Adverbial responses to quantified utterances[1]

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Abstract. This paper establishes a new empirical generalization concerning the interpretation of (Bare) Adverbial Responses (BARs) in English and supplements previous ellipsis-based accounts of BARs (Kramer and Rawlins, 2011) with an analysis taken from an account of polar responses presented in Pasquereau (in press).

Keywords: adverbial responses, negative questions, negation-movement.

1. Introduction

A question as in (1A) can be answered by a full clause (1B1/2) or by just the bare adverb *of course* (2B1/2) .

(1) A: Does John show up for work?
B1: Of course, he shows up for work!
B2: Of course, he doesn't show up for work!

(2) A: Does John show up for work?
B1: Of course!
B2: Of course not!

As reported in previous work on Bare Adverbial Responses (BARs; Kramer and Rawlins 2010, 2011, 2012; Kroll and Roberts 2019), when the question is positive (2), the bare adverb *of course* asserts the (positive) question nucleus – it *agrees* with it in Roelofsen and Farkas (2014)'s terminology – and the bare adverb followed by *not* asserts the negative answer – it *reverses* it. When the question is negative however, both responses have the same meaning: John did not try the food at all, of course. This was dubbed 'negative neutralization' and analyzed in Kramer and Rawlins (2010, 2011, 2012) (reviewed later).

(3) A: Does John not show up for work?
B1: Of course! (= John does not show up for work)
B2: Of course not! (= John does not show up for work)

The puzzle this paper is about is illustrated by (4) from Holmberg (2013: ex. 49) . If the adverb *sometimes* is inserted to the left of negation, negative neutralization disappears: *of course* means that indeed sometimes John does not show up for work, whereas *of course not* conveys that John always shows up for work. In the previous literature, this contrast between the interpretation of *of course not* in response to (3A) and (4A) is analyzed as resulting from a difference in the types of negation involved in the respective questions. However, I explore an account in which negation is the same in (3A) and (4A), but the difference is that it is in the scope of a scope-bearing operator in (4A) which triggers the *reverse* interpretation of *of course not*.

(4) A: Does John sometimes not show up for work?
B1: Of course! (= John sometimes does not show up for work)
B2: Of course not! (= John always shows up for work)

[1]I would like to thank Rajesh Bhatt for helpful comments on previous versions of this work. Thank are also due to Matthew Baerman, Oliver Bond, Michael Franjieh, Steven Kaye, Greville Corbett, Helen Sims Williams for judgments about English and Marina Chumakina, and Nadezhda Christopher for judgments about Russian.

Following previous analyses of bare adverbial responses, I propose that BARs are sensitive to the polarity of their antecedent. However, I show that, like other responses involving ellipsis (e.g. embedded *non* in French; Pasquereau 2018) BARS are sensitive to the scope of negation with respect to other scope-bearing operators in their antecedent. Thus, to explain the contrast in interpretation between (3B2) and (4B2), I explore the intuition (already formulated in Roelofsen and Farkas, 2014) that a sentence is negative when negation is the highest scope-bearing operator and not negative otherwise, for instance when negation is outscoped by a quantifier. Following this intuition, the interpretation of *of course not* can be characterized by the following generalization: in response to a question, *of course not* conveys *agree* when the question nucleus is negative as in (3); however, when it is not negative as in (2) or (4; because the highest-scope bearing operator in the question nucleus is not negation), *of course not* must convey *reverse*. Crucially, my account does not rely on negation being clausal negation in (3) and not being clausal negation in (4) (*pace* Kramer and Rawlins, 2010, 2011, 2012; Holmberg, 2013; Kroll and Roberts, 2019).

I propose to supplement previous ellipsis-based analyses of BARs with the ideas developed in Pasquereau (in press) for a similar pattern involving embedded Polar Response Particles (a.k.a. *yes/no* particles) in French. In this analysis, BARs involve an elided constituent and the polarity head (in the elided constituent) must move to the head that the adverb is adjoined to. For instance, the idea is that in *of course not*, *not* spells out an interpreted negation, but *not* is sensitive to whether the nucleus of the question it responds to is itself negative or positive. In cases like (3), this leads to there being still only one negation in the response. However in (4), interpreting negation in situ or where *not* appears yields different truth-conditions. In this case only, a covert polarity head can be inserted, moved, and realized as *not*: thus yielding a response with two interpreted negations, yielding the reverse reading.

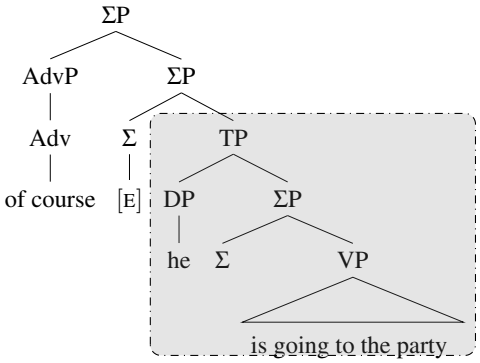
Section 2 reviews how previous approaches have accounted for simple cases of BARs. In particular, I discuss accounts which explicitly assume that examples like (4) involve cases of 'low' or 'constituent' negation and I argue that making the generalization hinge on the syntactic position of negation runs into issues. In particular, section 3 shows that (4) is only one type of examples producing the contrast of interest and that the generalization describing the appearance/disappearance of negative neutralization is in fact much wider. Previous ellipsis accounts of BARs are not incompatible with the new data this paper aims to account for, as long as they are supplemented with a few assumptions independently needed to account for a similar pattern (involving French yes/no particles developed in Pasquereau in press). I show how it accounts for the new English data in section 4 building off of the specific account in Kramer and Rawlins 2011. Section 5 discusses how the analysis fares with high-negation polar questions and reversing responses to negative questions. Section 6 concludes.

