

Embedded Rising Declaratives and Embedded Quotation*

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Abstract Declarative sentences uttered with rising intonation are used to ask biased questions. Do they share a denotation with interrogatives, despite their declarative form? Or do they serve as requests for information despite sharing a denotation with other declaratives? This paper explores the behavior of rising declaratives embedded under rogative speech-act verbs, and shows them to be invariably quotative. As such, these observations might just as likely pose problems for the semantics of embedded quotation under rogative verbs as for the semantics of rising declaratives. This paper pursues the former path.

Keywords: rising declaratives, intonational meaning, quotation, rogativity

Introduction

A rising declarative (RD) is a declarative sentence accompanied by a steeply, monotonically rising terminal contour (L* H-H%, indicated throughout with a sentence-final ?):

- (1) a. This is the last flight to San Francisco?
- b. Olivia won an Oscar?
- c. You have a daughter?

Despite their declarative form, RDs (pre-theoretically speaking) ask questions.¹ However, they do not do so in exactly the same way as polar interrogatives. RDs ask questions that are accompanied by some indication of bias, as evidenced by their infelicity in mandatorily neutral contexts (Gunlogson 2001):

* This work wouldn't exist but for Donka Farkas, Pranav Anand, and Adrian Brasoveanu pushing me to elucidate an objection initially put forth handwavily. It has benefitted along the way from suggestions by Scott AnderBois, Chris Barker, Cleo Condoravdi, Sunwoo Jeong, Magda Kaufmann, Dan Lassiter, Sophia Malamud, Tom Roberts, Floris Roelofsen, and audiences at SALT 29. Any errors that have survived this gauntlet are my sole responsibility.

¹ There are declarative sentences accompanied by monotonic rises that do not ask questions—I follow Jeong (2018) in treating these as a separate construction entirely, that is subtly intonationally distinct. This paper focuses exclusively on 'inquisitive' RDs.

- (2) [Context: on a tax form:] (Gunlogson's ex. 13)
- a. During the tax year, did you receive a distribution from a foreign trust?
 - b. # During the tax year, you received a distribution from a foreign trust?

Much of the literature on RDs is devoted to articulating what exactly the nature of this bias is, and explaining how this bias is related to the form of RDs—why does declarative sentence plus rising intonation equal biased question? Prior work that is devoted in whole or in part to these two questions includes, but is not limited to, Nilsenová (2006); Truckenbrodt (2006); Gunlogson (2008); Malamud & Stephenson (2015); Krifka (2015), Westera (2013; 2017; 2018), Farkas & Roelofsen (2017); Jeong (2018); and Rudin (2018).

This paper does not address either of these questions very directly. Instead, it zooms in on one specific issue in the literature on RDs: do RDs share a denotation with other declarative sentences (e.g. propositions)? Or do they share a denotation with interrogative sentences (e.g. non-singleton sets of propositions)? In other words, do RDs achieve their question-asking discourse function in spite of their semantic type? Or are they questions in the semantic sense, in spite of their declarative form?

Most prior work on RDs assumes the former: that RDs denote the same thing any other declarative sentence denotes, and achieve an information-requesting discourse function in spite of not denoting what interrogative sentences denote. But some recent analyses take the latter path, and assume that RDs share a denotation with polar interrogatives (Farkas & Roelofsen 2017; Jeong 2018). This paper is devoted to the investigation of an observation that Farkas & Roelofsen (2017) argue points toward this conclusion.

Farkas & Roelofsen (2017) observe that the acceptability of embedded RDs covaries with the semantic type preferences of the embedding verb (modified from F&R's ex. 27):

- (3) a. Yorgos {asked, wondered}, 'Olivia won an Oscar?'
- b. # Yorgos {asserted, claimed}, 'Olivia won an Oscar?'²

Verbs that require interrogative complements, such as *wonder*, are comfortable embedding RDs. Verbs that require declarative complements, such as *claim*, cannot embed RDs. Farkas & Roelofsen (2017) take this observation to suggest that RDs are of the same semantic type as interrogatives, and capture this asymmetry by assigning RDs the same denotations as the corresponding polar interrogatives, explaining

² FR use *it appears*, not *asserted* or *claimed*, as their infelicitous embeddor. I diverge here because, as I'll note below, RDs are only felicitous with speech act verbs, providing an alternative explanation of the unacceptability of RDs with *it appears*. In fact, *it appears* does not allow for quotative complements at all, regardless of the semantic type of the denotation of the quoted sentence.

why they pattern with interrogatives with respect to their distribution in embedded contexts.

In this paper, I present a fuller investigation of the distribution and behavior of embedded RDs, and suggest that this conclusion is too hasty. I show that embedded RDs can only be interpreted as quotations, and as such, there is no evidence that they ever supply an interrogative denotation to an embedding verb. I argue that this asymmetry, whereby RDs can be quotative complements, but not direct semantic complements, to rogative speech act verbs, has ramifications for the semantics of embedded quotation under speech act verbs, rather than for the semantic type of RDs. As such, I do not believe that [Farkas & Roelofsen's \(2017\)](#) observation motivates a move away from the majority view that RDs share a denotation with other declarative sentences.

