

# 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 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), with 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, strongly or tentatively 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 in 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**] (1c). Rising intonation is indicated graphically with a question mark; we term the associated declarative utterance the anchor.<sup>1</sup> Rising intonation on syntactically declarative sentences (1c) have been extensively discussed in Gunlogson (2003, 2008), among others.

- (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 — one 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, 2011) and building on much prior work in discourse and dialogue (Ginzburg, 1996; Roberts, 1996; Gunlogson, 2003; Farkas & Bruce, 2010), we represent a

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<sup>1</sup>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).

speaker's contributions as changing that speaker's public commitments, and proposing to change the common ground, rather than changing the common ground directly. 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 meaning and function differences call for a view of context that distinguishes public commitments of the participants, issues raised, and additionally allows commitments and issues to be tentative.

The three markers we examine all seem to indicate some kind of uncertainty of the speaker, and/or a desire to seek confirmation from the addressee. Although we focus on syntactically declarative sentences, these markers are sometimes possible in non-declaratives as well, and it is our hope that our analysis can be generalized to cover those cases in future work.

The outline of the remainder of the paper is as follows: in the next section, we discuss taste predicates and their relevance for the three markers we discuss, introducing the core examples involving taste. §3 discusses the relevant features of vague scalar predicates, and introduces a core example that uses one. In §4 and §5 we introduce and develop a model of conversational context, and §§6–8 present the consequences that this model has for the three constructions. Finally, §9 presents our concluding discussion, with a summary of results and comparison with prior work.

## 2 Taste Predicates

Contexts involving taste predicates such as *tasty* and *attractive* are 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 §4.2.

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.<sup>2</sup> 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.

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, depending 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. (We will discuss Gunlogson's notion of dependent commitments further in §9.1, along with a comparison to the related notions that we will ultimately adopt.)

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

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<sup>2</sup>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.

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.<sup>3</sup> 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), but it could also happen when B is simply assuming that their tastes are similar for the purposes of conversation. 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.

Let's turn now to some examples. First consider (2), which we will also refer to mnemonically as "Blushing/Innuendo."

- (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. <sup>OK</sup> A: He's attractive, is he?
  - c. <sup>OK</sup> A: He's attractive?
  - d. # A: He's attractive.

In (2), B's judgment of attractiveness is at issue and A's is not. 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. <sup>OK</sup> A: (But) he's attractive too, isn't he?
  - b. # A: He's attractive too, is he?
  - c. # A: He's attractive too?
  - d. <sup>OK</sup> A: He's attractive too.

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. <sup>OK</sup> A: He's attractive?
  - d. <sup>OK□</sup> 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 <sup>OK□</sup>). This suggests that NI-rises and plain declaratives both involve independent speaker commitments, and may or may not involve dependent hearer commitments.

<sup>3</sup>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.

### 3 Vague Scalar Predicates

Vague scalar predicates such as *tall* or *red* are 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 “Borderline paint” (5).

- (5) **“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. <sup>OK</sup> A: It’s red, isn’t it?
  - b. # A: It’s red, is it?
  - c. <sup>OK</sup> A: It’s red?
  - d. <sup>OK</sup>□ A: It’s red.

In (5) A and B are trying to agree on a classification for a borderline case. Here an RP-tag or NI-rise is fine; the RP-tag suggests a higher degree of confidence about the judgment (5a) than the NI-rise (5c), but both indicate some lack of confidence. A plain declarative is fine but indicates essentially total confidence. An SP-tag is not felicitous (5b). This crucially differs from the otherwise similar taste example in “Seeking agreement” (3), where only the RP-tag was felicitous (3a).

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

<b>Table 1: Summary</b>	RP-tag	SP-tag	NI-rise	Decl.
(2) “Blushing/Innuendo” (uninformed speaker, innuendo about hearer)	#	<sup>OK</sup>	<sup>OK</sup>	#
(3) “Seeking agreement” (expressing opinion, seeking agreement)	<sup>OK</sup>			<sup>OK</sup>
(4) “Unsure of move” (expressing opinion, uncertain re: speech act)			<sup>OK</sup>	<sup>OK</sup> □
(5) “Borderline paint” (uncertain judgment on borderline case)	<sup>OK</sup>		<sup>OK</sup>	<sup>OK</sup> □

### 4 Pragmatic Background

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

#### 4.1 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 (forthcoming) and others, and further developed in Farkas & Roelofsen (2011). F&B’s representation of the “conversational state” (or Lewis-style “scoreboard”) includes the elements in (6).

