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Exceptives under negation: strengthening the case for PEX*

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Abstract The sentence *I solved everything but Problem 4* conveys (a) that I solved everything else (the ‘universal’ inference), and (b) that I didn’t solve Problem 4 (the ‘exclusion’ inference). Recent analyses derive the exclusion inference as a grammatical implicature, via an exhaustivity operator in the LF (e.g. Gajewski 2008, 2013; Hirsch 2016; Crnić 2018). In this paper, we consider predictions when the clause containing the exceptive is negated. Our findings indicate that the universal inference is asserted, but the exclusion inference patterns as a presupposition. The data can be predicted if the exhaustivity operator which co-occurs with exceptives is *presuppositional*, following Bassi, Del Pinal & Sauerland 2021 and Del Pinal, Bassi & Sauerland 2024 (see also Baron 2022, Crnić to appear).

Keywords: exceptives, exhaustivity, presupposition, prosody

1 Introduction

Our concern in this paper is with expressions of exception and the status of their inferences. As illustrated in (1), an exceptive phrase formed with *but* yields two key inferences, paraphrased in (1a) and (1b) (e.g. von Stechow 1993). We will refer to (1a) as the *universal* inference, and to (1b) as the *exclusion* inference.

- (1) I solved everything but Problem 4.
- a. I solved everything other than Problem 4. (ϕ_{\forall})
 - b. I didn’t solve Problem 4. (ϕ_{excl})

Recent analyses take the universal inference to be contributed by *but* itself when it occurs in construction with a universal quantifier. In one line of analysis, the

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exclusion inference is derived as a *grammatical implicature* introduced by a covert exhaustivity operator (e.g. Gajewski 2008, 2013; Hirsch 2016; Mayr & Vostrikova 2022; Crnić 2018, to appear). From that perspective, exceptives can offer a window into the analysis of the exhaustivity operator.

Our aim in this paper is to establish that the two inferences in (1) have a different status: while the universal inference is asserted, the exclusion inference patterns as a presupposition (as in Crnić to appear, Vostrikova 2021, cf. von Stechow 1993). We will consider intuitions when the exceptive construction is *negated*. We will report a series of diagnostics which suggest that the exclusion inference projects over negation by default. Moreover, we will show that there is an effect of prosody, such that the intuitions change if the construction is realized with a marked stress pattern characteristic of presupposition cancellation. If the exclusion inference is sourced to an exhaustivity operator, our findings thus support the idea that EXH presupposes, rather than asserts, the implicature component, as proposed in Bassi et al. 2021 and Del Pinal et al. 2024 (see also Baron 2022; Crnić to appear).

The discussion will be organized as follows. Section 2 provides background on the analysis of exceptives based on EXH. In Section 3, we discuss the predictions that different theories of EXH make for negated exceptives. In Sections 4-5, we present evidence that the exclusion inference is presupposed, supporting a theory of EXH as a presupposition trigger. Finally, Section 6 concludes.

2 The implicature analysis

We present an analysis of *but*-exceptives based on exhaustification. As presented in Section 2.1 and 2.2, this analysis includes a covert exhaustivity operator in the LF (after e.g. Gajewski 2013; Hirsch 2016). In Section 2.3, we consider predictions if EXH is re-formulated as a presupposition trigger.

2.1 LF with EXH

The LF for (1) is given in (2), and contains two key ingredients: *but* itself, and the covert EXH operator taking propositional scope. We assume here that EXH attaches at the level of ν P, with the subject reconstructed into Spec- ν P.

(2) LF for (1)

[EXH [ν P I solved [DP every [thing [but Problem 4]]]]]

The contribution of *but* is to subtract the excepted element from the restrictor of the quantifier. Concretely, *but* has the lexical entry in (3a). Applied to Problem 4 in (3b), the exceptive phrase *but Problem 4* denotes a predicate of entities distinct

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from Problem 4. That composes with its sister (*thing*) via Predicate Modification, and *every* quantifies over the resulting predicate. The full νP denotes the proposition in (4): that I solved everything that is distinct from Problem 4.

(3) **Interpreting *but***

- a. $\llbracket \text{but} \rrbracket = \lambda x . \lambda y . y \neq x$
- b. $\llbracket \text{but Problem 4} \rrbracket = \lambda y . y \neq \text{Problem 4}$

(4) $\llbracket \nu P \rrbracket = \lambda w . \forall y [y \neq \text{Problem 4} \rightarrow \text{SOLVE}_w(I, y)] = \phi_{\forall}$

The proposition in (4) corresponds to the universal inference in (1a). The exclusion inference arises via the exhaustivity operator. As defined in (5), EXH applies to a proposition, p , and asserts a conjunction: the first conjunct says that p is true, and the second that alternatives to p are false. The latter is referred to as the grammatical implicature, and here is asserted, on par with the prejacent.