The question of whether RDs share a denotation with falling declaratives or with polar interrogatives is of interest beyond the analysis of this particular construction, and indeed beyond the study of intonational meaning. This question informs the answers to other questions of broader interest, such as:

- I. Are all clauses of the same syntactic type also of the same semantic type?
- II. Do all utterances of sentences of the same semantic type have the same basic discourse effect?
- III. Are there elements of linguistic form which contribute meaning directly on the level of context update, instead of on the level of truth-conditional semantics?

I argue that the behavior of RDs in embedded contexts suggest that the answers to these broader questions are yes, no, and yes, respectively. In this paper's conclusion, I flesh out the ramifications of embedded RDs for these broader questions more robustly.

This paper will pass through the following waypoints on the road to that conclusion. §1 contains the core empirical generalizations of the paper, showing that embedded RDs are stubbornly quotative. §2 contains the core theoretical proposal of the paper, which loosens the connection between quotative and non-quotative versions of speech act verbs proposed by [Lahiri \(2002\)](#). §3 briefly extends the empirical investigation and theoretical proposal to speech-act nominals and information-requesting imperatives. §4 concludes by reflecting on the three broader questions above.

1 Embedded rising declaratives are quotative

A clause-embedding verb is *ROGATIVE* iff it embeds only interrogatives, *ANTIROGATIVE* iff it embeds only declaratives, and *RESPONSIVE* if it embeds both (Lahiri 2002). Farkas & Roelofsen 2017 observe that the felicity of embedded RDs tracks the (anti)rogativity of the embedding verb:

- (4) a. Yorgos wondered {whether, *that} Olivia won an Oscar.
 b. Yorgos wondered, ‘Olivia won an Oscar?’

The verb *wonder* selects exclusively for interrogative complements, i.e., it is rogative (4a). It can also host embedded RDs (4b).

- (5) a. Yorgos claimed {*whether, that} Olivia won an Oscar.
 b. # Yorgos claimed, ‘Olivia won an Oscar?’

The verb *claim* selects exclusively for declarative complements, i.e., it is antirogative (5a). It cannot host embedded RDs (5b).

To the extent that (anti)rogativity is due to restrictions that clause-embedding verbs place on the semantic type of their complements (for recent approaches, see Uegaki 2015; Theiler, Roelofsen & Aloni 2019), the parallel distribution of interrogatives and RDs under clause-embedding verbs might suggest that they share a semantic type, to the exclusion of (falling) declaratives. In this section, I argue that this conclusion is too hasty. The distributions of interrogatives and RDs under clause-embedding verbs is not as parallel as the above examples make it seem: RDs can be embedded under antirogative manner-of-speech verbs, and cannot be embedded under rogative verbs that do not describe speech acts. In addition (and relatedly), embedded RDs can only be interpreted as quotations, as evidenced by the behavior of indexicals in embedded RDs, and by the impossibility of using an embedded RD to describe what the speaker is currently wondering, asking, and so on. So, at the very least, the proposal that RDs are acceptable under *wonder* because they share a denotation with interrogatives must be mediated by a theory of quotative complements to rogative speech-act verbs. I turn to this mediating theory in §2.

1.1 Rogativity isn’t the whole story

The generalization that the felicity of embedded RDs tracks the rogativity of the embedding verb fails in both directions. There are many antirogative verbs under which RDs can be embedded. A wide variety of manner-of-speech verbs embed RDs:

- (6) Yorgos {uttered, shouted, whispered, screeched, chanted, intoned, yelped, squawked, screamed, slurred, stuttered, ... }, ‘Olivia won an Oscar?’

These verbs are typically antirogative, undermining the generalization that embedded RDs have a parallel distribution to embedded interrogatives:

- (7) a. Yorgos {screeched, yelled, . . . } that Olivia won an Oscar.
b. * Yorgos {screeched, yelled, . . . } whether Olivia won an Oscar.

In these cases, the embedding verb describes the manner in which Yorgos made an utterance whose content is the denotation of its complement (7a) or whose form is quoted as its complement (6). That RDs and interrogatives pull apart here suggests an alternative explanation for the unacceptability of RDs embedded under verbs like *assert* and *claim*: rather than being due to the RDs not meeting the semantic requirements such verbs place on their complements, this unacceptability is simply due to the fact that these verbs are not accurate descriptions of the speech acts carried out by utterances of RDs.³ As has already been noted, utterances of RDs request information rather than transmitting it, and so it is not accurate to describe an utterance of an RD as an assertion or a claim.

Interestingly, despite the fact that manner-of-speech verbs do not allow for interrogative complements (7b), they are perfectly comfortable embedding quotations whose form is interrogative:

- (8) Yorgos {uttered, shouted, whispered, screeched, chanted, intoned, yelled, squawked, screamed, slurred, stuttered, . . . }, ‘Did Olivia win an Oscar?’

