.

(8) **'Borderline paint'** Context: A and B are sorting paint cans in a store into a 'red' bin and an 'orange' bin. B points to orangish-red paint and says, 'What color would you say this is?' A replies:

a. [OK] A: It's red, isn't it?
b. # A: It's red, is it?
c. [OK] A: It's red?
d. [OK□] A: It's red.

In (8) A and B are trying to agree on a classification for a borderline case. But because it is a borderline case, neither speaker is likely to have a strong inclination one way or another as to whether to count the paint as red or orange. At the same time, there is a strong practical reason for the two speakers to come to agreement (namely, in order to complete the task at hand of sorting the paint). Therefore, the commitments each speaker is willing to make (to *the paint is orange* or *the paint is red*) are free to vary depending on what the other speaker wants to commit to.

Here an RP-tag or NI-rise is fine; the RP-tag suggests a higher degree of confidence about the judgment (8a) than the NI-rise (8c),

but both indicate some lack of confidence. A plain declarative is fine but indicates essentially total confidence. An SP-tag is not felicitous (8b). This crucially differs from the otherwise similar taste example in (3) 'Seeking agreement', where only the RP-tag was felicitous (3a).

As with our examples using taste predicates, we have illustrated this kind of discourse with a vague predicate because we find the judgments particularly clear; however, this context type can arise without vague predicates. For example, the pattern occurs if a teacher is informally quizzing a student, as in (9).

(9) Context: A teacher (B) is quizzing a student (A) on state capitals. The teacher says: 'What's the capital of New York?' The student isn't sure of the answer, but thinks it might be Albany. The student says:
   a. OK A: It's Albany, isn't it?
   b. #A: It's Albany, is it?
   c. OK A: It's Albany?
   d. OK□ A: It's Albany.

As with the case of the borderline-colored paint, the speaker in (9) is free to make either a definite or a tentative commitment to the proposition that Albany is the capital of New York. Here, though, this freedom comes from the fact that the student and teacher do NOT need to agree on the issue. The student is simply displaying her knowledge (or lack thereof), and the teacher has the same authority to contradict the student regardless of what level of confidence the student has in the answer. Note that this example also differs from (4) 'Unsure of move' in that in (4), the speaker has total confidence about the proposition actually asserted. In terms of judgments, the two cases differ only in whether the RP-tag is acceptable, which suggests that RP-tags require some tentativeness or lack of confidence.

The pattern of felicity for the three markers is summarized in Table 1.

	RP-tag	SP-tag	NI-rise	Decl.
(2) 'Blushing/Innuendo' (uninformed speaker, innuendo about hearer)	#	OK	OK	#
(3) 'Seeking agreement' (expressing opinion, seeking agreement)	OK	#	#	OK
(4) 'Unsure of move' (expressing opinion, uncertain re: speech act)	#	#	OK	OK□
(8) 'Borderline paint' (uncertain judgment on borderline case)	OK	#	OK	OK□

Table 1 Summary of felicity patterns for core examples

3 PRAGMATIC BACKGROUND

We build on prior work in the semantics and pragmatics of dialogue, taste predicates, and vague scalar predicates.

3.1 *The conversational scoreboard*

Our point of departure is the model presented by Farkas & Bruce (2010) (henceforth **F&B**), building on Hamblin (1971), Gunlogson (2003), Ginzburg (2012) and others, and further developed in Farkas & Roelofsen (2012). F&B's representation of the 'conversational state' (or Lewis-style 'scoreboard') includes the elements in (10).

(10) a. DC_X: for each participant X, X's public discourse commitments.
b. Table: stack of issues to be resolved (the top issue first), where issues are represented as sets of propositions.[9] Note that issues can remain on the Table only while they have not been resolved yet, in the sense of being in the CG (cf. Ginzburg 2012).
c. Common Ground (CG): the set of propositions that all speakers are publicly committed to (cf. Stalnaker 1978)
d. Projected CGs (F&B's 'Projected Set'): a set of potential CGs giving possible resolution(s) of the top issue on the Table in the expected (canonical) next stage of the conversation. This 'next stage' is typically reached within the next few moves responding to the current move; this might correspond roughly to a minimal 'discourse segment' in the sense of, e.g. Grosz & Sidner (1986).

In effect, the commitment sets and the Table completely determine the other elements of the scoreboard: the CG consists of propositions that both (all) participants are committed to, while the projected CG consists of these joint commitments updated with all possible resolutions to the issues on the Table.

In F&B's system, conversational moves (such as assertions or questions) are distinguished by where their associated propositions are added

[9] We call these objects 'issues' rather than 'questions', since accepted definitions differ on whether, e.g. singletons like $\{p\}$ are properly questions. As we discuss below, we present a slight simplification in the representation of the Table, which nevertheless is sufficient for the analysis of the phenomena considered here.

in the scoreboard. For example, if A asserts a proposition p, then p is added to DC_A, {p} is added to the top of the Table, and (as a consequence of its presence on the Table), p is added to each Projected CG (11.i). If B accepts the assertion (a separate move)[10], this removes $\{p\}$ from the Table and adds p to the CG (11.ii).[11] The table in (11) illustrates these changes in the scoreboard in a case where p = *Fred is here*.

(11) (Assume that the previous Common Ground already includes a proposition q.)
A asserts: 'Fred is here'.

	Previously	**(i)** after A's assertion	**(ii)** after B accepts A's assertion
DC_A	{ }	{Fred is here}	{ }
DC_B	{ }	{ }	{ }
Table	⟨ ⟩	⟨{Fred is here}⟩	⟨ ⟩
CG	{q}	{q}	{q, Fred is here}
Proj. CGs	{{q}}	{{q, Fred is here}}	{{q, Fred is here}}

In contrast, the corresponding yes/no question creates projected CGs containing p as well as ones containing $\neg p$. Column (i) of the table in (12) illustrates this, again in a case where p = *Fred is here*.

(12) (Similarly, the previous CG includes q.)
A asks: 'Is Fred here?'
B answers: 'Yes'.

[10] We use the terms 'uptake', 'accept', and 'respond' in referring to a hearer's reaction to an utterance. We define these terms through the actions and commitments involved. First, uptaking an utterance means making it common knowledge that one understood it. Scholars differ as to whether uptake must be signalled through overt action or utterance, or whether interlocutors assume uptake, unless they have evidence to the contrary; we remain neutral on this issue. We will assume that uptake of an utterance results in a success of the illocutionary act that utterance conveys.

For example, uptaking a question results in the placement of the issue it raises on the Table. This, in turn, creates projected CGs containing potential resolutions of the question, thereby conveying that in the normal course of conversation, discussion and resolution of this question is anticipated. Of course, if a hearer of a question wants to convey that this is not a good question to discuss, an uptake of a question can be followed by a suggestion that a different question be placed under discussion. Such a meta-linguistic move, however, is not part of a 'normal course of conversation,' and so not anticipated in the representation of the original question or its uptake.

Second, we use the term 'accept' in the special sense of conveying commitment, whether through an overt utterance, an overt non-verbal action, or covertly. An example of covert acceptance would be a situation where, in the absence of evidence to the contrary, it is mutually assumed that the hearer becomes committed to the content of the speaker's move, for instance by taking the speaker's word for it. We term an overt utterance that reacts to a prior utterance a 'response'; our discussion will mostly involve responses that convey a commitment, and therefore constitute an (overt) acceptance.

[11] We follow the convention from F&B that when p is added to the CG, it is also removed from any individual commitment sets; this just avoids redundancy, since common ground propositions are public commitments of every participant in the conversation.