2. Background

In order to show how proposed ellipsis-based accounts of BARs fare with respect to the data in (3) and (4), I start with an overview of this approach by taking the particular account developed by Kramer and Rawlins (2011) for the sake of concreteness (though nothing hinges on the particular details of this account). I then discuss extensions of this account according to the hypothesis that negation is clausal negation or not. I argue that there is good reason to account for the contrast in (3) and (4) by appealing to negation being clausal negation.

In this section, I show how Kramer and Rawlins' analysis captures most of the behavior of bare adverbials except the contrast due to the presence of a quantifying element with respect to negation. I also use the specific examples they use to illustrate their proposal. I start with the simplest case: a positive response to a positive question (5). The idea is that the bare adverbial response *of course* stands for an entire sentence and is derived from it via ellipsis, much like e.g. fragment answers to constituent questions. Kramer and Rawlins argue that BARs are adverbs adjoined to a high ΣP. The head Σ can have an [E] feature (Merchant, 2001) which licenses ellipsis of its TP complement (following Laka, 1990). In that sense, they resemble fragment answers. (Note that the adverb *of course* does not interact at all with the ΣP it is adjoined to.)

(5) **Positive Q, *of course* answer**
A: Is Alfonso going to the party? B: Of course (= of course he is going to the party).



When a question is negative (6), whether the response is *of course* or *of course not*, the meaning is the same: the BAR conveys *agree*. This is the negative neutralization phenomenon.

(6) A: Is Alfonso not coming to the party?

a. B1: Of course = (of course he is not coming to the party).

b. B2: Of course not = (of course he is not coming to the party).

If the answer to (6A), also in (7), is *of course*, the [E] feature makes sure that TP is identical to (i.e. E-given) its antecedent – that it contains interpretable negation among other things – and TP can be elided (represented by a frame).

(7) **Negative Q, *of course* answer (agreement)**
A: Is Alfonso not going to the party? B: Of course (= of course he is not going . . .).
B: [$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[E]}$ [$_{TP}$ Alfonso $\Sigma_{[iNEG]}$ is going to the party]]].

If the answer to (6A), also in (8), is *of course not*, as with *of course*, the [E] feature ensures that TP is identical to its antecedent which means that, among other things, TP must contain an interpretable negation. Kramer and Rawlins assume that *not* spells out a Σ head which has a negative feature value and which has entered into a negative concord dependency. Since there can be only one interpretable feature in such a dependency, the feature on high Σ must be uninterpretable. The [uNeg] feature on high Σ establishes a concord chain with [iNeg] on low Σ. Because the TP complement of Σ is E-given, it can be elided. The negative neutralization

facts are derived because the NEG feature that *no* contributes is not interpreted; thus the LF in (7) and (8) have the same interpretation.

(8) **Negative Q, *of course not* answer (agreement)**
A: Is Alfonso not going to the party? B: Of course not (= of course he is not going . . .).
B: [$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[uNEG,\ E]}$ [$_{TP}$ he $\Sigma_{[iNEG]}$ is going to the party]]].

The last configuration is one where the question is positive but the answer is negative (9). Because *not* is used, it must enter in a concord dependency, but the semantic identity condition prevents [iNEG] from appearing in the ellipsis site because the antecedent is positive. Kramer and Rawlins propose that in this configuration, [iNeg] is forced higher in the chain, on high Σ.

(9) **Positive Q, *of course not* answer**
Is Alfonso going to the party? Of course not (= of course he is not going to the party).
B: [$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[iNEG,\ E]}$ [$_{TP}$ he $\Sigma_{[uNEG]}$ is going to the party]]].

2.1. Clausal negation hypothesis

Let us now talk about the contrast in (3) and (4) where a quantifying adverb has scope over negation. In the next section, I discuss a variant of the Kramer and Rawlins type of account where negation is assumed to be constituent negation, but before that, I would like to discuss an extension of Kramer and Rawlins' extent where negation is usual clausal negation.

Accordingly, one direct way the positive BAR to the question in (4) could be modelled in Kramer and Rawlins's account is as in (10) where the adverb *sometimes* is adjoined above clausal negation. Ellipsis is licensed as TP is E-given, the *agree* reading is correctly predicted.

(10) **Negative+Quant Q, *of course* answer**
A: Does John sometimes not show up for work?
B: Of course. (= of course John sometimes does not show up for work)
[$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[E]}$ [$_{TP}$ he [sometimes [$_{\Sigma P}$ $\Sigma_{[iNEG]}$ [$_{VP}$ show up for work]]]]]].
Correctly predicted reading: of course John sometimes does not show up for work

Trouble comes with negative BARs to such questions. In case where the response is *of course not*, *not* spells out a negatively valued Σ participating in negative concord, however since a negative concord chain can only have one interpretable negative feature and since the interpretable negative feature is already on clausal Neg (required for E-givenness), the feature on high Σ must be uninterpretable, exactly parallel to the simple negative question above. As a result only the negation below *sometimes* is interpreted and the predicted reading is the *agree* reading instead of the attested *reverse* reading. Just as with the simple cases, Kramer and Rawlins' account predicts negative neutralization of the two responses *of course* and *of course not*.

(11) **Negative+Quant Q, *of course not* answer**
Does John sometimes not show up for work?
Of course not (= of course John does not sometimes not show up for work)
[$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[uNEG,\ E]}$ [$_{TP}$ he [sometimes [$_{\Sigma P}$ $\Sigma_{[iNEG]}$ [$_{VP}$ show . . . work]]]]]].

Predicted reading: of course John sometimes does not show up for work

The issue is that the formation of a negative concord dependency between Σ and Neg is not sensitive to the presence of the intervening adverb *sometimes*. In what follows, I build on Kramer and Rawlins' account to do precisely that but before I discuss a type of account proposed in the literature where negation below *sometimes* is assumed to be constituent negation.

2.2. Low negation hypothesis

Accounts explicitly discussing examples like (3) and (4) assume that the *not* in the question in (4) (but not in 3) is an occurrence of 'low negation', – 'predicate negation' in Krifka (2013)'s proform account or vP/VP level constituent negation in ellipsis account. According to these analyses, a positive BAR has the syntax in (12). The idea is that both Σ heads, not being valued negatively, do not contribute to the truth-conditions of the sentence, which is then correctly predicted to convey *agree*, i.e. *of course John sometimes doesn't show up for work*.

