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Abstract
Responses to questions can provide significant insight about linguistic structure and meaning. In this paper, I propose an analysis of the structure of assertions and various responses to assertions, bringing together semantic and syntactic considerations. The analysis incorporates a Speech Act Phrase (SAP, Speas & Tenny 2003), which is taken to encode illocutionary force. I present novel data on a polar response particle (PRP) form that has not yet been considered in the literature, namely, the English yeah-huh/nuh-uh responses. I show that these are polarity-based responses that signal disagreement and mirativity. I discuss the syntactic and discourse-related restrictions for yeah-huh/nuh-uh, and defend an analysis that includes polarity features in Agree-relations, and illocutionary force in SAP. I argue that these PRPs contain a speech act modifier which contributes mirativity to a speech act reject.

Keywords
response particles — polarity — speech act syntax

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1. Introduction

Looking at the responses to questions can provide a window into the meaning of questions, but the responses themselves can also provide significant insight about linguistic structure and meaning. Response particles have been looked at from various perspectives, and in recent literature there has been a resurgence of studies looking at the syntax of response particles. In this paper I will bridge a semantic perspective with a syntactic perspective, proposing a new analysis emerging from more recent theories of the syntactization of discourse participants. I will present novel data on a polar response particle form that has not yet been considered in the literature, as far as I know—namely, the English yeah-huh/nuh-uh responses, which, I argue, are polarity-based responses that signal disagreement and mirativity, seen in (1) and (2):

(1) Marge: But there weren’t four Musketeers.
   (TV, The Simpsons, 2011)

(2) A: ...now you’re Texas, little girl, like it or not.
   B: Nuh-uh ... I’m not. I’m not Texas.
   (COCA, FIC, 2002)

The yeah-huh/nuh-uh forms seen in (1) and (2) are sensitive to the syntactic structure of the antecedent as well as the discourse context. Specifically, I will argue that they involve a mirative speech act modifier which expresses information about the belief states of the discourse participants. Recent approaches to the syntax of response particles (e.g. Holmberg 2011, 2013, 2015 and Kramer & Rawlins 2010, 2011) are primarily designed to account for responses to polar questions and assertions, as in (3)-(6), but they do not consider responses that are sensitive to the discourse context as well.

(3) Q: Is there sunshine in the forecast?
   A: Yes / No

(4) Q: Is there not sunshine in the forecast?
   A: Yes, there is / Yes, there isn’t / No, there’s not / No, there is
This section summarizes recent analyses of the syntax of response particles. Although there have been prominent semantic analysis for response particles—such as Krifka (2013), who analyses response particles as propositional anaphors, Farkas & Bruce (2010) and Roelofsen & Farkas (2015), who propose semantic features for response particles, and more—I focus on the syntactic analyses here because I propose a similar syntactic analysis. The analyses in Holmberg (2012, 2013, 2015) and Kramer & Rawlins (2010, 2011) are both ellipsis-based (i.e., the prejacent clause in the response must match the antecedent if the prejacent is elided), and both analyses involve a Polarity Phrase (also called Σ).

(5) A: There is sunshine in the forecast.
B: Yes (there is) / No (there’s not)

(6) A: There are no sunny days predicted.
B: Yes, there are / Yes, there aren’t / No, there are / No, there aren’t

In this paper I will propose an analysis for yeah-huh/nuh-uh, which will show how discourse-related information can be incorporated into the syntax of response particles. My analysis will add syntactic positions for semantic/pragmatic information (i.e., a Speech Act Phrase (SAP), in the terminology of Speas & Tenny 2003), which, in my analysis, is associated with an illocutionary force (e.g. assertion, in the sense of Stalnaker 1978 et seq.). The SAP can also contain a mirative operator that expresses information about the belief states of discourse participants (Torres 2013; Enders 2018). Altogether, the analysis incorporates both a semantic perspective and a syntactic perspective, which allows it to capture the response particle’s sensitivity to the syntax of the antecedent as well as the discourse context.

Before continuing, there is some terminology that I will be using throughout this paper that I will briefly define. First, I will be referring to parts of utterances as the antecedent and the prejacent. I am assuming that response particles are followed by a prejacent clause, which is often anaphoric to an antecedent in the sentence that triggered the response. The prejacent is a copy of the antecedent and can be elided in part or in whole. Second, I will sometimes refer to the utterance that is responded to (the utterance containing the antecedent) as the trigger (adopting the term from Wiltschko 2016). Third, there is a distinction between truth-based response systems and polarity-based response systems. The response systems can be distinguished by the way they respond to negative polar questions and assertions. In truth-based response systems, the response particle will affirm or reject the polarity of the proposition in the antecedent (7), whereas in polarity-based systems, the response particle will give the polarity of the proposition in the response (8). I will refer to the function of a response as agreeing/accepting with the trigger or disagreeing/rejecting.

(7) TRUTH-BASED:
A: She doesn’t drink coffee.
B: Yes (she doesn’t drink coffee). [agreeing/accepting]
B’: No (she does drink coffee). [disagreeing/rejecting]

(8) POLARITY-BASED:
A: She doesn’t drink coffee.
B: No (she doesn’t drink coffee). [agreeing/accepting]
B’: Yes (she does drink coffee). [disagreeing/rejecting]

Truth-based systems show whether or not the response is agreeing or disagreeing with the addressee, and are also called agree/disagree systems in the literature (Holmberg 2015: 141). Polarity-based systems reflect whether the proposition is positive or negative regardless of the polarity in the antecedent, and are also called positive/negative systems in the literature (Holmberg 2015: 141). These two response style systems have also been discussed in Farkas & Bruce (2010) and Roelofsen & Farkas (2015), who describe languages as using absolute polarity marking (polarity-based systems) and/or relative polarity marking (truth-based systems). I will use the terms truth-based and polarity-based.

The paper is structured as follows. §2 gives a brief overview of the analyses in Kramer & Rawlins (2010, 2011) and Holmberg (2012, 2013, 2015). In §3.1 I will introduce yeah-huh/nuh-uh in detail. In §3.2 I will present the framework I use for capturing discourse. §3.3 describes my proposal for the structure and composition of assertions, accepting/rejecting responses to assertions, and mirative+rejecting responses (yeah-huh/nuh-uh). §3.4 discusses differences between responses with respect to the effects they have on the discourse. In §4 I discuss some remaining questions/issues, and §5 concludes.

2. Previous analyses/literature
The tree in (9) shows Holberg’s (2016: 34) structure of an open polar question. For Holmberg (2015), PolP is above TP, and arguments move into PolP from TP, as in (9). The head of PolP has a \([\pm\text{POL}]\) feature which moves into the C-domain in polar questions via a question force feature (Q-force), also shown in (9).

(9)

\[
\begin{array}{c}
\text{CP} \\
\text{C'} \\
\text{C} \\
\text{PolP} \\
\text{Pol'} \\
\text{TP} \\
\end{array}
\]

\[
\text{Q-force} \\
\text{do} \\
\text{you} \\
\text{like this book} \\
\]

In Holmberg’s analyses, polar response particles have a valued polarity feature which values the open \([\pm\text{POL}]\) feature in the question as \([+\text{POL}]\) or \([-\text{POL}]\), which is how speakers answer polar questions. For Holmberg, biased questions and assertions have the polarity feature already valued, leaving no open polarity feature for the response particle to value; thus, in responses that disagree, only the structure below PolP can be elided, as the PolP in the response will not match the PolP in the antecedent, and the response particle needs to value a polarity feature. Because arguments move into PolP in Holmberg’s analysis, disagreeing responses will always require that some of the prejacent be overt, as seen in the following examples. The trees in (11) and (12) show the structure of the disagreeing responses in (10) (Holmberg 2012: 7–8).

(10)

\[
\begin{array}{c}
\text{A: } \text{He doesn’t drink coffee.} \\
\text{B: } \#\text{Yes. (meaning: He does drink coffee)} \\
\text{B: } \text{Yes he does.} \\
\end{array}
\]

The structure in (11) shows B’s response in (10). Holmberg (2012: 7) argues that if the prejacent clause in the response is elided, the features must be identical to those in the antecedent, so the elided structure for B must be as seen in (11), with a negative polarity feature in PolP. Thus, the affirmative particle has no polarity feature to value, and the response cannot be interpreted as an affirmative proposition.

(11)

\[
\begin{array}{c}
\text{#Yes.} \\
\text{FocP} \\
\text{Foc'} \\
\text{he doesn’t drink coffee} \\
\text{PolP} \\
\text{Pol'} \\
\text{TP} \\
\end{array}
\]

On the other hand, the structure in (12) is the well-formed response to (10) (Holmberg 2012: 7). The TP can be elided because it is identical to the TP in A’s assertion. The PolP cannot be elided because it does not have an antecedent with an affirmative polarity feature.
According to Holmberg’s analyses, a disagreeing response to a negative question/assertion must include part of the prejacent clause, like the structure in (12)—disagreeing responses cannot be a single isolated polarity particle.

