1 Introduction

This project analyzes the semantic and syntactic distribution of an understudied class of English bare adverbial responses, items like *maybe*, *probably*, and *of course*, that can be used as complete answers to polar questions and to assertions:

(1) A: Did Joan swim on Saturday?
   B: Of course/maybe/perhaps/probably/definitely/certainly (she did swim).

We call these adverbs *Bare Adverbial Responses*, or BARs.¹

BARs can appear on their own, as in (1), or can appear followed by *not*, as in (2).

(2) A: Did Joan swim on Saturday?
   B: Of course/definitely/certainly/maybe/possibly (she did) not.

Previous researchers (Kramer & Rawlins 2009, 2010, Holmberg 2013) have observed that the interpretation of BARs in responses to polar questions seems to depend on both the polarity of the polar question and the polarity of the BAR response.

In response to a positive polar question, as in (3), a BAR response without *not* expresses a positive proposition:

²Thanks to Pranav Anand, Donka Farkas, Lisa Hofmann, Kelsey Kraus, Dan Lassiter, Jim McCloskey, Deniz Rudin, Ivy Sichel, Maziar Toosarvandani, and audiences at SuB 23 and CAMP 10 for helpful comments and suggestions on various stages of this work. Are all mistakes our own? Certainly.

¹Informally speaking, BARs generally seem to indicate a speaker’s estimate of the likelihood of a particular proposition. See Kroll & Roberts (To appear) for a formal analysis of the semantics and pragmatics of *of course.*
(3) **Positive Polar Question, Positive BAR Answer**
A: Does John bathe on Saturdays?
B. Of course/Definitely. ˜ John bathes on Saturdays

Again in response to a positive polar question, a BAR response with not expresses a negative proposition:

(4) **Positive Polar Question, Negative BAR Answer**
A: Does John bathe on Saturdays?
B. Of course not/Definitely not. ˜ John doesn’t bathe on Saturdays

In response to negative polar questions, the interpretation paradigm becomes more complicated.

In English, there are two types of negative polar questions: negation may appear as a clitic attached to an auxiliary (high negation) as in (5a), or negation may appear below T (low negation) as in (5b):

(5)  
   a. Doesn’t John bathe on Saturdays?
   b. Does John not bathe on Saturdays?

In response to high-negation polar questions, BAR responses receive the same interpretations as in responses to positive polar questions (Ladd 1981, Kramer & Rawlins 2009, 2010, Holmberg 2013).

(6) **High-Negation Polar Question, Positive BAR Answer**
A: Doesn’t John bathe on Saturdays?
B. Of course/Definitely. ˜ John bathes on Saturdays

(7) **High-Negation Polar Question, Negative BAR Answer**
A: Doesn’t John bathe on Saturdays?
B. Of course not/Definitely not. ˜ John doesn’t bathe on Saturdays

But in responses to low-negation polar questions, BAR responses with and without not have been claimed to both express a negative response (Kramer & Rawlins 2009, 2010):

(8) **Low-Negation Polar Question**
A: Does John not bathe on Saturdays?
B: Definitely (not)/Of course (not) ˜ John doesn’t bathe on Saturdays

Kramer & Rawlins call this effect *negative neutralization*. They note that the behavior is also observed in English polarity particles *yes* and *no*, which like BARs can function as responses to polar questions and receive a propositional interpretation (Ladd 1981, Krifka 2013, Holmberg 2013, Roelofsen & Farkas 2015).
We show that, in fact, no neutralization of negation takes place. Instead, the apparent exceptional behavior of BARs in response to low-negation polar questions stems only from a failure to control for the scope of negation in these questions.

**Main Contributions:**

- Controlling for the scope of negation in low-negation polar questions leads to crisp interpretation judgments that obviate analyses of negative neutralization.
- Existing accounts of clausal ellipsis, such as e-GIVENness (Merchant 2001, 2004), and of negative concord manifested as (un)interpretable negation features (Zeijlstra 2004, 2008) straightforwardly predict the syntactic and semantic facts.
- This approach provides greater empirical and explanatory power than alternative approaches, in which BARs either mark polarity features (Roelofsen & Farkas 2015) or function as propositional anaphors (Krifka 2013).