(12) **Negative+Quant Q, *of course* answer**
A: Does John sometimes not show up for work? B: Of course = (of course John sometimes does not show up for work).
[$_{\Sigma P}$ of course [$_{\Sigma P}$ Σ $\boxed{[_{TP}$ he [$_{\Sigma P}$ Σ [sometimes [$_{VP}$ not show up for work]]]]]].

When the answer is a negative BAR, *not* spells out a negatively valued high Σ which enters in a concord dependency and since low Σ must be uninterpretable (because of E-givenness), high Σ is interpretable. The correctly predicted meaning is *reverse*, i.e. *it is not the case that John sometimes does not show up for work*.

(13) **Negative+Quant Q, *of course not* answer**
A: Does John sometimes not show up for work? B: Of course not = (of course John always shows up for work).
[$_{\Sigma P}$ of course [$_{\Sigma P}$ $\Sigma_{[E,\ iNEG]}$ $\boxed{[_{TP}$ he [$_{\Sigma P}$ $\Sigma_{[uNEG]}$ [sometimes [$_{VP}$ not show up . . .]]]]]].

The structures discussed in the literature illustrating this contrast are all of the shape 'adverb negation', and while I think it is plausible that these structures may (at least sometimes) involve constituent negation, I show in what follows that the contrast exemplified in these structures crucially does not rely on negation always appearing in a particular syntactic position. This is one of the main features of the 'analytical modification' I propose in this paper.

There are three arguments that this contrast does not rely on the lower syntactic position of negation. First, the assumption that the occurrence of the adverb *sometimes* to the left of *not* diagnoses constituent negation runs into problems with examples like (14a) where *not* cannot be a case of constituent negation because it appears in reduced form on inflected *has*. Note for later that if the inflected auxiliary *has* is in T as standardly assumed, then two things follow: (i) it is possible that *does* in (13b) is also in T supporting clausal negation, and (ii) *sometimes* must occur in a projection above T.

(14) a. John, sometimes, hasn't shown up for work.

b. John, sometimes, does not show up for work.

Secondly, the question in (4) in other languages is possible with usual instances of negation (15) and BARs pattern the same in these languages as in English.

(15) a. A: *Est -ce que Jean ne va parfois pas au travail ?* (French)
is it that Jean NEG goes sometimes NEG to work

b. A: *A čto, Ivan inogda ne priezžaet na rabotu?* (Russian)
so what Ivan sometimes NEG goes to work

Thirdly, the contrast attributed to a lower position of negation in English is the result of a much wider generalization involving the semantic scope of negation with respect to scope-bearing operators in any syntactic position (Pasquereau, ress). I turn to this in the next section.

3. Generalization

The contrast of interest in this paper relies on the scope of negation with respect to other scope-bearing elements (Pasquereau, 2017, 2018, ress; Kroll and Roberts, 2019), however unlike most previous work on this topic (Holmberg, 2011; Thoms, 2012; Krifka, 2013, Kroll and Roberts, 2019), I show that this contrast does not stem from negation being in a special lower syntactic position. The contrast does not only appear with adverbs to the left of negation but also with adverbs in other positions. For instance, in (16) where *sometimes* appear at the end of the question or at the beginning of a rising declarative in (17; cf the rising declarative without the adverb in 18), the negative BAR has to convey a *reverse* answer.

(16) Does John not show up for work sometimes?

a. Of course, *he's always there / he does not show up sometimes.

b. Of course not, he's always there / *he does not show up sometimes.

(17) Sometimes John does not show up for work ?

a. Of course! (= Sometimes John does not show up for work)

b. Of course not! (=not(Sometimes John does not show up for work))

(18) John does not show up for work ?

a. Of course! (= John does not show up for work)

b. Of course not! (= John does not show up for work)

And in fact it depends on the type of adverb. If the adverb does not create a truth-conditional ambiguity with negation, negative neutralization still happens.

(19) Does John honestly not show up for work?

a. Of course! (= John does not show up for work)

b. Of course not! (= John does not show up for work)

We have only considered adverbs until now but even sentences containing no adverbs as in (20) produce such contrasts as long as a non-referential quantifiying element is interpreted out of the scope of negation. Thus *of course* means that indeed someone did not try the food, whereas *of course not* conveys that everyone tried the food.

(20) Context: You had counted 12 guests, so you cut exactly 12 slices in the cake. One slice remains.
A: Did someone not try the food at all?
B1: Of course! Mary is fasting!
B2: Of course not! Look! Everyone has chocolate on their face!

But if the quantifying element is interpreted in the scope of negation as in (21), the negative neutralization pattern reappears.

(21) A: Did no one try the food at all?
B1: Of course! You made roast beef for a Vegan convention!
B2: Of course not! You made roast beef for a Vegan convention!

Negative neutralization is lifted as long as negation is not the outer-most scope-bearing operator (Pasquereau in press), thus compare (22) and (23).

(22) A: Did he not give cake to someone?
B1: Of course! Mary is fasting!
B2: Of course not! Look! Everyone has chocolate on their face!

(23) A: Did he not give cake to anyone?
B1: Of course! He's so stingy! He kept it all for himself!
B2: Of course not! He's so stingy! He kept it all for himself!

The generalization is summarized in (24).

(24) Generalization
A negative BAR conveys agree when the highest scope-bearing operator in the question nucleus is negation, otherwise it conveys reverse.

The next section develops an analysis of this generalization.

4. Analytical proposal

The analysis I propose combines the system in Kramer and Rawlins (2010, 2011, 2012) (minus negative concord) with the system in Pasquereau (in press) to model the generalization in (24).

4.1. Background

The purpose of this section is to outline the assumptions I make about the structure of BARs. Having already exposed the trappings of Kramer and Rawlins' ellipsis-based analysis, I focus in this section on extending and presenting the system in Pasquereau (in press).

