Really: Ambiguity and question bias[1]

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Abstract. We discuss two empirical puzzles about English *really*: (i) *really* is ambiguous between an intensifier use akin to *very* (cf. *Zelda is really tall*) and a conversational use that expresses definite certainty (cf. *Zelda REALLY is tall*); (ii) polar questions with conversational *really* convey a negative speaker bias towards the question prejacent (cf. *Is Kai REALLY from Hawaii?* ↝ The speaker doubts that Kai is from Hawaii). We propose a single lexical entry according to which *really* combines with a gradable property P and states that the degree to which P applies meets all relevant standards. The ambiguity hinges on whether P ranges over degrees of individual properties (as in the case of intensifier *really*) or degrees of commitment (as in the case of conversational *really*). In addition, we propose to derive the question bias associated with conversational *really* from its obligatory contrastive focus marking, a feature that it shares with other polar elements that give rise to a similar effect.

Keywords: degree modification, polarity focus, question bias, *really*

1. Introduction

This paper addresses two empirical puzzles about English *really*. The first puzzle concerns an apparent ambiguity. It has been noticed that *really* appears to be ambiguous between an intensifier use and a conversational use (Partee 2004; Romero and Han 2004; a.o.). Intensifier *really* typically modifies relative adjectives (*tall*, *expensive*, etc.) and implies that the gradable property denoted by such an adjective applies to a greater degree than required by the relevant standard. In contrast, conversational *really* expresses definite certainty about the prejacent proposition.[2] As illustrated in (1)–(2), these two uses are distinguished both structurally (low vs. high attachment) and prosodically (optional vs. obligatory focal stress, where the latter is indicated by small caps).[3]

(1)   Zelda is really tall.
        ≈ *Zelda is very tall.*   (intensifier use)

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[2]Romero and Han (2004: 624–625), citing personal communication with Anthony Kroch, argue that *really* has a third, 'in-actuality' use. They illustrate this use on the following example:
(i)   Gore really won the election though Bush is president.
However, in the absence of more examples, it is difficult to know whether this is in fact another use of *really* or just a version of the conversational use mentioned above. For example, in such data *really* seems more natural when accented and when occurring before the auxiliary (cf. *Biden REALLY has won the election* vs. *?Biden has really won the election*). We leave the issue to further research.
[3]Note that, most naturally, a sentence containing conversational *really*, like (2), also contains a pitch accent on the auxiliary verb (i.e., *Zelda REALLY IS tall*). We take this pitch accent to signal the presence of a covert VERUM operator and to be motivated by the pressure to maximize discourse coherence. See Gutzmann et al. (2020) and Bill and Koev (2021) for further discussion about verum accent and its relationship to *really*.

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(2)   Zelda REALLY is tall.
      ≈ *The speaker is definitely certain that Zelda is tall.*   (conversational use)

The ambiguity puzzle raises two main questions. The first question is a conceptual one: Assuming a single lexical entry for *really*, how can an ambiguity of this sort ever arise, given that the two interpretations seem quite unrelated? The second question concerns the semantics of *really* itself and is more specific: Are we dealing with a proper ambiguity, or rather with two different uses of the same lexical item? By way of addressing these two questions, we propose a single lexical entry for *really* as a degree adverb. More specifically, the denotation of *really* combines with a gradable property P and states that the degree to which P applies to its argument exceeds all relevant standards. The apparent ambiguity hinges on what P ranges over, i.e., degrees of individual properties (as in the case of intensifier *really*) or degrees of commitment (as in the case of conversational *really*). Thus, in (1) *really* composes with the property of being tall, while in (2) it composes with the property of being committed to the proposition that Jill is tall.

The second puzzle has to do with question bias. Romero and Han (2004) observe that polar questions with conversational *really* convey a negative speaker bias, as illustrated in (3).

(3)   Is Kai REALLY from Hawaii?
      ⤳ *The speaker doubts that Kai is from Hawaii.*

This is in contrast with polar questions with intensifier *really* (e.g., *Are you really hungry?*), which need not be biased. Notice also that the bias triggered by conversational *really* is similar to that found in questions with other accented polar operators, such as *definitely* (cf. *Is she DEFINITELY going to run for office?* ⤳ The speaker doubts that she is going to run for office).

The question bias puzzle additionally raises the following questions. First, why does conversational but not intensifier *really* (obligatorily) trigger question bias? Second, what feature does conversational *really* share with other bias-inducing polar elements, such as *definitely*? We argue that the key to answering both of these questions is the fact that conversational *really* bears obligatory contrastive focus marking. This marking presupposes that the polar opposite to the question prejacent is salient in the discourse, which gives rise to the intuition of bias. For example, the focus marking in (3) contrasts the question prejacent *Kai REALLY is from Hawaii* with the certainty that Kai is not from Hawaii, hence the negative bias.

We note that the two puzzles mentioned above are not restricted to English *really* and are in fact mirrored in other languages. (4) below demonstrates this for the Farsi counterpart *vaqean*, which has an intensifier and a conversational use. Notice also that these two uses are distinguished by similar positional and prosodic restrictions as those observed for *really* in (1)–(2).

(4)   a.   *In   mašin gerun-e   vaqean.*
           this car   expensive-is really
           'This car is really expensive.'   (intensifier use)
      b.   *In   mašin VAQEAN gerun-e.*
           this car   really   expensive-is
           'This car REALLY is expensive.'   (conversational use)

In addition, *vaqean* in polar questions gives rise to a negative speaker bias, just like *really*.

(5)   *Sara* VAQEAN *mašin xaride*?
        Sara really   car   bought
        'Did Sara REALLY buy a car?' ⤳ *The speaker doubts that Sara bought a car.*

Although our focus in this paper will be on English *really*, the fact that the same kind of meaning overlap is attested in other languages is significant for our purposes. It suggests that we are in need of a unified semantics for *really*, one that brings the two uses (intensifier and conversational) and the question bias associated with the conversational use under the same analysis.

Even if we disregard the crosslinguistic picture, within English we find other polar elements with similar properties. These include *definitely*, *totally*, and *so*, among others (Laka 1990; Barker 2002; Beltrama 2018). We will show that our analysis of *really* can be extended to these elements as well, although there are still clear differences between them that ask for explanation. For example, while all such elements have an intensifier and a conversational use, *definitely* aligns with *really* in being felicitous in polar questions and conveying a bias whereas *totally* and *so* are inherently subjective and cannot contribute to the question partition.

The structure of the paper is as follows. Section 2 provides some background on degree modification and then offers a solution to the ambiguity puzzle. Section 3 introduces the notion of polarity focus and uses it to explain the bias properties of conversational *really* in polar questions. Section 4 looks at similar elements in English while Section 5 discusses previous accounts of *really*. Section 6 is the conclusion.