### 2 Ellipsis Negative Neutralization

This section discusses an existing approach to analyzing BARs, which we call the **Ellipsis Negative Neutralization** approach (Kramer & Rawlins 2009).

The account assumes the BAR interpretation pattern given in Table 1:

<table>
<thead>
<tr>
<th>Polar Question Type</th>
<th>Definitely</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>High-Negation</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Low-Negation</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Table 1:** BAR Interpretations under Negative Neutralization

The Negative Neutralization account proposes a way to unite polarity response particles and BARs as remnants of fragment ellipsis (Merchant 2004). The account consists of the following core proposals:

1. BARs and polarity particles adjoin as adjuncts to $\Sigma$.

2. Polarity particles, $\Sigma$, and clausal negation participate in a negative concord relationship involving multiple Neg features, exactly one of which must be interpretable.

3. BARs and polarity particles are derived by TP ellipsis, licensed by an E feature. Deletion of a TP occurs under identity with an antecedent, as proposed under e-GIVENness (Merchant 2001, 2004).

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We do not attempt here to adjudicate between the presence of a $\Sigma$ head and a Pol head. We assume only that there is a high and low polarity head, as well as unrestricted clausal negation (Klima 1964, Laka 1990, Ladusaw 1992).
(9) **Low-Negation Question, Negative Polarity Particle Answer**
A: Does Joan not bathe on Saturdays?
B: No $\rightsquigarrow$ Joan doesn’t bathe on Saturdays

(10) Two main things to notice in (10):

First, the polarity particle *no*, the $\Sigma$ head, and the low clausal negation Neg head participate in a negative concord relationship. Recall the account requires that exactly one feature in the chain must be interpretable: in this case, it is the feature on clausal negation.

Second, the TP is deleted under identity with its antecedent, the question radical *Joan not bathe on Saturdays*.

This analysis of polarity particles extends naturally to positive responses with BARs, as shown in (11) and (12).

(11) **Low-Negation Question, Positive BAR Answer**
A: Does Joan not bathe on Saturdays?
B: Definitely/Of course $\rightsquigarrow$ Joan doesn’t bathe on Saturdays
However, Kramer & Rawlins point out that, while polarity particles do not license overt $\Sigma$, BARs do license it.

(13) **Low-Negation Question, Negative BAR Answer**
A: Does Joan not bathe on Saturdays?
B: Definitely not/Of course not $\rightarrow$ Joan doesn’t bathe on Saturdays

In (14), two interpretable negation features are required, counter to the claim that exactly one in the concord chain must be realized.

Kramer & Rawlins suggest that while polarity particles agree with a high $\Sigma$ head, maybe BARs do not, and instead spell out their features independently.

In the next section, we show that once the possible interpretations of negation are con-
trolled, the negative neutralization judgments no longer hold. We then propose an analysis of the data that builds off the successes of the Negative Neutralization proposal, but requires no stipulations regarding the (un)interpretable features of the negative concord chain.

3 Analysis

3.1 Revisiting Negative Neutralization

The negative neutralization effect is in fact a consequence of failing to control for the scope of negation in low-negation polar questions (following Holmberg (2013)).

(15) **Negative Neutralization:**
A: Does John not bathe on Saturdays?
B: Definitely/Of course $\rightsquigarrow$ John doesn’t bathe on Saturdays
B’: Definitely not/Of course not $\rightsquigarrow$ John doesn’t bathe on Saturdays

As Holmberg observes, the scope of negation can be controlled by inserting a low adverb like *always*.