The contrast between (7b) and (8) suggests an asymmetry between the selectional requirements that speech-act verbs place on their clausal complements and the selectional requirements that speech-act verbs place on their quotative complements. Call standard clausal complements S(ematic)-complements (SCs), and sentential quotations under clause-embedding verbs Q(otation)-complements (QCs). To foreshadow, in §2, I argue that this asymmetry, in which verbs of speech place fewer (or different) restrictions on their QCs than on their SCs, explains the acceptability of RDs under rogative speech act verbs, without necessitating that RDs share a denotation with interrogatives.

The generalization that the felicity of embedded RDs tracks the rogativity of the embedding verb fails in the other direction as well: there are many rogative and responsive verbs under which RDs cannot be embedded. RDs are impossible under all non-speech-act verbs, regardless of whether they embed questions:

- (9) a. Yorgos {is interested in, cares, learned, knew } whether Olivia won an Oscar.

³ Note here again that *assert* and *claim* are my own examples of antirogative verbs under which RDs do not embed, not Farkas & Roelofsen’s.

- b. * Yorgos {is interested in, cares, learned, knew}, ‘Olivia won an Oscar?’

The argument that the acceptability of RDs under question-embedding verbs like *wonder* and *ask* tells us something about their denotation presupposes that, when embedded under such verbs, RDs are supplying them with a question denotation. If this is so, then (9b) shows that something stops RDs from doing so for non-speech-act verbs.

Irrespective of the fact that the distribution of embedded RDs appears to be more complicated than just that RDs can be embedded under rogative verbs, and can’t be embedded under antirogative verbs, the fact remains that some rogative speech act verbs allow embedded RDs. In at least those cases in which RDs are grammatical under rogative verbs, are they indeed supplying question denotations as semantic arguments to those verbs, in the same manner as embedded interrogatives? In the rest of this section, I argue that the answer to this question is no—embedded RDs are invariably quotative, and as such are never directly supplying a question denotation as a semantic argument to the embedding verb. If they are introducing a question denotation to the meaning of the sentence that contains them, they are doing so only mediated by the semantics of quotation-embedding. I turn to the theory of quotation-embedding uses of speech-act verbs in §2.

1.2 Indexicals in embedded RDs

Embedded RDs stubbornly resist being interpreted as SCs of clause-embedding verbs, and instead are always interpreted as QCs. The first argument for this comes from the behavior of indexicals in embedded RDs. Indexicals in embedded RDs cannot be interpreted relative to the context of the utterance of the matrix clause:

- (10) [*Context: Alvin is talking to Bertha about a conversation he had with Cynthia.*]
- a. **A:** Then Cynthia asked me, ‘Are you married?’
 You = **A:** ✓ You = **B:** #
- b. **A:** Then Cynthia asked me if you’re married.
 You = **A:** # You = **B:** ✓
- c. **A:** Then Cynthia asked me, ‘You’re married?’
 You = **A:** ✓ You = **B:** #

The clausal complement of *ask* in (10a) is unambiguously a quotative complement. Though I’ve indicated this orthographically, the quotation marks are not necessary to disambiguate this—it displays subject-auxiliary inversion, and lacks a complementizer, both of which are impossible in interrogative SCs (in Standard American

English). This example shows that in interrogative QCs, indexicals must be interpreted relative to the context of **C**'s utterance, not the context of **A**'s utterance (q.v. Sharvit 2008 a.o.). The clausal complement of *ask* in (10b) is unambiguously a semantic complement—there is an interrogative complementizer and no subject-auxiliary inversion, both of which are exclusively features of embedded interrogatives. This example shows that in interrogative SCs, indexicals must be interpreted relative to the context of the utterance of the complete sentence, including the matrix clause. RDs pattern like QCs—there is no way of reading (10c) that allows the embedded indexical to take its meaning from the context of **A**'s utterance.

We see the same profile with temporal indexicals:

- (11) [*Context: It's Wednesday, and Alvin is talking to Bertha about a conversation he had with Cynthia on Tuesday.*]
- a. **A:** Then Cynthia asked, 'Do you leave tomorrow?'
 tmrw = W: ✓ tmrw = Th: #
 - b. **A:** Then Cynthia asked if you leave tomorrow.
 tmrw = W: # tmrw = Th: ✓
 - c. **A:** Then Cynthia asked, 'You leave tomorrow?'
 tmrw = W: ✓ tmrw = Th: #

Again, we see that RDs pattern with unambiguous QCs: in (11a) and (11c), but not (11b), indexicals must be interpreted relative to the context of **C**'s utterance rather than the context of **A**'s utterance.

1.3 Slifted RDs

We might worry that RDs are stubbornly quotative in embedded contexts simply because their intonational component is unembeddable. This is quite reasonable: the L* H-H% tune associated with rising declaratives is a TERMINAL CONTOUR, which is instantiated at the close of an entire intonational phrase, a phonological unit that contains the entire sentence. So how could an embedded clause have its own terminal contour, to the exclusion of the matrix clause? The fact that RDs are defined in terms of an intonational tune that scopes over an entire sentence is congruent with Farkas & Roelofsen's (2017) proposal that the semantic reflex of this intonational tune occurs only at the root level, not at any embedded clause, predicting that RDs shouldn't be able to be semantically embedded.

