

Weakening is external to *only*

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1 Introduction

1.1 Strong *only*

Observe: *only* licenses positive (a) and negative (b) inferences.

- (1) Mary only visited CAL STATE.
 - a. Positive inference: Mary visited Cal State.
 - b. Negative inference: Mary did not visit anywhere else.
- In (1), the positive inference is presupposed. Evidence: it projects.
- (2) **Negation of (1)**
Mary didn't only visit CAL STATE.
 - a. Positive inference: Mary visited Cal State.
 - b. Negative inference: not (Mary did not visit anywhere else.)
 \Leftrightarrow Mary did visit somewhere else.

As classically defined (after Horn 1969), *only*:

- applies to a 'prejacent' (p),
- presupposes that p is true, and
- asserts that alternatives to p are false.

$$(3) \quad \llbracket \text{only} \rrbracket^{\text{ALT}} = \lambda p_{st} . \lambda w : \boxed{p(w)} . \forall p' \in \text{ALT} [p'(w) \rightarrow (p \Rightarrow p')]$$

Our concern: the presupposition of *only*.

- The prejacent presupposition predicts the positive inference to be presupposed.
- But, while a prejacent presupposition is observed in (1), there are other cases where the attested presupposition is *weaker*.

1.2 Mutually exclusive alternatives

Crnič (2022) (after Klinedinst 2005): a puzzle arises with a change in predicate.¹

- (4) Mary only got her B.A. at CAL STATE.
- a. Positive inference: Mary got her B.A. at Cal State.
 - b. Negative inference: Mary did not get her B.A. anywhere else.
- In this case, though, the positive inference is not itself presupposed.

Observe: a prejacent presupposition would result in a pragmatic anomaly.

- (5) [TP only [_{VP} Mary got her B.A. at [Cal State]_F]]
↔ P: BA(Cal)

- The problem comes when the assertion is considered.

- (6) **Alternative set**
ALT = { BA(Cal), BA(UCLA), BA(Oxford) }

- (7) **Predicted assertion**
A: \neg BA(UCLA) \wedge \neg BA(Oxford)

- According to world knowledge, Mary can only get her B.A. at one place.

- (8) **Mutually exclusive alternatives**
 $\exists p \in \{ \text{BA(Cal), BA(UCLA), BA(Oxford)} \} [p(w)]$
 $\rightarrow \exists ! p \in \{ \text{BA(Cal), BA(UCLA), BA(Oxford)} \} [p(w)]$

¹Example (4) carries a scalar inference that Cal State is a low-ranked place to get a B.A. This does not reflect our opinion of Cal State, and certainly not its linguistics community. We assume that the relevant B.A. is not in linguistics. We will ignore the scalar inference until Section 4.

- Pragmatic anomaly predicted: the P contextually entails the assertion.

(9) **Contextual entailment**

$$BA(\text{Cal}) \Rightarrow_{\text{context}} (\neg BA(\text{UCLA}) \wedge \neg BA(\text{Oxford}))$$

Puzzle: no anomaly is intuited. Why?

The anomaly would be avoided: if the presupposition is weakened to existential.

- Suppose the P is just that Mary got her B.A. at *some* place.

(10) **Target: existential P**

a. P: $BA(\text{Cal}) \vee BA(\text{UCLA}) \vee BA(\text{Oxford})$

b. A: $\neg BA(\text{UCLA}) \wedge \neg BA(\text{Oxford})$

- Without the prejacent presupposed, the assertion is contentful.

(11) **No contextual entailment**

$$P \not\Rightarrow_{\text{context}} (\neg BA(\text{UCLA}) \wedge \neg BA(\text{Oxford}))$$

- A prejacent inference is derived, but only by combining P and assertion.

(12) $(P \wedge A) \Rightarrow BA(\text{Cal})$

Projection tests: strikingly confirm that the P is existential in this case.

- Klinedinst (2005): with negation, there is no prejacent inference at all.