Kramer & Rawlins (2010, 2011) propose a \( \Sigma P \) above VP and another \( \Sigma P \) above TP. For Kramer & Rawlins, response particles are adverbials in an AdvP that appears in the specifier of the higher \( \Sigma P \); negative response particles have a \([\text{NEG}]\) feature, and affirmative particles do not have any polarity feature (2009: 9). They adopt the concept of feature-sharing from Pesetsky & Torrego (2007), in which there can be multiple instances of a feature, but only one instance is interpretable. For them, negative propositions have a \([\text{NEG}]\) feature in both \( \Sigma Ps \), but only one is interpretable. Likewise, negative response particles can be used to show agreement with negative propositions because of feature-sharing—only one instance of \([\text{NEG}]\) is interpretable, so the proposition can be interpreted as negative and the negative particle does not add another negation. Their analysis provides a solution to what they call the “neutralization puzzle”, which is that isolated polarity particles used in responses to negative questions both get interpreted as negative, as in (13) (Kramer & Rawlins 2010: 2):

(13) A:  
   Is Alfonso not coming to the party?
   B:  Yes. (meaning: He is not coming.)
   B': No. (meaning: He is not coming.)

The claim that both \textit{yes} and \textit{no} would be interpreted as negative in (13) has been supported by experimental studies in Kramer & Rawlins (2012); however, their studies still showed that for some speakers, an isolated \textit{yes} or \textit{no} in response to a negative question could be interpreted as an affirmative proposition, disagreeing with the negative question.

For both Holmberg and Kramer & Rawlins, responses involve ellipsis, where material can only be elided if identical to the antecedent. Both Holmberg and Kramer & Rawlins utilize polarity features and a PolP (or \( \Sigma P \)). Both also propose that response particles are realized in specifier positions, though the featural make-ups differ between analyses. Finally, both analyses predict that an isolated polarity particle in response to a negative question/assertion is only felicitous if the response is agreeing (i.e., if the prejacent is also negative). According to both analyses, we should not find isolated polarity particles in disagreeing responses to negative questions/assertions, such as the one in Judy’s response in (14) (from the Netflix series \textit{Dead to Me}):

(14) Judy: I faint all the time.
    Jen: No, you don’t.
    Judy: \textbf{Yeah.} You haven’t known me for that long.  

For Holmberg (2012), the disagreeing response should have some (or all) of the prejacent clause overt; however, Holmberg (2015) analyzes responses to assertions as \textit{rejoiners} rather than responses. For Kramer & Rawlins (2010, 2011), Judy’s response in (14) should be interpreted as agreeing with the negative proposition.

Further, the analysis in Kramer & Rawlins (2010, 2011) makes some incorrect predictions. Because affirmative particles do not have a polarity feature in their analysis, the analysis predicts, contrary to fact, that affirmative response particles should be possible in negative responses, as seen in (15). Their analysis also wrongly predicts all of the responses in (16) to be acceptable. Nothing in the syntax restricts \textit{yes} from occurring in disagreeing/negative responses to affirmative questions/assertions (a.) and (b.), nor does it restrict a response like in (c.) from occurring, because negative response particles are licensed as long as they are in a negative concord chain (Kramer & Rawlins 2010: 4).

(15) (a.) Affirmative response particle in negative question:
   (15a) A: Have you ever been to Brazil?
   B: Yes. (meaning: I have been to Brazil.)
   B': No. (meaning: I have not been to Brazil.)

(16) (b.) Negative response particle in affirmative question:
   (16a) A: Have you ever been to Brazil?
   B: No. (meaning: I have not been to Brazil.)
   B': Yes. (meaning: I have been to Brazil.)

(16b) A: Have you ever been to Brazil?
   B: Yeah. I have been to Brazil.
(15) A: Ede stole the cookie.
   B: # Yes, he didn’t (steal the cookie).  

(Krifka 2013: 2)

(16) A: Is the number of planets odd?
   B: a. * Yes, it is even.
   b. * Yes, it is not odd.
   c. * No, it is not even. 

(Farkas & Roelofsen 2015: 408)

3. Yeah-huh/Nuh-uh

In some dialects/registers of English, there are specialized response particles yeah-huh and nuh-uh (jæ.ˈ hʌ and hə.ˈ ?ʌ, respectively).¹ There are two variants of the -(h)uh form: stressed and unstressed. Particles bearing an unstressed -(h)uh are often written as uh-huh/uh-uh (pronounced /ˈɔ. hʌ/ and /ˈə.ʔʌ/, respectively). The particles with unstressed -(h)uh forms have a different meaning and distribution than particles with the stressed -(h)uh, which I will discuss briefly in §4. In this paper I focus on the particles with stressed -(h)uh; particles written as yeah-huh/nuh-uh will always refer to the stressed -(h)uh forms. Because the stressed and unstressed forms differ in prosody, meaning, and function, I analyze them as distinct lexical items for now—I leave it for future research to find a unified analysis for stressed and unstressed -(h)uh.

3.1 Properties

In this section I present the properties of yeah-huh/nuh-uh that I take as critical: disagreement and surprise. Because of these key properties, I will sometimes refer to yeah-huh/nuh-uh as mirative+rejecting responses. §3.1.1 focuses on syntactic/reversative properties, and §3.1.2 discusses the discourse-related restrictions, namely the mirative property.

3.1.1 Reversative contexts

The yeah-huh/uh-uh responses have interesting properties. First, they are only used in reversative contexts:

(17) Marge: But there weren’t four Musketeers.
    (TV, The Simpsons, 2011)

(18) A: Well my mama’s half Cherokee
    B: **Nah** she ain’t
    A: **Yeah-huh**, that’s what she told me
    (COCA, MAG, 2006)

(19) Joe: That’s all there is.
    Bridgette: **Nuh-uh**, I know there’s another one.
    (TV, Medium, 2006)

(20) A: ...now you’re Texas, little girl, like it or not.
    B: **Nuh-uh** ... I’m not. I’m not Texas.
    (COCA, FIC, 2002)

In (17) and (18), an affirmative mirative+rejecting particle (yeah-huh) is used to show disagreement with a negative proposition. In (19) and (20), a negative mirative+rejecting particle (nuh-uh) is used to show disagreement with an affirmative proposition. Unlike languages that have a three-way response particle system (affirmative/negative/reversative), e.g. German (ja/nein/doch) and French (oui/non/si),² English is usually described as having a two-way system (affirmative/negative) (e.g. Holmberg 2016). Typically in English reversative/disagreeing responses, speakers must pronounce part or all of the prejacent with the response particle, or else employ some prosodic or pragmatic tactic to convey a reversative meaning, such as intonation or physical expression. The mirative+rejecting -(h)uh forms not only have a specialized discourse function (disagreement/rejection), but they are also sensitive to the syntactic structure of the antecedent, namely to the polarity of the clause, as seen in (21) and (22) (see also footnote 3). The intended meaning of the responses in (21) and (22) is the door is locked, as the responses are disagreeing, but the starred forms are bad on any reading.

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¹They are perhaps restricted to American English. I asked a speaker of British English, and he said he was not very familiar with yeah-huh/nuh-uh and had only heard them in American television/films. I also asked a speaker of Australian English, and he had strong intuitions about yeah-huh/nuh-uh but did not report using them in his own speech, though he was not sure whether they are used in Australian English or if he was only familiar with them from exposure to American English.

²Also: Albanian, Arabic (Standard), Georgian, Greek, Hungarian, Icelandic, Kurdish, Norwegian, Old English, Shupamem, Swedish, and Wolof, according to Holmberg (2015: 168).
A: The front door isn’t locked.
B: Yeah-huh
B’: * Nuh-uh
   Intended meaning: it is locked.

A: The front door is unlocked.
B: * Yeah-huh
B’: Nuh-uh
   Intended meaning: it is locked.

Furthermore, yeah-huh/nuh-uh do not occur in embedded positions, which is unlike other polar response particles in English. The following examples are from the Corpus of Contemporary American English (COCA):

(23) “...to admit that yes, I bought the pair of ceramic quail at the second-hand-store.” (BLOG, 2012)

(24) “...can a good tune be just as beneficial? Carlo Cignozzi believes yes.” (SPOK, 2005)

(25) “…I confronted her with the idea that no, she’s not fat, and she shouldn’t...” (BLOG, 2012)

(26) “…what I always say is that no, it’s just a different way of being social.” (SPOK, 2012)

On the other hand, mirative+rejecting responses do not get embedded. Language consultants did not find yeah-huh or nuh-uh in embedded contexts acceptable, and a search in COCA for “that yeah-huh”, “that nuh-uh”, “that uh-huh”, and “that uh-uh” returned zero results.

Lastly, the reversative yeah-huh/nuh-uh responses, with stress on -(h)uh, are primarily used in response to declaratives but not interrogatives.³ This differs from reversative particles in many other languages with documented reversative particles, such as French (si), Icelandic (jú), and German (doch) (Kramer & Rawlins 2010), in which the reversative particle is also used in response to negative polar questions:

(27) FRENCH; (yes = “oui”, no = “non”) (Kramer & Rawlins 2010)
   Q: Oscar ne vient pas à la soirée?
      ‘Oscar isn’t going to the party?’
   A: Si il vient.
      ‘On the contrary, he is going.’

I will posit that yeah-huh/nuh-uh are not seen in response to interrogatives because they are sensitive to illocutionary force, namely assertion, and interrogative clause types do not often have an assertive force. Although the mirative+rejecting responses are used in response to declarative clause types, I assume the sensitivity is not to clause type but to illocutionary force, as the mirative+rejecting forms reject claims or propositions about the world; they cannot reject a request, for example, even if the request is presented with a declarative clause:

(28) A: You should really go away now. (speech act: request; meaning: ‘Leave now.’)
    B: ?? Nuh-uh (intended: ‘No, I won’t.’; possible interpretation: ‘No, you’re wrong, I shouldn’t.’)