However, for exactly this reason, Farkas & Roelofsen (2017) consider slifted RDs. In slifting (12b), a clause that is interpreted as a complement (the SLIFTED CLAUSE) appears to the left of its embeddor (the REMNANT), despite the fact that the sentence is equivalent in meaning to the canonical ordering (12a). Medial slifting is

also possible, in which the remnant appears in the middle of the slifted clause (12c). Slifted clauses display root phenomena that are impossible in ordinary embedded clauses, like inversion in interrogatives (Ross 1973):

- (12) a. I wonder if Olivia has won an Oscar.
 b. Has Olivia won an Oscar, I wonder?
 c. Has Olivia, I wonder, won an Oscar?

Note that there is not consensus about the correct syntactic analysis of slifting; for some recent perspectives see Grimshaw (2011); Haddican, Holmberg, Tanaka & Tsoulas (2014); Stepanov & Stateva (2016). It's not necessarily the case that a slifted clause is actually a semantic complement of the remnant. It may instead be that the remnant is the result of null complement anaphora, and that the slifted clause is simply a normal root clause that serves as an antecedent.⁴ What is important for our purposes is that (12b) and (12c) are, by one means or another, semantically equivalent to (12a). To remain agnostic about the syntax, I will use scare quotes when referring to the slifted clause as 'embedded', and described it as 'associated with' its remnant.

That slifting might be a good way to get around the unembeddability of RDs is vindicated by the fact that the entire sentence is accompanied by an intonational tune that is normally associated with the embedded clause. Despite the fact that the unslifted sentence (12a) is accompanied by the H* L-L% falling tune characteristic of assertive utterances of declarative sentences, both slifting constructions (12b & 12c) are accompanied by a L* H-H% terminal contour characteristic of utterances of polar interrogatives, despite the fact that their meaning is the same as (12a). The L* pitch accent occurs within the slifted clause (in this case, on *Oscar*), and the H% boundary tone falls at the end of the sentence, resulting in a rise in pitch throughout the destressed remnant when it is sentence-final (12b).⁵

Licensing of root phenomena under slifting extends to licensing of a terminal contour appropriate to the 'embedded' clause, so if RDs are unembeddable for purely intonational reasons, slifting should get around the problem. However, slifted RDs, unlike slifted interrogatives, are unwilling to extend their terminal contour to the end of the sentence:

- (13) * Olivia has won an Oscar, I wonder?

⁴ Thanks to Tom Roberts for suggesting that I consider a null complement anaphora account.

⁵ Note that this intonational pattern is much more natural with first-person present remnants, cf:

- (i) ??/* Has Olivia won an Oscar, Yorgos wondered?

I don't have a ready explanation for this fact. I discuss slifting with first-person present for non-intonational reasons in §1.4.

Even under slifting, RDs remain stubbornly quotative: when they move left, their intonation stays where it was in the reported utterance, rather than realigning to the terminal position of the intonational phrase.⁶ And when a slifted RD is allowed to keep its intonation in place, the behavior of indexicals verifies that the RD is a quotation:

(14) [*Context: Alvin is talking to Bertha about a conversation he had with Cynthia.*]

a. A: ‘You’re married?’, Cynthia asked me.

You = A: ✓ You = B: #

b. A: ‘You’re,’ Cynthia asked me, ‘married?’

You = A: ✓ You = B: #

Even under slifting, RDs remain stubbornly quotative.

1.4 RDs embedded under first-person present

Observe something else about slifted interrogatives: a slifted interrogative associated with a first-person present tense remnant specifies what the speaker is currently wondering (or asking, or querying, etc., depending on the identity of the remnant verb). So for instance, the slifted interrogative in (12b) denotes the content of the speaker’s current state of wondering. This interrogative, therefore, appears to supply a question denotation to the verb *wonder*, allowing the complete slifting construction to add up to a description of what the speaker is currently wondering. This is the behavior of an SC, not a QC—the slifted interrogative does not represent the form of another utterance.

As shown above, the behavior of indexicals in embedded RDs suggests that they are stubbornly quotative, i.e., they represent the form of another utterance. If this is true, then they should not be felicitous if embedded under first-person present, because under first-person present, they cannot be interpreted as representing the form of a separate utterance—there can be no separate utterance that represents

⁶ Note that slifted RDs don’t play well with antirogative embedding verbs either:

- (i) * Olivia has won an Oscar, I doubt?

It appears that RDs simply can’t be slifted except as quotations. This might be due to a number of different factors, which it’s difficult to sort out without a well-worked-out theory of slifting in hand. Regardless of the explanation of this fact, it seems that slifting cannot provide us with evidence of RDs supplying their denotation to an embedding verb as its semantic complement. As such, it’s not clear that slifting is giving us any conclusive evidence about the semantic type of RDs.

what the speaker is *currently* wondering. And indeed RDs are unacceptable under first-person present, irrespective of slifting:⁷

- (15) a. # ‘You’re married?’, I {wonder, ask}.
 b. # I {wonder,ask}, ‘You’re married?’