(13) **Negation of (4)**

Mary didn't only get her B.A. at CAL STATE.

a. $\not\Rightarrow$ Mary got her B.A. at Cal State.

b. \Rightarrow Mary got her B.A. somewhere else (perceived as more prestigious).

- With the P existential, the observed inference is predicted.

(14) $[_{\text{TP}} \text{not} [\text{only} [_{\text{VP}} \text{Mary got her B.A. at [Cal State]}_F]]]$

a. P: $BA(\text{Cal}) \vee BA(\text{UCLA}) \vee BA(\text{Oxford})$

b. A: $BA(\text{UCLA}) \vee BA(\text{Oxford})$

(15) $(P \wedge A) \Leftrightarrow BA(\text{UCLA}) \vee BA(\text{Oxford})$

The puzzle: *only* yields a ‘strong’ prejacent presupposition by default, and a ‘weak’ existential presupposition when the strong P would yield a pragmatic anomaly.

(16) **Strength variability**

$\llbracket \text{only} \rrbracket^{\text{ALT}}(p)(w)$

- a. Strong P: $p(w)$
- b. Weak P: $\exists p' \in \text{ALT} [p'(w)]$

- Question: what is the mechanism for weakening?

1.3 Plan for the talk

1. Analysis 1: weakening due to domain restriction.
(Crnič 2022)
2. A challenge to Analysis 1.
3. Analysis 2: a covert weakening operator in the scope of *only*.
(after Alonso-Ovalle & Hirsch 2022, cf. Crnič 2011, Schwarz 2004)

2 Analysis 1: domain restriction

This section: a recent analysis of weakening based on domain restriction.

(17) **Recall: classical entry**

$\llbracket \text{only} \rrbracket^{\text{ALT}} = \lambda p_{st} . \lambda w : \boxed{p(w)} . \forall p' \in \text{ALT} [p'(w) \rightarrow p \subseteq p']$

Crnič (2022):

- Revises the analysis of *only* so that the P is introduced by a *quantifier*.
- Credits weakening of the P to domain restriction.

- As a result, (20) says that Mary didn't visit anywhere other than Cal State.

(22) **Derived assertion**

- $\neg \exists x \in \{ \text{UCLA, Oxford} \} [\text{VISIT}(x)]$
- $\Leftrightarrow \neg \text{VISIT}(\text{UCLA}) \wedge \neg \text{VISIT}(\text{Oxford})$

- The negative assertion is derived; the positive inference is added by MIN.

Step 2: the higher MIN element introduces a positive presupposition.

(23) **LF for (18) (full)**

$[_{TP} \boxed{\text{MIN}} [\text{Mary visited } [_{DP} \text{no } [_{NP} \text{place } [\text{but } [_{\text{Cal State}}]_F]]]]]]$

The MIN operator: leaves the assertion unchanged, but introduces a presupposition that other subtractions not including Cal State yield falsity.²

(24) **Defining MIN**

$[\boxed{\text{MIN}}]^{ALT} = \lambda p_{st} . \lambda w : \boxed{\forall p' \in \text{ALT}_{excl} [\neg p'(w)]} . p$

- Crucially, MIN *quantifies* over alternatives in its presupposition.

(25) **'Exclusion alternatives'**

$\text{ALT}_{excl} = \{ \text{Mary visited no place} - X : \{ \text{Cal} \} \not\subseteq X \}$

(26) **Stating the alternatives**

$$\text{ALT}_{excl} = \left\{ \begin{array}{l} \text{Mary visited no place} - \emptyset, \\ \text{Mary visited no place} - \{ \text{UCLA} \}, \\ \text{Mary visited no place} - \{ \text{Oxford} \}, \\ \text{Mary visited no place} - \{ \text{UCLA, Oxford} \} \end{array} \right\}$$

- We can home in on the alternatives with the least and most subtractions.