- (6) a.  $DC_X$ : for each participant X, X's public discourse commitments.  
 b. Table: stack of propositions/questions to be resolved (the top issue first).  
 c. Common Ground (CG): the set of propositions in the Stalnakerian CG.  
 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 (including assertions or questions) are distinguished by where their associated propositions are added in the scoreboard. For example, if A asserts a proposition  $p$ , then  $p$  is added to  $DC_A$  (along with any presuppositions it carries), to the top of the Table, and (as a consequence of its presence on the Table) to each Projected CG (7.i). If B accepts the assertion (a separate move), this removes  $p$  from the Table and adds it to the CG (7.ii).<sup>4</sup>

- (7) (For purposes of illustration, assume that previously in the discourse, A has committed to some proposition  $r$  and the CG includes some proposition  $q$ .)

A asserts: *The king is here.*

	Previously	(i) A asserts	(ii) B accepts
$DC_A$	{ $r$ }	{ $r, \exists$ king, the king is here}	{ $r$ }
$DC_B$	{ }	{ }	{ }
Table	$\langle \rangle$	$\langle$ the king is here $\rangle$	$\langle \rangle$
CG	{ $q$ }	{ $q$ }	{ $q, \exists$ king, the king is here}
Proj. CGs	{ { $q$ } }	{ { $q, \exists$ king, the king is here} }	{ { $q, \exists$ king, the king is here} }

In contrast, the corresponding yes/no question creates projected CGs containing  $p$  as well as ones containing  $\neg p$  (8.i).

- (8) (Similarly, A has previously committed to  $r$  and the CG includes  $q$ .)

A asks: *Is the king here?*

B answers: *Yes.*

	Previously	(i) A asks	(ii) B answers	(iii) A accepts
$DC_A$	{ $r$ }	{ $r, \exists$ king}	{ $r$ }	{ $r$ }
$DC_B$	$c$	{ $r$ }	{the king is here}	{ }
Table	$\langle \rangle$	$\langle$ the king is here $\rangle$	$\langle$ the king is here $\rangle$	$\langle \rangle$
CG	{ $q$ }	{ $q$ }	{ $q, \exists$ king}	{ $q, \exists$ king, the king is here}
Proj. CGs	{ { $q$ } }	{ { $q, \exists$ king, the king is here}, { $q, \exists$ king, the king is not here} }	{ { $q, \exists$ king, the king is here} }	{ { $q, \exists$ king, the king is here} }

<sup>4</sup>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.

We present a slight simplification in the representation of the Table, which nevertheless captures the effects of the proposals in F&B and Farkas & Roelofsen (2011). The former framework places on the Table pairs consisting, first, of the syntactic representation of the utterance and, second, of its denotation. 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 (2011) 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  $\{\mathbf{p}\}$  on top of the Table, where  $p$  is highlighted, while a polar question whether  $p$  pushes the proposal  $\{\mathbf{p}, \neg p\}$  on the Table. The polar particles *yes* and *no* responding to assertions and polar questions refer, anaphorically, to the highlighted possibilities.

Since we will only consider situations in which exactly one proposition is highlighted (ignoring, e.g., wh-questions), we simplify these representations. The proposition we add to the Table corresponds in F&B’s framework to the denotation of the associated syntactic object (with the interrogative operator, if any, stripped), and to the highlighted proposition in Farkas & Roelofsen (2011).

Note that presuppositions are handled slightly differently in an unsolicited assertion than in an equivalent *yes* answer to a polar question: in the case of an assertion (7.i), the speaker making the assertion (here,  $A$ ) is the first one to introduce the presupposition that there is a king, and so this presupposition is only placed in the projected CG at this stage. In contrast, in the case of an answer (8.ii), the person who previously asked the question (here,  $A$ ) already introduced the presupposition into the projected CG. By answering  $A$ ’s question,  $B$  simultaneously makes an assertion and accepts  $A$ ’s move, and thus the presupposition is placed directly into the CG at this stage.

The framework constrains the way that propositions and issues enter and leave the various parts of the scoreboard. The system includes two ways for information to make it to the Common Ground. The first way is via the projected CG. The second is that when both (all) participants are publicly committed to a proposition, this proposition is added to the CG. As we noted above, those things that enter the CG\* are resolutions to the issues on the Table. 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, forthcoming). We have not yet seen how issues enter the Table.

## 4.2 Taste and Standards

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 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.<sup>5</sup>

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.”

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<sup>5</sup>For one recent opposing view, see Pearson (To appear).

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.

## 5 A Modification

The F&B framework is not fine-grained enough to capture the behavior of the three markers. Thus, we suggest a modification: in addition to projected CGs, we posit “projected” versions of the other parts of the conversational state. 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). It also allows speakers to tentatively raise issues (by adding them to the projected Table).

This modification adds more primitives to F&B’s scoreboard in two different ways. First, obviously, there are more parts of the scoreboard (projected commitments, projected Table). But importantly, we are also departing from the view of F&B and Farkas & Roelofsen (2011) in that more of our parts are independent of each other. That is, in F&B, for example, the projected CG can be defined in terms of the current CG and the Table. We argue that both of these complications are justified.