(16) **No Negative Neutralization:**
A: Does John always not bathe on Saturdays?
B: Definitely/Of course $\rightsquigarrow$ John always doesn’t bathe on Saturdays
B’: Definitely not/Of course not $\rightsquigarrow$ John sometimes bathes on Saturdays

Controlling for the scope of negation yields the following empirical facts:

<table>
<thead>
<tr>
<th>Polar Question Type</th>
<th>Definitely</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>High-Negation</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Low-Negation</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 2: BAR Interpretations Controlling for Negation Scope

3.2 Raising the BAR

Building off the successes of the Negative Neutralization account, we propose the following:

1. BARs adjoin as adjuncts to a high polarity head Pol, which hosts *not* (Laka 1990, Ladusaw 1992, Zanuttini 1997, Vicente 2006, McCloskey 2017).\(^3\)

\(^3\)We remain agnostic here on where exactly different adverbials are base generated. We assume they
2. A high and a low polarity head participate in a negative concord relationship involving Neg features, following Zeijlstra (2008).


(17) **e-GIVENness**: A TP can be elided iff, modulo existential closure (Schwarzschild 1999), the TP both semantically entails and is semantically entailed by a salient antecedent (Merchant 2001).4

(18) **High-Negation Question, Positive BAR Answer**
A: Doesn’t Joan always bathe on Saturdays?
B: Definitely/Of course ~ Joan always bathes on Saturdays

(19) The TP is felicitously elided under identity with the question radical *Joan always bathes on Saturdays* (Ladd 1981, Holmberg 2013).

(20) **Low-Negation Question, Positive BAR Answer**
A: Does Joan always not bathe on Saturdays?
B: Definitely/Of course ~ Joan always doesn’t bathe on Saturdays

4Existential closure is a type-shifting operation that raises expressions to type t by existentially binding unfilled arguments.

<table>
<thead>
<tr>
<th>PolP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adv</td>
</tr>
<tr>
<td>Of course</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PolP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP</td>
</tr>
<tr>
<td>Joan</td>
</tr>
<tr>
<td>PolP</td>
</tr>
<tr>
<td>Pol</td>
</tr>
<tr>
<td>vP</td>
</tr>
<tr>
<td>always</td>
</tr>
<tr>
<td>VP</td>
</tr>
<tr>
<td>bathes on Saturdays</td>
</tr>
</tbody>
</table>
(21) PolP
   \begin{align*}
   \text{Adv} & \quad \text{PolP} \\
   \text{Of course} & \quad \text{Pol} \\
   & \quad \text{TP} \\
   & \quad \text{Joan} \quad \text{PolP} \\
   & \quad \text{Pol} \quad \text{vP} \\
   & \quad \text{always} \quad \text{NegP} \\
   & \quad \text{Neg} \quad \text{VP} \\
   & \quad \text{not} \quad \text{bathes on Saturdays}
   \end{align*}

The TP in (21) is felicitously elided under semantic identity with the question radical \textit{Joan always not bathes on Saturdays}.

(22) \textbf{High-Negation Question, Negative BAR Answer}
    A: Doesn’t Joan always bathe on Saturdays?
    B: Definitely not/Of course not \simarrow Joan doesn’t always bathe on Saturdays

(23) PolP
   \begin{align*}
   \text{Adv} & \quad \text{PolP} \\
   \text{Of course} & \quad \text{Pol} \\
   & \quad \text{TP} \\
   & \quad \text{Joan} \quad \text{PolP} \\
   & \quad \text{Pol} \quad \text{vP} \\
   & \quad \text{not} \quad \text{always} \quad \text{VP} \\
   & \quad \text{not} \quad \text{bathes on Saturdays}
   \end{align*}
Failure to satisfy e-GIVENness: In (23), the TP expressing the proposition *Joan doesn’t always bathe on Saturdays* cannot be elided under identity with the antecedent question radical *Joan always bathes on Saturdays*. Because the propositions contain opposite polarity, they fail to satisfy the bidirectional semantic entailment requirements of e-GIVENness (Kroll 2018).