(27) **'Limit alternatives'**

- Mary visited no place – \emptyset (*'minimal'*)
- Mary visited no place – { UCLA, Oxford } (*'maximal'*)

²MIN is based on Gajewski (2008) and, in turn, on von Stechow's (1993) 'leastness' condition, which requires that { Cal } is the *smallest* set which can be subtracted to yield a true statement. In Crnič's formulation, MIN is, in effect, a presuppositional exhaustivity operator, with its alternative set constrained as in (26). As Crnič notes, his analysis could be formulated with PEX, the presuppositional exhaustivity operator in Bassi et al. 2021, with the alternatives computed through general algorithms (cf. Hirsch 2016).

Negating the minimal limit alternative: conveys that Mary visited *somewhere*.

- (27a) Mary visited no place – \emptyset
- (28) **Evaluating subtraction**
 $\{ \text{Cal, UCLA, Oxford} \} - \emptyset = \{ \text{Cal, UCLA, Oxford} \}$
- (29) **Conveyed by alternative**
 a. $\neg \exists x \in \{ \text{Cal, UCLA, Oxford} \} [\text{VISIT}(x)]$
 b. $\Leftrightarrow \neg \text{VISIT}(\text{Cal}) \wedge \neg \text{VISIT}(\text{UCLA}) \wedge \neg \text{VISIT}(\text{Oxford})$
- (30) **Alternative negated**
 a. $\exists x \in \{ \text{Cal, UCLA, Oxford} \} [\text{VISIT}(x)]$
 b. $\Leftrightarrow \text{VISIT}(\text{Cal}) \vee \text{VISIT}(\text{UCLA}) \vee \text{VISIT}(\text{Oxford})$

Negating the maximal limit alternative: conveys that Mary visited *Cal State*.

- (27b) Mary visited no place – $\{ \text{UCLA, Oxford} \}$
- (31) **Evaluating subtraction**
 $\{ \text{Cal, UCLA, Oxford} \} - \{ \text{UCLA, Oxford} \} = \{ \text{Cal} \}$
- (32) **Conveyed by alternative**
 a. $\neg \exists x \in \{ \text{Cal} \} [\text{VISIT}(x)]$
 b. $\Leftrightarrow \neg \text{VISIT}(\text{Cal})$
- (33) **Alternative negated**
 $\text{VISIT}(\text{Cal})$

Since both alternatives are negated by MIN: the overall P is the strong one.³

- (34) **Overall P (= strong P)**

$$\frac{\text{VISIT}(\text{Cal}) \vee \text{VISIT}(\text{UCLA}) \vee \text{VISIT}(\text{Oxford})}{\text{VISIT}(\text{Cal})}$$

To re-iterate, then: in recent analyses of the exceptive, a strong P that Mary visited Cal State is derived via a universal quantifier over alternatives (MIN).

³There are two additional alternatives in (26) that we have set aside. Negating the alternative that Mary visited no place other than UCLA would convey that Mary visited Cal State or Oxford. Negating the alternative that Mary visited no place other than Oxford would convey that Mary visited Cal State or UCLA. Since negating the maximal limit alternative entails the negation of these two alternatives, we can ignore them here.

With a full alternative set: a strong P would be predicted, as in the prior case.

(38) **Alternatives for MIN**

$$\left\{ \begin{array}{l} \boxed{\text{Mary got her B.A. at no place} - \emptyset}, \\ \text{Mary got her B.A. at no place} - \{ \text{UCLA} \}, \\ \text{Mary got her B.A. at no place} - \{ \text{Oxford} \}, \\ \boxed{\text{Mary got her B.A. at no place} - \{ \text{UCLA, Oxford} \}} \end{array} \right\}$$

(39) **Strong P**

BA(Cal)

- Recall: the strong P entails the assertion, inducing a pragmatic anomaly.

(40) **Contextual entailment**

$\text{BA(Cal)} \Rightarrow_{\text{context}} (\neg \text{BA(UCLA)} \wedge \neg \text{BA(Oxford)})$

But, a remedy: a weaker P is derived if the alternative set is further restricted.

- Suppose that just the minimal limit alternative remains.