2. The ambiguity puzzle

This section derives the observation that *really* can have two different uses, i.e., intensifier and conversational. We start out with some background on degree modification and then go on to propose that *really* is a quantificational counterpart to the covert degree morpheme POS. We argue that *really* is unambiguous and that its two uses depend on the immediate linguistic environment.

2.1. Background on degree modification

A standard assumption in the literature is that gradable adjectives denote relations between degrees and individuals (Cresswell 1976; a.m.o.). More specifically, gradable adjectives encode functions that measure an individual along a given dimension and compare the resulting value to some degree. This is illustrated for *tall* in (6), whose denotation takes a degree d and an individual x and states that the degree of tallness of x meets or exceeds d.

(6) $[\![\text{tall}]\!]^c = \lambda d \lambda x \lambda w . d \preceq \textbf{tall}_w(x)$

The degree argument in gradable adjective meanings is filled and constrained by degree morphology, which comes in the form of degree constructions (comparatives, superlatives, etc.) or degree modifiers. We first look at two degree modifiers that are directly relevant to our purposes, i.e., *very* and POS, and then show how *really* differs from both of them.

Intuitively, the intensifier *very* requires that the degree to which the modified gradable property

applies exceeds the standard of comparison by a significant amount. This is illustrated in (7).

(7)   Zelda is very tall.
        ⤳ *Zelda's height exceeds the average degree of tallness by a significant amount.*

What does it mean for a degree to exceed a standard by a 'significant' amount? This notion has been fleshed out in two different ways. One idea is that it is dependent on the property denoted by the modified adjective itself. Thus, Wheeler (1972) (followed by Klein 1980, von Stechow 1984, Kennedy and McNally 2005) proposed that *very* enforces a simple comparison to a raised standard, where the raised standard is produced by restricting the comparison class to objects that meet the modified property. For example, a very expensive laptop would be one that counts as expensive not just relative to the class of all laptops but also relative to the class of *expensive* laptops. Another idea, proposed in Kennedy and McNally (1999) (see also Barker 2002; Katz 2005; Morzycki 2016), is that *very* involves a comparison to a regular or a non-raised standard, although the degree to which the modified property applies has to exceed this standard by some large amount. How large this 'large' amount must be is context dependent. For example, given that the range of watch prices is greater than the range of laptop prices, the price of a very expensive watch will typically exceed the average watch price by a larger amount than the price of a very expensive laptop will exceed the average laptop price.

Both of these comparison mechanisms move the degree modified by *very* up the scale, so it is unclear if they differ in empirical predictions. For concreteness, we adopt the latter, boosted-comparison mechanism, which makes *very* and *really* more similar. Specifically, we adopt the entry for *very* in (8), where **std** is a context-dependent standard function that maps the gradable property P relative to some basic comparison class (say, of all laptops or all watches) to some norm and $\prec\!\prec_{P,c}$ stands for the relation of being significantly greater for P in c.

(8) $[\![\text{very}]\!]^c = \lambda P \lambda x \lambda w . \exists d \, [P(d)(x)(w) \wedge \mathbf{std}_{c,w}(P) \prec\!\prec_{P,c} d]$

For *very tall*, for example, our semantics produces a property according to which the individual in question exceeds the standard of tallness by some large amount, as determined by the meaning of *tall* itself and other contextual information. This is shown in (9).

(9) $[\![_{\text{DegP}} \text{ very tall}]\!]^c$
        $= \lambda x \lambda w . \exists d \, [d \preceq \mathbf{tall}_w(x) \wedge \mathbf{std}_{c,w}([\![\text{tall}]\!]) \prec\!\prec_{[\![\text{tall}]\!],c} d]$
        $= \lambda x \lambda w . \mathbf{std}_{c,w}([\![\text{tall}]\!]) \prec\!\prec_{[\![\text{tall}]\!],c} \mathbf{tall}_w(x)$

We now discuss the positive form of degree constructions, which lacks overt degree morphology. As shown in (10), the intuition about this form is simply that the argument exceeds the relevant standard along the specified dimension. There is no requirement that there be a significant difference or similar.

(10)   Zelda is tall.
        ⤳ *Zelda's height exceeds the average degree of tallness.*

How is this meaning derived? A common assumption is that the comparison in the positive form is facilitated by a null morpheme called POS (Cresswell 1976; a.m.o.). What POS does is take a gradable property and state that this property applies to a greater degree than the relevant standard.[4] An entry for POS is given in (11).

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[4]This is only true for the case of *relative* gradable predicates like *tall*, which have vague or contextually-dependent

(11) $[\![\text{POS}]\!]^c = \lambda P \lambda x \lambda w . \exists d [P(d)(x)(w) \wedge \mathbf{std}_{c,w}(P) \prec d]$

When applied to *tall*, POS derives the property of being taller than whatever the contextual standard for *tall* is. This is shown in (12).

(12) $[\![[_{\text{DegP}} \text{ POS tall}]]\!]^c$
         $= \lambda x \lambda w . \exists d [d \preceq \mathbf{tall}_w(x) \wedge \mathbf{std}_{c,w}([\![\text{tall}]\!]) \prec d]$
         $= \lambda x \lambda w . \mathbf{std}_{c,w}([\![\text{tall}]\!]) \prec \mathbf{tall}_w(x)$

2.2. Explaining the ambiguity puzzle

The ambiguity puzzle concerns the observation that *really* has two uses, an intensifier one and a conversational one, as shown in (13)–(14).

(13)   This road is really wide.   (intensifier use)

(14)   This road REALLY ends here.   (conversational use)

In its intensifier use, *really* comes close in meaning to *very*. (13) thus states that the width of the road exceeds the contextual standard for being wide by some significant amount. This interpretation apparently rides on the presence of the gradable adjective *wide*, which *really* modifies. In contrast, the conversational use of *really* is not about the descriptive content of the sentence, but rather about the speaker's certainty in it. In (14), there is no gradable predicate that *really* could possibly modify, as where roads end is not a matter of degree (modulo some vagueness). What instead the sentence implies is that the speaker is definitely certain that the road ends at the place specified.

In spite of these two uses, we claim that there is no lexical ambiguity involved and that we are dealing with a single lexical item. We thus view *really* as a degree modifier akin to *very* and POS.[5] More specifically, we propose that *really* achieves a similar effect to *very* by virtue of being a quantificational counterpart to POS. While *very* requires a significant distance from the (regular) standard, *really* signals negotiation about standards (Partee 2004). That is, *really* quantifies over contexts 'similar' to the current one and states that in each such context the degree to which the gradable property applies lies above the standard. We formalize this idea as in (15), where $\approx$ is a similarity relation over contexts.