(5) **Defining EXH**

$$\llbracket \text{EXH} \rrbracket^{\text{ALT}} = \lambda p_{st} . \lambda w . p(w) \wedge \forall p' \in \text{ALT} [p \not\subseteq p' \rightarrow \neg p'(w)]$$

In (2), the prejacent of EXH is the proposition expressed by the νP . Since that is re-asserted, the sentence as a whole asserts that I solved everything distinct from Problem 4, capturing the universal inference. The exclusion inference is sourced to the second conjunct of EXH's entry, where alternatives are negated.

2.2 The role of alternatives

We will assume that alternatives are formed by deleting or replacing elements within the DP containing the exceptive phrase. In order to facilitate exposition, we will assume that (6a) is an alternative, which results from deleting everything in the DP aside from the complement of *but*. (6a) conveys that I solved Problem 4. If it is in the alternative set for EXH, EXH would negate it to yield the entailment that I did *not* solve Problem 4, as in (6b). With this alternative, then, the exclusion inference is immediately derived by the implicature component.

(6) a. **Target alternative**

SOLVE(I, Problem 4)

b. **Entailment**

$\neg \text{SOLVE}(I, \text{Problem 4})$

Additional alternatives are needed to regulate the distribution of the exceptive (cf. Gajewski 2013; Hirsch 2016). A key finding in the exceptives literature is that *but* is not acceptable with all quantifiers. It is licit with a universal quantifier, but not, for instance, with an existential. The example in (1) is repeated as (7a), and that contrasts with (7b), where the quantifier is existential instead.

(7) **Distribution problem**

- a. I solved everything but Problem 4.
- b. *I solved something but Problem 4.

von Stechow (1993) made a seminal proposal that (7b) registers as ungrammatical because it necessarily expresses a logical contradiction (see also Gajewski 2002). In the implicature analysis, a contradiction may be derived by the EXH operator, given additional alternatives. For now, we will focus just on the alternative in (6a), and consider further alternatives at the conclusion of the paper.

To summarize so far, the LF for the core example in (1) is repeated below. In this LF, we take EXH to assert that I solved everything distinct from Problem 4 (the prejacent), and that I didn't solve Problem 4 (by negating the alternative in (6a)). These meaning components correspond to the universal and exclusion inferences, as shown below the LF for direct reference.

(8) **LF for (1)**

[EXH [_{VP} I solved [_{DP} every [thing [but Problem 4]]]]]

$\leftrightarrow A: \phi_{\forall} \wedge \phi_{excl}$

We now consider how the prediction changes if the EXH operator is re-formulated as a presupposition trigger, as independently proposed in recent work.

2.3 Revising EXH

Bassi et al. (2021) and Del Pinal et al. (2024) have proposed to revise the semantics of the EXH operator. In their analysis, the implicature component is *presupposed*, rather than *asserted*. For our purposes, the operator, referred to as PEX, can be stated as in (9). PEX applies to a proposition, *p*, presupposes that alternatives to *p* are false, and if so, re-asserts *p*. The contribution made by PEX is thus the inference that alternatives are false, which here comes as a presupposition.

(9) **Defining PEX**

$[[\text{PEX}]]^{\text{ALT}} = \lambda p_{st} . \lambda w : \forall p' \in \text{ALT} [p \not\subseteq p' \rightarrow \neg p'(w)] . p(w)$

If the exhaustivity operator is revised to PEX, the LF for the exceptive construction would be the same as in (2) above, except with PEX in place of EXH. As before, it will be asserted that I solved everything distinct from Problem 4. But, it will now be *presupposed* that I didn't solve Problem 4, the exclusion inference. The predicted meaning components are flagged in (10a) and (10b).

(10) **LF for (1) (with PEX)**

[PEX [_{VP} I solved [_{DP} every [thing [but Problem 4]]]]]

- a. P: ϕ_{excl}
- b. A: ϕ_{\forall}

Compared to the derivation in (2) with EXH, the LF in (10) with PEX yields the same meaning components, but they are differently divided between presupposition and assertion. With EXH, the universal and exclusion inferences have the same status, as both are part of the asserted content. By contrast, with PEX, the two inferences have a different status: whereas the universal inference is asserted, the exclusion inference is presupposed. In order to distinguish the two analyses, we will compare their predictions when the exceptive construction occurs in the scope of negation. Given the well known projection behavior of presuppositions from the scope of negation, if exceptive constructions involve an underlying PEX operator, we expect the presuppositional exclusion inference to project.