4.1.1. Two Pol heads

Like previous work (Kramer and Rawlins, 2010, 2011, 2012; Kroll and Roberts, 2019), I assume that BARs involve an adverb adjoined to a Polarity head which bears Merchant (2001)'s E-feature and whose complement can optionally be elided under semantic identity with some constituent in the preceding question. I call this constituent 'the ellipsis antecedent'. I use Merchant (2001)'s E-givenness notion of semantic identity (25).

(25) Definition of E-givenness (Merchant, 2016)
A expression ε is e-GIVEN iff ε has a salient ellipsis antecedent A such that $[\![A]\!]$=F-clo(ε) and $[\![\varepsilon]\!]$=F-clos(A)

(26) Definition of (existential) F-closure of ε (Schwarzschild, 1999)
F-clo(ε)=the result of replacing F-marked phrases in ε with variables and existentially closing the result, modulo existential type shifting.

Notice that the definition licenses PF deletion of the prejacent under semantic identity with *some* ellipsis antecedent, not necessarily always the same constituent. Just like different constituents can introduce different discourse referents, an elided constituent can be interpreted with respect to different parts of a preceding utterance.[2]

The constituent relevant for the interpretation of BARs is not necessarily exactly the same as the ellipsis antecedent. Therefore, I call the constituent (in the question) relevant for calculating the interpretation of the BAR 'the PolP antecedent' (PolP being one of the projections of the Pol head that the adverb in the BAR is adjoined to). In this paper, I consider that the PolP antecedent (i.e. the antecedent relevant for the interpretation of a BAR) is the nucleus of the preceding question, i.e. TP in (28). By contrast, the ellipsis antecedent is sometimes the whole TP, sometimes a smaller constituent, e.g. VP[3].

[2]In particular, given a negated sentence preceding an elided structure, either the full negative ellipsis antecedent can be retrieved as in (27a) or just its prejacent as in (27b). See Krifka (2013); Snider (2017).

(27) a. Soit vous n'avez pas empêché ce crime et vous expliquez pourquoi <vous n'avez pas empêché ce crime>, soit vous n'avez rien à vous reprocher et vous témoigner. 'Either you didn't prevent this crime and you explain why, or you don't have anything to reproach yourself with and you can testify.'
b. Soit vous n'avez pas commis ce crime, soit vous nous expliquez pourquoi <vous avez commis ce crime>. 'Either you didn't commit this crime, or you tell us why.'

[3]I do not commit to there being a vP in the structure. If one assumes the vP analysis of the introduction of external arguments Kratzer (1996), then TP or vP would be the possible ellipsis antecedents.

(28) A: *Est -ce que [$_{TP}$ Marie a aimé ce livre] ?* = Did Marie like this book?
is it that Marie has liked this book
B: *Je crois que non.* = I think that she did not like it.
I think that no

Following Roelofsen and Farkas (2014); Pasquereau (2018), I assume that the polarity head adverbs are adjoined to requires certain conditions to hold between the BAR and the discourse initiative it responds to.[4] The Pol head is the seat of two types of information: it encodes the polarity of its TP complement and it encodes whether its TP complement agrees with the PolP antecedent or reverses it. In Roelofsen and Farkas (2014), this is two features – one absolute feature and one relative feature – base generated in Pol. Here, I depart from their account since I propose that what they formalize as 'absolute features' are in fact Pol heads. In the next section, I explain how Pol comes to reflect the polarity of its complement.

4.1.2. Σ head and movement to Pol

Like Kramer and Rawlins (2011) and others (Sailor, 2012; Roelofsen and Farkas, 2014; Gribanova, 2017), I assume that every sentence has a polarity head Σ with a feature valued positively or negatively. I assume that an interpretable positively-valued Σ head is an identity function whereas an interpretable negatively-valued Σ head takes a proposition and reverses its polarity (29).

(29) a. $[\![\Sigma+]\!]=\lambda p.p$

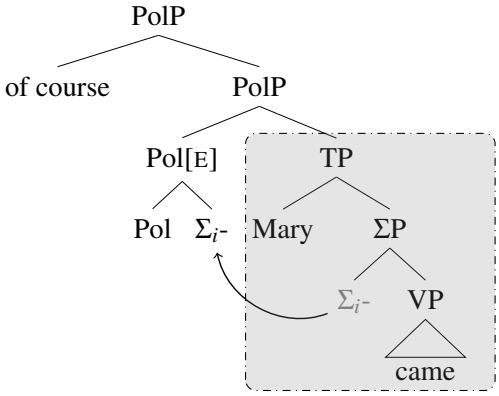
b. $[\![\Sigma-]\!]=\lambda p.\neg p$

I assume that (i) Pol must AGREE with a Σ head which then must undergo head movement to Pol[5](under the copy theory of movement, Chomsky (1992)) and that (ii) the higher copy of Σ is interpreted (30). Note that only one copy of Σ can be interpreted, thus the movement does not seem to leave a trace (reconstruction is not possible).

[4]I call this polarity head Pol since my analysis builds on the idea in Roelofsen and Farkas (2014) that Pol heads host two types of features – relative and absolute – but nothing hinges on the particular name that head is given.

[5]The reader may object that Σ-to-Pol head movement does not respect the Head Movement Constraint since T stands above Σ but below Pol. First, see Harizanov and Gribanova (2019) for arguments that certain types of head movement do not respect the HMC. Second, it could be the case that Σ moves to T at PF and then is ex-corporated and moves to Pol at LF.

(30) Syntax of BARs
A: Did Mary not come?
B: Of course not



Both claims are independently made and argued for in Gribanova (2017) in order to account for the different realizations of polarity focus in Russian. I assume that Pol has the denotation in (31) and combines with Σ via function application.[6] The meaning of Pol is purely presuppositional. I talk about it further in section 4.4.