(15) $[\![\text{really}]\!]^c = \lambda P \lambda x \lambda w . \exists d [P(d)(x)(w) \wedge \forall c' \approx c [\mathbf{std}_{c',w}(P) \prec d]]$

In essence, by universally quantifying over contexts *really* eliminates potential imprecision about standards. As there may be several relevant standards beyond the one associated with the current context, *really* states that all such standards are exceeded.

The intensifier use of *really* now comes for free. For example, the modification *really wide* amounts to saying that all relevant standards for width are exceeded, as shown in (16).

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standards. When composing with *absolute* gradable predicates (like *bent* or *straight*), the comparison makes reference to a fixed point, such as the minimum or the maximum of the scale. See Section 4 for discussion.

[5]That is, we analyze *really* and *very* as degree heads proper and thus in complementary distribution with POS and each other. An alternative analysis would view *really* and *very* as modifiers of POS that only manipulate but do not introduce the standard of comparison.

(16) $[\![_{\text{DegP}} \text{ really wide}]\!]^c$
$= \lambda x \lambda w . \exists d [d \preceq \mathbf{wide}_w(x) \wedge \forall c' \approx c [\mathbf{std}_{c',w}([\![\text{wide}]\!]) \prec d]]$
$= \lambda x \lambda w . \forall c' \approx c [\mathbf{std}_{c',w}([\![\text{wide}]\!]) \prec \mathbf{wide}_w(x)]$

This meaning correctly predicts that intensifier *really* is nearly synonymous to *very*. That is, *really* suggests that several standards for width are relevant in the current context. This could be for several reasons: the exact current standard is not known, it is not strict enough, it is flexible, etc. The speaker thus considers not just the current context but a number of similar contexts, each with its own standard for width, some of them looser and some of them stricter than the current one. Since all such standards are exceeded, including stricter ones, we derive the boosting *very*-like effect of intensifier *really*.

Deriving the conversational use of *really* is more challenging, as it is not immediately clear how to get from the degree adverb meaning in (15) to an inference about the certainty of the prejacent proposition. At the practical level, the problem is that the meaning of *really* expects a gradable property and cannot directly compose with a proposition. Thus, in order to capture the conversational use, we propose that *really* composes with a property of degrees of commitment, created by the covert operator COM defined in (17) (cf. Krifka 2015 and Geurts 2019).

(17) $[\![_{\text{ComP}} \text{ COM } \phi]\!]^c = \lambda d \lambda x \lambda w . d \preceq \mathbf{com}_w(x, [\![\phi]\!]^c)$

Given this meaning, conversational *really* states that the degree of commitment to the prejacent proposition exceeds all relevant standards of commitment. The semantic composition is given in (18), where the individual argument is to be resolved to a relevant conversational agent (the speaker, the addressee, or both of them).

(18) $[\![_{\text{PolP}} \text{ really}_F [_{\text{ComP}} \text{ COM } \phi]]\!]^c$
$= \lambda x \lambda w . \exists d [d \preceq \mathbf{com}_w(x, [\![\phi]\!]^c) \wedge \forall c' \approx c [\mathbf{std}_{c',w}([\![\text{COM } \phi]\!]^c) \prec d]]$
$= \lambda x \lambda w . \forall c' \approx c [\mathbf{std}_{c',w}([\![\text{COM } \phi]\!]^c) \prec \mathbf{com}_w(x, [\![\phi]\!]^c)]$

Since contexts with stricter standards than the current one will require a higher degree of commitment to the prejacent proposition, we get the intuition that conversational *really* brings in definite certainty.[6]

Before closing, we make three important points about our commitment operator. The first point is about the content of this operator. Why propose a *commitment* operator instead of some purely epistemic operator, say a covert equivalent to English *sure* or *certain*? Here we take a cue from Romero and Han's (2004: 626) observation that conversational *really*, despite its 'epistemic' flavor, acts like a proper conversational operator. For example, conversational *really* is not always interchangeable with *sure/certain* (cf. *I* REALLY *am tired* vs. *?I am sure/certain I am tired*), a fact that would remain unexplained if we blur the distinction between expressions of commitment and expressions of purely epistemic certainty. In addition, notice that COM encodes a measure of commitment, which entails that commitment comes in degrees. While different sentiments about the issue have been expressed in the literature (see in particular Geurts 2019), we see nothing wrong with the idea that commitment is a graded notion.

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[6]Given that *really* and *very* contribute meanings that are of the same semantic type, one might wonder why the latter lacks a conversational use (cf. *This road* REALLY/**VERY *ends here*). We do not know why this is so and suggest that this could be just a matter of syntactic distribution.

The second point has to do with the meaning dimension that COM contributes to. Notice that our COM, albeit a conversational operator, makes a purely at-issue contribution and takes scope under *really*. The worry then is that we are proposing a covert conversational operator that only carries regular entailments with it. However, the idea that covert operators are more likely to contribute to a single meaning dimension than their overt counterparts is not new. A well-known example from the literature on scalar implicature is the exhaustivity operator EXH, a covert counterpart to English *only* (Chierchia et al. 2012; a.m.o.). Importantly, while overt *only* presupposes its prejacent and entails that all stronger alternatives are false, covert EXH carries both of these inferences as regular entailments.

Our final point concerns the empirical observation (made in the Introduction) that conversational *really* appears high in the structure and is obligatorily focus marked. We stress that both of these properties fall out from our semantics. First, since conversational *really* takes scope over the propositional operator COM, the former needs to occupy a high structural position. As for the obligatory focus marking, we suggest that this is a reflex of the presence of COM. That is, since conversational *really* modifies a property (of degrees of commitment) which is covertly introduced, this property is manifested in the form of focus marking. As we will see in Section 4, the same focus marking is found in conversational uses of modifiers similar to *really*, such as *definitely*, *totally*, and *so*.

3. The question bias puzzle

This section provides an account for why polar questions with conversational *really* convey a negative speaker bias. To start with, we present some background on polarity focus and then show how such focus in questions generates a speaker bias that is of the opposite polarity to the focused element. We also show how our account can be naturally extended to capture the speaker bias conveyed by other polar elements in questions, such as high negation.