In the modified system, the effect of an assertion that  $p$  is given in (9), without the move whereby the hearer(s) accept the assertion.

(9) A asserts  $p$  (no vague predicates):

Current	Projected
CG {...}	CG* {..., $p$ }, ..., {..., $p$ }
(proposes to add $p$ to the CG)	
CS {...}	CS* {...}
(no change to common standards)	
$DC_A$ {..., $p$ }	$DC_A^*$ {..., $p$ }, ..., {..., $p$ }
(adds $p$ to A’s current & projected commitments)	
$DC_B$ {...}	$DC_B^*$ {...}, ..., {...}
$DC_C$ {...}	$DC_C^*$ {...}, ..., {...}
(no change to B or C’s commitments)	
Table $\langle p, \dots \rangle$	Table* $\{\langle \dots \rangle, \langle \dots \rangle, \dots, \langle \dots \rangle\}$
(adds $p$ to the top of table; proposes that it be resolved)	

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 §9 below. One difference between these notions is that we also have projected hearer commitments, which don’t have an equivalent in Gunlogson (2008).

## 6 RP-tags

At first glance, it might seem as if RP-tags could be analyzed straightforwardly in F&B’s system. One might suggest that an assertion with an RP-tag differs from a normal assertion only in that  $p$  is not added to the speaker commitments.

However, in conversations with more than two participants a deficiency emerges. Consider (10). (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  $p$ .

- (10) 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.

In our richer system, 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 with an RP-tag with anchor  $p$  adds  $p$  to the projected CGs, to the speaker’s projected commitments, and to the Table. Like a regular assertion, it also removes  $p$  from the Projected Table (thus proposing that the issue be resolved). The analysis is shown schematically in (11).

- (11) **A utters  $p$  with an RP-tag:**

Current	Projected
CG {...}	CG* {{...}, p}, ..., {...}, p}}
(proposes to add $p$ to the CG)	
CS {...}	CS* {...}
(no change to common standards if no vague predicates)	
DC <sub>A</sub> {...}	DC <sub>A</sub> * {{...}, p}, ..., {...}, p}}
(adds $p$ to A’s projected commitments)	
DC <sub>B</sub> {...}	DC <sub>B</sub> * {{...}, ..., {...}}
(no change to B’s commitments)	
Table ⟨ $p$ , ...⟩	Table* {⟨...⟩, ⟨...⟩, ..., ⟨...⟩}
(adds $p$ to the top of Table; proposes that it be resolved)	

This would mean that if B answers *Yes*, then both A and B are publicly committed to  $p$ . Since  $p$  is added to the CG anyway, this would yield the same results as the F&B system in a simple case; but now we can capture the utterer’s commitments in a conversation with more than two participants, such as (10).

The modified system also captures the distinct behavior of RP-tags in (2)–(5). In “Blushing/Innuendo” (2), 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, the commitment is “dependent” in the sense of Gunlogson, 2008, as discussed in §2.) 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, to the Table, and to the projected Common Ground) 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.

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 “Seeking agreement” (3), and another where the speaker is uncertain about the whole speech act, and the marker is inappropriate “Unsure of move” (4). Since the anchor is added to the speaker’s projected commitments, in both cases the speaker succeeds in expressing her opinion. By placing this proposition involving a predicate of taste on the Table and into the projected CG, she also invites the hearer to express her opinion “Seeking agreement” (3). However, in a situation where the hearer’s opinion is not at stake and cannot be solicited, as in “Unsure of move” (4), the marker is infelicitous.

Finally, consider the effect RP-tagged vague predicates have on the standards. The utterance in “Borderline paint” (5) puts the proposition ‘it’s red’ on the Table, 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 is uncertain about the content of the projected commitment. 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.

Note that the tag portion of the RP-tag construction shares many properties of biased polar questions with preposed negation, such as (12a).

- (12) a. Isn’t John attractive?
- b. Doesn’t John have some attractive traits?
- c. Doesn’t John have any attractive traits?

For some speakers, such a question is ambiguous between readings that have been termed “outside-negation” and “inside-negation” readings, disambiguated using polarity-sensitive items in (12b) and (12c), respectively.<sup>6</sup>

Syntactically, a negative RP-tag is just such a biased question with VP-ellipsis, and interpretationally it seems close to the outside-negation reading for biased questions. Since we are not attempting a compositional analysis of RP-tags that would separate the contribution of the declarative anchor and that of the tag question, the proper analysis for biased polar questions lies outside the scope of this paper. However, such an analysis is necessary for any future attempt to derive the function of RP-tags compositionally, and thus biased questions are briefly reviewed below.