	Previously	(i) after A asks	(ii) after B answers	(iii) after A accepts B's answer
DC_A	{ }		{ }	{ }
DC_B	{ }	{ }	{Fred is here}	{ }
Table	⟨ ⟩	⟨ {Fred is here, Fred is not here} ⟩	⟨ {Fred is here} ⟩	⟨ ⟩
CG	{q}	{q}	{q}	{q, Fred is here}
Proj. CGs	{ {q} }	{ {q, Fred is here}, {q, Fred is not here} }	{ {q, Fred is here} }	{ {q, Fred is here} }

Our representation of the Table represents a slight simplification of the original approach. The F&B framework places on the Table pairs consisting, first, of the syntactic representation of the utterance and, second, of its denotation. The syntactic representation is then utilized in the analysis of ellipsis and anaphora. Thus, a polar question asking whether p pushes on top of the Table a pair consisting of S[I], where S is the syntactic object whose denotation is p and [I] is the interrogative marker, and the denotation of S[I], which is the set $\{p, \neg\ p\}$. However, F&B assume that S and its denotation, p, are available for manipulation in further discourse, and in fact, they define the responses to a polar question with respect to p.

Similarly, what Farkas & Roelofsen (forthcoming) place on the Table are 'proposals'—sets of propositions, where one or more proposition in a proposal may be highlighted (made available for future anaphora). Thus, an assertion that p pushes the singleton $\{\boldsymbol{p}\}$ on top of the Table, where p is highlighted (we mark highlighting as boldface), while a polar question whether p pushes the proposal $\{\boldsymbol{p}, \neg\ p\}$ on the Table. The polar particles *yes* and *no* responding to assertions and polar questions refer, anaphorically, to the highlighted possibilities. Since we will not directly consider polarity particles or ellipsis phenomena here, we will ignore highlighting, otherwise adopting the Farkas & Roelofsen (forthcoming) approach to the Table.

The framework constrains the ways that conversational moves can add propositions and issues to various parts of the scoreboard, as well as remove them. In the assertions and questions illustrated above, the various resolutions to issues on the Table become part of the projected CG and enter the CG once both (all) participants are publicly committed to them.

Before we go on, let's highlight a few key assumptions of the F&B model as we understand it. First, we assume that a conversational move can only affect the commitment set of the speaker, never the hearer.

(This will change slightly when we introduce projected commitments in Section 4.) Second, we assume that a conversational move may update the Projected Set with a new proposition *p* only if *p* is a member of the 'issue' set at the top of the Table. This will be particularly crucial when we introduce metalinguistic issues in Section 5.

3.2 *First attempt at an analysis*

Now let's consider how we might try to analyze our three constructions from (1)—RP-tags, SP-tags and NI-rises, using F&B's system exactly as given. First recall that not all pieces of F&B's conversational scoreboard are independent. In particular, the CG depends on the commitment sets — a proposition *p* is in the CG if and only if every participant in the discourse is committed to *p*. In addition, the Projected Set depends on the commitment sets and the Table—that is, the Projected Set is exactly the set of possible potential CGs that are consistent with all current discourse commitments and where all the issues on the Table have been resolved. This leaves us with just three independent parts of the scoreboard, namely the speaker's commitments, the hearer's commitments, and the Table.

The F&B framework is not fine-grained enough to capture the behavior of the three markers. This is because they have no way of modeling tentative commitments: the closest equivalent would be for the speaker to add (the singleton set containing) p to the Table but without adding this proposition to the commitments. However, because such a move fails to project any commitment at all, it does not capture the intuition that, for instance, RP-tags and NI-Rises do involve some degree of (weakened) speaker commitment to the anchor proposition[12]. Even if such an analysis could be proposed for one of the constructions we consider, it would still fail to make the distinction between RP-tags and NI-Rises. Moreover, the framework currently has no way to model speaker's guesses regarding hearer commitments: a speaker can only add propositions to full commitments of the hearer when the speaker is somehow authorized to 'speak for' the hearer. In SP-tagged utterances, however, the speaker is making a guess as to the hearer's commitments,

[12] A conversational move that places a singleton proposition on the Table without changing commitments is reminiscent of the analysis proposed in Heim (1984) for biased polar questions, such as [i].

i. Didn't it rain yesterday?

Such utterances arguably express a bias towards the proposition (in this case, that *It rained yesterday*), but we would claim they do not reach the level of speaker commitment involved in RP-tags or NI-Rises.

and inviting the hearer to publicly acknowledge them, rather than 'committing' the hearer to anything.

3.3 *Taste and standards in the conversational scoreboard*

We assume a view of assertion of taste judgments based on the view of Stephenson (2007), with some adaptations and simplifications. On this view, propositions are true or false relative not only to a world but also to an individual 'judge'. For present purposes, this just means that if a statement of taste, e.g. 'the cake is tasty', is added to a speaker A's public commitments, this is equivalent (only) to A having the commitment that the cake tastes good to A; however, if *the cake is tasty* is added to the Common Ground, then this is equivalent to making it common ground that the cake tastes good to the whole group of participants in the conversation.[13]

Turning to vague scalar predicates, we follow Barker (2002, p. 4) in that 'part of the ignorance associated with a use of a vague predicate is uncertainty about the applicability of a word'. Scalar predicates like *tall* need a contextual standard to be fully interpreted. The lexicon includes restrictions on standards, which are based on scalar properties—e.g. if John is taller than Bill, then we disallow standards that count Bill as tall but not John.

For the sake of presentation, we will distinguish a set of Common Standards (CS) as a separate part of the scoreboard. The CS includes the standards compatible with what has been accepted for the purpose of conversation. Thus, if *John is tall* is in the Common Ground, this indicates that the threshold for tallness is no higher than John's height (Barker, 2002).

In an empty context, then, all sorts of standards are possible, provided they meet lexical restrictions. If someone asserts *John is tall* in a context where we know John is 6 feet tall, then we add the speaker's commitment to a standard that does not exceed 6 feet. When the hearer(s) accept this conversational move, all standards are removed from the CS that don't count John as tall. (Then, because of the lexical restrictions, anyone taller than John will automatically count as tall, too.) As Barker (2002) discusses, an assertion like *John is tall* can target the 'factual' common ground or the standards in place, or both.

[13] For one recent opposing view, see Pearson (2012).

4 PROJECTED COMMITMENTS, RP-TAGS AND SP-TAGS

4.1 *Modification 1: projected commitment sets*

To apply this framework to the subtly different commitments expressed by the three constructions, we suggest our first modification: in addition to projected CGs, we posit sets of 'projected' commitments of the speaker and the hearer(s). Unlike F&B's system, this allows for moves that give tentative commitments (by adding propositions to the speaker's projected, rather than present, commitments), or to offer the speaker's best guess of commitments of other participants (by adding to others' projected commitment sets).

We assume that projected commitments, just like projected CGs, simply represent the expected next stage of conversation. Projected speaker commitments represent something of a special case, however, given that the speaker is always in full control of her own commitment set. Therefore, if the speaker chooses to make a projected commitment, rather than a present one, the hearer(s) can infer that the speaker has some reason to delay making a commitment that she would otherwise be wiling to make. In the absence of any other obvious pragmatic reason, the hearer(s) will typically infer that the speaker has reason to think *p*, but has some uncertainty about it. Essentially, then, projected speaker commitments give rise to an implicature of tentativeness. Anticipating our discussion on NI-rises in Section 5, we will claim that (among other things) NI-rises signal that the speaker has a pragmatic reason to delay commitment that may or may not involve epistemic uncertainty.

Note that we assume that there is a crucial difference between regular (present) commitments and projected commitments, namely that a conversational move may add projected commitments to either the speaker or the hearer, whereas it can only add present commitments to the speaker but not to the hearer.