3.1. Background on polarity focus

Focus is prosodic prominence that facilitates interpretation in some way. Here we follow Rooth's 'alternative semantics', which models focus as a feature *F* that marks syntactic constituents and elicits alternatives relevant for interpretation (Rooth 1985; 1992; a.o.). According to Rooth's theory, each linguistic expression is associated with two semantic values: 'ordinary' and 'alternative'. The ordinary value of a simple expression α is rendered as $[\![\alpha]\!]_o$ and corresponds to its usual denotation. The alternative value of α is rendered as $[\![\alpha]\!]_a$ and is always a set, although its shape varies based on whether or not the expression is marked by the focus feature. When α is not *F*-marked, its alternative value is the singleton set comprised of its ordinary value. In contrast, when α is *F*-marked, its alternative value is the set comprised of all objects that are of the same semantic type as its ordinary value. This is formalized in (19).

(19)   LEXICAL ITEMS
        a. $[\![\alpha]\!]_a = \{[\![\alpha]\!]_o\}$ (non-focused simple items)
        b. $[\![\alpha_F]\!]_a = \{x \in D_\tau \,|\, [\![\alpha]\!]_o \in D_\tau\}$ (focused simple items)

Ordinary values of complex expressions are composed in the usual way. The alternative value of a complex expression is derived by composing the alternative values of its immediate constituents in a pointwise fashion. This is ensured by the procedure outlined in (20).

(20)　POINTWISE FUNCTION APPLICATION
If $[\![\alpha]\!]_o \in D_{\sigma \to \tau}$ and $[\![\beta]\!]_o \in D_\sigma$, then $[\![\alpha\,\beta]\!]_a = [\![\beta\,\alpha]\!]_a = \{x(y) \in D_\tau \,|\, x \in [\![\alpha]\!]_a$ and $y \in [\![\beta]\!]_a\}$.

Consider (21) as an example. (19a), in conjunction with (20), tells us that the alternative value of the predicate *drink beer* (which has no *F*-marking) is the singleton set comprised of its ordinary value. In turn, (19b) tells us that the alternative semantic value of *Mary$_F$* is the set comprised of all individuals in the domain, e.g., Mary, Jane, and Susan. Composing these two meanings via (20), we obtain the entire range of propositional alternatives corresponding to Mary drinking beer, Jane drinking beer, and Susan drinking beer.

(21)　MARY drinks beer.
　　a.　[$_{TP}$ Mary$_F$ [$_{VP}$ drink beer]]
　　b.　$[\![\text{beer}]\!]_a = \{beer\}$
　　　　$[\![\text{drink}]\!]_a = \{\lambda y \lambda x \lambda w . drink_w(x,y)\}$
　　　　$[\![_{VP}\text{ drink beer}]\!]_a = \{\lambda x \lambda w . drink_w(x,beer)\}$
　　　　$[\![\text{Mary}_F]\!]_a = \{mary, jane, susan\}$

$$[\![_{TP}\text{ Mary}_F \text{ [}_{VP}\text{ drink beer]]}]\!]_a = \left\{ \begin{array}{l} \lambda w . drink_w(mary, beer), \\ \lambda w . drink_w(jane, beer), \\ \lambda w . drink_w(susan, beer) \end{array} \right\}$$

In spite of the rule in (19b), which requires us to list all meanings of a given semantic type, we will restrict alternative values of focused simple items somewhat. For example, in (21) we have excluded 'beer' and other non-human objects from the alternative value of *Mary$_F$* in order to block implausible focus alternatives like 'Beer drinks beer'. In addition, we will always state explicitly the alternative value of focused semantic operators, like *really$_F$*. The reason is that such operators come in natural classes, so it is plausible that a given operator can only establish a contrast with other members of the same natural class.

In the absence of a focus-sensitive operator like *only* or *even*, *F*-marking indicates that a certain antecedent is present in the discourse (or else it needs to be accommodated). The nature of this antecedent depends on the function focus plays in a given utterance. The two main functions that focus has traditionally been linked to are 'presentational' and 'contrastive'. Presentational focus marks the new information introduced by the utterance by invoking a structurally similar question as an antecedent. In turn, contrastive focus marks a phrase whose referent is juxtaposed with the referent of a similar antecedent phrase. Although these two functions are usually lumped together into a single *F*-feature, recent research has argued that focus proper is always contrastive and that the new/given information marking is due to an independent discourse strategy (see Kratzer and Selkirk 2020 and the references therein). We will adopt this view here and from now on out always view focus as signaling a contrast.

Following Rooth (1992), we assume that focus imposes two conditions on the antecedent referent: (i) it is a member of the alternative value of the focus domain (a similarity requirement) and (ii) it differs from the ordinary meaning of that domain (a contrast proper requirement). These two conditions are enforced by the assumption that a focused constituent α is c-commanded

by a 'squiggle' operator $\sim$ as a way of marking the focus domain. This is formalized in (22), where the squiggle operator joins the focus domain ϕ to an antecedent meaning C by issuing in the two presuppositions stated below.

(22)   SQUIGGLE SEMANTICS
         $[...\alpha_F ...]_\phi \sim C$ is felicitous only if $C \in [\![\phi]\!]_a$ and $C \neq [\![\phi]\!]_o$.

As an illustration, consider again the sentence in (21), i.e., *MARY drinks beer*. In the context of (23), this sentence will be interpreted as contrasting with the proposition that Jane drinks beer. Indeed, as shown below, both presuppositions in (22) are satisfied.[7]

(23)   Jane drinks beer and MARY drinks beer (too).
         a. $[_{TP}$ Mary$_F$ $[_{VP}$ drink beer$]]_\phi \sim C$
         b. $C = [\![$Jane drink beer$]\!]_o = \lambda w . drink_w(jane,beer)$
               $[\![\phi]\!]_o = \lambda w . drink_w(mary,beer)$
               $[\![\phi]\!]_a = \left\{ \begin{array}{l} \lambda w . drink_w(mary,beer), \\ \lambda w . drink_w(jane,beer), \\ \lambda w . drink_w(susan,beer) \end{array} \right\}$
         c. $C \in [\![\phi]\!]_a$ ✓, $C \neq [\![\phi]\!]_o$ ✓

Just like focus can mark any other phrase, it can mark a polar operator as well. This variety of focus is (descriptively) known as 'polarity focus' (Höhle 1992).[8] A polar operator is one that determines the polarity of the host clause, i.e., it entails the prejacent or its negation. A prototypical polar operator is propositional negation. An example of polarity focus that involves this kind of negation is given in (24).

(24)   Alex: Mary drinks beer.
         Kim: No, Mary does NOT drink beer.

The contrastive interpretation of the second utterance in (24) is derived as in (25). Importantly, we assume that the alternative value of focused negation is the set comprised of just its ordinary meaning and its positive counterpart (the identity function on propositions). The rest of the derivation follows the rules in (19)–(20).