Why *not*? The low Pol head enters into an Agree relationship with the high Pol head, allowing the interpretable negation feature to appear outside the ellipsis site; this feature manifests as *not* (Zeijlstra 2004, 2008, Kramer & Rawlins 2009, Hofmann 2018).

Because the interpretable negation appears outside the ellipsis site, it does not participate in the entailment relationship with the question radical antecedent, and the TP is felicitously elided under identity.

(24) **Low-Negation Question, Positive BAR Answer, Revisited**
A: Does Joan always not bathe on Saturdays?
B: Of course ⇝ #Joan doesn’t always not bathe on Saturdays.

The bare response here is infelicitous because the high interpretable negation is absent in the antecedent, violating e-GIVENness. Note, however, that the full response *is* felicitous, as it is not subject to the ellipsis constraint.

(24)’ A: Does Joan always not bathe on Saturdays?
   B: Of course Joan doesn’t always not bathe on Saturdays.
(25) **Low-Negation Question, Negative BAR Answer**
A: Does Joan always not bathe on Saturdays?
B: Definitely not/Of course not ⇒ Joan sometimes bathes on Saturdays

How many negations?
A: Does Joan always not bathe on Saturdays?
B: Of course Joan doesn’t always not bathe on Saturdays. ⇒ Joan sometimes bathes on Saturdays.

**Low constituent negation not:** Deleted under semantic identity with the antecedent *Joan always not bathes on Saturdays.*

**Low Pol negation not:** Cannot be deleted under identity; it enters into an Agree relationship with the high Pol head and is realized as *not* outside of the ellipsis site.

(26)

```
(26)  PolP
     |    PolP
     |    Adv
     |    Of course
     |    Pol
     |    not
     |    [ iNeg ]
         TP
         |    Joan
         |    PolP
         |    not
         |    [ uNeg ]
         |    vP
         |    always
         |    NegP
         |    Neg
         |    not
         |    bathes on Saturdays
```

### 3.3 Interim Conclusion

Benefits of this analysis:

- Requires no stipulations about where interpretable negation features are realized: they are realized on overt negation and on negation that is elided under identity with an antecedent. All negation features originate from the content of the elided TP.
• Requires no additional machinery or assumptions beyond those already independently motivated in the literature.

• Derives acceptability differences between bare adverbial responses and responses expressing a full TP.

4 Alternative Analyses

Because of the similarities between BARs and polar response particles, we might imagine that other existing accounts of PRPs could be extended to BARs.

We consider two such accounts here: the feature-marking analysis of Roelofsen & Farkas (2015) and the propositional-anaphora analysis of Krifka (2013), and conclude they are dispreferred to the proposed elliptical account.

4.1 Feature-Marking

Roelofsen & Farkas (2015, R&F), building on work by Pope (1976) and Farkas & Bruce (2010), propose that polarity particles mark features of their propositional arguments along two dimensions:

• The relative features [AGREE] and [REVERSE] mark a response respectively as agreeing with or reversing the antecedent possibility, both in terms of content and in terms of polarity (R&F: 384).

• The absolute features [+ ] and [- ] mark whether a response is positive or negative (i.e., whether it contains negative polarity).

The propositional argument (prejacent) of a polar response particle may either occur overtly or be elided and recoverable from context. In response to polar questions, this elided argument is the ‘highlighted alternative’: $p$ in the case of positive polar questions, and $\neg p$ for low-negation polar questions.

We can reconceptualize the BAR interpretations controlling for negative scope from Table 2 in terms of relative and absolute polarity features. (Note that a response of definitely not will necessarily be a [-] response.)