3 Predictions with negation

In the example in (11), the exceptive construction is embedded under negation. Our aim will be to compare two possible LFs for this sentence, which differ minimally in the analysis of the underlying exhaustivity operator. The first parse will involve EXH, and the second will involve PEX.

(11) I didn't solve everything but Problem 4.

We consider the parse with EXH in (12). In this structure, EXH takes scope under the negation operator.¹ As before, the output of EXH is the conjunction of the universal and exclusion inferences. Negation, therefore, derives (12a) and (12b).

¹ An LF where EXH takes scope over negation should be blocked. With that scope order, *not* would operate directly on the universal inference to derive the proposition that I didn't solve everything distinct from Problem 4. That, however, is equivalent to the existential claim that there is some such problem that I didn't solve. That would be the prejacent of EXH or PEX. As noted above, contradictions arise when the prejacent of the exhaustivity operator is existential (see also Section 6). So, we only consider LFs where the exhaustivity operator is under negation.

The assertion is equivalent to the disjunction that *either* the negation of the universal inference holds, *or* the negation of the exclusion inference does. That is, either I *didn't* solve everything distinct from Problem 4, or I *did* solve Problem 4. It should be equally possible to justify (11) by affirming $\neg\phi_{\forall}$ or $\neg\phi_{excl}$.

- (12) **LF 1: NEG > EXH**
 [not [EXH [_{VP} I solved [_{DP} everything but Problem 4]]]]
 a. P: –
 b. A: $\neg(\phi_{\forall} \wedge \phi_{excl}) \Leftrightarrow \neg\phi_{\forall} \vee \neg\phi_{excl}$

In the LF in (13) below, EXH is replaced by PEX. Under negation, PEX will assert the universal inference, but presuppose the exclusion inference. Being presupposed, the exclusion inference projects over negation, as in (13a), so only the universal inference is negated, as in (13b). It is presupposed that I didn't solve Problem 4, and asserted that I didn't solve everything else. Accordingly, in the analysis with PEX, it is only possible to justify (11) by affirming $\neg\phi_{\forall}$.

- (13) **LF 2: NEG > PEX**
 [not [PEX [_{VP} I solved [_{DP} everything but Problem 4]]]]
 a. P: ϕ_{excl}
 b. A: $\neg\phi_{\forall}$

In sum, when negation is present, an LF with EXH and an LF with PEX give rise to distinct readings. In the LF with EXH, ϕ_{\forall} and ϕ_{excl} are treated on par, and the sentence should be equally compatible with the negation of either inference. With PEX, only ϕ_{\forall} gets negated, while ϕ_{excl} projects.

3.1 Next step

Our aim now is to dissociate the two LFs. As previewed, the empirical results will suggest that the two inferences do have a different status, as predicted with PEX. We will split the discussion into two steps. First, in Section 4, we will consider intuitions when the sentence is realized with a 'default' stress pattern. That is, we will consider the stress pattern which would be expected in a provided context, given general principles of how stress interacts with information structure. Then, in Section 5, we will consider data with marked stress. In each case, intuitions will suggest that the exclusion inference exhibits the behavior of a presupposition.

4 The default pattern

In this section, we will present a series of observations, where the sentence in (11) is rendered with a default stress pattern, and which show that the universal and exclusion inferences come apart, supporting the prediction of PEX.

4.1 Test 1: continuations

We begin with the data in (14). In the provided context, the sentence is naturally parsed with verum focus, as reflected by the indicated stress on polarity. We compare the two continuations in (14a) and (14b).

- (14) *(I heard you solved Problems 1-3, but not 4.)*
 No, I DIDN'T solve everything but Problem 4.
- a. I didn't solve Problem 3 either.
 - b. ??I solved Problem 4 too.

The continuation in (14a) entails the negation of the universal inference. As made explicit in (15a), $\neg\phi_V$ says that I didn't solve every problem distinct from Problem 4. (14a) conveys that I didn't solve Problem 3, and so entails $\neg\phi_V$. By contrast, (14b) conveys the negation of the exclusion inference. The exclusion inference says that I didn't solve Problem 4, so $\neg\phi_{excl}$ says that I *did* solve Problem 4, as in (15b). Hence, each continuation denies one of the key inferences.