The projected speaker commitments in our system are similar to the notion of 'contingent commitment' in the framework of Gunlogson (2008), discussed in detail in Section 6. One difference between these notions is that we also have projected hearer commitments, which don't have an equivalent in Gunlogson (2008).

To illustrate the modified system, the table in (13) shows the effect of a plain assertion of *p*. Note that this analysis is exactly the same as the F&B's analysis from (11) except for the addition of projected commitments. We use DC_X* to indicate the projected commitments of participant *X*. For consistency, we abbreviate the 'Projected Set' as *CG**. We also adopt the convention that once a proposition enters the CG,

we no longer mention it in the current or projected commitment sets, since this would be redundant.

(13) (Assume that the previous Common Ground already includes a proposition q.)
A asserts p.

	Previously	**(i)** after A's assertion	**(ii)** after B accepts A's assertion
DC_A	{ }	{p}	{ }
DC_A*	{{ }}	{{p}}	{{ }}
DC_B	{ }	{ }	{ }
DC_B*	{{ }}	{{ }}	{{ }}
Table	⟨ ⟩	⟨{p}⟩	⟨ ⟩
CG	{q}	{q}	{q, p}
CG*	{{q}}	{{q, p}}	{{q, p}}

4.2 *Analysis of RP-tags*

In the system enriched with projected commitments, we can model RP-tags by adding p to the speaker's **projected** commitments rather than their current commitments. We propose, then, that a declarative anchor p with an RP-tag adds p to the projected CGs and to the speaker's projected commitments, and adds {p} to the Table. The analysis is shown schematically in (14).

(14) **A utters p with an RP-tag:**
(Proposition q is already in the CG.)

	Previously	**(i)** after A's move (uttering p with RP-tag)
DC_A	{ }	{ }
DC_A*	{{ }}	{{p}}
DC_B	{ }	{ }
DC_B*	{{ }}	{{ }}
Table	⟨ ⟩	⟨{p}⟩
CG	{q}	{q}
CG*	{{q}}	{{q, p}}

We now capture the intuition that an RP-tagged utterance involves a tentative speaker commitment to the anchor proposition. The modified system also captures the distinct behavior of RP-tags in (2)–(8). In (2) 'Blushing/Innuendo', the speaker is uninformed, so she cannot commit to a judgment of taste, even tentatively, without relying on the hearer's testimony for this commitment. (That is, as discussed in Section 2.1, any utterance expressing an 'independent' commitment in the sense of

Gunlogson (2008) is infelicitous in this context.) However, the hearer did not directly say anything regarding the neighbor's attractiveness. A projected, rather than present, commitment can be justified if the speaker simultaneously signals that this is an imperfect inference based on prior context, e.g. on the hearer's utterance and blushing. However, none of the effects of the RP-tagged utterance (adding p to the projected speaker commitments and to the projected CG, and adding $\{p\}$ to the Table) are suitable for such a 'commitment-weakening' signal. Thus, the move whereby the speaker projects a commitment to the anchor proposition is infelicitous. Anticipating our analysis of NI-rises, note that the rise is felicitous here. Our explanation for this contrast between the two markers concerns exactly the presence of an imperfect-inference signal among the effects of the NI-rise, which licenses a projected commitment. In essence, then, the use of an RP-tag results in a stronger level of speaker commitment to the associated proposition than the use of an NI-rise in this case.

Next, consider the contrast between two instances of expressing an opinion of taste, one where the speaker is additionally seeking agreement and the marker is appropriate, as in (3) 'Seeking agreement', and another where the speaker is uncertain about the whole speech act, and the marker is inappropriate, as in (4) 'Unsure of move.' Since the anchor is added to the speaker's projected commitments, in both cases the speaker succeeds in expressing her opinion. By placing (a set containing) this proposition involving a predicate of taste on the Table and into the projected CG, she also invites the hearer to express her opinion, as in (3) 'Seeking agreement'. However, in a situation where the hearer's opinion is not at stake and cannot be solicited, as in (4) 'Unsure of move', the marker is infelicitous.

Finally, consider the effect RP-tagged vague predicates have on the standards. The utterence in (8) 'Borderline paint' puts the singleton {*it's red*} on the Table, puts *it's red* in the projected CGs, and revises the standard of redness in the projected CSs, but instead of committing to all of this, *it's red* (and the corresponding standard) is added to the projected commitments. An obvious reason for this failure to commit to one's own proposal is if the speaker does not want to commit to a standard unless that standard is acceptable to the hearer as well. This is similar to what would happen as a result of an RP-tagged 'factual' utterance: failure to fully commit in this case would cause the hearer to infer that the speaker has reason to express a commitment (unlike Blushing/Innuendo) but is uncertain about the content of that commitment. This uncertainty inference is what makes RP-tags infelicitous in examples like (4) 'Unsure of move', where the speaker is presumably an

authority on her own tastes. With the vague predicates, there is a salient source of this uncertainty—the standard. Thus, the hearer infers that the speaker is uncertain about the standard.

Compare our proposal with the only way to treat RP-tags in the original F&B system: an RP-tag could be modeled as having the same effect as a normal assertion, except that *p* is not added to the speaker commitments. However, as we point out above, this fails to capture the true level of speaker commitment involved in an RP-tagged utterance. For instance, in conversations with more than two participants a deficiency emerges. Consider (15). (Let *p* = 'it's raining'.) In this scenario, C is contradicting both A and B, rather than just B—that is, both A and B are on the hook, committed to *p*.

(15) A: It's raining, isn't it?
B: Yes.
C: No it isn't!

In other words, when using an RP-tag, a speaker is not directly committing to *p*, but is indicating that if *p* is confirmed, she will share responsibility for it. Thus, the unmodified F&B system which does not commit the utterer of the RP-tag to the tagged proposition is insufficient to capture this scenario. Our richer system, however, does better: if B answers *Yes*, then both A and B are publicly committed to *p*. In a three-person conversation, a hearer's confirmation propels the speaker's projected commitment to become the speaker's present commitment without placing its content into the common ground.

As we will argue in Section 6, our analysis of RP-tags has broader empirical coverage than the SDRT-based approach of Reese & Asher (2007), which makes wrong predictions for cases such as (4a) 'Unsure of move'. In addition, our analysis favorably compares to that of Beyssade & Marandin (2006)—while they can account for the behavior of RP-tags, their representation of the conversational context is too simple to capture the full range of commitments conveyed by plain declaratives, polar questions and the three constructions considered here.

4.3 *Analysis of SP-tags*

We propose that A asserting *p* with an SP-tag makes no change to A's present or projected commitments, or present or projected CGs, but adds *p* to the Table and to **B's** projected commitments. This signals that A is making a guess as to B's beliefs. If B accepts this move, *p* is added to B's commitments and remains on the Table (as with a normal assertion). This analysis is shown schematically in (16).

(16) **A utters p with an SP-tag:**
(Proposition q is already in the CG.)

	Previously	**(i)** after A's move (uttering p with SP-tag)
DC_A	$\{\}$	$\{\}$
DC_A*	$\{\{\}\}$	$\{\{\}\}$
DC_B	$\{\}$	$\{\}$
DC_B*	$\{\{\}\}$	$\{\{p\}\}$
Table	$\langle\rangle$	$\langle\{p\}\rangle$
CG	$\{q\}$	$\{q\}$
CG*	$\{\{q\}\}$	$\{\{q\}\}$

Since an SP-tag projects a commitment of the addressee, rather than the speaker, this predicts that SP-tags are acceptable when only the hearer's judgment is at issue, as in (2b) 'Blushing/Innuendo', but not when the speaker is expressing her own judgment and/or seeking agreement, as in (3b) 'Seeking agreement',(4b) 'Unsure of move' and (8b) 'Borderline paint'.