In an influential treatment of polar questions with preposed negation, Romero & Han (2004) propose that such questions contain the VERUM operator, given in (13).

- (13) VERUM operator:  $\lambda p.\lambda w$ . In all worlds where conversational goals of the speaker in  $w$  are fulfilled,  $p$  is added to the CG.

The presence of this operator under the Question morpheme results in the biased partition, essentially asking whether it is necessary, for the speaker’s conversational goals, to add the questioned proposition to the Common Ground. Thus, the question in (12a) has the partition {for sure add *John not attractive* to CG, not

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<sup>6</sup>For some other speakers, only the “outside-negation” reading is possible; for them, (12a) is unambiguous, and (12c) is unacceptable. This variation is not relevant here.

sure whether to add *John not attractive* to CG}. This derives the bias: if the speaker is making an issue out of adding a proposition to the CG, she must have reason to doubt the validity of such a move, so she must have a bias against that proposition.

This proposal, however, encounters serious problems upon closer examination (cf. Reese, 2006). For instance, a “no” response to (12a) does not mean “not sure whether to add *John not attractive* to CG” — rather, it means “John is not attractive.” Romero & Han explain this by arguing that VERUM is an expressive, and thus does not embed under negation. We can raise several objections to this explanation. First, their own account of the distribution of Positive Polarity Items in biased questions relies on VERUM acting as an intervenor between negation and the PPI, thus rescuing the polarity item. Thus, in (14a), the structure is as in (14b), with VERUM embedded under negation. As argued in Szabolcsi (2004), among many others, semantic interaction, rather than mere syntactic position in the tree, is required for intervention.

- (14) a. Isn't John attractive, too?  
b. [Not [VERUM [Jack is attractive, too]]]

In addition, expressives are thought to be exactly not at-issue, and hence able to project through negation (Amaral et al., 2007; Beaver et al., 2011). Thus, if VERUM is an expressive, it should not be able to embed under the question operator, and cannot contribute to the issue of whether *p* should be necessarily added to the CG.

In an alternative account, Reese (2006) argues that outside negation meets all Horn's criteria for metalinguistic negation. He cashes out his own proposal for biased questions in an SDRT framework. We discuss application of SDRT to the analysis of RP-tags (Reese & Asher, 2007) in §9 below.

In related work addressing a different kind of biased questions — those containing minimizer NPIs (15a), Guerzoni (2004) examines the source and effects of their negative bias. The question in (15a) expresses speaker bias towards the proposition in (15b).

- (15) a. Did Mary contribute a red cent to this cause?  
b. Mary did not contribute to this cause.

She proposes, following Heim (1984), that unlike a neutral polar question which denotes a set containing the proposition and its negation, a negatively biased question denotes a singleton set containing the negative proposition. This reflects the speaker's expectation about the answer. Translating these effects into our framework, a question biased towards the proposition *p* would add *p* to the Table and projected CG, and perhaps also to the projected commitments of the speaker. This is in perfect accord with our proposal for RP-tags.

As we will argue in §9, 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 “Unsure of move” (4a). 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.

## 7 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 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. This analysis is shown schematically in (16).

(16) **A utters  $p$  with an SP-tag:**

Current	Projected
CG {...}	CG* {{...}, ..., {...}}
(no change to the CG)	
CS {...}	CS* {...}
(no change to common standards if no vague predicates)	
$DC_A$ {...}	$DC_A^*$ {{...}, ..., {...}}
(no change to A's commitments)	
$DC_B$ {...}	$DC_B^*$ {{..., $p$ }, ..., {..., $p$ }}
(adds $p$ to B's projected commitments)	
Table <...>	Table* {{...}, <...>, ..., <...>}
(no change to the Table)	

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 "Blushing/Innuendo" (2b), but not when the speaker is expressing her own judgment and/or seeking agreement, as in "Seeking agreement" (3b), "Unsure of move" (4b), and "Borderline paint" (5b).

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 "Blushing/Innuendo" (2), 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 "Seeking agreement" (3a)–(3b) 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 "Unsure of move" (4), and A's judgment on a standard-dependent borderline case is required in "Borderline paint" (5) — in both of these cases, A's commitments fail to be changed, and the SP-tagged utterance is infelicitous.

As we point out in §9, 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. 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.

## 8 NI-rises

We propose that if A utters  $p$  with an NI-rise, a metalinguistic issue concerning the utterance of  $p$  (indicated for convenience by “ $MLI^p$ ”) is added to the Table,<sup>7</sup>  $p$  is added to A’s **projected** commitment set and to the **projected** Table. If B accepts the move and resolves the metalinguistic issue on the Table,  $p$  is added to A’s present commitment set and to the Table. This is almost the effect that would have arisen from asserting  $p$  — the difference is only that a plain assertion adds  $p$  to the projected CGs; here, A suggests no potential resolutions for the issue on the projected Table, but gives a clue that she’d be willing to go along with adding  $p$  to the CG, since she adds  $p$  to her projected commitments (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.<sup>8</sup>) This is shown schematically in (17).