The properties outlined above show properties of yeah-huh/nuh-uh that are related to syntax, i.e., polarity, embedding, and illocutionary force. The following subsection details a property related to discourse.

3.1.2 Mirativity and -(h)uh

Beyond the properties described above, the mirative+rejecting responses, yeah-huh/nuh-uh, also express a sense of surprise, disbelief, or rejection of the addressee’s belief of the proposition they asserted—this finding is supported by felicity judgements obtained from speakers who use yeah-huh/nuh-uh. I associate the mirative function in yeah-huh/nuh-uh with the stressed -(h)uh syllable. I analyze these forms as marking mirativity because a felicitous use of yeah-huh and nuh-uh requires a discourse context in which the speaker did not expect the addressee to believe the asserted proposition. The following two examples (adapted from example contexts in Enders 2018 for uses of German

³The reversative function and the sensitivity to illocutionary force are a characteristic of the mirative+rejecting response particles. The unstressed -(h)uh forms, such as uh-huh (/ʔh@/), ha'uh/uh-uh (/ʔh@/), respectively. The unstressed affirmative -(h)uh form (e.g. uh-huh) has also been analyzed as a discourse marker (Hockey 1992). The mirative+rejecting responses (with stress on -(h)uh) however, are more restricted and express additional meaning.
show that *yeah-huh* is infelicitous in a context in which the speaker knows/believes that the addressee believes the negative proposition, even if the speaker believes the opposite and wants to disagree and correct them. The examples in (29) and (30) show that *yeah-huh* is acceptable only if the speaker did not expect the addressee to believe the negative proposition that they just claimed (as in (30)).

(29) **CONTEXT:** Alex and Bex are throwing a party tonight. Two days ago, their friend Matt told them that he would not be able to make it to the party. However, his plans changed, and he told Bex that he would be joining after all. He asked Bex to inform Alex also, but she forgot to, so Bex has no reason to believe that Alex knows about Matt’s change of plans. Today, Alex and Bex are talking, and Alex mentions that Matt isn’t coming to the party.

A: *Matt isn’t coming to the party*
B: *#Yeah-huh*
B': *Yeah/Yes/No/Oh, he is*

(30) **CONTEXT:** Alex and Bex are throwing a party tonight. Two days ago, their friend Matt told them that he would not be able to make it to the party. However, his plans changed and he told Bex that he would be joining after all. Bex assumed that Matt also informed Alex, so that Alex also knew he would be coming. Today, Alex and Bex are talking, and Alex mentions that Matt isn’t coming to the party.

A: *Matt isn’t coming to the party*
B: *Yeah-huh*
B': *Yeah/Yes/No/Oh, he is*

In the example in (29), there was a previous understanding between the Alex and Bex that Matt was not coming to the party, and Bex had no reason to believe that Alex’s beliefs had changed—in fact, she had reason to believe that Alex still believed that Matt was not coming, since she was responsible for informing Alex of the change but never did. On the other hand, in the context in (30), Alex and Bex had a previous understanding that Matt was not coming, but in this scenario, Bex assumed that Alex’s belief had also changed such that Alex also knew now that Matt would be coming after all. The difference between the two contexts is whether the speaker’s belief about the addressee’s belief was correct. In (30), the speaker believed that the addressee believed $p$, but the addressee expressed that they believed $\neg p$. In (29), the speaker believed that the addressee believed $\neg p$, and the addressee expressed that they indeed believed $\neg p$.

Another use of *yeah-huh/nuh-uh* (which is often the most salient for people) is when the discourse participants (typically children) are arguing back-and-forth, as in (31), the scene from *The Emperor’s New Groove* where the children Tipo and Chaca start yelling to each other:

(31) Tipo: *nuh-uh!*
Chaca: *yeah-huh!*
Tipo: *nuh-uh!*
Chaca: *yeah-huh!*

In back-and-forth arguments like in (31), it is hard to suggest that the speaker believes that the addressee believes $p$, when the addressee is repeatedly expressing that they believe $\neg p$ (or vice versa). I still analyze *yeah-huh/nuh-uh* as showing mirativity in these uses—the repeated use of the mirative+rejecting particle conveys rejection or denial of the addressee’s asserted belief about the proposition.

There is still a question of the scope of the speaker’s expectation about the addressee’s belief regarding a given proposition: for a proposition $p$, does the speaker expect that the addressee actively believes $p$, resulting in their surprise when the addressee reveals that they believe $\neg p$? I argue that the speaker’s expectation is not necessarily that the addressee already believes $p$, but, minimally, that the addressee would accept $p$ if it were asserted—i.e., Kaufmann’s definition of *weak* speaker-presupposition: a speaker believes that a proposition *would be* indisputably accepted/believed by the other discourse participants after it is uttered, but not necessarily that the proposition is *already* believed by all participants before it is uttered (2010: 23). The following dialogue (given in example (17) above, repeated here) is from

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4The speakers I consulted had varying judgements about how confrontational the mirative+rejecting responses are. A subset of consultants said they were less likely to use them in response to out-of-the-blue assertions, and preferred contexts in which their stance on $p$ was known and challenged. In this paper I describe the pragmatic contribution of the stressed -{(h)uh} as *mirativity*, in order to capture the less “confrontational” uses such as in (30) and (32), which only seem to require that the speaker did not expect the addressee’s assertion. The semantic composition in my proposal could be extended to the more confrontational uses, such as (31), if we can assume that the mirative meaning is being flouted in order to convey disbelief/rejection.
a *Simpsons* episode (S23E05):

(32) Marge: But there weren’t four Musketeers.

It seems possible that Lisa did not expect that Marge already believed there were four musketeers; however, Lisa could have expected Marge to accept that there were four musketeers had Lisa asserted so, and thus was surprised to hear Marge make a claim that contradicts it. Essentially, I am arguing that the mirativity in *yeah-huh/nuh-uh* comes from a conflict between what the addressee asserts that they believe and what the speaker had previously assumed about the addressee’s beliefs; the speaker’s assumption could have been that the addressee already actively believed a proposition, or that the addressee would have accepted the proposition (i.e., did not have contradictory beliefs).

I make the distinction between the speaker’s expectations about the addressee’s beliefs here to avoid claiming that *yeah-huh* and *nuh-uh* are only used when the speaker expected that the addressee already believed a proposition, because some uses, such as the example in (32), suggest a weaker expectation, i.e., Kaufmann’s (2010) weak speaker presupposition. In my analysis, both types of presupposition will be modeled the same way, which is that the speaker’s past beliefs led them to expect that the addressee also believed the proposition that the speaker believes (i.e., the stronger expectation). This might seem a bit strong for cases of weak speaker presupposition, but I leave this issue aside for now for simplicity, and also because of the following speculation. The *yeah-huh/nuh-uh* responses are often described as things only children say; if children have a different sense of what others know/believe, then it could be the case that they presuppose that there is more information in the common ground than there actually is, and are more often surprised when someone asserts something contradictory. Children have to develop the organizational skills needed to keep track of what information is shared knowledge and what is not (Clark 2014), and even adults can struggle with distinguishing their own beliefs from the beliefs of others (Keysar et al. 2003). Thus, it could be that (at least some) speakers do presuppose that their addressees believe the same proposition, even in cases when they do not seem to have much evidence for it. More research relating response particles and Theory of Mind would have to be done in order to move beyond speculation.

### 3.2 Framework for analysis

#### 3.2.1 Syntactic components

In recent years, there has been a resurgence of theories that build on two related theories: the Performative Hypothesis (Ross 1970), which argues that all sentences contain a highest clause that has a performative function; and the Neo-performative Hypothesis (Speas & Tenny 2003), which argues that there is a syntactic position that encodes both the speaker and the hearer. In recent proposals, syntactic structures have positions in the far left periphery (or beyond) that encode information about the speaker and hearer. These structures have been proposed to account for a number of phenomena in which pragmatic information affects syntax (e.g. Haegemann & Hill 2013; Zu 2015, 2018; Wiltschko & Heim 2016; Wiltschko 2021; Thoma 2017; Woods 2021; among others).

My analysis falls within these emerging theories which incorporate aspects of the speaker and hearer into a syntactic layer above CP. The SAP has two specifier positions: one for the addressee and one for the speaker, with the specifier for speaker structurally higher than the specifier for addressee. The SAP is associated with an illocutionary force, which I will denote in subscript on the head node. For example, an illocutionary force of assertion would add some not-at-issue (NAI) content in SAP meaning *speaker is committed to* $p$ and wants addressee to commit to $p$, and the head of SAP will be written as $SA_{assert}$. Below SAP is a Polarity Phrase (PolP), which dominates the CP layer. The proposed structure is in (33):
Two key assumptions I make about the syntax of response particles are that polar response particles involve polarity features and ellipsis. Regarding features, I follow the analysis of feature interpretability and valuation proposed in Pesetsky & Torrego (2007), which assumes the Thesis of Radical Interpretability (Brody 1997); according to Pesetsky & Torrego, features can enter the derivation as: uninterpretable and valued; interpretable and valued; uninterpretable and unvalued; or interpretable and unvalued. Unvalued features act as probes, whether they are interpretable or uninterpretable (Pesetsky & Torrego 2007: 6). Furthermore, features that enter into Agree relations are instances of the same feature, not separate features. In my proposal, the lower PolP (below CP) enters the derivation with an uninterpretable and valued polarity feature ([u{POL:AFF,NEG}]). The higher PolP enters the derivation with an interpretable and unvalued polarity feature ([i{POL:__}]), which causes it to act as a probe, finding the valued feature in the lower PolP. Once the polarity feature in the high PolP is valued, the lower instance of it deletes. The structure in (34) shows the Agree relation.
In responses to assertions (but not in out-of-the-blue assertions), the head of SAP enters the derivation with an uninterpretable, unvalued polarity feature, which acts as a probe. It enters into an Agree relation with the interpretable, valued polarity feature in the higher PolP, as seen in (35):