(15) Negated inferences

- a. $\phi_V \Leftrightarrow \neg\forall x [x \neq \text{Problem 4} \rightarrow \text{SOLVE}(I, x)]$
- b. $\phi_{excl} \Leftrightarrow \neg\neg\text{SOLVE}(I, \text{Problem 4}) \Leftrightarrow \text{SOLVE}(I, \text{Problem 4})$

Crucially, the intuition in (14) is that the two continuations have a different status. All of the speakers that we consulted report a contrast where (14a) is completely natural, while (14b) is degraded relative to (14a). This asymmetry is unexpected in the analysis with EXH, where the sentence should be equally compatible with $\neg\phi_V$ and $\neg\phi_{excl}$. On that analysis, both continuations should be entirely acceptable. With PEX, however, the data can be understood. The continuation in (14a) (entailing $\neg\phi_V$) is predicted to be acceptable, while the continuation in (14b) (conveying $\neg\phi_{excl}$) stands in conflict with the global presupposition of ϕ_{excl} . The observed contrast between the two continuations is, therefore, as predicted.

It bears note that, while speakers find (14b) to be degraded, it is not judged as entirely unacceptable. That, too, is naturally accounted for in the PEX analysis. If

ϕ_{excl} is a presupposition, the only way to allow for (14b) to be licit would be for the presupposition to be locally accommodated. That is, ϕ_{excl} would be canceled as a presupposition, and re-analyzed as asserted content within the scope of negation. Local accommodation is generally thought to be available only as a last resort option (Heim 1983). The prediction, then, is that the continuation in (14b) should be degraded to the extent that local accommodation is resisted here. With local accommodation factored in, the prediction is gradient, rather than categorical. We will discuss local accommodation in more detail in Section 5.

4.2 Test 2: adverbs

A second way to bring out an asymmetry between the two inferences is to assess the felicity of adverbs in the test sentence. We compare (16a) and (16b).

- (16) *(I heard you solved Problems 1-3, but not 4.)*
- Unfortunately, I DIDN'T solve everything but Problem 4.
 - #Fortunately, I DIDN'T solve everything but Problem 4.

Assuming that it is better to solve more problems, $\neg\phi_{\forall}$ and $\neg\phi_{excl}$ differ in whether they would be seen as fortunate or unfortunate. $\neg\phi_{\forall}$ says that I didn't solve every problem other than Problem 4, i.e. that I didn't solve all of Problems 1-3. So, $\neg\phi_{\forall}$ is unfortunate. By contrast, $\neg\phi_{excl}$ is fortunate, as it says that I did solve Problem 4. As flagged in (17), (16a) fits with the negation of the universal inference, whereas (16b) fits with the negation of the exclusion inference.

- (17) **Evaluating inferences**
- $\neg\phi_{\forall} =$ unfortunate
 - $\neg\phi_{excl} =$ fortunate

The key observation is once again a contrast. Whereas (16a) is natural, (16b) is clearly infelicitous. This result suggests that the two inferences have a different status such that only ϕ_{\forall} is negated by default, as in the PEX analysis. With PEX, both meaning components are, in fact, unfortunate. The assertion is $\neg\phi_{\forall}$, and the presupposition is ϕ_{excl} , saying that I didn't solve Problem 4. The interpretation fits with the adverb in (16a), but not (16b), capturing the pattern.²

² Some informants find the contrast in (16) sharper than (14). As we noted above, (14b) may be possible if ϕ_{excl} is locally accommodated. The adverb in (16b) may not be able to license local accommodation on its own. (16b) can be improved if a continuation is added, and especially, if stress is also shifted to *but* ('Fortunately, I didn't solve everything BUT Problem 4. I solved Problem 4, too!'). We will discuss effects of stress in Section 5.

4.3 A further prediction

Our target in considering data with negation has been to test for whether the exclusion inference projects. The analysis with PEX can also account for intuitions when the exceptive is embedded in other environments where presuppositions typically project. One such environment is questions, as in (18).

(18) Did you solve everything but Problem 4?

To start, a potential LF for (18) with EXH is (19), where EXH occurs within the question nucleus. EXH would introduce both ϕ_{\forall} and ϕ_{excl} as asserted content, so the question would ask whether the conjunction of the two inferences holds. As with negation, the two inferences are treated in parallel. By contrast, in the LF with PEX in (20), ϕ_{excl} is presupposed, and so it projects out of the question. The question asks just whether the universal inference, ϕ_{\forall} , holds.

