# Analyzing English Only as <br> Not Any More/Other Than 

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For more updates of this project, please see https://ling.auf.net/lingbuzz/oo8130

## The classical view of only

- Horn (1969): Only expresses maximality (of informativeness)
- $\sim$ the prejacent of only is the strongest true proposition (among its alternatives) that can be uttered
- i.e., every stronger alternative to the prejacent is false
- Both (1) and (2) has the same positive inference $\sim$ presupposition
(1) Only Amy and Bill read poems.
a. Positive inference: Amy and Bill read poems. Presupposition
b. Negative inference: No one else read poems. Assertion
(2) Not only Amy and Bill read poems.
a. Positive inference: Amy and Bill read poems. Presupposition
b. Negating the negative inference: Someone else read poems.

Assertion

## Today's take-home messages

Only means anti-additivity and includes three components: 1. negation, 2. NPI, 3. additivity

the focused associate of only: $x$
(3) $[[$ only $x]]=\underbrace{\text { not }}_{\text {Negation }} \underbrace{\text { any }}_{\text {NPI }} \underbrace{\text { more/other }}_{\text {an additive part }}$ than $x$
(with an additive presupposition: something other/more than $x$ exists)
(4) $[$ Only Amy and Bill read poems]] = Not anyone other than Amy and Bill read poems
a. Positive inference: Amy and Bill read poems.
$\sim$ (obligatory) scalar implicature
b. Negative inference: No one else read poems. $\sim$ literal meaning

## Today's roadmap

- 1. I will present new and cross-linguistic empirical data which
- challenges the view that the prejacent of only is maximally informative
- suggests that the positive inference is more like an implicature
- sheds light on the underlying components of only
- 2. I will propose a new perspective on only: it indicates anti-additivity
- 3. I will address a few welcome consequences of the proposal
- Just like additive particles, the use of only is across domains
- The positive inference of only is an implicature
- The NPI (non)-licensing behavior of only
- The 'diminishing' effect of only
- 4. I will compare the current proposal with some recent accounts


## Outline

## (1) Empirical data

2 Proposal: Only means anti-additivity
3 Welcome consequences of the current proposal

- The notion of (anti-)additivity is across domains
- The positive and negative inference of only
- NPI (non-)licensing
- The component any and 'diminishing' meaning

4 Comparison with existing accounts
(5) Conclusion

## 1. The classical 'maximality' view: good predictions

- According to the canonical view, the prejacent of only is the strongest (maximally informative) true one among alternatives
- Our intuition that (5)-(7) are contradictory is indeed accounted for.
- (6) and (7) suggest that the meaning of only is similar to exactly.

$\because p_{1} \vDash p_{2}, \therefore$ they cannot be both the strongest.
(6) ?Only 3 people came. In fact, only 2 people came.

$\because p_{1} \vDash p_{2}, \therefore$ they cannot be both the strongest.
(7) \#Only 3 people came. In fact, only 4 people came.

Contradiction
Contradiction
$p_{2}$


Contradiction
$\because p_{2} \vDash p_{1}, \therefore$ they cannot be both the strongest.

## 1. The classical 'maximality' view: bad predictions

- However, our intuition is that (8) and (9) are NOT contradictory, and they are true and felicitous in their context.
(8) Context: I have a juice bar. Only kids below 14 came to my juice bar. I told a friend who came to my juice bar:
'Only kids below 18 came to my juice bar.
$p_{1}$
In fact, only kids below 14 came to my juice bar.
$p_{2} \vDash p_{1}$
$p_{2}$
(9) Context: a company only hires people with a PhD degree in linguistics. During an interview, when asked who they hire, they said:
'We only hire people with a PhD degree.
$p_{1}$
In fact, we only hire people with a PhD degree in linguistics.' $p_{2}$ ₹ $p_{1}$
$p_{2}$