Our analysis of SP-tags makes this construction 'attributive' in the sense of Poschmann (2008)—the expressed commitment is attributed by the speaker to someone else. However, unlike the attributive echo-questions discussed in Poschmann (2008), an SP-tagged utterance is not an echo of the hearer's explicit assertion, but rather an inferred commitment of the hearer. Its update is a projected, rather than present, commitment of the hearer. Thus, it can be used in a situation like (2) 'Blushing/Innuendo', where the speaker is essentially putting words in the hearer's mouth, but cannot be used to double-check an explicit commitment of the hearer.

The contrast between the RP-tag and the SP-tag in (3a)–(3b) 'Seeking agreement' is especially revealing. The context calls for A to commit to a judgment of personal taste, which B may agree or disagree with.

In our modified F&B system, the dependence of the taste predicates on the judge parameter (Stephenson 2007) will in effect set that parameter to be the 'owner' of the corresponding part of the scoreboard (X for DC_X, and the group of participants collectively for the CG). This predicts that an RP-tag (3a) serves both to assert A's opinion and at the same time to solicit B's by adding *Bill is attractive* to the projected CG. In contrast, the SP tag cannot serve to express A's own opinion, and thus is infelicitous.

Similarly, A's judgment of taste is called for in (4) 'Unsure of move', and A's judgment on a standard-dependent borderline case is required in (8) 'Borderline paint'—in both of these cases, A's commitments fail to be changed, and the SP-tagged utterance is infelicitous.

As we point out in Section 6, this construction presents a serious challenge for previous compositional approaches to tag questions. This is because the only differences between SP-tags and RP-tags are the polarity of the tag, and the absence of negative SP-tags.[14] Thus, any approach that builds the meaning of a tagged utterance from the contributions of the anchor, the tag, and the intonation (cf. Reese & Asher 2007) will need to locate the wide-ranging differences between SP-tags and RP-tags in the interpretation of the tag itself.[15]

5 METALINGUISTIC ISSUES AND NI-RISES

5.1 *Modification 2: metalinguistic issues*

In his analysis of clarification requests (termed CRification), Ginzburg (1996; 2012) argues that any conversational move, including an assertion that *p*, licenses conversational participants to raise metalinguistic issues concerning that move. These issues may be raised by others, or by the same speaker who made the original move (17).

(17) modified from Ginzburg (2012)
  a. A: Did Mark send you a love letter?
  b. A: I mean what's his name, Mark or Marty?
  c. B: No, though it's interesting that you refer to Mark/my brother/our friend
  d. B: No, though it's interesting that the final two words you just uttered start with 'I'

Building on Ginzburg's ideas, we propose that there are speech acts which, in addition to making a conversational move of an ordinary kind, simultaneously raise a metalinguistic issue concerning parts of that very move.

The possibility of metalinguistic issues ties into our enrichment of the F&B framework by providing one more way in which commitments may be tentative. A move that simultaneously involves a commitment and a metalinguistic issue provides an indication to the hearer that the commitment is a projected one, pending the resolution of the metalinguistic issue.

[14] There could be an additional difference in intonation between the two kinds of tags. Determining whether the rising intonation on the two kinds of tags, on the NI-rises, and on polar questions is the same is an important task that lies well beyond the scope of this article.

[15] Note that the differences among these tags, and the difficulty in localizing them in the component parts of the utterance, are also evident in the approach being developed by Farkas & Roelofsen (forthcoming). Their analysis, couched in the Inquisitive Semantics framework, builds on ideas of Gunlogson (2008) and previous versions of the present proposal to treat a slightly different range of constructions; like ours, it is non-compositional.

5.2 *Analysis of NI-rises*

We propose that if A utters p with an NI-rise, both p and a metalinguistic issue concerning the utterance of p (indicated for convenience by '*MLI*^{p}') are added to the Table. More precisely, the singleton set containing p is added to the Table, and then a (possibly singleton) set of propositions MLI_p is added, separately to the Table. Thus MLI_p is a contextually determined set of propositions, any of which would resolve the contextually determined metalinguistic issue concerning p. We leave open exactly which set of resolutions will be included in this set.[16] In addition, p is added to A's **projected** commitment set.

Note that since the Table is a stack, issues are added to the top ('pushed'). We assume that in an NI-rise, p is pushed onto the stack first, and the metalinguistic issue is pushed onto it second. This means that the metalinguistic issue is at the top of the Table after a NI-rise, so its potential resolutions are added to the projected CGs. This, in turn, means that if B uptakes A's move, there will be an expectation that B needs to resolve the metalinguistic issue. (More precisely, an uptake will create an expectation that the issue will be resolved in the normal course of the conversation. Since A's raising of the issue already indicated that she is unable or unwilling to resolve it, it is now up to B to do so.) In most cases, A's utterance will contain a potential resolution for the MLI. B can indicate uptake of the move by resolving the metalinguistic issue; alternatively, B can proceed with the discussion of the issue whether p, thereby indicating acceptance of A's suggested resolution for the MLI.[17] We assume that the Projected CGs are updated only once per conversational move, at the point when the move is complete, and that only the issue actually at the top of the Table gets automatically projected into the CG.

This means that although both $\{p\}$ and MLI_p are added to the Table, only the resolutions of MLI_p, not the resolutions of p, are added to the

[16] Poschmann (2008) cites examples like (i) below, arguing that 'confirmative' NI-rises cannot raise metalinguistic issues. We disagree, and suggest that the infelicity of this example has a different source. Metalinguistic matters can very well be at issue in such utterances, as illustrated in (ii)—and in (i), as long as B does not follow the NI-rise with a commitment to an alternative pronunciation, effectively contradicting her own proposal for the correct pronunciation of *police*.

i. A dials a telephone number. B: *You're calling the POlice? I'd rather call the poLICE.

ii. A: What are the capitals of New England states? B: The capital of Vermont is /montpilir/?

[17] The metalinguistic issue may or may not concern speaker's epistemic uncertainty regarding p; together with the fact that both NI-rises and RP-tags add a projected speaker commitment, this may erroneously suggest that the contexts where NI-rises are used is a superset of the contexts where RP-tags are used. However, note that RP-tags put the issue of whether p on top of the Table, unlike the NI-rises. It is this difference with respect to the Table, and consequently the projected CGs, that makes the distribution of these constructions an overlapping one, and predicts the existence of contexts where RP-tags but not NI-rises are felicitous, e.g. (3).

Projected CGs. Once the metalinguistic issue is settled, $\{p\}$ will be at the top of the Table, and at that point its resolutions—namely, just p—will be added to the CG*. The exception to this would be if settling the metalinguistic issue rendered p moot for some reason, in which case p would be popped off of the stack as soon as MLI^p is, and never end up being projected into the CG.

If B uptakes the move and resolves the metalinguistic issue on the Table, p is then added to A's present commitment set. Note that p is still on the Table at this point, so p is still in the projected CG rather than in the current CG. Then B can accept p, in which case p will be added to the CG. Typically, B's response will essentially do all these things at once. (Compare this to the proposal in Nilsenová (2002), in which rising intonation assigns the role of Initiator of the claim to the utterer, but Dominance in the power to add things to the CG to the hearer.[18])

Note that once this exchange is completed, it has an effect that is very similar to what would have arisen if A had simply asserted p in the first place. The main difference is that the NI-rise exchange will raise and resolve a metalinguistic issue, whereas a plain assertion does not necessarily do so (although, as Ginzburg shows, interlocutors may explicitly raise metalinguistic issues if they choose).