(19) **LF 1: EXH**

[_{CP} C [_{TP} EXH [you solve everything but Problem 4]]]

a. P: –

b. A: ? [$\phi_{\forall} \wedge \phi_{excl}$]

(20) **LF 2: PEX**

[_{CP} C [_{TP} PEX [you solve everything but Problem 4]]]

a. P: ϕ_{excl}

b. A: ? [ϕ_{\forall}]

Empirically, intuitions seem to fit with the prediction of PEX. To illustrate, we compare (21) and (22). In (21), the set up makes clear that ϕ_{excl} is granted, and the intent is to interrogate ϕ_{\forall} . In that case, the question containing the exceptive is completely natural. In (22), the status of ϕ_{\forall} and ϕ_{excl} is reversed, so that ϕ_{\forall} is granted and the intent is to interrogate ϕ_{excl} . The question, then, is deviant. If ϕ_{excl} is presupposed and only ϕ_{\forall} is the target of the question, the question should be felicitous in (21), but deviant in (22), as observed.³

(21) I know you didn't get Problem 4. But ...

Did you solve everything BUT Problem 4?

³ There might be other potential explanations for the deviance of (22). For instance, *Did you solve Problem 4?* would also be a possible question, and might be favored due to manner considerations. Still, we note that the data follow for free in the PEX analysis.

- (22) I know you got Problems 1-3. But ...
 #Did you solve everything but Problem 4?

With respect to prosody, it bears note that stress in (21) most naturally occurs on *but*. In the next section, we will consider cases where stress falls on *but* as a marked option. Here, however, the stress pattern appears to be the default one in the context. Problem 4 is already mentioned in the preceding set up sentence, so stress would shift from *Problem 4* to *but*, due to Problem 4 being given. In (22), stress should fall on *Problem 4*, and the result is infelicitous.

4.4 Next step

In this section, we have put forward observations which bear out predictions of an analysis where the universal and exclusion inferences of an exceptive construction have a different status. The data pattern as if ϕ_V is presupposed, while ϕ_{excl} is asserted. If the exclusion inference is a grammatical implicature, the results are expected if PEX is the exhaustivity operator, as in the schema in (23).

- (23) **Exceptive structure**
 ... [PEX [... but ...]] ...

Our plan now is to further test this analysis by capitalizing on the expectation that the presupposition can be locally accommodated in certain cases.

5 A marked pattern

The analysis with PEX makes a further prediction. If the exclusion inference is introduced as a presupposition, it should be possible to locally accommodate the presupposition as a marked option. In that case, ϕ_{excl} would be re-analyzed as part of the asserted content. In this section, we present data which we take to force local accommodation by manipulating the prosody of the sentence. We show that the empirical pattern does then change, bearing out the prediction.

5.1 Shifting stress

It has been observed that local accommodation may be associated with an overt reflex in the prosody of the sentence. In particular, when stress shifts to the expression which triggers the presupposition, local accommodation is intuited.

As a first illustration, consider data with an aspectual trigger, *quit*. Setting aside negation, (24) would presuppose that I used to smoke, and assert that I no

longer smoke. By default, the presupposition would project over negation, resulting in the meaning components in (24a) and (24b). Yet, in (25), there is a marked realization with primary stress on *quit*, and a continuation is natural which denies the presupposition. The stress pattern signals local accommodation.

- (24) I didn't quit smoking. I enjoy it too much!
 a. P: I used to smoke
 b. A: \neg [I no longer smoke] \Leftrightarrow I smoke now

- (25) I didn't QUIT smoking. I never smoked!

In the exceptive construction, the presupposition trigger would be PEX, which is covert, so cannot itself receive stress. However, Bassi et al. 2021 suggest that local accommodation can still be signaled prosodically. They consider data involving scalar implicatures, and take it that local accommodation occurs with stress on the overt scalar item. Consider the example in (26).

- (26) Mary didn't eat cake or ice cream.

If the disjunction occurs with PEX, (26) would have the LF in (27). PEX would assert that Mary ate cake or ice cream. Assuming an alternative replaces *or* with *and*, PEX would presuppose that Mary didn't eat both. The presupposition would project, yielding (27a), and negation would yield (27b). (27b) conveys that Mary ate neither one, and that asymmetrically entails (27a), so the implicature is undetectable. As predicted, (26) conveys (27b) by default.

- (27) **LF for (26)**
 [not [PEX [Mary eat [cake or ice cream]]]]
 a. P: \neg [CAKE \wedge ICE CREAM]
 b. A: \neg [CAKE \vee ICE CREAM]

Yet, a number of works have noted that the 'not both' implicature is computed in the scope of negation if the disjunction morpheme is stressed, as in (28) (see e.g. Fox & Spector 2018). Bassi et al. 2021 propose that stress on *or* signals local accommodation of the presupposition that PEX triggers. That way, *not* negates the proposition that Mary ate cake or ice cream, but not both, as in (29). The continuation in (28) is compatible with the assertion in (29).