(17) A utters  $p$  with an NI-rise:

Current	Projected
CG {...}	CG* {{...}, p}, ..., {{...}, p}}
(no change to the CG)	
CS {...}	CS* {...}
(no change to common standards if no vague predicates)	
$DC_A$ {...}	$DC_A^*$ {{...}, p}, ..., {{...}, p}}
(adds $p$ to A’s projected commitments)	
$DC_B$ {...}	$DC_B^*$ {{...}, ..., {...}}
(no change to B’s commitments)	
Table $\langle MLI^p, \dots \rangle$	Table* $\{\langle p, \dots \rangle, \langle p, \dots \rangle, \dots, \langle p, \dots \rangle\}$
(adds $p$ to the projected Table — $p$ is expected to become an issue; adds a metalinguistic issue ( $MLI^p$ ) to the Table)	

By putting  $p$  on the projected Table, the speaker is, roughly speaking, seeking approval to make the move that would have been made if the rising intonation were absent, thereby deferring the effects of this move. Thus NI-rises are possible whenever the speaker isn’t sure if a plain assertion is appropriate. The uncertainty licenses the speaker in putting a metalinguistic issue about such an assertion on the Table. These are all issues that can be raised as Clarification Requests by the hearer of an utterance (Ginzburg, forthcoming). For example, in “Blushing/Innuendo” (2), 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 “Unsure of move” (4), A is unsure whether her opinion is called for; thus the metalinguistic issue is whether  $p$  addresses the issue on the Table. In “Borderline paint” (5c), A is not confident about her judgment, and thus the metalinguistic issue is

<sup>7</sup>Poschmann (2008) cites examples like (i) below, arguing that ‘confirmative’ NI-rises cannot raise metalinguistic issues. We disagree — the infelicity of this example is due to other factors. 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, resolving the metalinguistic issue she just raised.

- 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/?

<sup>8</sup>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 conversations involving more than two agents. A thorough comparison of the two approaches is outside the scope of this paper.

whether the standard of redness implicit in *p* is acceptable. In contrast, in “Seeking agreement” (3), 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. 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 (5c) supports a modification of the basic F&B system, since it cannot be modeled in that system. The effect of an NI-rise on the scoreboard for F&B does not involve any change to the projected CG, and thus, we assume, to the projected standards. Yet, the utterance in (5c) 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.

The proposed analysis of the three markers extends naturally to their other uses with 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 (18).

(18) (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 (18).

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 “My name” (19).

(19) “**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 “Echo” (20) or in the case of double-checking a presupposition “Presupposition” (21) (see also Gunlogson (2008); Poschmann (2008) for further discussion of these cases).

(20) “**Echo**” (Šafářová, 2007)

B: That copier is broken.

A: It is? Thanks, I’ll use a different one.

(21) **“Presupposition”**

B: John’s picking up his sister at the airport.

A: John has a sister?

We treat the case in (20) as very similar to (18) — the speaker tentatively raises the issue 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 (20) 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 “Presupposition” (21) 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 explain this effect by the presence of the associated proposition on the projected Table, which indicates that the speaker would like to make this an open issue, to be resolved. In addition, the metalinguistic issue on the Table directly calls for a hearer response, in a way fully parallel to a Clarification Request (Ginzburg, forthcoming) or an echo question (Poschmann, 2008).

Note that NI-rises can also occur in non-declarative cases such as (22) (an example of what Poschmann (2008) terms ‘tentative speech acts’). 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).

(22) A: I’m pregnant with triplets.

B: Congratulations?

Some uses of NI-rises have more specific preconditions, as in “Court” (23),<sup>9</sup> while others do not, such as “Unsure of move” (4), “Borderline paint” (5).

(23) **“Court”** Context: In court, the prosecuting attorney A begins cross-examining the defendant B.

You committed the crime?

Without prior context, the utterance in (23) 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 “Unsure of move” (4), “Borderline paint” and “My name” (19) 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 there are a few directions one could pursue in explaining them. One possibility is to say that the form we are calling the NI-rise is ambiguous between two different speech acts — one that requires prior contextual bias for the associated proposition (Gunlogson’s 2003 Contextual Bias Condition), and another that is not subject to that condition.

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<sup>9</sup>We are grateful to an anonymous SemDial referee for bringing up this example.

Alternatively, 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 involves raising the issue of whether the speaker can infer the content of the NI-rise from prior context. In this situation, e.g., “Court” (23), 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.