(31) $[\![\text{Pol}]\!]=\lambda q_{<st,st>}\lambda p_{<st>}$. PRESUPPOSITION(q(p)). q(p)

Thus, what Roelofsen and Farkas (2014) call 'absolute features' are here not features but the copy of a lower Polarity head. I show in section 4.2 that extending these claims to BARs correctly predicts their interpretation. I now turn to explaining what the PRESUPPOSITION part of the denotation of Pol is.

4.1.3. Two types of Pol heads

Following Roelofsen and Farkas (2014) but in the vein of Gribanova (2017), I assume that there are two Pol heads in French: one marked with a feature [reverse], $\text{Pol}_{reverse}$, and another marked with a feature [agree], Pol_{agree}. The relative features encode a presupposition that *at least one* projection of PolP must satisfy (32).

(32) Presuppositions

a. Pol_{agree} presupposes that the context provides a salient constituent TP which denotes the PolP antecedent proposition $[\![\text{TP}]\!]$ such that $[\![\text{PolP}]\!]$ and $[\![\text{TP}]\!]$ contain the same possible worlds

b. $\text{Pol}_{reverse}$ presupposes that the context provides a salient TP which denotes the PolP antecedent proposition $[\![\text{TP}]\!]$ such that $[\![\text{PolP}]\!]$ is the complement of $[\![\text{TP}]\!]$

Remember that there are two notions of antecedent: 'the PolP antecedent' for the meaning of PolP and 'the ellipsis antecedent' for the prejacent of PolP in case of ellipsis. Thus, the example in (30) has the syntax in (33a) and the interpretation in (33b).

[6] A consequence of positing this denotation for Pol is that copy/movement of Σ to Pol and its interpretation in the high position is necessary for the structure to be interpretable.

(33) A: Did Marie not come?
B: Of course not.

a. LF: $[_{PolP_2}$ of course $[_{PolP_1}$ $[_{Pol_{agree}}$ Pol_{agree} Σ_i-] $\boxed{[_{TP}$ Marie $[_{\Sigma P}$ Σ_i- has arrived]}]]]

b. $[\![PolP_1]\!]$=¬(Marie has come), *defined only if* PolP denotes a proposition α and the context provides a salient constituent TP which denotes the PolP antecedent proposition β such that α and β contain precisely the same possible worlds

4.1.4. Realizational rules in French

Based on the generalization in (24), I assume the rules in (34) for English BARs.

(34) Realization potential for English BARs.

a. Pol_{agree} and Σ+ are realized by *so* or silence

b. $Pol_{reverse}$ and Σ- are realized by *not*

c. [$Pol_{reverse}$, Σ+] is realized by silence followed by a non-elided clause

As a consequence of (34), the four possible feature combinations are realized as in (35). The last combination of features (35d) is, to put it briefly, not realized as my account on its own (so far) predicts. Note that previous accounts too have grappled with the peculiarities of this particular configuration. I discuss it further in section 5.

(35) Head combinations and BARs in English

a. [Pol_{agree}, Σ+] may be realized by *so* or silence

b. [$Pol_{reverse}$, Σ-] can only be realized by *not*

c. [Pol_{agree}, Σ-] can be realized by *so* or silence or *not* (negative neutralization)

d. [$Pol_{reverse}$, Σ+] can be realized by silence followed by a non-elided clause (see 5)

4.1.5. Covert Σ insertion as a last resort

Ovalle and Guerzoni (2004); Zeijlstra (2008); Fălăuş and Nicolae (2016) assume that a Covert Negation can be inserted in a high projection only when part of the structure has been elided (36).

(36) **Condition on covert negation** (Fălăuş and Nicolae, 2016)
A covert negative operator can only surface if the vP is not spelled out.

This assumption correctly captures an asymmetry in the interpretation of N-word in full sentences vs in fragments in Romanian. The full sentence in (37) can have the negative concord reading whereas the double negative reading is not possible.

(37) *Nimeni nu a venit.*
nobody not has come
Negative Concord: Nobody came.
*Double Negation: Everybody came.

Interestingly, if the same N-word is used as a fragment answer to a negative wh-question as in (38), the double negation reading becomes available.

(38) A: *Cine nu a venit?*
who not has come
Who didn't come?
B: *Nimeni.*
nobody
Negative Concord: Nobody came.
Double Negation: Everybody came.

Assuming that N-word fragment answers are derived via ellipsis from an underlying structure like (37), Fălăuş and Nicolae (2016) analyze the double negation reading in (38) as arising from the insertion of negation high in the structure. Crucially, the double negation reading is not available in (37) because covert negation can only be inserted when vP is elided.

I follow Fălăuş and Nicolae (2016) in assuming that Covert Σ- insertion is limited to elliptical constructions. In fact, I further extend this assumption to Σ+. It is not the case that covert Σ insertion is freely available. If it were, we would expect unaccented BARs to be able to convey reverse in examples like (39). But it crucially does not: BARs can only convey agree in (39) because covert Σ insertion is not needed to salvage the construction.

(39) A: Has Jean not arrived? B: Of course not.

a: LF1: $[_{PolP}$ of course $[_{PolP}$ $[_{Pol_{agree}}$ Pol_{agree} Σ_i-] $\boxed{[_{TP}$ Jean Σ_i- has arrived]$}$]]
Correctly predicted reading: Of course, Jean has not arrived.

b: *LF2: $[_{PolP}$ of course $[_{PolP}$ $[_{Pol_{rev}}$ Pol_{rev} Σ_i-] $[C\Sigma_i$- $\boxed{[_{TP}$ Jean Σ- has arrived]$}$]]]
Incorrectly predicted reading: Of course, Jean has arrived.

I contend that insertion of covert Σ is a last resort rescuing mechanism limited to elliptical constructions (40).

(40) **Condition on covert Σ**
A covert Σ can only be inserted if:
- the vP is not spelled out
- not inserting it would result in an uninterpretable structure

4.2. Analysis

The moving pieces of the analysis are summarized in (41).