- (28) Mary didn't have cake OR ice cream. She had both!

(29) **Target meaning**

- a. P: –
- b. A: $\neg [[\text{CAKE} \vee \text{ICE CREAM}] \wedge \neg [\text{CAKE} \wedge \text{ICE CREAM}]]$

If exceptives are similarly parsed with PEX, it may be possible to force local accommodation with prosody. The presence of PEX is required by the exceptive marker, *but*. As such, our expectation is that local accommodation would take place if there is marked stress on *but*, just as local accommodation with scalar implicatures occurs with stress on the scalar item. In the next subsection, we assess the inferences intuited when stress is shifted to *but* in the exceptives data.

5.2 Testing with exceptives

The example in (30) is repeated from above. In this context, stress would fall by default on the polarity head. We observed that (30a) is fully natural, while (30b) is degraded. Recall that (30a) supports the negation of the universal inference, while (30b) supports the negation of the exclusion inference.

- (30) (*I heard you solved Problems 1-3, but not 4.*)
 No, I DIDN'T solve everything but Problem 4.
- a. I didn't solve Problem 3 either.
 - b. ?? I solved Problem 4 too.

(31) **Negated inferences**

- a. $\neg\phi_{\forall} \Leftrightarrow \neg\forall x [x \neq \text{Problem 4} \rightarrow \text{SOLVE}(I, x)]$
- b. $\neg\phi_{excl} \Leftrightarrow \text{SOLVE}(I, \text{Problem 4})$

As we discussed earlier, the observed contrast, therefore, fits with the prediction of PEX that ϕ_{excl} should project as a presupposition, and only ϕ_{\forall} be subject to negation as asserted content. The default LF is repeated in (32).

(32) **LF for (30)**

- [not [PEX [I solved [_{DP} everything but Problem 4]]]]
- a. P: ϕ_{excl}
 - b. A: $\neg\phi_{\forall}$

Now, the question becomes: what happens when a marked stress pattern is deployed in the same context, particularly one with primary stress on the exceptive marker? The test case is (33). Strikingly, the judgment flips in (33), and becomes

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fully sharp. The acceptable continuation is now the one that denies ϕ_{excl} , and the continuation which denies ϕ_{\forall} is rendered entirely unacceptable.

(33) *(I heard you solved Problems 1-3, but not 4.)*

No, I didn't solve everything BUT Problem 4.

- a. I solved Problem 4 too.
- b. #I didn't solve Problem 3 either.

The effect of stress is predicted in the analysis with PEX. As previewed, stress is expected to signal that the presupposition of ϕ_{excl} is locally accommodated in the scope of negation, rather than projected. With local accommodation, we can naturally predict both that (33a) is acceptable, and that (33b) is unacceptable. We make the account with PEX fully explicit in the next subsection.

5.3 Analysis with PEX

For concreteness, we assume with Bassi et al. 2021 that local accommodation is due to a covert operator, \mathcal{A} (as in Beaver & Krahmer 2001). If presupposition failure yields a stigmatized truth-value, #, the operator can be defined as in (34). \mathcal{A} takes a trivalent proposition and maps it to a bivalent one. The result is like the input, p , except that it returns false, rather than #, when the presupposition fails. In effect, the presupposition is re-analyzed on a par with the asserted content.

(34) **Defining \mathcal{A}**

$$\llbracket \mathcal{A} \rrbracket = \lambda p_{st} . \lambda w . 1 \text{ if } p(w) = 1, 0 \text{ if } p(w) = 0 \text{ or } \#$$

From this perspective, then, marked stress would signal a syntactic parse where the \mathcal{A} operator is inserted in the scope of negation. When *but* is stressed, the exceptive data point is parsed as in (32). With \mathcal{A} inserted, the presupposition is locally accommodated under negation, yielding (35a) and (35b).