## 9 Concluding discussion

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 present and projected versions of participants’ commitments, the Table, and the Common Ground. We argue that all these “moving parts” are necessary to model the fine-grained distinction between 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.

Recall that in the original F&B framework, the CG was simply the intersection of the sets of propositions in the public commitment sets of all participants; while the projected CG contained the present CG updated with alternative expected resolutions of the issues on the Table. Thus, the only truly independent parts in the original framework are the commitment sets and the Table.

In our modified system, the projected speaker commitments and the projected Table represent truly new parts of the conversational scoreboard. However, these are not without precedent in prior research. As we discuss below, Gunlogson (2008) finds the system consisting of commitment sets and the CG insufficient for modeling a subclass of NI-rises. She adds the notions of dependent commitment, very close to our projected speaker commitment, and of commitment source — a concept she uses to model preconditions on NI-rises.

Another system that inspires our approach and has been used to model confirmation requests, the framework KoS (Ginzburg, 1996, forthcoming), includes, in addition to the facts in the speaker commitments and the questions under discussion on the Table, a record of prior conversational moves, and the notion of a Pending move — the latest conversational move that is awaiting hearer uptake or grounding. Once such grounding occurs, the update of the conversational scoreboard takes effect. Depending on the conversational move, the dynamics of the Pending field of the scoreboard partially corresponds to the projected speaker commitments, projected Table, and projected CG that, upon hearer uptake or acceptance, enter the present parts of our scoreboard. In our proposal for the NI-rise, the associated declarative proposition does precisely that — it enters the projected Table and projected speaker commitments, and moves to the present parts of the scoreboard upon hearer grounding. In addition, Ginzburg uses the QUD (his version of the Table) and the Pending field for the licensing of metalinguistic issues. Instead of grounding, the hearer is allowed to add to the QUD a metalinguistic issue concerning the utterance in the Pending field. Since our analysis of the NI-rises requires them to raise such a metalinguistic issue, the updating of projected rather than present parts of the scoreboard models the conversational move being “on hold” while the metalinguistic issue concerning it is being resolved, in a manner parallel to the functionality of the Pending field in KoS.

Finally, we have projected commitments for both the speaker and the hearer, which is based on the distinction between present commitments of the different participants, and also is similar to KoS where each participant gets a full conversational scoreboard of her own.

Our proposal is non-reductionist, as we have not attempted to reduce the effect of a move on one part of the scoreboard to its effect on another part. Our approach is, rather, to introduce as many primitives as are needed to model linguistic distinctions, and leave the reduction to future work. Our scoreboard is, in fact, amenable to such future simplification. For instance, Farkas & Roelofsen (2011) recast the F&B proposal in the framework of Inquisitive Semantics (Groenendijk & Roelofsen, 2009), in which the contribution to speaker’s commitments and the CG is computable from the denotation on the Table.

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

## 9.1 Comparison with Gunlogson (2008) and related work

In a recent paper building on much prior work, Christine Gunlogson (2008) considers a very specific subset of NI-rises — rising declaratives used as discourse-initiating questions. These utterances occur discourse-initially, and the main goal behind them is to elicit a response from the addressee. Gunlogson’s analysis of these NI-rises involves several pragmatic concepts. First, she uses the notion of speaker and hearer commitment — the same notion she utilized in her earlier work (Gunlogson, 2003), and identical to the notion of public discourse commitments that we adopt.

Like our proposal, Gunlogson’s adds new dimensions to the representation of the conversational context. She models the differing effects of plain declarative assertions, neutral polar questions, and rising declaratives used as questions when these moves occur discourse-initially, by introducing additional distinctions that depend on the notions of “commitment source” and “contingent commitment.”

The first new concept she defines is that of a **source** for commitments. This is directly tied to the notions of independent and dependent commitments, which we discussed in §2. For a discourse participant to be a source for a commitment to  $p$ , essentially, is to have reasons to believe  $p$  other than someone in the conversation saying that  $p$ . Thus, in (24a), both A and B are sources for their commitments to the proposition that the server is down. If a speaker is committing to a proposition that she is not a source for, her commitment is said to be **dependent**. Thus, in (24b), only A is a source for the proposition that the server is down, while B’s commitment to this proposition is dependent.

(24) Commitment as a source vs. dependent commitment

- A: The server is down.
- a. B: Yes, I know. #Yes, I didn’t know that. (Gunlogson, 2008, no. 26)
- b. B: Oh, I didn’t know that. (Gunlogson, 2008, no. 25)

The second additional notion is that of a contingent discourse move, and contingent commitment as a sub-type of that. A discourse move is **contingent** if the speaker presents it as linked to a subsequent move — the update effected by the contingent move is retained only if it still obtains after that subsequent move.