Our analysis of NI-rises is shown schematically in (18). Here, MLI^p stands for the metalinguistic issue concerning p, and $R1$, $R2$ stand for the possible resolutions of this metalinguistic issue. We assume for simplicity that there are exactly two possible resolutions, but this need not be the case.

(18) **A utters p with an NI-rise:**
(Proposition q is already in the CG.)

	Previously	**(i)** after A's move (uttering p with NI-rise)
DC_A	$\{\}$	$\{\}$
DC_A*	$\{\{\}\}$	$\{\{p\}\}$
DC_B	$\{\}$	$\{\}$
DC_B*	$\{\{\}\}$	$\{\{\}\}$
Table	$\langle\,\rangle$	$\langle\, MLI^p, \{p\}\,\rangle$
CG	$\{q\}$	$\{q\}$
CG*	$\{\{q\}\}$	$\{\{q, R1\}, \{q, R2\}\}$

[18] The approach is couched in the framework of Merin (1994): the rise affects parameters of a bargaining game between hearer and speaker. A basic assumption in this approach is that the preferences of the two players are opposed—if one prefers to add p to the CG, the other prefers to add $\neg\, p$. We don't share 'the intuition that if agents' preferences were not opposed, there would be no issue to discuss'. Moreover, this assumption may not be 'relatively harmless' in that it is not clear how to generalize this framework to fully cooperative conversations, or those involving more than two agents. A thorough comparison of the two approaches is outside the scope of this article.

As the table above makes explicit, the main effect of an NI-rise is to delay or avoid the consideration of the issue whether {*p*} until the MLI is resolved. The raising of a metalinguistic issue through the utterance of an NI-rise differs in one crucial respect from Ginzburg (2012)'s MLIs raised through clarification requests. A clarification request raises an MLI explicitly, spelling out its nature, while NI-rises only serve as a signal that an MLI is being raised, without telling the hearer which MLI it is. The hearer of an NI-rise then has to use context and other cues, such as prosodic focus, changes in speech rate, etc., in making a guess as to the nature of the MLI. Any aspect of the utterance's content and form can be the subject of an MLI, as long as the speaker can give the hearer enough clues about its nature (though there are examples of misunderstandings regarding the nature of the MLI in naturally occurring data).

By making a move that will have the same effect as a plain assertion, but only with hearer's involvement and approval, the speaker is, roughly speaking, seeking approval to make an assertion that *p*. Thus NI-rises are predicted to be possible whenever the speaker isn't sure if a plain assertion is appropriate. The metalinguistic issue signaled by the NI-rise could be of any kind that would count as a Clarification Request by the hearer or speaker of a plain assertion (Ginzburg 2012). For example, in (2) 'Blushing/Innuendo', A infers that the neighbor is attractive only indirectly; the issue there is whether the speaker's inference regarding hearer's blushing is correct (note that this is exactly the source for the contrast between the NI-rise and the RP-tag in (2)). In (4) 'Unsure of move', A is unsure whether her opinion is called for; thus the metalinguistic issue is whether *p* addresses the issue on the Table. In (8c) 'Borderline paint', A is not confident about her judgment, and thus the metalinguistic issue is whether the standard of redness implicit in *p* is acceptable. In contrast, in (3) 'Seeking agreement', a plain assertion (3d) is clearly warranted, since it is established that **any** opinion of A is called for (cf. 4), and A has privileged access to her own taste (Lasersohn 2005). No plausible metalinguistic issue is licensed in this case, and no reason exists for the speaker to defer making a plain assertion.[19] Thus, the NI-rise is infelicitous, in contrast to the RP-tag.

Notice that the appropriateness of an NI-rise in the application of a vague predicate to a borderline case (8c) supports a modification of the

[19] Note that this gives us a way to think about 'uptalk' dialects. We might say that in those dialects, there is a convention to the effect that it's rude to make plain assertions. Since adding rising intonation is such a simple way to avoid making a plain assertion, it might naturally become the typical pattern for declaratives. The crucial point is that in such dialects, rising declaratives are predicted to essentially always be felicitous precisely because the presence of rising intonation can always be attributed to this dialect-specific politeness requirement.

basic F&B system, since it cannot be modeled in that system. The effect of an NI-rise on the scoreboard for F&B, under the only analysis possible for this construction in their system, does not involve any change to the projected CG, and thus, we assume, to the projected standards. Yet, the utterance in (8c) is interpreted as a tentative (pending hearer approval) suggestion to revise the standard of redness to include the borderline paint.

Using projected commitments in our enriched system, we can model this effect by manipulating the standards in a more indirect way than the projected CS. When a speaker says *John is tall?*, this expresses her projected commitment to a standard that makes John, in this context, count as tall. If the hearer confirms, both are now publicly committed to such a standard. As a result of these public commitments, the standard in the CS is revised.

Our proposed analysis naturally explains the perlocutionary effects of a variety of rising declaratives. Šafářová (2007) discusses three different interpretations for NI-rises: first, those that do not result in a commitment from either the speaker or the addressee, such as (19).

(19) Šafářová (2007)
   a. You're leaving for vacation today?
   b. Speaker B: John has to leave early. Speaker A: He'll miss the party then?

Our framework captures such interpretations—by expressing a projected, rather than present commitment of the speaker, the utterance conveys a tentative bias towards resolving the issue, but fails to commit the speaker or the addressee. The origin of the bias is often an indirect inference from world knowledge and prior information, as in (19) and (2).

Second, Šafářová gives examples that result in a speaker commitment (e.g. when the speaker conveys new information but wants to keep contact with the addressee), as in (7) 'My name' (repeated below as 20) and (4) 'Unsure of move.'

(20) **'My name'** (Pierrehumbert & Hirschberg 1990, p. 290)
(to a receptionist) Hi, my name is Mark Liberman?

On our analysis, failure to fully commit to information on which the speaker is obviously an authority tells the hearer that there is another reason for the speaker's tentativeness (compare this to Poschmann (2008), who proposes that tentativeness is the effect of rising intonation). A hearer's confirming response to this utterance would yield almost the

same result as a speaker's plain assertion—thus, the hearer infers that the speaker is unsure about the speech act itself, rather than about its content. As a result, the speaker succeeds in conveying new information (e.g. that his name is Mark Liberman).

Finally, as Gunlogson (2003) points out, some NI-rises are used when there is a previous commitment from the addressee, as in the case of the addressee's assertion (21) 'Echo' or in the case of double-checking a presupposition (22) 'Presupposition' (see also Gunlogson (2008); Poschmann (2008) for further discussion of these cases).

(21) **'Echo'** (Šafářová 2007)
B: That copier is broken.
A: It is? Thanks, I'll use a different one.

(22) **'Presupposition'**
B: John's picking up his sister at the airport.
A: John has a sister?

We treat the case in (21) as very similar to (19)—the speaker (A) raises the issue (here, whether the copier is broken) and expresses a bias towards it. In light of the hearer's prior assertion of this information, this serves to keep the issue open for the moment (rather than adding it to the Common Ground). An immediate subsequent acceptance signaled by A in (21) serves to then resolve the issue, and add the information to the CG. The NI-rise in this case serves to delay the removal of the issue from the Table, demanding the hearer's attention during that time, and thus achieves its purpose of keeping in contact with the addressee.

In contrast, in (22) 'Presupposition' A's NI-rise double-checks B's presupposition—something that never made it to the Table prior to A's utterance. If followed by acceptance, this information is added to the CG; the utterance then simply serves to indicate that this is new (and perhaps unexpected) information for A, and thus worth putting on the Table before it joins the CG. However, such an NI-rise can also serve to subtly hint to B that A has information that makes her doubt that John has a sister, or even that John does not have a sister at all. In this case the NI-rise may serve to prevent this information from ever reaching the Common Ground.