(41) **Alternatives for MIN**

$$\left\{ \begin{array}{l} \boxed{\text{Mary got her B.A. at no place} - \emptyset}, \\ \text{Mary got her B.A. no place} - \{ \text{UCLA} \}, \\ \text{Mary got her B.A. no place} - \{ \text{Oxford} \}, \\ \text{Mary got her B.A. no place} - \{ \text{UCLA, Oxford} \} \end{array} \right\}$$

- Negating the minimal limit alternative yields the target P. Concretely:

(42) **Minimal limit alternative**

Mary got her B.A. at no place - \emptyset

(43) **Conveyed by alternative**

- $\neg \exists x \in \{ \text{Cal, UCLA, Oxford} \} [\text{BA}(x)]$
- $\Leftrightarrow \neg \text{BA(Cal)} \wedge \neg \text{BA(UCLA)} \wedge \neg \text{BA(Oxford)}$

(44) **Alternative negated (= weak P)**

- $\exists x \in \{ \text{Cal, UCLA, Oxford} \} [\text{BA}(x)]$
- $\Leftrightarrow \text{BA(Cal)} \vee \text{BA(UCLA)} \vee \text{BA(Oxford)}$

- Recall: the weak P does not entail the assertion, so anomaly is avoided.

- (45) **No contextual entailment**
 $P \not\Rightarrow_{\text{context}} (\neg \text{BA}(\text{UCLA}) \wedge \neg \text{BA}(\text{Oxford}))$

Hence, one path to weakening: *only* is re-analyzed so that MIN is the presupposition trigger, and weakening results from restricting the domain for MIN.

- But, is domain restriction a viable path to weakening?

3 Challenge

Prediction: if domain restriction can occur with MIN to avoid pragmatic anomaly, that should be observed across its distribution, not just for *only*.

- However: baseline data do *not* allow for domain restriction.

3.1 Comparison with *but*-exceptives

Baseline: MIN occurs with exceptive *but*.

Yet, observe: (46) has a different status from (4).

- (4) Mary only got her B.A. at CAL STATE.
 (46) #Mary got her B.A. at no place but CAL STATE.

- Unlike in (4), a pragmatic anomaly is detected in (46) (trivial).

- The contrast can be replicated in a range of data. For example:

- (47) a. Mary only won the BRONZE medal.
 b. #Mary won no medal but the bronze.
- (48) a. (After rolling one die.) Mary only got a TWO.
 b. (After rolling one die.) #Mary got no score but a TWO.

In general: the contrast challenges an analysis unifying *only* with the exceptive.

- (49) a. Mary got her B.A. at CAL STATE.
 b. #Mary got her B.A. at no place but CAL STATE.

(50) **Common analysis**

[_{TP} MIN [Mary got her B.A. at [_{DP} NO [PLACE [BUT [Cal State]_F]]]]]

- In Crnič’s analysis, the two should pattern together, all things equal.

More specifically: the deviance of the exceptive data suggest that MIN does *not* permit the domain restriction needed to avoid pragmatic anomaly.⁴

- To re-iterate: a strong, but not weak, P contextually entails the assertion.

(51) **Alternatives yielding strong P**

$$\left\{ \begin{array}{l} \boxed{\text{Mary got her B.A. at no place} - \emptyset}, \\ \text{Mary got her B.A. at no place} - \{ \text{UCLA} \}, \\ \text{Mary got her B.A. at no place} - \{ \text{Oxford} \}, \\ \boxed{\text{Mary got her B.A. at no place} - \{ \text{UCLA, Oxford} \}} \end{array} \right\}$$

(52) **Alternatives yielding weak P**

$$\left\{ \begin{array}{l} \boxed{\text{Mary got her B.A. at no place} - \emptyset}, \\ \text{Mary got her B.A. at no place} - \{ \text{UCLA} \}, \\ \text{Mary got her B.A. at no place} - \{ \text{Oxford} \}, \\ \text{Mary got her B.A. at no place} - \{ \text{UCLA, Oxford} \} \end{array} \right\}$$

Because the exceptive is deviant: the strong presupposition must be both available and obligatory, indicating that MIN’s domain cannot be restricted as in (52).