The initiating rising declaratives used as questions are analyzed as follows in this framework. First, the effect of the declarative syntax of these NI-rises is to contribute speaker commitment, specifically, committing the speaker as a source to the associated proposition. Second, the contribution of rising intonation is to mark this discourse move as contingent. This means that the hearer must be in a better position to be a source for the associated proposition than the speaker, and this inequality must be clear in the context of the NI-rise.

Gunlogson argues that this proposal accounts for the felicity contrast between the segment-initiating declaratives in “Persimmon” (25a) and “Airport” (25b) below.



(25) Issue-initiating NI-Rises

- a. (to a coworker eating a piece of fruit) # That’s a persimmon? (Gunlogson, 2008, no. 3c)  
b. Agent: Schiphol Information

Caller: Hello, this is G.M. I have to go to Helsinki, from Amsterdam.

...

Agent: Yes, there are several flights. One leaves at 9:10, one at 11:10, and one at 17:30.

Caller: The flight takes about three hours? (Gunlogson, 2008, no. 12)

In (25a), there is no obvious asymmetry between the speaker and the hearer regarding the name of the exotic fruit; in contrast, the airport agent is a much better source of information than the hearer in (25b).

We disagree with Gunlogson’s analysis of these examples. Contrary to what she claims, even if the coworker is known to be an expert on exotic fruits, the NI-rise would remain infelicitous. In contrast, while the rise in (25b) initiates the issue of flight duration, it is not truly discourse-initial. That is because prior conversational context evokes the flight to Helsinki; this licenses the caller to raise an issue concerning the flight (such as the duration, inferable from the flight) (cf. Ginzburg, forthcoming, *inter alia*). Note the NI-rise in (25b) is infelicitous without such prior context, as in (26), despite meeting all the criteria required by Gunlogson (2008).

(26) Agent: Schiphol Information.

Caller: # Hello, the flight from Amsterdam to Helsinki takes about three hours?

We suggest that these examples are similar to the NI-rise in “Court” (23) and other “stronger-precondition” rises, in that no metalinguistic issues concerning move-appropriateness, pronunciations, etc. can be legitimately raised here. The only possible issue that the NI-rise can put on the Table must be something like “Am I justified in committing to  $p$  as a reaction to prior context?” — making this move infelicitous discourse-initially.<sup>10</sup>

The broader empirical coverage of our account (we consider all declarative NI-rises, rather than just those used as questions) means that none of our core examples fit the description of initiating declarative questions, yet Gunlogson’s proposal has consequences for these cases, as well. The rise in “Blushing/Innuendo” (2) is not discourse-initial, but it does solicit a response. The speaker is not in a position to give her judgment, while the hearer is, creating the required evidence differential that Gunlogson demands for “use as questions.” If Gunlogson is right, then one can be a source for a taste predicate commitment without any experience of the object under evaluation — a prediction that conforms to the approach to taste predicates we adopt from Stephenson (2007).

In the case of an NI-rise checking a presupposition “Presupposition” (21), Gunlogson’s proposal makes the right predictions as well: first, the hearer’s commitment to  $p$ /not- $p$  make her a source for  $p$ /not- $p$ . Second, there is an evidence differential between speaker and hearer, with hearer having better information on  $p$ .

It is not clear that the framework can account for the infelicity of the discourse-initial declarative question in the cross-examination in “Court” (23). It seems that the conditions Gunlogson (2008) are met: the hearer’s confession would make her a source, and it seems plausible that the hearer has better information on whether she committed the crime than the prosecutor. Yet the example is infelicitous. Perhaps this could be explained by the absence of strong differential in this respect between the speaker and the hearer — while the hearer might have more direct evidence of her own past actions, she may not have any better evidence than the speaker regarding the question of legal guilt.

<sup>10</sup>The “Airport” examples (25b, 26) differ from “Court” in that the projected commitment to  $p$  is not **based** on anything in the prior context; nevertheless, this tentative commitment is a reaction to a previous state of the scoreboard, a comment on prior context.

Finally, our examples in (3)–(5) neither fit the description of declarative questions, nor fully conform to Gunlogson’s proposed conditions. The NI-rise in “Seeking agreement” (3) is not seeking a response, the context is not entirely neutral with respect to  $p$ , and there is no evidence differential between speaker and hearer. Note that this NI-rise is infelicitous, as would be expected under Gunlogson’s account.

Similarly, “Unsure of move” (4) is not seeking a response in the usual sense. The context is neutral with respect to  $p$ , but the authority differential is the opposite of what Gunlogson wants for questioning interpretation — the hearer is dependent, and the speaker has just been given implicit authority to be a source for  $p$  by the hearer’s question. Since the authority differential is required for the question interpretation, absent here, this example does not need to conform to this first condition to meet Gunlogson’s predictions. Turning to the second condition, strictly speaking, the speaker’s commitment to  $p$  is not contingent on the hearer’s approval, since the speaker is a much better source for her own judgments than the hearer. However, the discourse move is contingent in the broader sense — the speaker presents it for hearer’s approval, making the update of the scoreboard contingent upon this approval.