Embedded RDs cannot be used to specify what the speaker is currently asking or wondering about, suggesting that they are incapable of supplying a question denotation to the matrix verb.

1.5 Summing up the facts

In the above investigation of the behavior of embedded RDs in a variety of environments, we’ve encountered no evidence that embedded RDs ever supply a question denotation to a rogative verb; rather, they are stubbornly quotative. They remain stubbornly quotative even in rootlike slifting environments, which allow ‘embedded’ interrogatives to bring the matrix remnant into their own intonational phrase, casting doubt on an explanation of this fact strictly in terms of the unembeddability of terminal contours. We’ve also encountered no knockdown evidence that RDs supply propositional denotations to non-rogative verbs. On the contrary, what we’ve found is that embedded RDs can provide us with no direct evidence whatsoever about the semantic type of RDs.

If the fact that RDs can embed under rogative verbs as quotations provides evidence that they share a denotation with interrogatives, it does so only indirectly, mediated by a theory of the semantics of quotative complements to rogative verbs. The simplest such mediating theory on the basis of which we might conclude that RDs denote questions is a theory on which a sentential quotation can be the complement of a rogative verb only if the quoted sentence denotes a question—i.e., a quotation can be a complement of a rogative verb only if it denotes a semantic object that could be an argument to that verb (Lahiri 2002).

However, we’ve observed a crucial asymmetry in this section: embedded RDs can be QCs to rogative verbs, but they cannot be SCs to rogative verbs. This asymmetry does not follow from such a mediating theory. I suggest that this crucial asymmetry is better explained by an account that assigns different denotations to interrogatives and RDs. In the following section I propose an account on which

⁷ *Nota bene*: acceptability of these sorts of constructions improves if they are given a performative interpretation, along the lines of:

- (i) I hereby ask: you’re married?

RDs can serve as QCs to rogative speech act verbs because their discourse function is of the kind described by such verbs, but cannot serve as SCs to rogative verbs because their denotation is not of the right semantic type. The feasibility of such an account suggests that Farkas & Roelofsen’s (2017) observations about embedded RDs are perfectly compatible with a world in which RDs share a denotation with other declarative sentences. If there are independent reasons to prefer to live in that world, the facts we’ve encountered here should do nothing to dissuade us.

2 Uncoupling quotative and non-quotative complements of speech act verbs

In this section, I present Lahiri’s (2002) seminal account of the connection between QC-embedding and SC-embedding versions of rogative speech act verbs (§2.1), present some background assumptions about the context update carried out by utterances of RDs (§2.2), and then put forward this paper’s core theoretical proposal, a revised account of the connection between QC-embedding and SC-embedding versions of rogative speech act verbs (§2.3).

2.1 Lahiri’s seminal account

Assume that quotations are semantic objects of type q (for the motivation behind assigning quotations a distinct semantic type, see Potts 2007; Geurts & Maier 2005; Shan 2010; and especially the excellent overview in Maier 2014).⁸ Lahiri (2002, §6.4) proposed a semantic ambiguity between QC-embedding (16a) and SC-embedding (16b) versions of rogative speech act verbs, regulated by a meaning postulate (16d). I reproduce his formulas here with minor notational modifications.

- (16) a. $\llbracket ask_1 \rrbracket = \lambda q. \lambda x. [ask_1(q)(x) \wedge QU(q)]$ ⁹
 b. $\llbracket ask_2 \rrbracket = \lambda Q. \lambda x. [ask_2(Q)(x)]$
 c. $\llbracket QU(q) \rrbracket = 1$ iff $\llbracket q \rrbracket$ is a question
 d. $ask_1(q)(x) \leftrightarrow [\exists Q: \llbracket q \rrbracket = Q]ask_2(Q)(x)$

Lahiri’s semantics of QC-embedding rogative speech act verbs (16a) requires that the quoted sentence denote a question (16c); if this is correct, then this mediating theory indeed requires that RDs denote questions, in order to explain their felicity as QCs to rogative speech act verbs. However, this account makes a very strong prediction: that anything that can be a QC of a rogative speech act verb can also be an SC of that verb (16d). We saw in §1 that RDs cannot be SCs of rogative

⁸ It is common to refer to quotations as type u , for ‘utterance’. I’ve diverged terminologically here because I will be using ‘utterance’ in a different sense below.

⁹ I’ve suppressed reference to the addressee argument here and throughout, for readability.

speech act verbs, despite the fact that they are perfectly comfortable being QCs. So it appears that RDs falsify the strong prediction of this account.¹⁰

I propose that what unifies QC-embedding and SC-embedding versions of rogative speech act verbs isn't the requirement that the embedded clause denote a question, but rather is that the utterance referred to has a particular DISCOURSE FUNCTION: that of comprising a specific kind of information request. On this proposal, Lahiri's meaning postulate in (16d) must be sacrificed, bringing the quotative and non-quotative versions of rogative speech act verbs further apart from each other. I argue that this is justified by our observations of RDs as QCs to such verbs.