<table>
<thead>
<tr>
<th>Polar Question Type</th>
<th>Definitely</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>[AGREE,+]</td>
<td>[REVERSE,-]</td>
</tr>
<tr>
<td>High-Negation</td>
<td>[REVERSE,+]</td>
<td>[AGREE,-]</td>
</tr>
<tr>
<td>Low-Negation</td>
<td>[AGREE,-]</td>
<td>[REVERSE,-]</td>
</tr>
</tbody>
</table>

Table 3: BAR responses with R&F features

If we assume that the prejacent of the BAR in response to high-negation polar questions is positive (because negation is ‘outside’ the relevant constituent) but the ‘highlighted
alternative’ of a high-negation polar question is negative, positive BARs can occur in both [REVERSE,+] and [AGREE,-] contexts:

(27) **High-Negation Question, Positive BAR Answer**  
    A: Doesn’t Joan always bathe on Saturdays?  
    B: Of course [Joan always bathes on Saturdays].  
          [REVERSE, +]

(28) **Low-Negation Question, Positive BAR Answer**  
    A: Does Joan always not bathe on Saturdays?  
    B: Of course [Joan not bathes on Saturdays].  
          [AGREE, -]

Because of this contrast, a positive BAR would need to realize a vacuous (total) set of features, which cannot explain its distribution.

We might instead assume that positive BARs in response to high-negation polar questions are in fact agreeing responses, if we assume that the highlighted alternative of a high-negation polar questions is positive.

Then, we would find ourselves with the generalization of positive BARs realizing [AGREE] and negative BARs realizing [REVERSE,-].

While this would capture the relevant interpretive facts, an independent syntactic analysis is necessary to explain why “not” may occur with BARs, which a feature-based account can itself not offer. By contrast, our analysis offers an explanation for both the range of interpretations and the surface form of BAR utterances.

### 4.2 Anaphora

An alternative approach to polarity particles that could plausibly be extended to BARs is one in which they function as propositional anaphors – that is, they require a salient propositional antecedent in the discourse as opposed to taking a prejacent clause as an argument.

In Krifka’s (2013) account, PRPs are phrases which pick up salient propositional discourse referents. In the cases of English PRPs, they are speech act phrases (ActP): *yes* asserts a salient proposition *p* and *no* asserts $\neg p$.

To account for the fact that PRPs can occur with an overt clause (*yes, he did*), Krifka’s approach is the overt clause and the PRP as two parallel speech acts.

This does not work for BARs, as they can occur in non-edge positions in an utterance:

(29)  
    A: Is Susan coming?  
    B: She definitely is.
We are then forced into positing systematic polysemy among BARs: they have separate lives as adverbs and as response particles.

However, even with this stipulation, the account would come up short. If we assume that in a negative sentence both \( p \) and \( \neg p \) are available as antecedents, BARs would potentially be ambiguous in response to negative questions, which as we saw in §3, is not the case.

Furthermore, if BARs and polar response particles alike are proposition denoting, it is mysterious why a BAR can appear with \textit{not} but a PRP cannot:

\begin{align*}
(30) & \quad \text{A: Is Susan coming?} \\
& \quad \text{B: Of course not}/*\text{yes not}/*\text{no not}. \\
\end{align*}

An anaphoric account of BARs is both less parsimonious and less empirically adequate than our proposal.

5 Conclusion

\begin{itemize}
\item Once the scope of negation in English negative polar questions is controlled for, negative neutralization judgments no longer hold.
\item An ellipsis account that uses an identity condition such as e-GIVENness and a negative concord agreement such as that in Zeijlstra (2008) derives the interpretations of BAR responses to polar questions, including when negation appears and why there are differences between bare responses and responses expressing a full TP.
\item An ellipsis account has greater explanatory coverage for this phenomenon than alternative accounts such as feature systems or anaphoric systems.
\end{itemize}

Future directions for this project include how well (if at all) the analysis can be extended to English polarity particles, and to BARs in languages other than English.

References


Kroll, Margaret & Tom Roberts. To appear. Stating the obvious: Of course as a focus-sensitive marker of uncontrovertiality. In Proceedings of Sinn und Bedeutung (SuB) 23, .