Šafářová (2007, p. 6) observes that 'all these types of rising declaratives usually elicit a response from the addressee or give the impression of the response being welcome'. We suggest that this is a result specifically of the metalinguistic issue on the Table, which directly calls for a hearer response, in a way fully parallel to a Clarification Request (Ginzburg 2012) or an echo question (Poschmann 2008).

Note that NI-rises can also occur in non-declarative cases such as (23) (an example of what Poschmann (2008) terms 'tentative speech acts').

(23)
A: I'm pregnant with triplets.
B: Congratulations?

We assume that a normal exclamation of *Congratulations!* adds to the speaker's commitment set something like *the speaker joins the hearer in feeling joy*. Rising intonation adds this to the speaker's projected commitment set instead (e.g. if the speaker is not sure whether the addressee is joyful).

6 DISCUSSION

6.1 *Summary*

We have presented a model of conversation, building on prior work of Farkas & Bruce (2010). We accept the basic discourse components, and the essentials of the treatment of plain assertions and polar questions in Farkas & Bruce (2010) We argue that if further types of utterances and their effects are to be accounted for, the basic model is insufficient. We add new components to the model to account for the behavior of RP-tags, SP-tags and NI-rises in discourse (cf. the treatment of non-default initiatives in Farkas & Roelofsen forthcoming).

Our proposal enriches this basic structure in the following respects. First, we add projected commitments: things that interlocutors are expected to become committed to in the normal course of conversation. Projected commitments are inspired by Farkas & Bruce's (2010) projected CG, but unlike the projected CG they are truly independent components of the conversational scoreboard. Depending on contextual pragmatic inferences regarding the reason that the interlocutor is expected to become committed to something, a projected commitment can be more tentative than an actual public discourse commitment.

Second, we add the option of introducing a metalinguistic issue: this is independently needed for clarification requests, as argued in Ginzburg (2012). In a clarification request, an interlocutor raises a metalinguistic issue explicitly. In contrast, we propose that an NI-rise signals the existence of a metalinguistic issue; the nature of the issue is then conveyed via contextual reasoning and prosodic cues.

The final, and most minor, enrichment of the basic Farkas & Bruce (2010) model consists in the addition of contextual standards as a special part of the Common Ground.

The dynamics of the system retains the basic features of the Farkas & Bruce (2010) model. A speaker can add propositions to her own, but not to other interlocutors' actual commitments, and can raise issues by putting them on the Table. Propositions that all interlocutors are committed to become part of the Common Ground (CG). A projected CG set reflects the interlocutors' expectations about the future state of the CG in the normal course of the conversation: it consists of the current CG, plus possible resolutions of the issues on the Table. We assume that when several issues are added to the Table at once, only the top one will affect the projected CGs.

In addition to these effects, in our system a speaker can express her expectations or guesses regarding various interlocutors' commitments by placing propositions into her own or others' projected commitment sets. Projected commitments do not directly affect the content of the Table, the projected CG set, or the actual CG. However, pragmatic reasoning triggered by a projected commitment may lead to inferences that affect these other scoreboard components.

The reasons that a speaker may expect to become committed to something, but fail to actually commit, vary. Some moves that express a projected commitment occur in contexts where the hearer is more knowledgeable about the content of this commitment than the speaker, and thus can be expected to provide confirmation (cf. initiating declaratives used as questions, as discussed by Gunlogson 2008). We assume that the hearer is always more authoritative than the speaker regarding the content of projected hearer commitments. A projected commitment of the speaker or hearer will become an actual commitment if the hearer confirms it. In the case of a hearer commitment, it will remain an actual commitment but will not enter the CG without further commitment from the speaker. Since a projected speaker commitment becomes, upon hearer confirmation, an actual commitment of both interlocutors, it enters the CG.

At other times, a move conveying a projected commitment occurs in a context where the speaker and hearer are equally ignorant. Pragmatic inference would then suggest that the speaker has some (imperfect) evidence for the content of the projected commitment, but retains some epistemic uncertainty about it.

Finally, a move projecting a commitment of the speaker can occur in a context where the speaker is knowledgeable and the hearer is not. Normally such a move would be infelicitous, since there is a contradiction between a speaker being authoritative and yet failing to fully commit. The infelicity is lifted, however, if the speaker simultaneously signals the presence of some other reason for failing to go ahead with a

full-commitment move. If such a reason is resolved, the projected commitment becomes an actual commitment of the authoritative speaker, and if the hearer commits as well, this content will enter the CG.

Within this framework, we have primarily discussed five different kinds of conversational moves: plain assertions (24a), polar questions (24b), RP-tags (24c), SP-tags (24d), and NI-rises (24e).

(24) a. Sue likes chocolate. [Plain assertion]
b. Does Sue like chocolate? [Polar question]
c. Sue likes chocolate, doesn't she? [RP-tag]
d. Sue likes chocolate, does she? [SP-tag]
e. Sue likes chocolate? [NI-rise]

Our analyses of plain assertions and polar questions are taken from F&B, minimally modified to fit our system. Recall from Section 4.1 that, on the view we adopt, the effect of a plain assertion (that p) is to add p to the speaker's commitments, add $\{p\}$ to the Table, and update the projected CGs with p. In contrast, the effect of the corresponding polar question (whether p) is to add $\{p, \neg p\}$ to the Table and create projected CGs containing p as well as ones containing $\neg p$. It may be useful to look at our analyses of other constructions in terms of how they are similar to or different from plain assertions and polar questions.

First consider RP-tags, which we discussed in Section 4.2. On our view, an RP-tag is just like a plain assertion except that p is added to the speaker's projected commitments rather than her present ones. On the other hand, an RP-tag does not have very much in common with a polar question on our view, despite the presence of a question-like tag. In particular, an RP-tag adds a projected speaker commitment, whereas a polar question adds no commitments. In addition, an RP-tag adds $\{p\}$ to the Table, whereas a polar question adds $\{p, \neg p\}$; as a consequence, an RP-tag creates projected CGs only with p, whereas a polar question creates projected CGs with both p and $\neg p$.

Next consider SP-tags, which we discussed in Section 4.3. On our view, an SP-tag differs from a plain assertion in that p is added to the hearer's projected commitments rather than to the speaker's present ones. Put another way, it's the same as an RP-tag except that the projected commitment is assigned to the hearer rather than the speaker. One might say, then, that an SP-tag is somewhat more different from a plain assertion, with an RP-tag somewhere in between the two. As with RP-tags, an SP-tag is not very similar to a polar question on our view, since it adds a projected hearer commitment (whereas a polar question adds no commitments) and adds just the singleton issue $\{p\}$

to the Table instead of $\{p, \neg p\}$, as a result updating the projected common grounds to only those containing p.

Finally, consider NI-rises, which we discussed in Section 5.2. On our view, an NI-rise differs in multiple ways from both plain assertions and polar questions. First, like an RP-tag, an NI-rise adds a projected rather than present speaker commitment. Second, an NI-rise adds a context-determined metalinguistic issue to the Table, and consequently creates projected CGs containing all resolutions to that issue. We could say that an NI-rise is the same as an RP-tag except that a metalinguistic issue is added to the Table on top of $\{p\}$. (We assume that the projected CGs are updated using only the top issue on the Table, so this automatically leads to the appropriate difference in projected CGs compared to plain assertions.) Again, on our view, an NI-rise is not very much like a plain polar question, since a projected commitment is added (rather than no commitment), the singleton version $\{p\}$ is added to the Table (rather than $\{p, \neg p\}$), and this issue does not end up at the top of the Table, so the projected CGs are not yet updated with p.

Now we'll turn to a brief comparison of our view with some previous work specifically addressing rising intonation and tag questions.