2.2 Uttering RDs

I assume a model of discourse contexts that includes individual Discourse Commitments (Hamblin 1971; Gunlogson 2001), a Common Ground comprised of mutual discourse commitments (Stalnaker 1978), and a stack of Questions Under Discussion (QUDs—Roberts 1996; Ginzburg 1996). I assume that when a speaker makes an assertion using a declarative sentence, she commits to its propositional content, and 'raises the issue' of whether it is true by updating the QUD stack (Farkas & Bruce 2010).¹¹ An issue is resolved (and removed from the QUD stack) if it is entailed by the Common Ground. When a speaker performs an action that raises an issue while simultaneously making a commitment that would resolve that issue if made mutual, no addressee response is necessary by virtue of the assumption that commitment-sharing is a default response (Walker 1996), which ensures that the speaker's commitment will enter the Common Ground unless an interlocutor expresses disagreement overtly.¹²

Following Gunlogson (2001), Truckenbrodt (2006), Westera (2013, 2017, 2018),

¹⁰ Note that this strong prediction only goes through modulo the ability of the clause in question to be embedded in the first place; if a clause is unembeddable, then it cannot be an SC for syntactic reasons, but may still be a QC for semantic ones. To the extent that RDs are unembeddable, even under slifting, they do not falsify this prediction. However, if one is convinced on other grounds that RDs do not denote questions, then they do stand as a counterexample. To readers who are not already so convinced, I offer the proposal in §2.3 as a proof of concept that a semantics of QC-embedding versions of rogative speech act verbs *sans* the requirement that the quotation denote a question is feasible.

¹¹ Throughout, I will use 'raise an issue' as a technical term to describe an instance of QUD stack update *that is enacted by the conventional force of an utterance*. I assume, following Farkas & Bruce (2010) and Farkas & Roelofsen (2017), that the issue raised by an utterance is always congruent with the denotation of the uttered sentence. Informally speaking, an utterance might raise all kinds of issues, e.g. why the speaker seems to be in such a bad mood. I am not using 'raise an issue' in this informal sense.

¹² For an important caveat about the relationship between default agreement and Common Ground update, see Rudin & Beltrama (2019).

and Rudin (2018), I assume that RDs simply denote propositions, just as other declarative sentences do, and that sentences uttered with rising intonation do not commit the speaker to that proposition.¹³ However, they still raise the issue of whether that proposition is true. Because the speaker has not made a potentially issue-resolving commitment in the process of raising that issue, addressee response is necessary to resolve it.

Lack of speaker commitment is also a feature of utterances of interrogative sentences (e.g. Farkas & Bruce 2010). At least, if the speaker makes any commitment by virtue of uttering an interrogative sentence, they do not make a potentially issue-resolving one (Farkas & Roelofsen 2017). Utterances of interrogative sentences have in common with utterances of RDs that they raise an issue without making a commitment that would resolve that issue if made mutual, and elicit addressee response thereby. I call the class of such context updates INTRINSICALLY RESPONSE-ELICITING UTTERANCES:

(17) INTRINSICALLY RESPONSE-ELICITING UTTERANCES:

An utterance by a speaker *sp* is intrinsically response-eliciting iff it raises an issue without committing *sp* to a proposition that would resolve that issue if made mutual

I propose that when rogative speech act verbs like *ask* and *wonder* take quotative complements, they do not predicate of those quotations that they denote questions; rather, they predicate of those quotations that their utterance is intrinsically response-eliciting. Interrogatives are both intrinsically response-eliciting and question-denoting, explaining why they work as both QCs and SCs to rogative verbs. RDs are intrinsically response-eliciting but not question-denoting, explaining why they can only be QCs to rogative verbs.

2.3 Proposal: QCs vs SCs revisited

I propose the following revision to Lahiri's semantics of QC-embedding and SC-embedding versions of rogative speech act verbs:¹⁴

13 For Gunlogson, this is because rising intonation redirects the commitment to the addressee. For Westera, this is because rising intonation signals that the speaker is suspending a Gricean maxim, in this case the maxim of Quality. For Truckenbrodt and Rudin, rising intonation simply cancels speaker commitment. In a display of blatant nepotism, I skew closest to Rudin's implementation here.

14 I'll not formalize the difference between *ask* and *wonder* here, but I assume that they have very similar meanings, the differences being that *wonder* cannot take an addressee argument, and that *wonder* entails that the speaker does not expect a definitive response to be forthcoming. It's worth noting as well that *wonder* is often used for internal, self-directed 'utterances'.