Hence, the challenge: to maintain Crnič’s analysis, domain restriction would have to be available to MIN in some cases (with *only*), but not others (with *but*).

- We are not aware of a principled reason for this asymmetry.

Response: to pursue a different mechanism for the weakening observed with *only*.

⁴For other cases where alternatives cannot be freely pruned, see e.g. Magri (2009), Bar-Lev (2022).

4 Analysis 2: a weakening operator

Our strategy: *only* always presupposes its prejacent; weakening is due to a separate covert operator, optionally inserted into its scope.

(53) **Recall: classical entry**
 $\llbracket \text{only} \rrbracket^{\text{ALT}} = \lambda p_{st} . \lambda w : \boxed{p(w)} . \forall p' \in \text{ALT} [p'(w) \rightarrow p \subseteq p']$

(54) **Weakening configuration**
 $[\text{only} [\dots \text{Op} \dots]]$

4.1 A covert weakening operator

Alonso-Ovalle & Hirsch (2022): parallel analysis for a different case of weakening.

- Weakening also arises with *only* + modal. von Stechow & Iatridou 2007:

(55) To get good cheese, you only have to go to THE NORTH END.

- The prejacent of *only* expresses a necessity claim.

(56) **LF for (55) (transparent)**
 $[_{TP} \text{only} [_{VP} \text{have} [\text{you go to the } [_{\text{North End}}]_F]]]$
 $\leftrightarrow P: \Box [\text{GO}(\text{North End})]$

- But, the observed reading exhibits a weaker possibility inference.

(57) **Minimal sufficiency reading**
 a. “The North End is one easy place to get good cheese.”
 b. $\Rightarrow \Diamond [\text{GO}(\text{North End})]$

Our analysis: (55) is parsed with a covert operator \approx *at least*. Informally:

(58) **LF for (55) (revised)**
 $[_{TP} \text{only} [_{VP} \text{have} [\boxed{\text{AT LEAST}} [\text{you go to the } [_{\text{North End}}]_F]]]]$
 $\leftrightarrow P: \Box [\text{you go to the North End } \textit{or further away}]$

- In combination with the assertion, just a possibility inference is derived.

(59) **Predicted assertion**

A: $\neg\Box$ [you go further away]

(60) $(P \wedge A) \Rightarrow \Diamond$ [GO(North End)]

In Alonso-Ovalle & Hirsch (2022), we entertained: constraints on AT LEAST which would limit its occurrence, in effect, to modal environments.

4.2 Extending the analysis

But, proposal: weakening with *only* is due to AT LEAST more generally.

(4) Mary only got her B.A. at CAL STATE.

(61) **LF for (4)**

[_{TP} only [AT LEAST [_{vP} Mary got her BA at [Cal State]_F]]]

Crnič (2011) (cf. Schwarz 2004): AT LEAST is a scalar focus operator. Formally:

(62) **Weakening operator**

$\llbracket \text{AT LEAST} \rrbracket^{\text{ALT} \leq} =$

$\lambda p_{st} . \lambda w : \forall p' \in \text{ALT} [p \neq p' \wedge p < p'] . \llbracket \exists p'' \in \text{ALT} [p \leq p''] \rrbracket$

- P: p is lowest ranked (scalar).
- A: p or some higher ranked p' is true (weakening).

- Inserting AT LEAST weakens the vP to existential.

(63) **LF for (4) (fragment)**

[AT LEAST [_{vP} Mary got her BA at [Cal State]_F]]

(64) **Ranking of alternatives**

BA(Cal) < BA(UCLA) < BA(Oxford)

(65) **Asserted by fragment**

BA(Cal) \vee BA(UCLA) \vee BA(Oxford)

- Hence, the prejacent of *only* is weakened, and a weak prejacent P results.

(66) **LF for (4) (full)**
 $[_{TP} \text{ only } [\text{ AT LEAST } [_{vP} \text{ Mary got her BA at } [\text{ Cal State}]_F]]]$

(67) **Prejacent P (weak)**
 $\text{BA}(\text{Cal}) \vee \text{BA}(\text{UCLA}) \vee \text{BA}(\text{Oxford})$

Moreover: the target assertion is still derived with AT LEAST present.