\[
\begin{align*}
\text{PolP} & \rightarrow \text{CP} \\
\text{CP} & \rightarrow \text{T} \\
\text{T} & \rightarrow \text{DP} \\
\text{DP} & \rightarrow \text{she} \\
\text{she} & \rightarrow \text{vP} \\
\text{vP} & \rightarrow \text{does} \\
\text{does} & \rightarrow \text{Pol} \\
\text{Pol} & \rightarrow \text{[uPOL:AFF]} \\
\text{[uPOL:AFF]} & \rightarrow \text{SAP} \\
\text{SAP} & \rightarrow \text{speaker} \\
\text{speaker} & \rightarrow \text{SA'} \\
\text{SA'} & \rightarrow \text{addressee} \\
\text{addressee} & \rightarrow \text{[uPOL:AFF]} \\
\text{[uPOL:AFF]} & \rightarrow \text{SA} \\
\text{SA} & \rightarrow \text{[uPOL:AFF]} \\
\text{[uPOL:AFF]} & \rightarrow \text{PolP} \\
\text{PolP} & \rightarrow \text{CP} \\
\text{CP} & \rightarrow \text{T} \\
\text{T} & \rightarrow \text{DP} \\
\text{DP} & \rightarrow \text{she} \\
\text{she} & \rightarrow \text{vP} \\
\text{vP} & \rightarrow \text{does} \\
\text{does} & \rightarrow \text{Pol} \\
\text{Pol} & \rightarrow \text{[iPOL:AFF]} \\
\text{[iPOL:AFF]} & \rightarrow \text{SAP} \\
\end{align*}
\]

In polarity-based responses, which is when the polarity of the response particles matches the polarity of the proposition in the response, the response particle is the phonological realization of the uninterpretable, valued polarity feature in the SA head—[uPOL:AFF] is spelled out as yes (or some allomorph, e.g. yeah), and [uPOL:NEG] no (or some allomorph, e.g. nuh). I will assume that SAP cannot be embedded (Wiltschko & Heim 2016; Zu 2018; among others), which accounts for why the yeah-huh/nuh-uh responses do not appear in embedded contexts. However, because polarity particles can sometimes be embedded in English, I also suggest that the polarity particle can sometimes be the spell out of the polarity feature in PolP rather than the one in SAP.\(^5\)

Second, I assume that responses involve ellipsis (e.g. Merchant 2004), following proposals by Laka (1990), van Craenenbroeck (2004), Holmberg (2012, et seq.), and Kramer & Rawlins (2010, 2011) (cf. Krifka 2013). The response has a prejacent clause which can be overt or covert and which is often anaphoric to the antecedent found in the utterance that triggered the response. Because material from the prejacent can only be elided if identical enough to the antecedent, the polarity feature in the prejacent clause of disagreeing responses such as (36) must be deleted. The tree in (37) shows the structure below PolP of the prejacent clause in B’s response in (36).

\[
\text{A:}\quad \text{She doesn't jog.} \\
\text{B:}\quad \text{Yes she does (jog).}
\]

\[
\begin{align*}
\text{PolP} & \rightarrow \text{CP} \\
\text{CP} & \rightarrow \text{T} \\
\text{T} & \rightarrow \text{DP} \\
\text{DP} & \rightarrow \text{she} \\
\text{she} & \rightarrow \text{vP} \\
\text{vP} & \rightarrow \text{does} \\
\text{does} & \rightarrow \text{Pol} \\
\text{Pol} & \rightarrow \text{[iPOL:AFF]} \\
\text{[iPOL:AFF]} & \rightarrow \text{SAP} \\
\end{align*}
\]

The assertion in (36) is negative, but the proposition in the response is affirmative. If the polarity feature in the lower PolP (below CP) were interpretable, only the vP below it could be elided, as the polarity feature value would not match the antecedent. However, because the lower instance of the polarity feature gets deleted once it Agrees with the higher...
feature, the entire CP can be elided. The interpretable polarity feature in the higher PolP will contribute the polarity in the semantics. Unlike Holmberg (2012, 2013, 2015), I do not assume that arguments from the TP move into the higher PolP; consequently, my analysis does not predict that reversative responses will require overt material from the prejacent, instead predicting disagreeing responses like (38), from the Netflix series Dead to Me, to be acceptable:

(38)   A:  There are no sunny days predicted.
       Jen:  No, you don’t.
       Judy:  Yeah. You haven’t known me for that long.  (COCA, TV, 2019)

While my analysis correctly predicts responses like Judy’s in (38) to be acceptable, it does not at this stage explain why speakers tend to include part of the prejacent clause when disagreeing with/correcting an assertion. My speculation would be that there is some pragmatic principle at play, given that English polar responses to negative questions/assertions are ambiguous between agreeing and disagreeing:

(39) A:  There are no sunny days predicted.
       B:  a.  Yes (= There are)
           b.  Yes (= There aren’t)
       B’: a.  No (= There are)
            b.  No (= There aren’t)

Although I do think there is some principled reason that disagreeing/reversative responses to negative questions/assertions often have part of the prejacent overt, I would argue that it is not syntactically driven. A syntactic explanation as proposed in Holmberg’s analyses would be too strong, as it would always rule out responses like in (38) as infelicitous, when this is observably not the case.

3.2.2 Capturing the discourse context

In this section I outline the framework for my analysis of the discourse context. First, I assume a discourse between two (or more) participants involves a common ground, which is the set of propositions that are believed by all of the discourse participants, and believed to be mutually believed (Stalnaker 1978, 2002). As mentioned in §3.1.1, I acknowledge Kaufmann’s (2010) definitions of speaker presupposition; however, my current analysis does not distinguish between these and models the stronger version of speaker presupposition for the reasons also mentioned in §3.1.1.

Second, my analysis involves a distinction between at-issue (AI) and not-at-issue (NAI) content (Potts 2005). NAI content, presuppositions, implicatures, and backgrounded assertions cannot (easily) be directly challenged by other discourse participants. On the other hand, AI content is proposed to be added to the common ground, but needs to be accepted by all other discourse participants before it can actually update the common ground. Farkas & Bruce (2010) introduce a concept which they call a Table, which is essentially a (metaphorical) space in which propositions that have been proposed to be accepted into the common ground can be temporarily held until they are accepted or rejected by other discourse participants. Adopting this concept of a discourse Table, we can say that AI information is placed on the Table, where it will then be directly accepted or rejected by other discourse participants. In assertions, the asserted proposition is AI information. NAI content can be presuppositional, where a there is a constraint of the types of contexts that will admit the statement. A specific context is presupposed, and if the context does not satisfy the presupposition, the statement will be infelicitous. NAI also includes backgrounded assertions, expressives and illocutionary force conditions, which induce direct updates to the context.

Next, I maintain the argument that assertions express the speaker’s commitment to the asserted proposition as well as their desire to have the addressee also commit to the proposition (Searle 1969, 1975; Grice 1975). I include this as NAI information denoted in SA_{assert}, the head of SAP when the illocutionary force is an assertion. I also propose an SA_{accept} and an SA_{reject} for responses to assertions. The head of SAP is SA_{accept} in responses that accept the asserted proposition into the common ground; it will be SA_{reject} in responses that reject the proposition. The NAI content in

---

6 Although isolated particles in reversative responses seem to require specific contexts and intonation, I argue against a syntactic analysis like Holmberg’s. I do think there is some principled reason that speakers tend to have some of the prejacent clause overt, or some special intonation if the prejacent is not overt. I leave it to future research to propose a reason.

7 Kaufmann, modifying Stalnaker’s (2002) definition of speaker presupposition, distinguishes strong speaker presupposition from weak speaker presupposition: weak speaker presupposition is when a speaker believes a proposition will be commonly accepted/believed immediately by all discourse participants, whether or not they believe it prior to the speaker’s utterance; strong speaker presupposition is when a speaker believes a proposition is already commonly believed at the time of utterance (Kaufmann 2010: 23–24).

8 Assertions can also be analyzed as not having the latter criterion (that the speaker wants the addressee to also commit to the proposition). Although I do not assume this here, nothing would be lost from my analysis if I assumed this analysis of assertions.
Mirativity in English response particles — 12/25

SA accept and SA reject presupposes that an assertion was made — i.e., a NAI condition for the use of an accepting/rejecting response is that another discourse participant has just asserted a proposition. The yeah-huh/nuh-uh responses have a speech act modifier that takes SA reject and adds mirativity. The mirativity in SA mirative is denoted as NAI content alongside the NAI condition from SA reject.

3.3 Proposal

In this section I defend a proposal that connects the speech act domain with morphosyntax, showing that both domains contribute necessary components in the structure and spell-out of mirative+rejecting response particles (yeah-huh/nuh-uh). Further, the interaction between discourse-related information and morphosyntactic information occurs in a high syntactic layer, the Speech Act Phrase (SAP). The mirative+rejecting response particles are syntactically dependent in that they are sensitive to the syntactic structure of their antecedent, and they follow a polarity-based response system (i.e., the polarity of the particles reflects the polarity of the response). Rather than a simple, isolated response particle realizing polarity, the polarity in mirative+rejecting responses is realized with an additional -(h)uh morpheme. This -(h)uh morpheme, I argue, is associated with mirativity, which is related to the discourse context. The following subsections will show the full composition of an assertion, an agreeing response, a rejecting response, and then a mirative+rejecting response.