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[7]Schwarzschild (1993) adds to (22) a third condition along the lines of (i), which requires that the focus domain be *minimally* different from its antecedent.
(i)   ... and there is no F-variant ψ of ϕ such that $[\![\psi]\!]_a \subset [\![\phi]\!]_a$ and $C \in [\![\psi]\!]_a$.
What this condition does is prevent 'overfocusing' of material that is already present in the antecedent. For example, in (ii) it blocks the second conjunct from contrasting with the first conjunct.
(ii)   #Jane drinks beer and MARY drinks BEER (too).
Since $[\![$Jane drinks beer$]\!]_o \in [\![$Mary$_F$ drinks beer$_F]\!]_a$ and $[\![$Jane drinks beer$]\!]_o \neq [\![$Mary$_F$ drinks beer$_F]\!]_o$, the two conditions in (22) are met yet (ii) is out, the intuitive reason being that *beer* should not be focused. Schwarzschild's extra condition correctly captures this intuition. That is, since *Mary$_F$ drinks beer* is an F-variant of *Mary$_F$ drinks beer$_F$* such that $[\![$Mary$_F$ drinks beer$]\!]_a \subset [\![$Mary$_F$ drinks beer$_F]\!]_a$ and $[\![$Jane drinks beer$]\!]_o \in [\![$Mary$_F$ drinks beer$]\!]_a$, the sentence in (ii) is infelicitous. Here we omit the condition in (i) in order to keep things simple.
[8]Another common label is 'verum focus'. However, Gutzmann et al. (2020) and Bill and Koev (2021) argue that polarity focus and verum accenting are two distinct phenomena, so we will not be using this latter terminology.

(25) a. $[_{\text{PolP}} \text{not}_F [_{\text{TP}} \text{Mary} [_{\text{VP}} \text{drink beer}]]]_\phi \sim C$

  b. $C = [\![\text{Mary drink beer}]\!]_o = \lambda w . drink_w(mary, beer)$

  $[\![\phi]\!]_o = \lambda w . \neg drink_w(mary, beer)$

  $[\![\text{not}_F]\!]_a = \left\{ \begin{array}{l} \lambda p \lambda w . p(w), \\ \lambda p \lambda w . \neg p(w) \end{array} \right\}$

  $[\![\phi]\!]_a = \left\{ \begin{array}{l} \lambda w . drink_w(mary, beer), \\ \lambda w . \neg drink_w(mary, beer) \end{array} \right\}$

  c. $C \in [\![\phi]\!]_a$ ✓, $C \neq [\![\phi]\!]_o$ ✓

Before moving on, we mention one simplifying assumption about polarity focus that we will make. This assumption is already present in prior literature, albeit in an implicit form (see Wilder 2013; Samko 2016: 3.4; Goodhue 2018). It is that the domain of polarity focus is the *minimal* clause that contains the focused polar operator. That is, we assume that the squiggle operator applies as soon as the focused polar operator is merged with its prejacent. We will not speculate why this should be so, although it is likely that it is a reflex of some economy constraint.

3.2. Explaining the question bias puzzle

The question bias puzzle is about the fact that conversational *really* in polar interrogatives gives rise to the intuition that the speaker is biased against the prejacent proposition. This is illustrated in (26).

(26) Is this REALLY an Apple Watch?
  ⤳ *The speaker doubts that this is an Apple Watch.*

Since being an Apple Watch is not a gradable property, the above use of *really* cannot be an intensifier one and must be a conversational one. Notice also the bias inference is not a matter of context, as it is not cancelable. For example, the above question is incompatible with the neutrality marker *by any chance*, which excludes the possibility of bias (Sadock 1971).

In order to account for the question bias puzzle, we exploit the fact that conversational *really* is a polar element that obligatorily carries a focus marking. When such an element occurs in a yes–no interrogative, it triggers a speaker bias of the opposite polarity to that of the focus domain for the following reason. On the one hand, the polarity focus points at the presence of a salient propositional antecedent which is of the opposite polarity to that of the focus domain. On the other hand, by uttering a yes–no interrogative, the speaker is questioning the content of the focus domain. The combined effect of these two factors leads to the intuition that the speaker is biased for the antecedent proposition and against the focus domain proposition. When applied to (26), for example, this means that the speaker doubts that this is an Apple Watch.

Making this explanation formally explicit requires introducing 'high' (or 'light') negation as a polar opposite of *really*. High negation has several peculiar properties, including not licensing negative polarity items nor anti-licensing positive polarity items (see Baker 1970; Ladusaw 1980: ch.7; Schwarz and Bhatt 2006; Ippolito and Su 2014; Romero 2015). Most importantly,

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high negation in polar interrogatives triggers speaker bias, just like conversational *really*. This is illustrated in (27).[9]

(27) Isn't[high] this an Apple Watch?
 ⤳ *The speaker believes that this is an Apple Watch.*

We propose the ordinary semantics for *not[high]* in (28). It takes a gradable property and an individual as arguments and states that the degree to which the property applies to the individual is the minimum of the relevant scale.

(28) $[\![not^{high}]\!]_o^c = \lambda P\lambda x\lambda w.\forall d\,[P(d)(x)(w) \to d = \mathbf{min}(S_P)]$

When composed with a property of commitments, high negation entails that the relevant agent lacks any degree of commitment to the prejacent proposition whatsoever. Assuming that the agent is opinionated, this means that the agent is fully committed to the complement of the prejacent proposition. This is illustrated in (29).[10]

(29) a. $[\![_{\mathrm{ComP}}\,\mathrm{COM}\,\phi]\!]_o^c = \lambda d\lambda x\lambda w.d \preceq \mathbf{com}_w(x,[\![\phi]\!]_o^c)$
  b. $[\![_{\mathrm{PolP}}\,not_F^{high}\,[_{\mathrm{ComP}}\,\mathrm{COM}\,\phi]]\!]_o^c$
    $= \lambda x\lambda w.\forall d\,[d \preceq \mathbf{com}_w(x,[\![\phi]\!]_o^c) \to d = \mathbf{min}(S_{[\![\mathrm{COM}\,\phi]\!]_o^c})]$
    $= \lambda x\lambda w.\mathbf{com}_w(x,[\![\phi]\!]_o^c) = \mathbf{min}(S_{[\![\mathrm{COM}\,\phi]\!]_o^c})$
    $= \lambda x\lambda w.\mathbf{com}_w(x,\overline{[\![\phi]\!]}_o^c) = \mathbf{max}(S_{[\![\mathrm{COM}\,\phi]\!]_o^c})$ (by opinionatedness)

We have now put enough formalism in place to derive the question bias puzzle about (conversational) *really*. The most important assumption we make is that the alternative values for focused *really* and focused high negation are equivalent and amount to the set comprised of their ordinary values. In other words, we assume that these two polar elements form a natural class and thus contrast with each other when focused. As a consequence, the alternative value of the focus domain ends up with just two members, i.e., the positive *really*-variant and the negative *not[high]*-variant of the question prejacent. If so, the only possible antecedent that meets the two conditions imposed by the squiggle operator is the latter negative variant. The formal details are spelled out in (30).