(68) **Alternatives for *only***
 a. $\llbracket \text{ AT LEAST } \rrbracket (\text{BA}(\text{UCLA})) \Leftrightarrow \text{BA}(\text{UCLA}) \vee \text{BA}(\text{Oxford})$
 b. $\llbracket \text{ AT LEAST } \rrbracket (\text{BA}(\text{Oxford})) \Leftrightarrow \text{BA}(\text{Oxford})$

(69) **Assertion**
 $\neg \text{BA}(\text{UCLA}) \wedge \neg \text{BA}(\text{Oxford})$

- In turn, a prejacent inference is captured, with no pragmatic anomaly.⁵

(70)
$$\frac{\begin{array}{l} \text{P: } \text{BA}(\text{Cal}) \vee \text{BA}(\text{UCLA}) \vee \text{BA}(\text{Oxford}) \\ \text{A: } \neg \text{BA}(\text{UCLA}) \wedge \neg \text{BA}(\text{Oxford}) \end{array}}{\text{BA}(\text{Cal})}$$

4.3 Constraining AT LEAST

We take AT LEAST to be optional: so, where the alternatives are *not* mutually exclusive, the strong presupposition is derived from a parse without AT LEAST.

(1) Mary only visited CAL STATE.

(71) **LF 1:** $[_{TP} \text{ only } [_{vP} \text{ Mary visited } [\text{ Cal State}]_F]]$
 $\hookrightarrow \text{P: VISIT}(\text{Cal})$

Still, over-generation concern: (1) should also have a parse with AT LEAST.

⁵Our analysis reaches a parallel overall meaning to the original one in Klinedinst (2005), which encodes an ‘at least’ component in the presupposition of *only* itself (also Beaver & Coppock 2014). By positing a separate AT LEAST operator, we allow AT LEAST to take scope at a different height than *only*, which occurs in the modal case in (58). Moreover, being separate, AT LEAST can be omitted to yield a strong prejacent presupposition where observed (see Section 4.3). In Klinedinst’s analysis, a strong reading results if *only* quantifies over an alternative set containing the prejacent and conjunctions with the prejacent as one conjunct. The disjunction of these alternatives is equivalent to the prejacent. That approach, however, is in tension with recent arguments that conjunctive alternatives are not generally available (see Fox & Katzir 2011).

- (72) **LF 2:** [TP only [AT LEAST [_{vP} Mary visited [Cal State]_F]]]
 \leftrightarrow P: VISIT(Cal) \vee VISIT(UCLA) \vee VISIT(Oxford)

- Yet, recall: just the strong P is supported by projection diagnostics.

- (73) **Negation of (1)**
 Mary didn't only visit CAL STATE.
 a. P: Mary visited Cal State.
 b. A: Mary visited somewhere else.

However, AT LEAST can be restricted in a principled way: inserted into the scope of *only* as a *last resort* only when needed to avoid pragmatic anomaly.

- With alternatives mutually compatible, LF 1 blocks LF 2.

5 Conclusion

This talk: a challenge for a recent account of weakening the presupposition of *only* based on domain restriction; pursued an optional weakening operator.

- (4) Mary only got her B.A. from Cal State.

- (74) [TP only [AT LEAST [_{vP} Mary got her B.A. from [Cal State]_F]]]

- *Only* presupposes its prejacent; AT LEAST weakens the prejacent.

Next step: to better understand constraints on insertion of AT LEAST. One puzzle:

- (75) I'm not sure where Mary got her B.A.
 a. ... #She got her B.A. from Cal State.
 b. ... She got her B.A. from Cal State or somewhere else.

- (76) **LF for (75b) (unattested)**
 [TP AT LEAST [_{vP} she got her B.A. from [Cal State]_F]]

- Question: is AT LEAST licensed in the absence of *only*?

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