3.3.1 Assertions

This section gives the syntactic and semantic composition of an out-of-the-blue assertion. The trees below show A’s assertion in (40). The tree in (41) shows the Agree relation between polarity features at the propositional level. The meaning at PolP will be the affirmative proposition she jogs. If the proposition were negative, the polarity features in (40) would be negative. The illocutionary force is located in SAP, seen in (42).

(40)  A:  She jogs.
     B:  Yes, she does.

The lower PolP, located below TP and above vP, has an uninterpretable but valued polarity feature. A higher PolP merges onto CP with an interpretable, unvalued polarity feature. Because the feature is unvalued, it acts as a probe (Pesetsky & Torrego 2007: 6). Its goal is valued feature in the lower PolP. They Agree, and the lower instance of the polarity feature deletes.

(41)

Then SAP is merged onto the higher PolP, as seen in (42). The SAP is where illocutionary force is expressed, which is encoded as NAI content, as will be seen in (43). The head of SAP is written as SA assert to reflect the illocutionary force of assertion. The SAP has two specifier positions; the lower specifier is where the addressee is encoded, and the higher specifier is where the speaker is encoded.

Then the illocutionary force is expressed in the lower PolP by agreement, which is encoded as NAI content, as will be seen in (43). The head of SAP is written as SA assert to reflect the illocutionary force of assertion. The SAP has two specifier positions; the lower specifier is where the addressee is encoded, and the higher specifier is where the speaker is encoded.
The tree in (43) shows the semantic composition from the higher PolP up. The meaning at PolP is the proposition she jogs, which is the AI content. The AI content is passed compositionally up the tree with the identity function, \( \lambda p.p \), seen in the denotation of SA\textsubscript{assert}. The NAI content in SA\textsubscript{assert} is separated from the AI content by a colon and period—the NAI information is: \( x \) is committed to \( p \) and wants \( y \) to commit to \( p \). The addressee argument satisfies \( \lambda y \), as addressee is encoded in the lower specifier of SAP. Next, the speaker argument saturates \( \lambda x \). The full denotation is seen at the top of the tree in SAP. The word commit used in the denotation of SA\textsubscript{assert} reflects the speaker/addressee’s public commitment to the truth of a proposition; it is written in plain English here for simplicity, but I assume that commitment to a proposition also implies belief in the proposition (i.e., the proposition is true according to the doxastic state of the speaker/addressee).

If the asserted proposition were negative rather than affirmative, the NAI content would be the same. The only difference between a negative an affirmative asserted proposition would be the polarity of the proposition that gets placed on the Table.
3.3.2 Accepting/Rejecting Responses

In this section I will show the syntax and semantics for polarity-based responses to the assertion in (40). In responses to assertions, the head of SAP enters the derivation with an uninterpretable, unvalued polarity feature, which forms an Agree relation with the interpretable, valued polarity feature in the head of its sister node, the higher PolP. The illocutionary force in SAP for responses to assertions is slightly different than in out-of-the-blue assertions, and I label the head of SAP after the type of response (SA\textsubscript{accept}/SA\textsubscript{reject}). Importantly, however, accepting and rejecting responses both also make assertions themselves: they either assert the same proposition or its negation as the addressee’s asserted proposition. Assertions and responses to assertions both make a public commitment to and express belief in a proposition, but responses to assertions have restrictions on the context in which they can be used—namely, they are only felicitous in a context in which an assertion was just made. This also presupposes that responses cannot be discourse-initial. In the denotations for the responses, I use the term asserted (past tense) rather than committed for referencing the addressee’s assertion to which the speaker is responding. In the following subsections I will discuss accepting responses and then rejecting responses.

**SA-accept** Here I show the structure and composition for B’s response in (44), which is agreeing with A’s assertion, i.e., accepting the proposition into the common ground. The proposition in the response matches that of the assertion, so everything other than the response particles could (but need not) be elided.

(44) A: *She jogs.*  
B: *Yes (she does).*

The syntactic structure of the response in (44), from the bottom of the tree up to the higher PolP, will be the same as the structure of the propositional layer in the assertion in (41); the differences between assertions and responses to assertions will be in SAP. As seen before, the higher PolP merges onto the CP, as seen in (45). It enters the derivation with an interpretable, unvalued polarity feature, which probes for the valued feature in the lower PolP. Once they form an Agree relation, the lower instance of the polarity feature is deleted.

The tree in (46) shows the SAP merged onto the higher PolP. Unlike in an assertion, SA\textsubscript{accept} has an uninterpretable, unvalued polarity feature. Because it is uninterpretable and unvalued, the polarity feature in SAP acts as a probe and Agrees with the interpretable, valued polarity feature in PolP, seen in (46):

---

\[^9\text{In polarity-based responses, the polarity of the response particle matches the polarity of the response. English allows both polarity-based and truth-based responses, but the mirative responses follow a polarity-based system, so I model polarity-based responses here. In §4.2 I will discuss possibilities for truth-based responses.}\]
Note that the polarity feature in PolP will be visible to the semantics because it is interpretable; however, because the instance of the polarity feature in SAP is uninterpretable, it will not be visible to the semantics (and thus will not result in multiple negative features cancelling each other out when PolP is negative). Despite being invisible at LF, the polarity feature in SAP can still be seen at PF, where it can be realized as a response particle, whether or not the material below PolP is elided. To clarify, I am proposing that response particles can be realized at the SAP level while getting their polarity value from PolP (via an Agree relation). This configuration predicts that the response particle cannot be embedded, following the general argument in the literature that the SAP layer cannot be embedded (Wiltschko & Heim 2016; Zu 2018; among others). However, polarity particles can be embedded in English, as was seen in §3.1, examples (23)-(26); I therefore assume that polarity features can also be realized in PolP, though these may be different morphemes than the SAP level realizations.

The semantic composition is seen below in (47). In addition to the presupposition that an assertion was just made, SA_{accept} also expresses the NAI information that the speaker is also (in addition to the addressee) committed to the previously asserted proposition. The proposition in PolP (the prejacent) is the AI content, which is passed up the structure by the identity function, λp.p. Like SA_{assert}, the NAI content expressed in SA_{accept} takes an argument that will be satisfied by the addressee (λy), and an argument that will be satisfied by the speaker (λx):

\[
\text{SAP} \\
λx: \text{addressee asserted } she-jogs \text{ and } x \text{ commits to } she-jogs. \text{ she-jogs (speaker) = } \\
\text{addressee asserted } she-jogs \text{ and } x \text{ commits to } she-jogs. \text{ she-jogs}
\]

\[
\text{SA’} \\
λyλx: y \text{ asserted } she-jogs \text{ and } x \text{ commits to } she-jogs. \text{ she-jogs (addressee) = } \\
λx: \text{addressee asserted } she-jogs \text{ and } x \text{ commits to } she-jogs. \text{ she-jogs}
\]

\[
\text{SA_{accept}} \\
λpλyλx: y \text{ asserted } p \text{ and } x \text{ commits to } p. \ p (she-jogs) = \\
λyλx: y \text{ asserted } she-jogs \text{ and } x \text{ commits to } she-jogs. \text{ she-jogs}
\]

\[
\text{PolP} \\
\text{she-jogs}
\]
Note that the “y asserted p” phrase in [[SA_accept]] not only presupposes that an assertion was made, but also presupposes that the assertion was of the same polarity as the proposition in PolP. Accepting responses presuppose a context in which the addressee has just asserted a proposition that the speaker also asserts (via their response); if this presupposition is not met, the response will be infelicitous. Although it is intuitive that a speaker cannot accept a proposition into the common ground while also expressing that the opposite proposition should be accepted into the common ground, I point it out here to show how my proposal rules this out formally.

**SA-reject** Now I turn to polarity-based rejecting responses. While in accepting responses the proposition in PolP matched the antecedent, in rejecting responses, the addressee’s asserted proposition is the opposite polarity as the speaker’s response. This is essentially the only difference between [[SA_accept]] and [[SA_reject]]:

\[
\text{[[SA_accept]]: } \lambda p: \text{ addressee asserted } p \text{ and speaker commits to } p.
\]

\[
\text{[[SA_reject]]: } \lambda p: \text{ addressee asserted } \neg p \text{ and speaker commits to } p.
\]

Like [[SA_accept]], [[SA_reject]] also presupposes that an assertion was just made; however, for [[SA_reject]], the asserted proposition was necessarily the opposite polarity from the speaker’s response, because the denotation states that the addressee asserted \( \neg p \) (whereas the proposition in PolP is \( p \)). Again, it is intuitive that a speaker cannot reject a proposition while also asserting that they believe the proposition to be true, but I point it out here to show how my proposal formally predicts rejecting responses to be infelicitous when the speaker publicly commits to the same proposition as the addressee.

In this section I will show the syntax and semantics for the response in B in (49), which disagrees with (rejects) the assertion in A. As discussed in §3.2.1, my assumptions about ellipsis predict that isolated response particles are acceptable even in disagreeing responses, so the prejacent in B’s response is optional because it can be elided. The identity condition for ellipsis does not fail in disagreeing responses because the lower instance of the polarity feature gets deleted, as seen in (50).

(49) A: She jogs.
B: No (she doesn’t).