Note that Gunlogson’s second condition — that the discourse move be contingent — will not work for examples where the speaker is unsure of some locutionary property of the utterance (see footnote 7 for examples), rather than the appropriateness of the move itself, as in (4). In such a case, the notion of contingent commitment does not explain the tentativeness of the NI-rise, since the speaker’s commitment to both the illocutionary move, and the content of the proposition does not rely on the hearer.

Finally, the situation in “Borderline paint” (5) is identical to (4), except there is no difference in evidence between the speaker and hearer. The NI-rise is felicitous, and the move itself, rather than the speaker’s commitment, can be considered contingent in the broader sense.

We should note that the proposal in Gunlogson (2008) departs from Gunlogson’s earlier claims. Gunlogson’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  $p$ . This was based on the generalization she termed the “Contextual Bias Condition,” that NI-rises can only be used as questions in contexts where the addressee is already publicly committed to the proposition expressed (as in, e.g., “Presupposition” 21).

While our view owes its key insight to Gunlogson, we have shown that her claim there was too strong. On the one hand, there are cases of NI-rise where the speaker essentially remains committed to the proposition — for example, in “Unsure of move” (4c), the speaker (A) is committed to the new neighbor being attractive, and the hearer (B) is not. Conversely, in “Borderline paint” (5c), the speaker (A) does not assume or expect the hearer (B) to be committed to counting the paint as red rather than orange, and in fact the use of the rising intonation indicates precisely the fact that the standard is uncertain.

Poschmann (2008) argues that two kinds of declarative NI-rises can be used as questions: confirmative questions and echo questions. While the echo questions do involve a commitment shift (not necessarily to the hearer)<sup>11</sup>, she argues that confirmative questions always express a commitment of the speaker, contra Gunlogson (2003) and similar to Gunlogson (2008).

These cases come on the heels of many other counterexamples that have been pointed out to Gunlogson’s (2003) commitment-shift generalization (see, e.g. Šafářová, 2007). Furthermore, the 2003 analysis as it stands (that NI-rises contribute commitments to the hearer’s present commitment set) would not account for the generalization even if it were true. In cases such as (“Echo” 20, “Presupposition” 21), by the time the speaker utters the NI-rise, the addressee’s commitment set already includes the proposition associated

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<sup>11</sup>It is not clear that Poschmann’s representation of this shift mirrors Gunlogson’s (2003) proposal — for Poschmann, echo questions involve an illocutionary Question operator, which embeds a representation of another participant’s *past* utterance. This may or may not involve a representation of another participant’s commitment to the content of the echoed declarative. None of our examples qualify as echo questions, since none actually echo a declarative uttered by the hearer.

with the NI-rise; thus, on Gunlogson’s (2003) proposal, the utterance of the NI-rise would not change the conversational scoreboard at all:  $p$  is already in the hearer’s commitment set.

While the modified proposal in Gunlogson (2008) achieves greater empirical adequacy than her previous work, and can perhaps be extended to successfully account for the NI-rise examples here, it 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 “Blushing/Innuendo” (2), 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.

## 9.2 Comparison with Beyssade & Marandin (2006)

Building on the work of Ginzburg (1996, 1997, forthcoming), 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)<sup>12</sup>. 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 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 SemDial referee 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 in “Seeking agreement” (3c). 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 (27).

(27) (on a medical form)

- a. Are you pregnant?
- b. # You are pregnant?

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<sup>12</sup>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.

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)–(5).

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 “My name” (19) or in “Unsure of move” (4c), 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 distinguish between full commitments involved in a plain assertion from the tentative commitments involved in NI-rises.

### 9.3 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.<sup>13</sup>

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 “Unsure of move” (4) — 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 “Blushing/Innuendo” (2), where A is not in a position to express her opinion, and should be possible in “Seeking agreement” (3), where she is.

### 9.4 Future work

Our next steps in this line of research will be to further broaden empirical coverage to include modifiers of non-declarative utterances, to pursue compositionality, and to explore the possibility of reducing the number of primitives.

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<sup>13</sup>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.

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 (28, 29) can contribute to our understanding of the semantics and pragmatics of that mood.

(28) 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?

(29) a. Pass the salt, will you? <sup>14</sup>  
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 (30) 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.

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

A consideration of the falling-final-tune tags (30) 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.

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.

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<sup>14</sup>Note that in (29), the auxiliary must be *will* and not *do*, thus, these might be distinct from the tags we discussed so far.

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