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[9]In contrast, polar interrogatives with low/propositional negation need not convey a bias. Example: *Is this not an Apple Watch? Then you should bring it back to the store.*

[10]Notice that (28) assigns a *strong* semantics to high negation. A weak semantics would only require that the degree to which the gradable property applies does not exceed the contextual standard, as in (i).

(i) $[\![not^{high}]\!]_o^c = \lambda P\lambda x\lambda w.\forall d\,[P(d)(x)(w) \to d \preceq \mathbf{std}_{c,w}(P)]$

When composed with a property of commitments, this entry would state that the agent is not committed strongly enough to the prejacent proposition, see (ii).

(ii) $[\![_{\mathrm{PolP}}\,not_F^{high}\,[_{\mathrm{ComP}}\,\mathrm{COM}\,\phi]]\!]_o^c$
   $= \lambda x\lambda w.\forall d\,[d \preceq \mathbf{com}_w(x,[\![\phi]\!]_o^c) \to d \preceq \mathbf{std}_{c,w}([\![\mathrm{COM}\,\phi]\!]_o^c)]$
   $= \lambda x\lambda w.\mathbf{com}_w(x,[\![\phi]\!]_o^c) \preceq \mathbf{std}_{c,w}([\![\mathrm{COM}\,\phi]\!]_o^c)$

While (29b) asymmetrically entails (ii), both meanings may be suitable for deriving the negative bias of polar questions with (conversational) *really*. However, we opt for the strong semantics in (28), as only this version seems able to derive the correct answering pattern of such questions (see Section 5).

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(30)   Is this REALLY$_F$ an Apple Watch?

    a. $[_{CP}$ Q $[_{PolP}$ really$_F$ $[_{ComP}$ COM $[_{TP}$ this an Apple Watch$]]]_\phi \sim C]$

    b. $[\![\phi]\!]_o^c = [\![$really$_F$ [COM this an Apple Watch]$]\!]_o^c$

        $[\![$really$_F]\!]_a^c = [\![$not$_F^{high}]\!]_a^c = \{[\![$really$_F]\!]_o^c, [\![not_F^{high}]\!]_o^c\}$

        $[\![\phi]\!]_a^c = \left\{ \begin{array}{l} [\![$really$_F$ [COM this an Apple Watch]$]\!]_o^c, \\ [\![$not$_F^{high}$ [COM this an Apple Watch]$]\!]_o^c \end{array} \right\}$

        $C = [\![$not$_F^{high}$ [COM this an Apple Watch]$]\!]_o^c$

    c. $C \in [\![\phi]\!]_a^c$ ✔, $C \neq [\![\phi]\!]_o^c$ ✔

As explained above, since the speaker is pointing to the negative alternative (the focus antecedent) while questioning the positive alternative (the focus domain proposition), we get the intuition that the speaker is biased for the former negative alternative. Notice that more often than not this alternative will not be explicitly present in the discourse but will be accommodated. This is because the notion of speaker bias reflects the prior belief of the speaker and this belief typically goes against the evidence present in the context (Romero and Han 2004; Sudo 2013; Northrup 2014; Domaneschi et al. 2017). That is, in most cases a polar question with conversational *really* will be used when the context supports the prejacent proposition but the speaker holds the opposite belief. The question in (30), for example, will most naturally be used to express doubt towards a prior statement that the thing being pointed at is an Apple Watch.[11]

We close this section with two remarks on high negation. Recall that polar questions with high negation are biased as well, although in the opposite direction to that of polar questions with conversational *really*. This was already illustrated in (27), which is positively biased, unlike the *really* counterpart in (30), which is negatively biased. The derivation of bias in (27) is parallel to that in (30), with the roles of the positive and the negative alternatives being reversed. Despite this parallelism, there are two issues about high negation questions that merit further mention. The first issue is that, despite being *F*-marked, high negation does not bear a pitch accent. We suggest that this is because high negation contracts with finite auxiliaries and cannot be prosodically prominent at all. Placing a pitch accent on the auxiliary itself is not an option either, as there is independent evidence that such accenting is the manifestation of an otherwise covert VERUM operator (Romero and Han 2004; Gutzmann et al. 2020; Bill and Koev 2021). The second issue concerns the unexpected licensing behavior of high negation regarding polarity items. As mentioned above, in contrast to propositional negation, high negation does not license negative such items and does not anti-license positive such items. This behavior directly follows from our account. It is due to the fact that high negation scopes over COM, which creates an upward-entailing environment with respect to its propositional argument. This is because if an agent is committed to some degree to a given proposition, they will be committed to anything entailed by that proposition to at least that same degree. If so, we correctly predict that high negation does not affect the distribution of polarity items in its scope.

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[11]One might wonder about the interpretational effect of focus when conversational *really* occurs in declaratives. In this case, the (positive) belief of the speaker is asserted, so the contrasting negative antecedent will typically be explicitly present in the context. For example, *This REALLY is an Apple Watch* will most naturally be used as a form of disagreement to a prior utterance stating the opposite.

4. Extensions: Similar polar elements in English

We have presented our account of *really*, thus solving the two empirical puzzles that we posited at the beginning of this paper. In this section, we look at three similar polar elements in English, i.e., *so*, *definitely*, and *totally* (see also Laka 1990; Barker 2002; Beltrama 2018). We show that the semantic properties of these elements slightly differ from the semantic properties of *really* and suggest how our account can be extended to capture the differences.

Just like *really*, the polar elements *so*, *definitely*, and *totally* have an intensifier use and a conversational use. This is illustrated in (31)–(32).

(31)   a.   Zelda is $\left\{ \begin{matrix} \text{really} \\ \text{so} \end{matrix} \right\}$ tall.   (intensifier use)

       b.   The glass is $\left\{ \begin{matrix} \text{definitely} \\ \text{totally} \end{matrix} \right\}$ full.

(32)   I $\left\{ \begin{matrix} \text{REALLY} \\ \text{SO} \\ \text{DEFINITELY} \\ \text{TOTALLY} \end{matrix} \right\}$ am going to tell mom.   (conversational use)

In addition, some but not all of these polar elements can have a conversational use in yes–no interrogatives. When they do, they trigger the same kind of negative bias inference as observed with conversational *really*. This is shown in (33).