(41) a. Is covert Σ inserted?
Covert Σ can only be inserted as a last resort to rescue an elided structure which would otherwise be uninterpretable.

b. What Σ head moves to Pol?
Either covert Σ or Σ from the prejacent moves to Pol.

c. Which Pol head is used?
Either Pol_{agree} or $\text{Pol}_{reverse}$ can be used provided its presupposition is licensed.

d. Is ellipsis licensed?
Ellipsis of the prejacent is licensed only if it is E-given with respect to some constituent in the preceding discourse initiative.

I start with the simple cases seen in section 2. In response to the positive question in (42), Pol AGREES with Σ+ which head-moves to Pol. The presupposition of Pol_{agree} is met since $[\![\text{PolP}_1]\!]$ is equivalent to its PolP antecedent, i.e. the TP in the question. The Pol head is spelled out as *silence* as per the morphophonological rules in section 4.1.4. The TP in the response can be elided since it is E-given with respect to its ellipsis antecedent, i.e. VP or the TP in the question.

(42) **Positive Q, *of course* answer**
A: Is Alfonso going to the party? B: Of course (= of course he is going to the party).

a. LF of A: $[_{CP}$ Q $[_{TP}$ [Σ+ $[_{VP}$ Alfonso is going to the party]]]]
$[\![\text{PolP antecedent}]\!] = [\![[_{TP} [\Sigma+ [_{VP} \text{A. is going} \ldots]]]]\!] = \text{Alfonso} \ldots \text{to the party}$
$[\![\text{Ellipsis antecedent}]\!] = [\![[_{VP} \text{Alfonso is} \ldots \text{the party}]]\!] = \text{Alfonso is going to the party}$

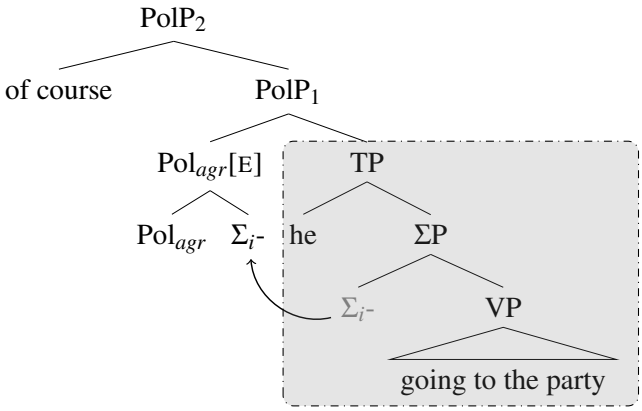
b. LF of B: $[_{PolP_2}$ of course $[_{PolP_1} [_{Pol_{agree}} \text{Pol}_{agree} \Sigma_i+]$ $\boxed{[_{TP} \text{he } \Sigma_i+ \text{ is going to the party }]}$]]
$[\![\text{PolP}_1]\!] = [\![[_{PolP_1} [_{Pol_{agree}} \text{Pol}_{agree} \Sigma_i+] [_{TP} \text{he } \Sigma_i+ \text{ is} \ldots]]]\!] = \text{A.} \ldots \text{to the party}$
$[\![\text{TP}]\!] = [\![[_{TP} \text{he is going to the party}]]\!] = \text{Alfonso is going to the party}$

In response to a simple negative question (i.e. with no other scope-bearing operator), Pol AGREES with Σ- which head-moves to Pol. The presupposition of Pol_{agree} is met since $[\![\text{PolP}_1]\!]$ is equivalent to its PolP antecedent, i.e. the TP in the question. The Pol head is spelled out as *silence* or *not* as per the morphophonological rules in section 4.1.4. The TP in the response can be elided since it is E-given with respect to its ellipsis antecedent, i.e. the VP in the question (remember that only the highest Σ is interpreted).

(43) **Negative Q, *of course (not)* answer (agreement) - NEGATIVE NEUTRALIZATION**
A: Is Alfonso not going to the party? B: Of course (not) (= of course he is not going . . .).

a. LF of A: $[_{CP}$ Q $[_{TP}$ [Σ- $[_{VP}$ Alfonso is going to the party]]]]
$[\![\text{PolP antecedent}]\!] = [\![[_{TP} [\Sigma- [_{VP} \text{Alfonso is} \ldots]]]]\!] = \neg(\text{A. is going to the party})$
$[\![\text{Ellipsis antecedent}]\!] = [\![[_{VP} \text{Alfonso is} \ldots \text{the party}]]\!] = \text{Alfonso is going to the party}$

b. LF of B:



$[\![\text{PolP}_1]\!]$ = $[\![\ [_{PolP_1}\ [_{Pol_{agree}}\ \text{Pol}_{agree}\ \Sigma_i\text{-}\ ]\ [_{TP}\ \text{he}\ \Sigma_i\text{-}\ \text{is going} \ldots]\ ]\ ]\!]$ =¬(A. is … party)
$[\![\text{TP}]\!]$ = $[\![[_{TP}\ \text{he is going to the party}\ ]]\!]$=Alfonso is going to the party

A negative BAR to a positive question may only express *reverse*: Pol AGREES with Σ- which head-moves to Pol. The presupposition of Pol$_{rev}$ is met since $[\![\text{PolP}_1]\!]$ is equivalent to the negation of its PolP antecedent, i.e. the TP in the question. The Pol head is spelled out as *not* as per the morphophonological rules in section 4.1.4. The TP in the response can be elided since it is E-given with respect to its ellipsis antecedent, i.e. the VP or TP in the question.