## 2. Parallelism (i): positive inference of only vs. implicature Incremental informativeness

- Both can be cancelled by continuing with a stronger alternative. ${ }^{1}$
(8) Context: I have a juice bar. Only kids below 14 came to my juice bar. I told a friend who came to my juice bar:
'Only kids below 18 came to my juice bar.
$p_{1}$
In fact, only kids below 14 came to my juice bar.' $\quad p_{2} \vDash p_{1}$
$p_{2}$
(10) Context: At the entrance of a bar, somebody asked me whether I'm 21, and I answered:
'Of course $\underbrace{\text { I'm 21 }}_{p_{1}}$. In fact $\underbrace{\text { I'm } 40}_{p_{2}}$.'

$$
p_{2} \vDash p_{1}
$$

${ }^{1}$ I thank Paul-André Mellies for imagining the juice bar scenario, which makes me see the parallelism between (8) and (10).

## 2. Parallelism (i): positive inference of only vs. implicature Incremental informativeness

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(9) Context: a company only hires people with a PhD degree in linguistics. During an interview, they said:
‘We only hire people with a PhD degree.

In fact, we only hire people with a PhD degree in linguistics.' $p_{2} \vDash p_{1}$

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p
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(10) Context: At the entrance of a bar, somebody asked me whether I'm 21, and I answered:
'Of course $\underbrace{\text { I'm 21 }}_{p_{1}}$. In fact $\underbrace{\text { I'm 40. }}_{p_{2}}$

$$
p_{2} \vDash p_{1}
$$

2. Parallelism (ii): positive inference of only vs. implicature Asymmetry

- There can be an asymmetry between a positive and negative sentence:
(i) cancellable in one and (ii) uncancellable (i.e., obligatory) in the other
(11) (see also e.g., Van Rooij and Schulz 2007, Crnič 2022)
a. Only kids below 18 came to my juice bar, and perhaps even they didn't.
$\sim$ weak, cancellable positive inference
b. Not only kids below 18 came to my juice bar, \# but perhaps they didn't.
$\sim$ strong, uncancellable positive inference
(12) (see also e.g., Sauerland et al. 2005, Spector 2007)
a. The kids flew kites in the park.
$\leadsto$ uncancellable plural inference
b. The kids didn't fly kites in the park.
$\sim$ cancellable plural inference


## 3. Inspiration from cross-linguistic expressions of ONLY

- In some languages, the expression of only already contains a negation: an NPI + a negation
(13) Korean construction $\underbrace{p a k k-e y}_{\text {NPI }}+$ NEG

30-pwun pakk-ey an ca-ss-ta
30-min. outside-to NEG sleep-PST-DEC
'I only slept for 30 minutes.'
Literal translation: 'Outside of 30 minutes, I did not sleep.'

## Interim summary

- I have shown new and cross-linguistic empirical data which
- challenges the 'maximality (of informativeness)' view of only
- suggests the parallelism between the positive inference and implicature
- sheds light on the underlying components of only
- These empirical data suggest that
- Only includes some hidden negation and NPI
- The use of only shows a sensitivity to scalarity (see also e.g., Alxatib 2020)


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3 Welcome consequences of the current proposal

- The notion of (anti-)additivity is across domains
- The positive and negative inference of only
- NPI (non-)licensing
- The component any and 'diminishing' meaning

4 Comparison with existing accounts
(5) Conclusion

## Proposal

Only means anti-additivity and includes three components:

1. negation, 2. NPI, 3. additivity

the focused associate of only: $x$
(3) $\quad[$ only $x]]=\underbrace{\text { not }}_{\text {Negation }} \underbrace{\text { any }}_{\text {NPI }} \underbrace{\text { more/other }}_{\text {an additive part }}$ than $x$
(with an additive presupposition: something other/more than $x$ exists)