(33)   Did Jill $\left\{ \begin{matrix} \text{REALLY} \\ \text{\#SO} \\ \text{DEFINITELY} \\ \text{?TOTALLY} \end{matrix} \right\}$ buy a yacht?
       ⤳ *The speaker doubts that Jill bought a yacht.*

Our findings are summarized in Table 1 below.

Table 1: Distribution of polarity elements across targeted properties.

ELEMENT	INTENSIFIER USE	CONVERSATIONAL USE	QUESTION BIAS
really	Yes	Yes	Yes
so	Yes	Yes	–
definitely	Yes	Yes	Yes
totally	Yes	Yes	–

Given that *so*, *definitely*, and *totally* share core properties with *really*, the question arises of how these elements differ from *really* and among each other. We assume that—at least for the purposes of our paper—the differences are minimal and concern two main aspects, i.e., the choice of responsible agent in conversational uses and the relation to the standard of comparison. We now propose an explicit semantics for each of the above polar elements.

Starting with *so*, we propose that this element has the same semantics as that assumed for *really*. This is stated in (34).

(34) $[\![\text{so}]\!]_o^c = [\![\text{really}]\!]_o^c = \lambda P \lambda x \lambda w . \exists d\,[P(d)(x)(w) \wedge \forall c' \approx c\,[\mathbf{std}_{c',w}(P) \prec d]]$

In view of this equivalence in meaning, we can account for the apparent ambiguity of *so* along the same lines as followed for *really* in Section 2. That is, *so* is not lexically ambiguous and the two uses arise from the nature of the modified gradable property: a regular property of individuals or a property of commitment. As for why conversational *so* cannot appear in questions, we suggest that this use of *so* is subjective or always anchored to the speaker.[12] The question partition then would be about the speaker's own commitments and would result in infelicity. For example, in (33) we would get the interpretation corresponding to 'Am I committed to Jill having bought a yacht?', which is indeed a strange thing to ask. In contrast to *so*, we assume that there is no such requirement for conversational *really*. When conversational *really* occurs in questions, the commitment agent can be resolved to the addressee (or the sum individual consisting of the speaker and the addressee), amounting to the reasonable interpretation of 'Are you(/we) committed to Jill having bought a yacht?'.

Moving on to *definitely*, we assume that the only way in which its meaning differs from that of *really* is the link to the standard of comparison. Unlike *really* and *so*, which require that some vague standard be exceeded, *definitely* states that the degree to which the modified property applies is the maximum of the relevant scale, as shown in (35).

(35) $[\![\text{definitely}]\!]_o^c = \lambda P \lambda x \lambda w . \exists d \, [P(d)(x)(w) \wedge \forall c' \approx c \, [d = \mathbf{max}_{c,w}(S_P)]]$

Again, the explanations for why *definitely* gives rise to the ambiguity puzzle and the question bias puzzle closely follow our analysis of *really*.

Finally, we assume that *totally* has the same semantics as that proposed for *definitely* in (35), which correctly predicts their semantic similarities. The explanation for why conversational *totally* (unlike conversational *definitely*) cannot appear in polar questions is the same as the one we gave for *so*. That is, since conversational *totally* is inherently subjective, it does not form felicitous question partitions.[13]

We close this section with a brief remark on the kinds of gradable adjectives that the polar elements discussed in this section can compose with. The important observation is that these elements fall into two main groups. Thus, *really* and *so* select for relative adjectives like *tall* or *wide*, as visible from the fact that the former are generally infelicitous with absolute adjectives (cf. *?This stick is really/so straight*).[14] This is predicted by our analysis as follows. Notice that absolute adjectives take as a standard the minimum or the maximum of the scale, while modification by *really*/*so* requires that the standard be exceeded. Either way, this will result in infelicity. That is, if the standard is the minimum degree, modification by *really*/*so* results in vacuous modification, and if the standard is the maximum degree, modification by *really*/*so* is plainly impossible. In contrast to *really* and *so*, *definitely* and *totally* select for absolute adjectives with upper-closed scales, like *straight* or *full*, while they are out with relative adjectives

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[12]This can be enforced by stipulating that the individual argument in this case is filled by a covert first-person pronoun that is projected in the syntax.

[13]The subjectivity of *totally* has been confirmed both experimentally and by a corpus search. Thus, Beltrama (2018) shows that *totally* almost exclusively occurs with evaluative adjectives like *awesome* or *amazing*.

[14]Although *really/so* sometimes seem able to modify absolute predicates (cf. *The restaurant is really/so full tonight*), such cases can be viewed as absolute adjectives receiving a relative-like interpretation. Notice, for example, that *really/so full* implies *not full*, which suggests that here *full* takes a vague standard, just like genuine relative adjectives. Kennedy and McNally (2005) make a similar point about *very*.

(cf. *Zelda is ?definitely/#totally tall*). This again is as it should be, in view of the fact that the semantics in (35) makes reference to the maximal degree of the scale.

5. Previous accounts

This section discusses two previous accounts of *really*. The first account is a composite one and brings together the scattered remarks made in Partee (2004) and the related semantics of *definitely* proposed in Barker (2002). This account introduces the idea that *really* involves some form of quantification and is well suited to capture the ambiguity puzzle. The second account is that of Romero and Han (2004) and subsequent work. Its main strength lies in deriving the speaker bias associated with conversational *really* in polar questions.

Partee (2004) views *really* as raising the relevant standard and conveying that the modified predicate applies even under this stricter standard. She illustrates this idea on the two uses of *really* as follows.

(36)   Is France really hexagonal?   (cf. Partee 2004: 156)
        a.   INTENSIFIER USE: Is France hexagonal under high geometrical standards of precision?
        b.   CONVERSATIONAL USE: Is it really true that France is hexagonal? (I thought it was pentagonal. Should I change my belief?)

Barker (2002) presents a similar account of *definitely*, focusing on its intensifier use. According to it, elements like *definitely* are 'vagueness quantifiers', as they look not just at a single comparison but at a range of comparisons. Extrapolating a bit, on this account *Feynman is really tall* would come out as true in a world w not just when Feynman is tall in w but also when Feynman is tall in all worlds w' that are under consideration in the given context. This meaning of *really* can be rendered as in (37), where c is the context set (the set of worlds under consideration).