(44) **Positive Q, *of course not* answer**
A: Is Alfonso going to the party? B: Of course not (= of course he is not going …).

a. LF of A: $[_{CP}\ \text{Q}\ [_{TP}\ [\ \Sigma\text{+}\ [_{VP}\ \text{Alfonso is going to the party}\ ]\ ]\ ]\ ]$
$[\![\text{PolP antecedent}]\!]$ = $[\![\ [_{TP}\ [\ \Sigma\text{+}\ [_{VP}\ \text{Alfonso} \ldots]\ ]\ ]\ ]\!]$ = Alfonso is going to the party
$[\![\text{Ellipsis antecedent}]\!]$ = $[\![[_{VP}\ \text{Alfonso is} \ldots \text{the party}\ ]]\!]$=Alfonso is going to the party

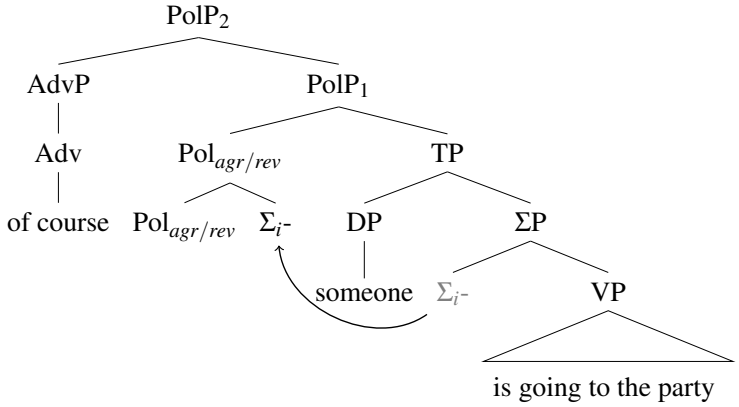
b. LF of B: $[_{PolP_2}\ \text{of course}\ [_{PolP_1}\ [_{Pol_{rev}}\ \text{Pol}_{rev}\ \Sigma_i\text{-}\ ]\ \boxed{[_{TP}\ \text{he}\ \Sigma_i\text{-}\ \text{is going to the party}\ ]}\ ]\ ]$
$[\![\text{PolP}_1]\!]$ = $[\![\ [_{PolP_1}\ [_{Pol_{rev}}\ \text{Pol}_{rev}\ \Sigma_i\text{-}\ ]\ [_{TP}\ \text{he}\ \Sigma_i\text{-}\ \text{is} \ldots]\ ]\ ]\!]$ =¬(A. is going to the party)
$[\![\text{TP}]\!]$ = $[\![[_{TP}\ \text{he is going to the party}\ ]]\!]$=Alfonso is going to the party

If negation is present but it is not the outermost scope-bearing operator – in (45A) negation is in the scope of unspecific *someone*, a PPI – the underlying structure of the negative BAR must be as in (45b) which involves Covert Negation insertion. To see this, let's consider the alternative underlying LF in (45a) which does not involve Covert Negation insertion. In this structure, once Σ has moved to Pol, whether Pol$_{agree}$ or Pol$_{reverse}$, neither presupposition is met since $[\![\text{PolP}]\!]$ is not equivalent to (the negation of) any constituent in the antecedent. In addition ellipsis is not licensed either. To salvage this structure, Covert Negation (or Covert Σ- to be more specific) is inserted (45b) and moves to Pol under AGREE. The presupposition of Pol$_{rev}$ is met since $[\![\text{PolP}]\!]$ is equivalent to the negation of TP in the antecedent. TP ellipsis is licensed as it is E-given with respect to its ellipsis antecedent, i.e. TP in the question. The resulting meaning is correctly predicted to reverse the question nucleus.

(45) **Negative Q, *of course (not)* answer**
A: Is someone not going to the party? B: Of course not = everybody is going.
LF of A: $[_{CP}\ \text{Q}\ [_{TP}\ \text{someone}_i\ [\ \Sigma\text{-}\ [_{VP}\ \text{t}_i\ \text{is going to the party}\ ]\ ]\ ]\ ]$
$[\![\text{PolP antecedent}]\!]$ = $[\![\ [_{TP}\ \text{someone}_i\ [\ \Sigma\text{-}\ [_{VP}\ \text{t}_i\ \text{is going to the party}]\ ]\ ]\ ]\!]$ =∃x.¬(x is going to the party)

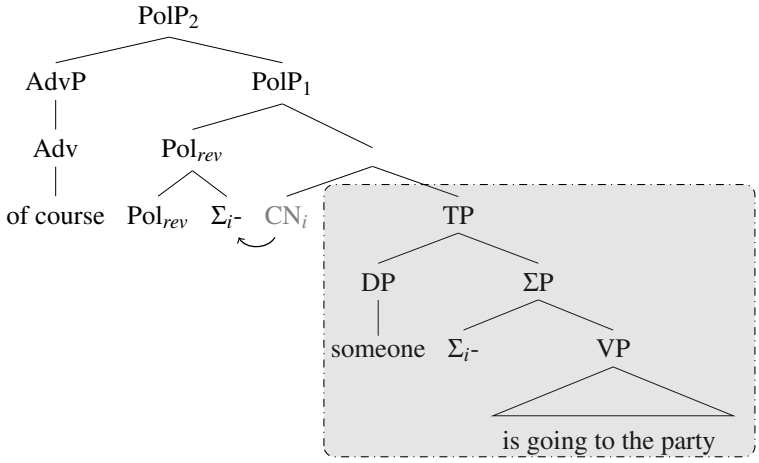
⟦Ellipsis antecedent⟧ = ⟦ [$_{TP}$ someone$_i$ [Σ- [$_{VP}$ t$_i$ is going to the party]]] ⟧ =∃x.¬(x is going to the party

a. Infelicitous LF:



⟦PolP$_1$⟧ = ⟦ [$_{PolP_1}$ [$_{Pol_{agr/rev}}$ Pol$_{agr/rev}$ Σ$_i$-] [$_{TP}$ someone Σ$_i$- is going to the party]] ⟧ =¬(∃x. x is going to the party)
⟦TP⟧ = ⟦[$_{TP}$ someone is going to the party]⟧=∃x. x is going to the party

b. Felicitous LF:



⟦PolP$_1$⟧ = ⟦ [$_{PolP_1}$ [$_{Pol_{agr/rev}}$ Pol$_{agr/rev}$ Σ$_i$-] [CN$_i$ [$_{TP}$ someone Σ- is going to the party]] ⟧ =¬(∃x.¬(x is going to the party))
⟦TP⟧ = ⟦[$_{TP}$ someone Σ- is going to the party] ⟧=∃x.¬(x is going to the party)

Therefore, assuming that Pol heads are specified for agree or reverse correctly predicts the pattern of data we see with polar adverbial responses in English. In the following sections, I address a couple of issues related to the account proposed here.