## Additivity and anti-additivity: Anaphoricity to a QUD

- The components of negation and NPI reflect what is overt in Korean ONLY.
- The component of additivity captures scalarity (in addressing a QUD)
- Additivity addresses an increase anaphoric to a base item, that is a partial answer to a relevant Current Question (CQ, see Beaver and Clark 2009, Thomas 2011, Zhang and Ling 2021, Zhang and Zhang 2024).
$\star$ Additivity: leading to a more informative answer to the CQ
- Anti-additivity still assumes the existence of items / values above the base item, but indicates that this increase part cannot lead to a more informative true answer to the CQ
$\star$ Anti-additivity does not itself guarantee maximal informativeness in addressing the CQ (see examples like (8) and (9))
(14) Current question: Who came?
a. ( $\underbrace{\text { Amy }}_{\text {base item }}$ came). $\underbrace{\text { Another girl }}_{\text {increase }}$ also came.
b. Not anyone other than Amy came. no increase
base item


## Accounting for some of the above examples

- In these examples, the overall discourse shows an incremental informativeness in addressing their relevant CQ:
(8) CQ of the juice-bar scenario: who came to my juice bar?
' Only kids below 18 came to my juice bar .
Not anyone other than kids below 18 came to my juice bar
In fact, only kids below 14 came to my juice bar .
Not anyone other than kids below 14 came to my juice bar
(9) CQ of the the hiring scenario: who do we hire?
- We only hire people with a PhD degree .

We do not hire anyone other than those with a PhD degree
In fact, we only hire people with a PhD degree in linguistics.'
We do not hire anyone other than those with a PhD degree in linguistics
(10) CQ of the bar scenario: how old am I?
'Of course I'm 21. In fact I'm 40.'

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## 1. The notion of (anti-)additivity is across domains

- (Anti-)additivity is about addressing a QUD and can be based on
- a part-whole relation in a domain of entities
- lower and higher values along a totally ordered scale (i.e., in a domain of scalar values)
(15) I ate two bars of chocolate. Then I ate a bit more.

Additivity in a domain of entities
(16) Amy is intelligent. Sophie is more intelligent.

Additivity in a domain of scalar values (here a scale of intelligence)
(17) Only Amy and Bill bought books.
= Not anyone other than Amy and Bill bought books.
Anti-additivity in a domain of entities
(18) Bill is only 17 years old.
$=$ Bill is not any older than 17 .
Anti-additivity in a domain of scalar values
(here a scale of height)

## 2. The positive and negative inference of only

(4) $[[$ Only Amy and Bill read poems $]]=$ Not anyone other than Amy and Bill read poems
a. Positive inference: Amy and Bill read poems.
$\sim$ (obligatory) scalar implicature
b. Negative inference: No one else read poems. $\leadsto$ literal meaning

## 2. The positive and negative inference of only <br> Deriving the positive inference as scalar implicature

(17) Only Amy and Bill bought books.
$=$ Not anyone other than A and B bought books.
(literal meaning)
$\wedge \neg[$ Not anyone other than A bought books] (negating a stronger claim)
$\wedge \neg[$ Not anyone other than B bought books] (negating a stronger claim)
$\leadsto$ Amy and Bill bought books
(18) Bill is only 17 years old.
$=$ Bill is not any older than 17 .
(literal meaning)
$\wedge \neg[$ Bill is not any older than $n]$ (here $n<17$ ) (negating a stronger one)
$\sim$ Bill is 17 years old

## 2. The positive and negative inference of only: <br> When an only-sentence is negated

- Negating anti-additivity results in additivity
- Thus the positive inference of an only-sentence now becomes the literal meaning, serving as the base of additivity.
- This explains why the positive inference is actually strong and uncancellable in a negated only-sentence.
(19) Not only Amy and Bill bought books.
(the negation of (17))
= Someone other than Amy and Bill bought books.
$\vDash$ Amy and Bill bought books.
base of additivity
(20) Bill is not only 17 years old.
(the negation of (18))
$=$ Bill is older than 17 .
$\vDash$ Bill is 17 years old.