(37) $[\![\text{really}]\!]^c = \lambda P \lambda x \lambda w \,.\, \mathbf{std}_w(P) \prec \mu_{P,w}(x) \wedge \forall w' \in c\,[\mathbf{std}_{w'}(P) \prec \mu_{P,w'}(x)]$

While the Partee–Barker account can derive the ambiguity puzzle along the lines suggested above, this account remains silent on the link between conversational *really* and question bias. Notice also that this account involves quantification over possible worlds and not quantification over speech contexts, as on our account. While it may be difficult to argue one way or another, we believe that our account is more on the right track. For example, when negotiating the standard for *tall*, what speakers seem to have in mind is not one universal but unknown standard of tallness. Rather, they seem to consider different standards of tallness that are appropriate in different contexts.

The second account that we discuss is that of Romero and Han (2004) (see also Repp 2013; Goodhue 2019; Silk 2020). The key claim here is that conversational *really* is the overt realization of a VERUM operator, which conveys certainty that the prejacent proposition should be added to the common ground. This is stated in (38), where $Epi_{x,w}$ is the set of x's epistemic alternatives in w, $Conv_{x,w}$ is the set of worlds where all of x's conversational goals in w are met, and $CG_{x,w}$ is the set of propositions that x takes for granted in w. Following the authors themselves, we abbreviate this meaning as *ForSureCG$_x$*.

(38) $[\![\text{VERUM}_x]\!] = \lambda p \lambda w . \forall w' \in Epi_{x,w} \forall w'' \in Conv_{x,w'} [p \in CG_{x,w''}]$ $=: ForSureCG_x$

This account derives the speaker bias of polar questions with conversational *really* along similar lines as on our own account. That is, since the speaker is questioning the certainty that the prejacent proposition should be added to the common ground, they must be doubting that proposition, hence the negative bias. While this solves the question bias puzzle and also derives the conversational use of *really*, this account has little to say about intensifier *really*. The main issue is that *really* is treated as a modal operator, so it is unclear how it can also serve as a degree modifier without conveying any sense of modality. The only remaining option is to assume a proper lexical ambiguity, in spite of crosslinguistic data suggesting that such meaning overlap is not an accident (see the Introduction).

Romero (2015) objects to the idea that conversational *really* introduces at-issue content, on grounds that this predicts the incorrect answering pattern. That is, after a polar question with conversational *really* has been uttered, polar particles pick out their responses not from the epistemic partition $\{ForSureCG_x(p), ForSureCG_x(\overline{p})\}$ but from the regular partition $\{p, \overline{p}\}$, as illustrated in (39).

(39)   Is Jane REALLY coming to the party?
    a.   Yes. ≈ *Jane is coming to the party.*
    b.   No. ≈ *Jane is not coming to the party.*

From this Romero concludes that polar questions with conversational *really* carry regular partitions as their at-issue meaning but also assumes that they create an epistemic partition as part of their not-at-issue meaning. The former meaning derives the answering pattern in (39) while the latter meaning gives rise to the negative speaker bias along the lines of Romero and Han (2004).

We resist placing the semantic contribution of *really* into the not-at-issue dimension, for two reasons. For one, while bare *No* responses indeed seem to pick out the plain negative proposition, this is not true for bare *Yes* responses. To see why, compare (40a) and (40b). The former question, which imposes a low standard of precision, can easily be answered with a simple *Yes*. But the latter question, which raises the standard of precision due to the presence of conversational *really*, will more naturally be answered with a *No*. This contrast would not arise if these two questions had the same at-issue meaning.

(40)   a.   Is France hexagonal?
    b.   Is France REALLY hexagonal?

In addition, the contribution of conversational *really* does not seem to project. Thus, (41) below attributes the belief that 'Oswald is the murderer' should be added to the relevant common ground not to the speaker itself but rather to the belief agent, i.e., Jill.

(41)   Jill thinks that Oswald REALLY is the murderer.

Conversational *really* thus has a proper truth-conditional effect, just as predicted by our account.

In closing, we sketch our solution to the answering pattern challenge raised in Romero (2015). On our account, a polar interrogative with conversational *really* comes with two sets of propositions. The first set is the alternative value of the focus domain (the superordinate discourse

question) and corresponds to the relevant agent being (strongly) committed to *p* vs. the relevant agent being committed to $\overline{p}$. The second set is the ordinary meaning of the polar interrogative and corresponds to the relevant agent being (strongly) committed to *p* vs. the relevant agent not being (strongly) committed to *p*.[15] This is schematically represented in (42), where *p* is the proposition 'Jane is coming to the party'.

(42) Is Jane REALLY coming to the party?
    a. $\{Really(Com(p)), Not^{high}(Com(p))\}$ (alternative value of the focus domain)
    b. $\{Really(Com(p)), \neg Really(Com(p))\}$ (ordinary question meaning)

If we assume that polar particles may target either pair of propositions, although the stronger option is preferred, we can account for the correct answering pattern. That is, a *Yes* response picks out the positive alternative $Really(Com(p))$, which is the same in both sets of propositions. In contrast, a *No* response can pick out either of the two negative propositions, i.e., $Not^{high}(Com(p))$ or $\neg Really(Com(p))$. However, since the former proposition asymmetrically entails the latter proposition, this former proposition is the preferred answer and we get the strengthening effect of *No*. This is shown in (43), where the stronger alternative is underlined.

(43) a. Yes. $\rightsquigarrow Really(Com(p))$
    b. No. $\rightsquigarrow \neg Really(Com(p))$ or $\underline{Not^{high}(Com(p))}$

When applied to (42), *Yes* amounts to being (strongly) committed to Jane coming to the party while *No* amounts to being committed to Jane not coming to the party, just as required.

6. Conclusion

In this paper we have captured two empirical puzzles about *really*: its ambiguity between an intensifier and conversational use, and its association with a negative speaker bias when present in polar questions. We solved the ambiguity puzzle by positing a single lexical entry for *really*, whereby it combines with a gradable property and conveys that this property applies to a degree that meets all relevant standards. The difference then comes from whether *really* is combining with degrees of individuals (i.e., intensifier *really*) or degrees of commitment (i.e., conversational *really*). As for the question bias puzzle, we proposed that conversational *really*, when present in a polar question, obligatorily conveys contrastive focus. We went on to explore how similar elements in English (*so*, *totally*, *definitely*) can be captured by this same analysis (with slight adaptions to capture their various idiosyncrasies). Finally, we discussed previous analyses of *really* and determined that none were able to provide the same level of empirical coverage when it comes to solving both the ambiguity and question bias puzzles, as well as accounting for the answers that are generated by bare response particles.

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[15]Notice that the former question 'entails' the latter question, in the sense that any complete answer to the former provides a complete answer to the latter. Notice also that only the latter question forms a proper partition, while the former question leaves some gray area in between.

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