- (18) An utterance is a function $u : \langle s, sp, c_n \rangle \rightarrow c_{n+1}$
 $s(u)$ is the sentence argument to u , $sp(u)$ is the speaker argument to u , and
 $c(u)$ is the context argument to u .
- a. $QU(u) \leftrightarrow u$ is intrinsically response-eliciting¹⁵
 - b. $[\text{ask}_1] = \lambda q. \lambda x. [\exists u : sp(u) = x \wedge s(u) = q] QU(u)$
 - c. $[\text{ask}_2] = \lambda Q. \lambda x. [\exists u : sp(u) = x \wedge [s(u)]^{c(u)} = Q] QU(u)$

An utterance is a function from a sentence, a speaker, and an input context to an output context. The verb *ask* always predicates of an utterance that it elicited addressee response via withholding speaker commitment (18a).¹⁶ The QC-embedding *ask* predicates of its embedded quotation that it was the sentence uttered (18b). The SC-embedding *ask* predicates of its complement that it shares a denotation with the uttered sentence (18c).

On this view of the relation between QC-embedding and SC-embedding versions of rogative speech act verbs, it follows that, if RDs do not denote questions but are intrinsically response-eliciting, they will be licit QCs, but not licit SCs, to rogative speech act verbs. It also follows that interrogatives will always be licit as either SCs or QCs to rogative speech act verbs, because interrogatives denote questions, and utterances of interrogatives are always intrinsically response-eliciting. It's worth noting that, despite the fact that the two versions of *ask* given in (18) are quite parallel to each other, their relation is looser than on Lahiri's account, due to the lack of a meaning postulate like (16d). I take this loosening to be justified by this asymmetry.

3 The lexical semantics of speech act nominals and the typology of information requests

In this section I briefly discuss three extensions of the proposal above.

¹⁵ This can be formalized as follows:

- (i) $[\neg \exists p : p \in \text{MAX}(QU D)] [\exists q : q \in DC_{sp, n+1} - DC_{sp, n}] q \subseteq p$
 where $\text{MAX}(QU D)$ is the issue raised by u , and $DC_{sp, n}$ and $DC_{sp, n+1}$ are the speaker's discourse commitment sets in the input and output context, respectively

Informally, sp has not acquired a discourse commitment by virtue of u that entails an answer to the issue raised by u .

¹⁶ Cf. Maier 2018, who also proposes an account of quote embedding verbs as predicates of speech events (q.v. especially his ex. 11).

3.1 RDs and speech act nominals

The word *question* can be used to describe RDs as well:¹⁷

- (19) **A:** You're having an affair?
B: What an impertinent question!

If the extension of the English noun *question* in lay use were the same as the extension of the technical term *question* within formal semantics, we might be drawn to the conclusion that **A**'s utterance denotes a question. However, this equivalence would be deeply surprising. In lay speech, we don't exclusively predicate questionhood of sentences and their denotations; we often predicate it of utterances—of discourse moves carried out *using* sentences and their denotations.¹⁸ It is simple enough to give a semantics of *question* as a predicate of utterances that predicates of them that they carried out a particular kind of information request:

- (20) $[[\text{question}]] = \lambda u. QU(u)$

On this view, *question* simply predicates of an utterance that it is intrinsically response-eliciting. Perhaps the word *question* is systematically ambiguous between a predicate of sentences and a predicate of utterances.

Likewise, it is degraded to respond to an RD with an indication of receipt of information, and the utterer of the RD can respond by insisting on the questionhood of their utterance:

- (21) **A:** They're having an affair?
B: Oh wow, I had no idea!
A: No no no, that was a question!

The same pattern is possible if **B** responds by presupposing the truth of the RD:

- (22) **A:** They're having an affair?
B: I know.
A: No no no, that was a question!

¹⁷ Thanks to Donka Farkas (p.c.) for discussion of the observations in this section.

¹⁸ Note that in the above example *impertinence* is attributed to the speaker, more a reflection of their choice to put forward this meaning in this context than a reflection of the meaning itself. Note that it is somewhat degraded to predicate impertinent questionhood of the sentence itself:

- (i) **A:** You're having an affair?
B: ??That sentence is an impertinent question!

In both examples, **B** has mistaken **A**'s RD for an assertive move. In (21), **B** reacts as though **A** has given them the information denoted by the RD, instead of asking whether it's true. In (22), **B**'s utterance presupposes the truth of the RD—this presupposition would be satisfied if **A** had committed to its content in addition to **B**, but because **A** called off her commitment, this presupposition cannot be accommodated.

If we adopt (20) as the denotation of *question*, at least in uses in which it is predicated of utterances, we can make sense of **A**'s protestation in both cases: her utterance was one in which she did *not* commit to the proposition it made at issue, and so it was a mistake on **B**'s part to construe it as communicating that that proposition is true.

3.2 Information-requesting imperatives

The proposals above place special significance on the formal notion of an intrinsically response-eliciting utterance. But information can be requested, or response elicited, in a variety of ways that don't involve raising an issue without incurring a potentially issue-resolving commitment. As one example, requests for information can also be carried out with imperatives. And yet, these information requests are quite degraded as QCs of rogative speech act verbs, or as arguments to the predicate *question*:

- (23) a. #/? She asked, 'Tell me your address.'
 b. **A**: Tell me your address. **B**: #/? What an impertinent question.