base of additivity

## 2. The positive and negative inference of only: the weakening of the positive inference

- Some naturally occurring examples online:
(21) How can human beings balance their bodies on only two legs (sometimes even on one) when it is not possible for other animals and non-living things on only two legs?
https://www.quora.com/How-can-human-beings-balance-their-bodies-on-only-two-legs-sometimes-even-on-one-when-it-is-not-possible-for-other-animals-and-non-living-things-on-only-two-legs
(22) Flower that blooms only once a year sometimes even once in two years.
https://www.alamy.com/flower-that-blooms-only-once-a-year-sometimes-even-once-in-two-years-flower-in-the-garden-image 312 105296.html
(23) Flat warts may be round or oval-shaped. They're only very slightly raised, sometimes not even noticeable.
https://my.clevelandclinic.org/health/diseases/24337-flat-warts


## 2. The positive and negative inference of only: the weakening of the positive inference

- Examples from the literature: Crnič (2022), von Fintel and Iatridou (2007)
(24) Tali has to only dance with Gali $_{F}$
(Crnič 2022: (11))
... and she doesn't have to dance with her either
(25) To get good cheese, you only have to go to the North End.
(von Fintel and Iatridou 2007: (11))
- Under the current proposal,
- (24) means that Tali does not have to dance with anyone other than Gali.
- (25) means that you don't have to go to anywhere other than the North End.


## 2. The positive and negative inference of only: the weakening of the positive inference

- Van Rooij and Schulz (2007): Material implication
(26) Only if $[A]_{F}$, then $C$. $\neq$ if $[A]_{F}$, then $C$.
(27) I will read a book only if its reviews are good. $\sim$ Intuitively, 'its reviews are good' is a necessary but not sufficient condition for me to read a book.


## 3. NPI (non)-licensing

- By containing a negation operator, only naturally licenses NPI.
- Only naturally provides a downward-entailing (DE) environment.
- There is no need to assume Strawson DE-ness (cf. Von Fintel 1999)
(28) Only Mary ate any vegetables.
$=$ Not anyone other than Mary ate any vegetables.
(29) Only provides DE-ness
a. Only Mary read books
= Not anyone other than Mary read books
b. Only Mary read linguistics books
= Not anyone other than Mary read linguistics books
- Given that $\lambda x$.linguistics- $\operatorname{book}(x) \subseteq \lambda x \cdot \operatorname{book}(x)$, while $[[(29 \mathrm{a})]] \vDash[[(29 \mathrm{~b})]]$, not anyone other than Mary, i.e., only Mary, is a DE environment.


## 3. NPI (non)-licensing

- The focused associate part of only is upward-entailing (UE) and cannot license an NPI (see also Xiang 2017).
(30) a. Only $[\text { some kids }]_{F}$ came.
b. *Only [any kids $]_{F}$ came.
(31) The focused associate of only is an UE environment
a. Only dogs are cute
= Not anything other than dogs are cute
b. Only poodles are cute
$=$ Not anything other than poodles are cute
- Given that $\lambda x \cdot \operatorname{poodle}(x) \subseteq \lambda x \cdot \operatorname{dog}(x)$, while $[[(31 \mathrm{~b})]] \vDash[[(31 \mathrm{a})]]$, the focused associate of only is a UE environment.


## 4. The component any and the 'diminishing' meaning

- As illustrated by the contrast between (18) and (32), the 'diminishing' impression in interpreting an only-sentence comes from the contribution of any.
(18) Bill is only 17 years old. $\sim 17$ is below the threshold of being old $=$ Bill is not any older than 17 . 'diminishing' meaning
(32) Bill is not older than 17.