5. Ramifications and outstanding issues

5.1. Responses to high negation questions

Responses to negative questions like (46A) are reported to pattern like responses to positive questions (Kroll and Roberts, 2019).

(46) A: Doesn't John bathe on Saturdays?
B1: Of course. (= John bathes on Saturdays)
B2: Of course not. (= John doesn't bathe on Saturdays)

This pattern follows from the account presented here if we assume that in these questions negation is interpreted above TP as in the account of high-negation polar questions in Romero and Han (2004) according to which negation preposing in polar questions contributes an epistemic operator VERUM. According to this account, the LF of (46A) can be as in (47) where VERUM has triggered the preposing of negation (i.e. Σ-).

(47) LF of A: $[_{CP}$ Q [Σ_i- [VERUM $\boxed{[_{TP}$ John Σ_i- bathe on Saturdays]$}$]]
LF of B1: $[_{PolP_2}$ of course $[_{PolP_1}$ $[_{Pol_{agr}}$ Pol_{agr} Σ_i+] $\boxed{[_{TP}$ he Σ_i+ is going to the party]$}$]]
LF of B2: $[_{PolP_2}$ of course $[_{PolP_1}$ $[_{Pol_{rev}}$ Pol_{rev} Σ_i-] $\boxed{[_{TP}$ he Σ_i- is going to the party]$}$]]

The BAR in B1 is derived as follows: Pol AGREES with Σ+ which head-moves to Pol. The presupposition of Pol_{agree} is met since $[\![PolP_1]\!]$ is equivalent to its PolP antecedent, i.e. the TP in the question since Σ- has been preposed and is interpreted above VERUM. The Pol head is spelled out as *silence* as per the morphophonological rules in section 4.1.4. The TP in the response can be elided since it is E-given with respect to its ellipsis antecedent, i.e. the VP or the TP in the question. In B2, Pol AGREES with Σ- which head-moves to Pol. The presupposition of Pol_{rev} is met since $[\![PolP_1]\!]$ is equivalent to the negation of its PolP antecedent, i.e. the TP in the question. The Pol head is spelled out as *not* as per the morphophonological rules in section 4.1.4. The TP in the response can be elided since it is E-given with respect to its ellipsis antecedent, i.e. the VP or the TP in the question.

5.2. On the realization of $[Pol_{reverse}, \Sigma+]$

An outstanding issue for my account, and ellipsis-based accounts in general, is that BARs in response to (48A) cannot convey reverse, they can only convey *agree* under the account I have proposed. The only way to reverse is to have a sentence follow the adverb (49a). Why this is the case has to my knowledge not been explained so far though this is an area of active research.

(48) A: Did John not try the food?

a. B1: Of course!
=John did not try the food
*=John tried the food

b. B1: Of course not!
=John did not try the food
*=John tried the food

(49) A: Did John not try the food?

a. B1: Of course, he did!
=John tried the food

b. *B1: Of course not, he did!
*=John tried the food

c. Of course not! He did.
*=John tried the food

The issue is that a BAR response – negative or positive – to a simple negative question like (49A) is predicted in my account to be structurally ambiguous between a $[Pol_{agree}, \Sigma-]$ (*agree*) configuration (50a) and a $[Pol_{reverse}, \Sigma+]$ *reverse* configuration (50b).

(50) **Negative Q, *of course (not)* answer**
A: Did John not try the food? B: Of course (not)!

a. LF of *agree* reading:
$[_{PolP_2}$ of course $[_{PolP_1}\ [_{Pol_{agr}}\ \text{Pol}_{agr}\ \Sigma_i\text{-}\ ]\ \boxed{[_{TP}\ \text{he did}\ \Sigma_i\text{-}\ \text{try the food}\ ]}\ ]\ ]$

b. LF of *reverse* reading:
$[_{PolP_2}$ of course $[_{PolP_1}\ [_{Pol_{rev}}\ \text{Pol}_{rev}\ \Sigma_i\text{+}\ ]\ \boxed{[_{TP}\ \text{he did}\ \Sigma_i\text{+}\ \text{try the food}\ ]}\ ]\ ]$

The agree reading is derived from a structure (50a) in which the Pol head is specified for *agree* and Σ-, which can be realized by *of course* or *of course not* as per the rules in section 4.1.4: this is negative neutralization. In response to (50A), the issue is that the same string *of course (not)* is predicted to correspond to an equally-well formed structure in (50b), which according to the realization rules in section 4.1.4, predicts that both *of course (not)* should be possible to convey *reverse* in response to (50A), contrary to observations. I do not currently have an explanation as to why this configuration prevents ellipsis and leave it for further research. One potential avenue is that such configurations require verum focus (as pointed out in Kramer and Rawlins's work and Roelofsen and Farkas, 2014) which could block ellipsis.

6. Conclusion

I have proposed a new empirical generalization concerning the interpretation of BARs in English and built on previous ellipsis-based accounts to model this generalization by adapting an analysis proposed in Pasquereau (in press) for French embedded Polar Response Particles. This new analysis keeps the merits of previous analyses of BARs while extending their empirical coverage. A crucial part in this new account is played by Σ movement. Although negation has standardly been assumed not to be subject to movement rules, recent work on Neg-raising has argued that clausal negation can move in certain cases (Collins and Postal, 2017). Intriguingly, Crowley (2019)'s work on Neg-raising derives a generalization similar to the effect my analysis tries to capture, namely that 'Neg-movement only applies if it is semantically vacuous'. In addition to solving the problematic issue raised in section 5, it is to be hoped that further research will establish the relationship between the generalization proposed here for BARs (and in Pasquereau (in press) for PRPs) and Crowley's generalization for Neg-movement.

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