The proposition in PolP is the proposition that the speaker believes/commits to. The syntactic structure and composition below the higher PolP is the same as in assertions and accepting responses: the lower PolP has an uninterpretable, valued polarity feature; when the higher PolP merges onto CP with an interpretable, unvalued polarity feature, the feature probes for and Agrees with the polarity feature in the lower PolP, deleting it:

(50)

Like SA_accept, SA_reject enters the derivation with an uninterpretable, unvalued polarity feature, which probes for the polarity feature in the high PolP, forming an Agree relation, seen in (51).
Because the polarity feature in PolP is interpretable, it will be visible at LF, allowing it to contribute a polarity value to the proposition in PolP. On the other hand, the uninterpretable polarity feature located in SAP, though invisible at LF, can be pronounced at PF, where it will be realized with an affirmative or negative response particle depending on its polarity value.

The tree in (52) shows the semantic composition of the rejecting response in (49). Again, the AI content is in PolP and is passed into SAP via the identity function. When a negative proposition in PolP saturates the propositional argument $p$ in $[\text{SA}_{\text{reject}}]$, it results in a double negative in the denotation, which is logically equivalent to an affirmative.

The rejecting response exemplified above is negative, which shows how the double negation is worked out when a negative proposition saturates the propositional argument $p$ in $\text{SA}_{\text{reject}}$. Crucially, however, the polarity particle in the rejecting response exemplified above is not negative because the response is rejecting, but rather is negative only because the proposition in PolP is negative (more specifically, because the syntactic polarity feature in PolP is in an Agree relation with a polarity feature in SAP, which is uninterpretable in LF but visible in PF, where it’s realized as no); polarity-based rejecting responses have an affirmative response particle when the proposition in PolP is affirmative. For example, the response in B in (53) rejects the negative proposition in A’s assertion and commits the speaker to the affirmative proposition. The semantic composition for B’s affirmative rejecting response in (53) is shown in (54). The only difference between (54) and (52) is the polarity of the proposition in PolP.
3.3.3 Mirative+Rejecting Responses

This section shows the structure of the mirative, rejecting responses *yeah-huh* and *nuh-uh*. I refer to these as “mirative+rejecting” because I take the -(h)uh form to involve a speech act modifier that takes $SA_{reject}$ and modifies it by adding mirativity, adapting Torres’ (2013) account of mirativity in Spanish statements to the phenomena of response particles. As mentioned in §3.1, the mirativity in these responses comes about when the speaker expected the addressee to have a particular belief about a proposition, and the addressee’s assertion contradicts that expectation. In other words, before the addressee’s assertion of $\neg p$, the speaker believed that the addressee believed $p$.

Before getting into the details in SAP, note that the polarity syntax in mirative+rejecting responses is the same as the polarity syntax in the responses to assertions described above. The syntactic polarity features for the responses in (55) and (56) will be the same as the trees in (50) and (51), except that the polarity feature value depends on the proposition in PolP. When the speaker commits to a negative proposition in their response, as in (55), the polarity features will be negative. When the speaker commits to an affirmative proposition in their response, as in (56), the polarity features will be affirmative.

(55) A: *She jogs.*
    B: *Nuh-uh!* (meaning: No she doesn’t)

(56) A: *She doesn’t jog.*
    B: *Yeah-huh!* (meaning: Yes she does)

As seen in the rejecting responses in the previous section, the prejacent clause can be elided in rejecting responses even though the polarity feature value does not match that of the antecedent, because the lower polarity feature gets deleted when the higher PolP, with another polarity feature, merges onto CP. The polarity feature in the higher PolP is interpretable and thus is visible to the semantics—the proposition in PolP, which is the AI content of the response, is interpreted as affirmative or negative depending on the polarity feature in PolP. One difference between mirative+rejecting responses and simple rejecting responses is that the prejacent is usually elided in mirative+rejecting responses; however, I currently do not have an explanation for why this is. Another crucial difference between mirative+rejecting responses and simple responses is that mirative+rejecting responses are never seen in embedded contexts. I assume that the reason *yeah-huh/nuh-uh* do not appear in embedded contexts is that, in mirative+rejecting responses, it is always the uninterpretable polarity feature in SAP that is realized at PF as the affirmative or negative morpheme (i.e., the polarity feature does not get spelled out at the PolP level). I assume that SAP does not embed, and since the -(h)uh forms crucially modify the speech act of *reject*, we predict that it cannot be embedded. The question that remains to be addressed is why *yes/no* can be embedded to some extent. I suggest that simple *yes/no* response particles are a spell-out of features that are equally available at SAP and the lower PolP projections.

---

10It could be the case that it is always elided. If some of the prejacent clause does occur after *yeah-huh/nuh-uh*, it occurs in a separate prosodic phrase.
The *yeah-huh/nuh-uh* responses are polarity-based rejecting responses with additional NAI information. The mirativity is added onto a simple rejecting response via a speech act modifier; the first half of the denotation in SA$_{\text{mirative}}$ comes from SA$_{\text{reject}}$—it says that an assertion was just made and the asserted proposition was the opposite in polarity from what the speaker believes. This is NAI content related to illocutionary force that outlines the particular use conditions of a rejecting response. The second part of SA$_{\text{mirative}}$ backgrounds the simple rejecting response with the information that the speaker previously believed the addressee agreed with the speaker. The additional mirative meaning in the mirative+rejecting responses is included in the denotation as NAI content, but it is not the same as the NAI conditions related to illocutionary force. Specifically, the mirativity presupposes a context in which the speaker’s past beliefs entailed that the addressee believed the opposite proposition from the one they asserted. If the discourse context does not satisfy this presupposition, then the *yeah-huh/nuh-uh* response will be infelicitous.

Now I will turn to the semantic composition of mirative+rejecting responses. The terminology used in SA$_{\text{mirative}}$ differs from terminology used above, but the denotations are nonetheless similar. To model mirativity, I will refer to the doxastic states of the discourse participants (i.e., their belief states), which entail the propositions that the discourse participant believes are true at a given time. The terminology is meant to capture the nature of the mirativity—although the mirative+rejecting responses are also used in response to assertions/commitments and also make public commitments on behalf of the speaker, the mirative aspect in the responses emerges from the speaker’s beliefs about the addressee’s beliefs, and it is thus easier to capture by referring to doxastic states.

Before showing the more technical denotations, I will describe in other words what occurs at each step of the composition. The tree in (57) shows the composition of the *nuh-uh* response in (55). At each node, the NAI content and AI content are listed. The AI content is again the proposition in PolP, which is the proposition that the speaker is making a commitment to. The AI content is listed at every node because it is passed up via an identity function ($\lambda p.p$) in each node above PolP. The NAI content of SA$_{\text{mirative}}$ is similar to that in SA$_{\text{reject}}$—i.e., addressee believes ($\sim$ asserted) $\neg p$ and speaker believes ($\sim$ commits to) $p$—except in SA$_{\text{mirative}}$ there is additional NAI information about the speaker’s past beliefs. The nodes in (57) are numbered, and each step is described in more detail in (58).

(57)  

\[
\text{SAP}  \quad  \begin{array}{c}
\text{NAI: addressee believes } \text{she-jogs} \text{ and speaker believes } \neg \text{she-jogs} \text{, and speaker previously believed that addressee also believed } \neg \text{she-jogs}. \\
\text{AI: } \neg \text{she-jogs}
\end{array}
\]

\[
\begin{array}{c}
\text{SA'}  \quad  \begin{array}{c}
\text{NAI: addressee believes } \text{she-jogs} \text{ and x believes } \neg \text{she-jogs} \text{, and x previously believed that addressee also believed } \neg \text{she-jogs}. \\
\text{AI: } \neg \text{she-jogs}
\end{array}
\end{array}
\]

\[
\begin{array}{c}
\text{SA'}  \quad  \begin{array}{c}
\text{NAI: y believes } \neg \text{she-jogs} \text{ (i.e., she-jogs) } \text{ and x believes } \neg \text{she-jogs} \text{, and x previously believed that y also believed } \neg \text{she-jogs}. \\
\text{AI: } \neg \text{she-jogs}
\end{array}
\end{array}
\]

\[
\begin{array}{c}
\text{SA}_{\text{mirative}}  \quad  \begin{array}{c}
\text{y believes } \neg \text{p and x believes p, and x previously believed that y also believed p. AI: } \neg \text{p}
\end{array}
\end{array}
\]

\[
\begin{array}{c}
\text{PolP}  \quad  \begin{array}{c}
\text{AI: } \neg \text{she-jogs}
\end{array}
\end{array}
\]

(58)  

1. The AI proposition: *she doesn’t jog*. There is no NAI info in PolP.

2. The first part of the NAI content in $[[\text{SA}_{\text{mirative}}]]$ is that $y$ believes $\neg p$ and $x$ believes $p$ (similar to $[[\text{SA}_{\text{reject}}]]$).

   The “$y$ believes $\neg p$” comes from a previous assertion from $y$ (which will be filled in as *addressee* in a
later step). This wording does not reflect the presupposition that an assertion was just made, but this part of the denotation comes from \([SA_{\text{reject}}]\). Because \([SA_{\text{mirative}}]\) is \([SA_{\text{reject}}]\) plus a speech act modifier, we can assume that the presupposition still holds; the term asserted is not used here in order to emphasize one of the sub-components of assertion—belief. The mirative speech act modifier adds the additional NAI information that \(x\) previously believed (past tense) that \(y\) believed \(p\). The NAI content involves past tense because it refers to the speaker’s past belief state. \([SA_{\text{mirative}}]\) also has a propositional variable that will take the AI content in PolP.