(35) **LF for (33)**

$$[\text{not} [\boxed{\mathcal{A}} [\text{PEX} [\text{I solved}_{\text{DP}} \text{ everything BUT Problem 4}]]]]]]$$

- a. P: –
- b. A: $\neg(\phi_{\forall} \wedge \phi_{excl}) \Leftrightarrow \neg\phi_{\forall} \vee \neg\phi_{excl}$

It immediately follows from the meaning in (35) that the continuation in (33a) is acceptable. That is the continuation which supports $\neg\phi_{excl}$. Because the \mathcal{A} operator takes scope under negation, ϕ_{excl} is asserted beneath negation in (35). As a

consequence, the assertion is the disjunction that either I didn't solve every other problem (i.e. $\neg\phi_V$) or I did solve Problem 4 (i.e. $\neg\phi_{excl}$). Since the continuation in (33a) supports the latter, it entails that the assertion holds. Still, more needs to be said to explain why the continuation in (33b) is not acceptable as well. That supports $\neg\phi_V$, and so would also entail the assertion in (35b).

We suggest that the continuation in (33b) is ruled out due to a competition between structures. Consider the parses with and without the \mathcal{A} operator side by side, along with their assertions. The parse without \mathcal{A} asserts $\neg\phi_V$ itself. With \mathcal{A} , the assertion is equivalent to a disjunction with $\neg\phi_V$ as one disjunct. As a result, *both* parses are compatible with $\neg\phi_V$. We take it that the parse in (32) blocks that in (35) when the intent is to deny the universal inference.

(32) **LF 1: default**

[not [PEX [I solved [_{DP} everything but Problem 4]]]]

\hookrightarrow A: $\neg\phi_V$

(35) **LF 2: with \mathcal{A}**

[not [\mathcal{A} [PEX [I solved [_{DP} everything BUT Problem 4]]]]]

\hookrightarrow A: $\neg\phi_V \vee \neg\phi_{excl}$

The competition could take place in either of two ways. One possibility is that it is based on informativity, as the assertion is stronger in (32) than (35). Another possibility is that the structures compete based on syntactic complexity: (32) is syntactically less complex than (35), due to the absence of the \mathcal{A} operator. By either metric, the parse in (32) should be preferred when possible. If the universal inference is to be denied, (32) can be deployed, and will block (35).

The pattern in (33) is, then, as expected. With marked stress, the LF contains \mathcal{A} . That parse allows for denial of the exclusion inference, due to local accommodation. But, it does not allow for denial of the universal inference, due to competition with the parse without \mathcal{A} . (33b) is only licit with the basic parse.

5.4 Taking stock

Over the past two sections, we have identified behavior of the exclusive inference characteristic of presupposition. By default, ϕ_{excl} seems to project from the scope of negation and questions. But, with marked stress, it is introduced in the scope of negation. The data are accounted for if ϕ_{excl} is triggered as a presupposition, but locally accommodated as a marked option. Hence, the data fit with treating ϕ_{excl} as a grammatical implicature, given PEX as the exhaustivity operator.

alternative, but rather other alternatives. For illustration, we consider the alternative set assumed in Hirsch (2016) in Section 6.1. In Section 6.2, we draw a tentative conclusion that ALT should include *both* the deletion alternative in (36), as well as additional alternatives in order to regulate the distribution.

6.1 Substitution alternatives

Hirsch (2016) takes alternatives to be formed by replacing the complement of the exceptive marker with other entities (after Gajewski 2008). For the universal example, the alternatives distinct from the prejacent are as in (41).

(10) [PEX_[VP] I solved_[DP] every [thing [but Problem 4]]]]]]

(41) **Alternative set (substitution)**

ALT = { (41a), (41b), (41c), ... }

a. $\forall x [x \neq \underline{\text{Problem 1}} \rightarrow \text{SOLVE}(I, x)]$

b. $\forall x [x \neq \underline{\text{Problem 2}} \rightarrow \text{SOLVE}(I, x)]$

c. $\forall x [x \neq \underline{\text{Problem 3}} \rightarrow \text{SOLVE}(I, x)]$

Given PEX, the negation of each alternative will be presupposed. Consider the negation of the first alternative: that I didn't solve everything distinct from Problem 1. While that does not itself entail ϕ_{excl} , it does in combination with the asserted prejacent. The prejacent says that I solved everything distinct from Problem 4, so given $\neg(41a)$, it must be that I didn't solve Problem 4. ϕ_{excl} is not directly derived in the implicature component, but follows from combining the prejacent and implicature together. The combination is illustrated in (42).

(42) **Deriving exclusion**

$\phi_{\forall} \wedge \neg(41a) \wedge \dots \Leftrightarrow \phi_{excl}$

Substitution alternatives *do* give rise to an anomaly when the quantifier is changed to existential. With the LF in (39), the predicted alternatives are as in (43), and each alternative should be negated. Negating (43a) would say that I didn't solve any problem distinct from Problem 1, i.e. Problems 2, 3, or 4. Negating (43b) would say that I didn't solve any problem distinct from Problem 2, i.e. Problems 1, 3, or 4. Taken together, it follows that I solved *no* problem, which conflicts with the prejacent (that I solved some problem distinct from Problem 4).