6.2 *Comparison with Gunlogson (2008) and related work*

In a recent paper building on much prior work, Gunlogson (2008) looks specifically at three kinds of discourse-initiating conversational moves: NI-rises used as questions, plain assertions and neutral polar questions. She also considers certain responses to these moves (for example, *yes* v. *oh*). To account for this subset of speech act types, she introduces a number of new features into the representation of the conversational context, specifically the notions of commitment source, independent v. dependent commitments, and contingent speech acts.

Gunlogson's analysis of initiating rising declaratives is essentially the following: First, the declarative syntax signals speaker commitment, specifically commitment as a source; second, the rising intonation marks the discourse move as contingent. In effect, this means that the hearer must be in a better position than the speaker to be a source for the associated proposition.

The broader empirical coverage of our account means that none of our core examples fit the description of initiating declarative questions. Still, her proposal can extend fairly well to most of the examples of NI-rises that we deal with. However, her framework still lacks sufficient dimensions to model all three markers we address. For instance, both NI-rises and RP-tags involve (tentative) speaker commitments, which

we model as projected public commitments, and which can be perhaps approximated as contingent commitments. Additionally, since RP-tags involve an interrogative, we can model them in Gunlogson's framework as granting authority to the hearer—the hearer is a better source for p or $\neg p$ than the speaker. However, this analysis fails to distinguish between RP-tags and NI-rises used as questions, as in (2) 'Blushing/Innuendo', where the RP-tag is infelicitous, while the NI-rise is fine. Moreover, SP-tags, which we model by using projected hearer commitments, cannot be modeled at all.

We should note that the proposal in Gunlogson (2008) departs from Gunlogson's earlier claims. Gunlogson (2003)'s key claim was that rising intonation shifts the commitment from the speaker to the hearer: that is, while a normal assertion of p commits the speaker (but not the hearer) to p, an assertion of p with rising intonation does the reverse, committing the hearer but not the speaker to p. The drawbacks of this earlier proposal have been extensively discussed in subsequent work, including Šafářová (2007), Poschmann (2008)[20] and Gunlogson (2008), among others, so we will not address it further here.

6.3 *Comparison with Beyssade & Marandin (2006)*

Building on the work of Ginzburg (1996, 1997, 2012), Beyssade & Marandin (2006) (henceforth **B&M**) propose an analysis for a range of speech acts, including French confirmation requests, which they translate using RP-tags. Each participant has a representation of conversational context, termed the Discourse Game Board (DMG), which she updates. The relevant parts of the DMG, as used by B&M, are the Shared Ground set (SG) for factual commitments, and the Question Under Discussion set (QUD), tracking commitments to issues to be resolved. B&M add a new part representing the demands that a move places on the hearer: the Call on Addressee (CoA).[21] In B&M's framework, an assertion that p updates the speaker's SG, indicating a public commitment to p, and calls on the hearer to do the same. Similarly, a

[20] Poschmann addresses two kinds of NI-rises: confirmative questions and echo questions. On her view, confirmative questions express a tentative commitment of the speaker, while echo questions involve a commitment shift away from the speaker. Our account covers her cases of confirmative questions. While echo questions could be accommodated in our framework, our current proposal for NI-rises does not apply to them.

[21] Ginzburg's framework involves several other parts besides ones used in B&M, such as a record of conversational moves to-date, including the latest move—the propositional and illocutionary content, as well as phonological and syntactic properties of the latest utterance. The rich representation of the locutionary act enables speakers and hearers to raise metalinguistic issues concerning its various properties, e.g. as clarification requests.

question *q* updates both participants' QUD, indicating speaker commitment to the issue *q* and calling on the hearer to also commit to the issue.

A confirmation request involving a proposition *p* adds *p* to the speaker's SG while calling on the hearer to add the issue whether *p* to her QUD. Adopting this as an analysis of RP-tags successfully accounts for their behavior. As an anonymous referee for SemDial 2011 points out, this framework is simpler than the one we use. Indeed it is too simple to capture the fine-grained distinctions between the speech acts we consider.

Take the NI-rise. B&M note its similarity to questions and to French confirmation requests. It seems fair to represent this question-like effect as a CoA to add the issue whether *p* to the hearer's QUD. For the rest of the DGB, we would have four options for analyzing NI-rises in B&M's system.

First, an NI-rise could leave the speaker's SG and QUD unchanged. This would not capture the fact that NI-rises involve a tentative commitment of the speaker, as is demonstrated by the infelicity of this construction in (3c) 'Seeking agreement'. In effect, this would treat an NI-rise as being like a polar question, but without the speaker committing to the issue whether *p*. Second, an NI-rise could update the speaker's QUD with *p*. This would make NI-rises identical to neutral polar questions. Yet, as B&M note, the two constructions differ—for instance, NI-rises are infelicitous in contexts requiring neutrality (25).

(25) (on a medical form)
  a. Are you pregnant?
  b. #You are pregnant?

Third, an NI-rise could update the speaker's SG with *p*. This would make NI-rises identical to RP-tags, contrary to the facts observed in our examples (2)–(8).

As a fourth and last option, an NI-rise could update both SG and QUD of the speaker with *p*—that, in fact, was Ginzburg's original proposal for the effect of a plain assertion, using QUD in the same way in which we use the Table. In contrast, B&M represent the raising of issues as a call to add them to the hearer's QUD. Thus, we would be free to use the speaker's QUD to essentially weaken the commitments in her SG, indicating that the issue whether *p* is still unresolved for the speaker.

However, this fourth option for NI-rises would make incorrect predictions in several contexts. In particular, when the speaker is uncertain about the speech act itself, as in (7) 'My name' or in (4c) 'Unsure of

move', the speaker is, in fact, **not** committed to resolving the issue whether *p* (e.g. whether the neighbor is attractive, or what his own name is), and thus cannot add this issue to her QUD.

The part of the conversational scoreboard that makes the difference in our system, enabling us to model these fine-grained distinctions between speech acts, is the projected speaker commitment set. It allows us to make a three-way distinction between full commitments involved in a plain assertion, the tentative commitments involved in NI-rises, and no commitments in unbiased questions.

6.4 *Comparison with SDRT*

Reese & Asher (2007) offer an analysis of RP-tags with falling and rising final tune, couched in the framework of SDRT. In SDRT, speech acts are inferred from the content of utterances and other knowledge using defeasible logic. For Reese & Asher (2007), as for us, the intonational rise is an illocutionary operator. The rise entails that the speaker believes the core content of the associated proposition to be possible.[22] Thus, in an RP-tag, the anchor *p* is an assertion, which defeasibly means that A wants B to believe *p*, while the rising tag defeasibly means that A wants B to believe that $\Diamond\neg p$ (thereby implicating $\Diamond p$). One of the contradictory intentions must cancel the other. If the assertion is canceled, the tag is interpreted as a confirmation question: A believes *p* is possible, and asks B to confirm. If, however, the effect of the rise is canceled, the assertion persists, the tag is interpreted as an acknowledgment question, and B infers that the rise is there for some other reason, such as politeness.

This account makes wrong predictions: for example, in contexts where the effect of the rise is canceled, RP-tags should pattern with plain declaratives. This is falsified by (4) 'Unsure of move'—A cannot be asking for confirmation, since she is informed on the matter, and B isn't. Yet, the RP-tag is infelicitous, while the declarative is acceptable.