3 The propositional argument in \([SA_{\text{mirative}}]\) is saturated first by the AI proposition in PolP, which produces the denotation in SA’. The proposition in PolP is negative, resulting in a double negative in SA’. A double negative is logically equivalent to an affirmative.

4 Next, the addressee specifier saturates the argument \(y\) in the NAI content.

5 Last, the \(x\) argument in the NAI content is saturated by the specifier for speaker.

The final denotation of (57) is seen in the root node, SAP. The NAI content is that the addressee believes she jogs and the speaker believes she doesn’t jog, and also that the speaker had thought that the addressee also believed she doesn’t jog. The NAI information is added to the common ground directly. The AI information that gets placed on the Table for discourse participants to accept or reject is the proposition she doesn’t jog.

The tree below in (59) shows the denotations at each node of the composition of the nuh-uh response in (55). (59) is the technical counterpart to (57); while the notation is different, the meanings are the same. The terms assert or commit are not used in these denotations; instead, the terminology refers in particular to the doxastic state of each discourse participant: \(DOX_X\), where \(X\) is the discourse participant (speaker = \(DOX_{SP}\); addressee = \(DOX_{ADD}\)). \(DOX_X\) is also associated with a time variable, as beliefs can change over time (Torres 2013; Ippolito 2002). Mirativity is associated with the speaker’s past beliefs, so I include past tense in \([SA_{\text{mirative}}]\) as a presupposition. All in all, \(DOX_X\) is the set of worlds that are compatible with all of the propositions that \(X\) believes are true. For example, if \(X\) believes that some proposition \(q\) is true, then all of the possible worlds according to \(DOX_X\) are worlds in which \(q\) is true—i.e., \(DOX_X\) entails the set of worlds in which \(q\) is true (\(DOX_X \subseteq q\)). Again, the nodes in (59) are numbered and described in more detail below in (60).

$$\text{(59)}$$

\[
\begin{align*}
\text{SAP} & \quad \lambda x \cdot \text{addressee asserted } \neg\neg \text{she-jogs and } x \text{ commits to } \neg\text{she-jogs}, \text{ and} \\
& \quad \text{PAST}(DOX_{SP} \subseteq DOX_{ADD} \subseteq \neg \text{she-jogs}). \neg \text{she-jogs} \\
\text{speaker} & & \lambda y \lambda x : y \text{ asserted } \neg\neg \text{she-jogs and } x \text{ commits to } \neg\text{she-jogs}, \text{ and} \\
& & \text{PAST}(DOX_X \subseteq DOX_Y \subseteq \neg \text{she-jogs}). \neg \text{she-jogs} \\
\text{addressee} & & \lambda p \lambda y \lambda x : y \text{ asserted } \neg p \text{ and } x \text{ commits to } p, \text{ and} \\
& & \text{PAST}(DOX_X \subseteq DOX_Y \subseteq p). p \\
\text{SA_{mirative}} & & \neg \text{she-jogs} \\
& & \neg \text{she-jogs} \\
\text{PolP} & & \neg \text{she-jogs}
\end{align*}
\]
The AI proposition: *she doesn’t jog*

The first argument that $\lbrack \text{SA}_{\text{mirative}}\rbrack$ will take is a propositional argument, $p$. $\lbrack \text{SA}_{\text{mirative}}\rbrack$ also has two arguments for individuals ($\lambda y$ and $\lambda x$), which will be saturated by *addressee* and *speaker*. The first part of the NAI content ($y$ asserted $\neg p$ and $x$ commits to $p$) takes the form of $\lbrack \text{SA}_{\text{reject}}\rbrack$. The term *asserted* also means *believes*, belief is a condition for assertion. Likewise, *commits to* also means *believes*. The second part of the NAI content ($\text{PAST}(\text{DOX}_x \subseteq \text{DOX}_y \subseteq p)$) can be paraphrased as “$x$ believed (in the past, prior to the time of utterance) that $y$ believed $p$.” In other words, according to $x$’s doxastic state ($\text{DOX}_x$) at some time before the current time, the only possible worlds were ones in which $y$ believes that $p$ is true. The mirativity models that $y$’s recent assertion of their beliefs in the current world/time has revealed that none of the worlds that were compatible with $x$’s past beliefs are compatible with the current, real world.

In $\text{SA}'$, the AI proposition in PolP saturates the propositional argument $p$ in $\lbrack \text{SA}_{\text{mirative}}\rbrack$. The negative proposition in PolP results in a double negative, which is interpreted as affirmative.

Next, $\lambda y$ is saturated by the *addressee* from the lower specifier of SAP.

Last, $\lambda x$ is saturated by the *speaker* from the higher specifier of SAP.

A mirative+rejecting response used in response to a negative assertion, as in (56), repeated here as (61), will have the same structure and composition as the mirative+rejecting response shown in (59).

(61)  
A: *She doesn’t jog.*
B: *Yeah-huh!* (meaning: Yes she does)

The only difference between *yeah-huh* and *nuh-uh* is the polarity of the PolP in the response. The polarity of the AI content, the proposition, will be affirmative with the mirative+rejecting response *yeah-huh*, and negative with the mirative+rejecting response *nuh-uh*.

### 3.4 Contributions to the Common Ground

The mirative+rejecting forms, *yeah-huh* and *nuh-uh*, function as polarity-based rejecting responses, as seen below:

(62)  
A: *The film isn’t about surveillance.*
B: *Yeah-huh!*
B’: *Yeah it is!*

(63)  
A: *The film is about surveillance.*
B: *Nuh-uh!*
B’: *No, it isn’t!*

However, the mirativity in *yeah-huh* and *nuh-uh* has a different effect on the discourse. A primary function of *yeah-huh/nuh-uh* is to reject the addressee’s assertion, as in (63) and (62); however, the additional mirativity adds a presupposition about the context, which is that the speaker did not expect the addressee to believe the proposition they asserted. Importantly, the addressee asserted the unexpected proposition, which contradicted the speaker’s beliefs of the common ground. Essentially, there is a presupposition about the context, which the context does not satisfy, so, with *yeah-huh/nuh-uh*, the assertion cannot enter the common ground because it conflicts with it. The simple rejecting responses show that the speaker rejects the previous assertion, but the mirative+rejecting responses convey a contradiction in the common ground.

### 4. Further issues

#### 4.1 Yes/no particles

As mentioned in §3.2, I assume that the phonological form of polar response particles is the spell-out of a valued polarity feature located in the head of SAP or PolP. Morphologically, *yes/no* are $\lbrack \text{uPOL}\{\text{AFF,NEG}\} \rbrack$ (when in SAP), or $\lbrack \text{iPOL}\{\text{AFF,NEG}\} \rbrack$ (when in PolP). The polarity features in SAP and PolP are in an Agree relation, so they share their polarity value, but they are different morphemes. This predicts that the realization of the polarity feature may take on a different form, depending on where it spells out. It also predicts that the particles can sometimes appear in modified forms, if they are realized with other features in a head. Analyzing polar response particles as realizations of a polarity feature in a phrasal head seems to support the *yeah-huh/nuh-uh* data. Specifically, the polarity of the particle
matches the polarity of the response, which is expected if there are multiple instances of the feature that all share a value, with only one being interpretable. Furthermore, the polarity feature in *yeah-huh/nuh-uh* is realized as a distinct form (*jæ-/ and *nuh-, respectively) as compared *yes/no*, and the particles additionally have the attached -*(h)uh* morpheme. Assuming that -*(h)uh* is associated with mirativity in SAP, we would not expect the polarity particle, *yeah-huh-*, to have any sensitivity to it phonologically if it the polarity particle is spelled out elsewhere in the structure, e.g. in another phrase and adjoined.

If the polarity morpheme is the realization of the feature in the head of SAP, we would expect that it can have a different realization than the morpheme spelled out from PolP, as they can occur in contexts with different features. In my analysis, I do not discuss or propose any possibilities for a morphosyntactic/featural representation of illocutionary force or speech acts in *SA*$_{assert}$, *SA*$_{accept}$, *SA*$_{reject}$, or *SA*$_{mirative}$: I only give the semantic denotations that express illocutionary force and NAI content. However, there could be some morphosyntactic explanation for the specific phonological realization of the polarity particle in mirative+rejecting responses. For example, the different pronunciation of the polarity particle in the -*(h)uh* forms could be due to the polarity feature being spelled out in the SA head next to feature(s) related to illocutionary force. Though I do not have a specific proposal that argues for morphosyntactic features in SAP related to illocutionary force, if I were to follow this line of research in the future, I would be assuming that polar response particles are the realizations of polarity features in the head of SAP or PolP.

Another possible analysis of response particles is that they are adverbials located in specifier position. One such analysis is by Kramer & Rawlins, who argue that *yes/no* are adverbs that adjoin to the higher polarity phrase (2010: 15). The reasons given are the following: polarity particles are optional; they do not bear inflection, have arguments, or modifiers; they are morphosyntactically independent from other heads (except for *n’t*); and they can be re-ordered with respect to other adverbs (e.g. *Yes, frankly,... vs. Frankly, yes,...*) (Kramer & Rawlins 2010: 16). Their arguments against analyzing *yes/no* as heads raise legitimate points, but the data on *yeah-huh/nuh-uh* might complicate things. For example, the response particles are modified: the -*(h)uh* form is attached to the polarity particle and expresses mirativity. Furthermore, assuming there is an additional SAP layer, the different orders with respect to adverbs could be the possibility for the adverb to be in either the specifier of SAP (above the *yes/no* particle) or the specifier of a lower phrase, particularly for speech act modifying adverbs like *frankly* (which expresses that the speaker is being frank/blunt with their speech). In any case, if I were to analyze polar response particles as adverbials in specifier positions, I would have to explain why they do not get embedded when they occur with -*(h)uh*. Assuming that -*(h)uh* occurs in SAP, I would need to provide a reason why the polarity particle would move into SAP, as well as some explanation for the -*(h)uh* attaching to the polarity particle.