The degraded status of (23a) and (23b) supports the proposal that the relevant class of utterances is intrinsically response-eliciting utterances, not response eliciting utterances *simpliciter*.

3.3 Embedded clauses at issue

The above might make us worry: are RDs the only sentences that can be QCs, but not SCs, to rogative speech act verbs? If so, the explanation of why this is so might appear to be tailor made for RDs *ad hoc*. I argue here that RDs are not the only class of syntactically declarative sentences that are intrinsically response-eliciting, and that other such sentences also have the profile of being licit QCs and illicit SCs to rogative speech act verbs.

Several authors (e.g. [Simons 2007](#); [Simons, Tonhauser, Beaver & Roberts 2010](#); [Tonhauser 2012](#)) have argued that utterances of sentences containing certain embedding verbs sometimes have the effect of making their embedded clause at issue. I focus here on rogative embedding verbs:

(24) I wonder whether you'd like to go to the dance with me.

Intuitively, the utterance in (24) is a somewhat indirect way of asking the question denoted by the embedded clause. Cases like (24), then, are interestingly similar to RDs. They are declarative sentences with normal declarative denotations, but if, in at least some contexts, we infer that they are meant to raise the issue denoted by their embedded clause, their utterance will have raised an issue that the speaker's commitment to the denotation of the entire sentence cannot resolve—that is to say, in such contexts they are response-eliciting. And, indeed, these sentences are at worst moderately degraded as quotative complements to *ask*:

- (25) a. ? He asked, 'I wonder whether you'd like to go to the dance with me.'
b. ? 'I wonder whether you'd like to go to the dance with me,' he asked.

Despite their being somewhat degraded, it's clear that these are more acceptable than the examples with imperatives above. It may be that these sentences are moderately degraded because their raising of the issue denoted by the embedded clause happens indirectly, perhaps mediated by pragmatic reasoning, and is not the immediate conventional force of the utterance—so they are intrinsically response-eliciting only once this extra bit of inferencing is completed, not automatically by virtue of their default force.

Note also that these sentences are invariably quotative: there is no way to interpret local pronouns in *wonder*-declaratives under *ask* relative to any context other than the context of the reported asking. So *wonder*-declaratives under *ask* provide us with another class of sentences that can be QCs, but not SCs, to rogative speech act verbs, and, just like RDs, this can be attributed to the fact that, in spite of their declarative form and propositional denotation, they (at least sometimes, and perhaps indirectly) perform an intrinsically response-eliciting update.

3.4 Upshot

In at least some of their uses, speech-act verbs like *ask* and speech-act nominals like *question* seem to describe not the semantic type of a sentence, but its discourse function—and, specifically, its discourse function conceived in terms of the formal properties of its conventional discourse effect.

It seems that the lexical semantics of speech-act vocabulary is sensitive to fine-grained properties of discourse moves, like the formal nature of the manner in which they elicit addressee response. This is a vindication of recent work on the structure of discourse contexts and their interaction with linguistic form, e.g. the role of discourse commitments as a representational primitive, and the way that rising intonation interacts with discourse commitments. Whether or not the speaker makes

a commitment can change whether an utterance is intrinsically response-eliciting, and so manipulating intonation to call off a commitment changes whether or not an utterance is in the extension of a particular speech-act term.

4 Taking stock

In the introduction to this paper, I brought up three questions of broader interest, which I return to here.

I. Are all clauses of the same syntactic type also of the same semantic type?

What we've seen here suggests, or at least is compatible with, an answer of yes. At the very least, I've argued that the behavior of RDs in embedded contexts doesn't seem to provide evidence that the answer is no. The behavior of embedded RDs is completely compatible with an account on which their intuitive status as biased questions is not due to a non-declarative denotation.

II. Do all utterances of sentences of the same semantic type have the same basic discourse effect?

I suggest that the answer to this question is no. If RDs share a denotation with falling declaratives, then there must be some factor other than their semantic type that accounts for their divergent discourse behavior. But this does not mean that there is not a basic context-update effect that all utterances share (Farkas & Roelofsen 2017). Several prior accounts (e.g. Pierrehumbert & Hirschberg 1990; Bartels 1999; Gunlogson 2001; Westera 2013, 2017, 2018; Rudin 2018) propose that intonational tunes interact with clause typing to compositionally derive the conventional force of utterances.

III. Are there elements of linguistic form which contribute meaning directly on the level of context update, instead of on the level of truth-conditional semantics?

I suggest that the answer to this question is yes. Intonational tunes (at least some of them, and at least in English) contribute meaning in terms of discourse phenomena like speaker commitment, without altering the truth-conditional semantics of the sentences they accompany. For views on a broader variety of English intonational tunes than just monotonically rising terminal contours, see Pierrehumbert & Hirschberg (1990); Bartels (1999); Constant (2012); Kraus (2018); Göbel (2019); for views on intonational meaning outside of English, see Truckenbrodt, Sandalo & Abaurre (2008); Bhatt & Dayal (2014); Prieto & Borràs-Comes (2018).

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