Reese & Asher (2007) do not address SP-tags; but their framework predicts them to be felicitous whenever the plain declaratives asserting the anchor are. Since no contradiction exists between *p* (the anchor) and $\Diamond p$ (the rise on the tag), there is no weakening of the assertion. Thus, contrary to fact, SP-tags should not be possible in

[22] The analysis of rising intonation in Šafářová (2007) also involves a modal operator akin to *It might be the case that*, but a propositional, rather than illocutionary one. We cannot discuss this fully here, but we suggest that this is not fine-grained enough to capture the different felicity patterns of the three markers; and that the effects of these markers are not truth-conditional, but illocutionary in nature.

(2) 'Blushing/Innuendo', where A is not in a position to express her opinion, and should be possible in (3) 'Seeking agreement', where she is.

7 CONCLUSIONS AND FURTHER DIRECTIONS

We have offered an analysis of RP-tags, SP-tags and NI-rises in a dynamic framework. The representation of context in this framework contains, in addition to the Table for issues under discussion, the present and projected versions of participants' commitments. We argue that the addition of the projected commitment sets is necessary to model the fine-grained distinctions among the various constructions. Our proposal represents an important step in constructing an empirically adequate theory of discourse and dialogue: we allow linguistic distinctions to dictate the number of primitives in our model, and demonstrate that any theory that hopes to capture the data must have sufficiently subtle differentiations between them.

One potential remaining problem is that certain uses of NI-rises seem to have more specific preconditions than our analysis would suggest, as in (26) 'Court',[23] while others do not, such as (4) 'Unsure of move', (8) 'Borderline paint'.

(26) **'Court'** Context: In court, the prosecuting attorney A begins cross-examining the defendant B.You committed the crime?

Without prior context, the utterance in (26) communicates the assumption that the defendant has already confessed her guilt; if prior context does not support this inference, the utterance is infelicitous.

In contrast, the NI-rises in (4) 'Unsure of move', (8) 'Borderline paint' and (7) 'My name' are all felicitous in contexts without any prior contextual reason to infer the associated proposition. We are not going to account for these differences here, but as a first step towards a unified account, observe that all NI-rises are required to put on the Table some metalinguistic issue concerning the associated utterance itself. In the case of stronger-precondition NI-rises, the metalinguistic issue is something along the lines of, *Is the speaker justified in committing to p based on prior context?*; in the weaker-precondition cases, the issue could be about any metalinguistic question about the utterance, such as, *Is this the correct pronunciation?*, *Is this kind of move appropriate at this point in the conversation?*, etc. In those contexts where resolutions to the issues of move-appropriateness, pronunciation, etc. are mutually known by the speaker and the hearer, the only possible interpretation for the NI-rise

[23] We are grateful to an anonymous reviewer for SemDial 2011 for bringing up this example.

involves raising the issue of whether the speaker can infer the content of the NI-rise from prior context. In this situation, e.g. (26) 'Court', the NI-rise itself must be a reaction to the prior state of the scoreboard.

In any case, our account captures an essential element that is common to both kinds of NI-rises, namely that they add a projected commitment of the speaker.

A second remaining problem involves a contrast between NI-rises and RP-tags in how they can be used to confirm presuppositions. The first part of the puzzle comes from an observation from an anonymous reviewer, who pointed out that in an example similar to (2), B could use an NI-rise, but not an RP-tag, to confirm A's presupposition that she has a new neighbor. This is shown in (27).

(27) **'Blushing/Innuendo'** Context: A and B are gossiping. A doesn't know anything about B's neighbor. B says, blushing, 'You've GOT to see this picture of my new neighbor!' **Without looking**, A replies:
   a. # A: You have a new neighbor, don't you?
   b. OK A: You have a new neighbor?

The judgment in (27b) is as expected. We've already discussed how NI-rises can be used to confirm hearer presuppositions (as in example (22) in 5.2). On the other hand, the fact that the RP-tag in (27a) is unacceptable is surprising. In this context, speaker A has a good basis for believing the anchor proposition (that B has a new neighbor) because B has presupposed it, and also has reason to seek confirmation from speaker B (since B would be expected to be an authority on the issue). Yet an RP-tag cannot apparently be used in this context, whereas an NI-rise can.

To make things more mysterious, there is a second half to this puzzle. In cases where the speaker backtracks and double-checks their own presupposition, the data is reversed: RP-tags are acceptable and NI-rises are not. This is shown in (28).

(28) Context: A and B are gossiping. A doesn't know anything about B's neighbor. A says:
   a. OK A: Is your new neighbor friendly? You have a new neighbor, don't you?
   b. # A: Is your new neighbor friendly? You have a new neighbor?

The RP-tag in (28a) is acceptable, as we would expect, since here again the speaker clearly has some basis for believing that the hearer has a new

neighbor (since otherwise she would not have asked a question about the neighbor) but also has some reason to seek confirmation from the hearer on this point. But surprisingly, the NI-rise in (28b) is unacceptable.

We don't have a solution to either half of this puzzle, but as with the 'Court' example above, we suspect that more will need to be said about the preconditions for these constructions to be used, along with more explicit analyses of presupposition and presupposition-checking.

In addition to the open problems above, some steps for future development of this line of research may include pursuing a compositional analysis as well as further broadening the empirical coverage to include modifiers of non-declarative utterances. Two constructions closely related to the ones considered here seem to be the natural testing ground for the present proposal. First, an investigation of the markers modifying the force of imperatives (29, 30) can contribute to our understanding of the semantics and pragmatics of that mood.

(29) Context: B and A are children playing make-believe games. A wants to play along but is unsure whether she's playing correctly.

B: Let's play queen and servant. You can be the queen and I'll be the servant. You sit on your throne here and tell me what to do.
A: Uh, okay, um ... make me some toast?

(30) a. Pass the salt, will you?[24]
b. Pass the salt, won't you?

Second, in this study we avoided considering a particular analysis of the rising intonation on tag questions, and specifically, committing to a view (espoused by Reese & Asher, 2007, among others) that this intonation is the same marker as the NI-rise. As Reese & Asher (2007) and others point out, utterances such as (31) indicate a much stronger bias towards the anchor proposition than the rising RP-tags such as (1a), and ask for hearers' acknowledgment rather than confirmation. The stronger bias suggests that the proposition becomes part of the speaker's present, rather than projected, commitments in this case, yet this speech act differs from a plain declarative.

(31) Sue likes licorice, doesn't she ↓

A consideration of the falling-final-tune tags (31) might be the first step towards separating the effects of intonation from those of the tag itself, and towards a compositional account of speech act modifiers.

[24] Note that in (30), the auxiliary must be *will* and not *do*, thus, these might be distinct from the tags we discussed so far.

In summary, we have presented a felicity pattern which brings out a commitment scale among declarative forms, from plain declaratives (most committed), to RP-tags (committed enough to project a CG), to NI-rises (projected speaker commitment), to SP-tags (no speaker commitment; projected hearer commitment instead). The pattern motivates a model of conversation which makes fine-grained distinctions among speech acts.

Acknowledgements

We are grateful for extremely helpful comments and discussion from the reviewers and editors of this journal, as well as reviewers and audiences at the Fourth Workshop on Prosody, Syntax, and Information Structure at the University of Delaware (WPSI 4), the 2011 Workshop on the Semantics and Pragmatics of Dialogue (SemDial: Los Angelogue) at the Institute for Creative Technologies in Los Angeles, and the Sinn und Bedeutung 16 conference in Utrecht, the Netherlands, as well as the Yale Linguistics Department. T.S. is also grateful for the feedback and discussion provided by student and faculty participants in two seminars on Pragmatic Models, Ling 670 at Yale in Fall 2011 and Ling 753 at UMass Amherst in Spring 2013. S.M. is also grateful to Ellen F. Prince for inspiring her every scientific endeavor. Both authors are very grateful to each other. The authors are listed in alphabetical order.

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First version received: 17.01.2012
Second version received: 26.01.2014
Accepted: 06.02.2014