There are other positions that could be posited for the location of polar response particles. For example, they could be the spell out of a polarity feature in the specifier of FocP (Holmberg 2015), or they could be in C (Laka 1990), or they could be in the specifier of CP (van Craenenbroeck 2004). Different analyses will make different predictions, and I would need to take a closer look at cross-linguistic data and test more predictions.

### 4.2 Truth-based responses

In this section I will discuss truth-based responses. In a truth-based response system, the polarity of the particle reflects whether or not the polarity of the trigger matches that of the response. Essentially, in a truth-based system, the response particle is affirmative in agreeing/accepting responses and negative in disagreeing/rejecting responses, no matter what the polarity of the proposition is. English allows both polarity-based and truth-based responses, as seen in (7) and (8), repeated here as (64) and (65):

(64) **Truth-based:**

<table>
<thead>
<tr>
<th>A</th>
<th>B: <em>Yes (she doesn’t drink coffee).</em></th>
<th>B’: <em>No (she does drink coffee).</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>She doesn’t drink coffee.</em></td>
<td>[agreeing/accepting]</td>
<td>[disagreeing/rejecting]</td>
</tr>
</tbody>
</table>

(65) **Polarity-based:**

<table>
<thead>
<tr>
<th>A</th>
<th>B: <em>No (she doesn’t drink coffee).</em></th>
<th>B’: <em>Yes (she does drink coffee).</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>She doesn’t drink coffee.</em></td>
<td>[agreeing/accepting]</td>
<td>[disagreeing/rejecting]</td>
</tr>
</tbody>
</table>

The analysis proposed in §3.3 for accepting and rejecting responses was developed to account for polarity-based responses, because the mirative+rejecting responses, *yeah-huh/nuh-uh*, follow a polarity-based response system. The response particle received a polarity value from the polarity feature in the propositional layer via Agreement, so the
particle matched the proposition whether the response was accepting or rejecting. This analysis is not problematic for truth-based responses to affirmative propositions: an accepting response would have an affirmative particle by virtue of showing agreement, and it would also have an affirmative proposition, as the proposition in an accepting response would be the same polarity as the proposition in the trigger; likewise, a rejecting response would have a negative particle because it shows rejecting, and it would also have a negative proposition in the response, since it is disagreeing with an affirmative proposition. However, there is a sense that the polarity particle in truth-based responses would not be getting its polarity value from the proposition alone, since the particle actually conveys information about both the trigger and response. Furthermore, truth-based responses to negative propositions will need a different analysis than the one in §3.3, because the response particle does not match the proposition in polarity, seen in (64).

Although I have not worked out an exact proposal for truth-based responses, one hypothesis that the polar response particle is the spell-out of a separate polarity feature, which originates in SAP interpretable and valued. By “separate”, I mean that the polarity feature in SAP is not another instance of the same polarity feature that occurs in PolP, as was argued for polarity-based responses. Rather, it is a separate polarity feature entirely and does not Agree with the lower polarity feature. The semantic denotation in accepting/rejecting responses would be the same as was proposed for polarity-based responses, repeated below in (66):

\[
\begin{align*}
\text{a. } & [\text{SA}_\text{accept}]: \lambda p \lambda x y: y \text{ asserted } p \text{ and } x \text{ commits to } p, p \\
\text{b. } & [\text{SA}_\text{reject}]: \lambda p \lambda x y: y \text{ asserted } \sim p \text{ and } x \text{ commits to } p, p
\end{align*}
\]

Unlike polarity-based responses, in truth-based responses, the value of the polarity feature in SAP would reflect whether or not there is negation in the denotation of the SA head, or, in other words, whether or not the polarity is the same between the previously asserted proposition and the proposition in the response. This results in an affirmative value for accepting responses and a negative value for rejecting responses. The polarity feature would not receive its value from the semantic denotation, as the syntax is composed before the structure is sent to LF, but the feature must somehow be sensitive to the polarity of both the addressee’s asserted proposition (or polar question) as well as the speaker’s response. Another consideration is that the response particles in truth-based responses are not realizations of a polarity feature at all. Instead, there could be another type of feature that marks agreement or disagreement. Essentially, polarity particles could be realizing two different types of polarity, as is proposed by Farkas & Bruce (2010) and Roelofsen & Farkas (2015) who make a distinction between absolute polarity features ([+]//–]) and relative polarity features ([AGREE]/[REVERSE]). The polarity features proposed by Farkas & Bruce and Roelofsen & Farkas are not presented as morphosyntactic features, but one could develop a morphosyntactic analysis that proposes features with such a distinction, where the absolute polarity features form an Agree relation with polarity features in the propositional layer, and relative polarity features are also sensitive to propositions already in the discourse context, e.g. propositions on the Table. An analysis that assumes distinct agreement/disagreement features for truth-based responses would mean that, for English responses, both the (dis)agree features and polarity features are phonologically realized as the same form, despite being different features.

4.3 Unstressed -\{h\}uh forms

In this paper I have proposed an analysis that accounts for the mirative+rejecting responses, yeah-\textit{uh}/nuh-uh (with stress on -\textit{uh}), but I have not discussed the similar unstressed -\textit{h}uh forms. The unstressed forms are used to show agreement and answer questions as affirmative/negative; \textit{uh-uh} has also been discussed as a discourse marker like \textit{yeah} (Hockey 1992). The unstressed forms seem to function much like simple \textit{yes}/\textit{no} particles, in that they can answer polar questions and show agreement; however, like the stressed yeah-\textit{uh}/nuh-uh, they do not get embedded (again according to consultants’ judgements and COCA searches).

One might argue that what I describe as mirativity could be solely due to the particular stress/intonation that occurs with yeah-\textit{uh}/nuh-\textit{uh}. Goodhue et al. (2013) found that English speakers use a so-called “contrastive contour” in disagreeing responses to negative questions, which is more frequent in the polarity-based responses (marked with \textit{yes}) than the truth-based responses (marked with \textit{no}). However, I maintain that the mirative+rejecting responses, yeah-\textit{uh}/nuh-uh, should not be analyzed as the same lexical item as the unstressed \textit{uh-uh}/\textit{uh-uh} particles. The stress (or lack thereof) on -\textit{uh} is not the only difference between the mirative+rejecting responses and their unstressed -\textit{h}uh counterparts. In particular, the unstressed particles can be used to answer questions whereas the mirative+rejecting responses can only be used in responses to assertions, and the mirative+rejecting responses presuppose a particular discourse context such that they are infelicitous in contexts that do not satisfy the presupposition. The differences between the mirative+rejecting yeah-\textit{uh}/nuh-uh responses and the particles bearing an unstressed -\textit{h}uh are too significant to attribute to a contrastive contour that marks disagreement. Although the unstressed -\textit{h}uh forms suggest
that the mirativity in yeah-huh/nuh-uh may not be associated with -(h)uh only, I make this association for now because I analyze the mirative+rejecting particles as separate lexical items from the unstressed forms.

5. Conclusion

This paper proposes an analysis of polarity-based responses to assertions in English, including responses that accept a proposition into the common ground, responses that reject a proposition, and responses that reject a proposition while simultaneously expressing mirativity. The mirative+rejecting responses, yeah-huh and nuh-uh, are found in some varieties/registers of American English—often associated with children’s speech, but not restricted to it. They bear stress on the -(h)uh syllable. I analyze the particles as simple polarity-based rejecting responses that have been modified with a speech-act modifier that expresses mirativity. Essentially, the mirative+rejecting responses are sensitive to syntax as well as discourse context. Furthermore, the realization of the syntactic polarity is sensitive to the semantic information conveyed, which suggests that there is some high syntactic structure that houses information about the discourse context—namely a Speech Act Phrase (as in Speas & Tenny 2003). The proposal involves: a prejacent clause, which is anaphoric to an antecedent introduced by a prior assertion; an account of ellipsis, which relies on Agree while simultaneously expressing mirativity. The mirative+rejecting responses to assertions in English, including responses that accept a proposition into the common ground, responses that reject a proposition, and responses that reject a proposition while simultaneously expressing mirativity. The mirative+rejecting responses, yeah-huh and nuh-uh, are found in some varieties/registers of American English—often associated with children’s speech, but not restricted to it. They bear stress on the -(h)uh syllable. I analyze the particles as simple polarity-based rejecting responses that have been modified with a speech-act modifier that expresses mirativity. Essentially, the mirative+rejecting responses are sensitive to syntax as well as discourse context. Furthermore, the realization of the syntactic polarity is sensitive to the semantic information conveyed, which suggests that there is some high syntactic structure that houses information about the discourse context—namely a Speech Act Phrase (as in Speas & Tenny 2003). The proposal involves: a prejacent clause, which is anaphoric to an antecedent introduced by a prior assertion; an account of ellipsis, which relies on Agree relations between polarity features; the SAP, which expresses illocutionary force; and a speech act modifier.

References