(39) [PEX_[VP] I solved_[DP] some [thing [but Problem 4]]]]]]

Exceptives under negation

(43) **Alternative set (substitution)**

ALT = { (43a), (43b), (43c), ... }

- a. $\exists x [x \neq \underline{\text{Problem 1}} \wedge \text{SOLVE}(I, x)]$
- b. $\exists x [x \neq \underline{\text{Problem 2}} \wedge \text{SOLVE}(I, x)]$
- c. $\exists x [x \neq \underline{\text{Problem 3}} \wedge \text{SOLVE}(I, x)]$

Hence, in order to capture the distribution of *but*, ALT must include *at least* the alternatives in (43). Yet, with PEX as the exhaustivity operator, there is reason to think that ALT includes the deletion alternative in addition.

6.2 Adding negation

To re-iterate, with just the substitution alternatives, the derivation of ϕ_{excl} in (10) requires combining the prejacent and implicature component. If the operator is PEX, that means combining presupposition and assertion. When the exceptive is negated, however, the assertion is changed, so ϕ_{excl} would not be derived. Consider the LF for (11) repeated from (13).

(11) I didn't solve everything but Problem 4.

(13) [not [PEX [_{VP} I solved [_{DP} everything but Problem 4]]]]

With just the substitution alternatives, the implicature component would correspond to the negation of each proposition in (41), i.e. that I didn't solve everything distinct from Problems 1, 2, and 3, respectively. That would be the presupposition, and project over negation. With negation, the assertion would be that I didn't solve everything distinct from Problem 4 either. Even taken together, ϕ_{excl} is not derived. Suppose, for instance, that I solved Problems 3 and 4, but not 1 or 2. Then, all of the predicted inferences are verified. Yet, the continuation data in Section 4 suggest that (11) does presuppose ϕ_{excl} (see Section 4.1).

If, however, the deletion alternative in (36) were in ALT, it would also be negated by PEX, and this would directly derive ϕ_{excl} as part of the presupposed implicature component, as shown before. This way, ϕ_{excl} would project over negation, as we assumed throughout the paper. We tentatively suggest that ALT should include *both* the deletion and substitution alternatives.⁴ The former would introduce the

⁴ Note that once both types of alternatives are incorporated, it is crucial to assume an exhaustification operator that negates all non-weaker alternatives (after Chierchia 2013) rather than one that negates only innocently excludable alternatives (as in Fox 2007). With a contradiction-prone exhaustivity operator, ungrammaticality results when a logical contradiction is derived. With innocent exclusion,

exclusion inference even in negative environments, and the latter would regulate the distribution of *but*. We leave it to the future to consider whether these alternatives may be predicted by a more general algorithm.

7 Conclusion

In this paper, we examined exceptives under negation, and provided evidence that the exclusion inference is presupposed, rather than asserted. If the exclusion inference is derived as a grammatical implicature, the exhaustivity operator should be PEX. A similar conclusion has been independently reached in Crnić *to appear*, which analyzes parallels in the projection behavior of *only* and exceptives.

One remaining issue is to make sense of differences between scalar items and exceptives. Bassi *et al.* (2021) note that, in (44) (Russell 2012), the presupposition of PEX patterns as not-at-issue. While (44b) asserts that not all students passed, (44a) would presuppose that, due to PEX. If the negative interjection must target asserted content, the deviance of (44a) would follow. However, in (45), the exceptive is quite natural. Since the speaker is upset because they did not solve Problem 4, it seems that the exclusion inference can pattern as asserted here.

- (44) (I want all my students to pass.)
 a. Crap! #Some of my students passed.
 b. Crap! Only some of my students passed.
- (45) (I want to get a perfect score.)
 Crap! I solved everything but Problem 4.

It appears that local accommodation may be more available with exceptives than scalar implicatures in certain contexts. We must leave it to the future to better understand when local accommodation can occur with exceptives under default stress, and why scalar items and exceptives differ in some cases.

ungrammaticality could come about if the operator applies vacuously (Fox & Spector 2018, cf. Hirsch 2016). Employing an exhaustivity operator which can create contradictions is necessary in order to derive the ungrammaticality of existential sentences like (38) above. If we were to employ innocent exclusion, none of the substitution alternatives in (43) would be excludable. However, the presence of the deletion alternative makes it such that the application of PEX would not be vacuous, since that alternative can itself be excluded, as noted with (40).

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