No 'diminishing’ meaning

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## 1. Compared with Van Rooij and Schulz (2007)

- Van Rooij and Schulz (2007): a background alternative approach.
- E.g., in (33), [ [only Mary] is a GQ of type $\langle\langle e t\rangle, t\rangle$,
- and [[John introduced to Sue]] is of type 〈et〉
- and the latter is a smallest element of the former, i.e., the latter is equal to \{Mary\}
- Van Rooij and Schulz (2007) considers the positive inference of an only-sentence an implicature
(33) John only introduced Mary $F_{F}$ to Sue.


## 2. Compared with von Fintel and Iatridou (2007)

- von Fintel and Iatridou (2007): (i) only expresses exception, and (ii) there is a weakened, existential presupposition.
(34) only $\mathrm{x}=$ NEGATION + other than $x \quad$ (von Fintel and Iatridou 2007) (with an existential presupposition)
(25) To get good cheese, you only have to go to the North End. = You do not have to go to places other than the North End (Presupposition: You have to go to somewhere)
- This analysis makes a wrong prediction wrt Crnič (2022)'s data: Intuitively, (24) does not entail that Tali has to dance with someone.
(24) Tali has to only dance with Gali $_{F}$
- This analysis attributes the 'diminishing' effect to world knowledge:
(18) Bill is only 17 years old.
$\sim$ predicted to be equivalent to 'Bill is not older than 17 '


## 3. Compared with Coppock and Beaver (2014)

- Coppock and Beaver (2014): exclusive expressions
- an at-issue 'at most' component: there is no answer to the Current

Question under discussion that is stronger than the prejacent

- a presupposed 'at least' component: there is some answer to the Current Question under discussion that is at least as strong as the prejacent
- The 'juice-bar' example and the 'hire' example challenge this view:
(8) CQ of the juice-bar scenario: who came to my juice bar?
'Only kids below 18 came to my juice bar. In fact, only kids below 14 came to my juice bar.'
(9) CQ of the the hiring scenario: who do we hire?
'We only hire people with a PhD degree.
In fact, we only hire people with a PhD degree in linguistics.'


## 4. Compared with Alonso-Ovalle and Hirsch (2022)

- Alonso-Ovalle and Hirsch (2022) proposes that an only-sentence presupposes the truth of the prejacent
- To account for (25), Alonso-Ovalle and Hirsch (2022) proposes the insertion of a silent at least
- This optional insertion is problematic wrt (24)
- It is also at odds with adding an overt at least in an only sentence.
(25) To get good cheese, you only have to go to the North End.
(35) Alonso-Ovalle and Hirsch (2022)'s analysis of (25): you have to go to the North End or somewhere else
(24) Tali has to only dance with Gali ${ }_{F}$
(Crnič 2022: (11))
(36) a. Only two people came.
b. *Only at least two people came.


## 5. Compared with Crnič (2022)

- Crnič (2022) adopts a distributed analysis
(37) only $x=$ no one but $x$
[ MIN [ only Gali ${ }_{F}$ arrived on time ] ]
negative inference: No one distinct from Gali arrived on time
positive inference: Gali arrived on time


## Summary

|  | Theory components |  |  | how are empirical data explained |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Van Rooij and Schulz (2007) | $/$ | $/$ | NPI | cross-domain <br> use | positive <br> inference | diminishing' <br> effect |
| von Fintel and Iatridou (2007) | $\checkmark$ | unclear on <br> whether it's <br> scale-based | hinted | not discussed | a weakened <br> existential <br> presupposition | world knowledge |
| Coppock and Beaver (2014) | $/$ | scale-based | $/$ | QUD-related | a weakend <br> existential <br> presupposition | not discussed |
| Alonso-Ovalle and Hirsch (2022) | $/$ | $/$ | not discussed | implicature | not discussed |  |
| Crnič (2022) | $\checkmark$ | not-scale-based | $/$ | not discussed | a weakened <br> existential <br> presupposition | not discussed |
| Current proposal |  |  |  | not discussed | presupposition | not discussed |

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## Thank you!

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For more updates of this project, please see https://ling.auf.net/lingbuzz/oo8130

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