Analyzing English *Only* as *Not Any More/Other Than*

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For more updates of this project, please see TBA

The classical view of *only*

- Horn (1969): *Only* expresses maximality (of informativeness)
  - ⤳ 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 ⤳ presupposition

(1)　　Only Amy and Bill read poems.

　　　a.　**Positive inference**: Amy and Bill read poems.　**Presupposition**
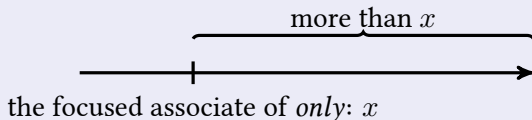　　　b.　**Negative inference**: No one else read poems.　**Assertion**

(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

more than x

the focused associate of *only*: x

(3) $[\![\text{only } x]\!]$ = $\underbrace{\text{not}}_{\text{Negation}}$ $\underbrace{\text{any}}_{\text{NPI}}$ $\underbrace{\text{more/other}}_{\text{an additive part}}$ than x

(with an additive presupposition: something other/more than x exists)

(4) $[\![\text{Only Amy and Bill} \text{ read poems}]\!]$ =
Not anyone other than Amy and Bill read poems

    a.   **Positive inference**: Amy and Bill read poems.

                          ⤳ (obligatory) scalar implicature

    b.   **Negative inference**: No one else read poems. ⤳ 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. 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*.

(5) ?Only $\underbrace{\text{Amy and Bill came.}}_{p_1}$ In fact, only $\underbrace{\text{Amy came.}}_{p_2}$ **Contradiction**

$\because p_1 \vDash p_2, \therefore$ they cannot be both the strongest.

(6) ?Only $\underbrace{\text{3 people came.}}_{p_1}$ In fact, only $\underbrace{\text{2 people came.}}_{p_2}$ **Contradiction**

$\because p_1 \vDash p_2, \therefore$ they cannot be both the strongest.

(7) #Only $\underbrace{\text{3 people came.}}_{p_1}$ In fact, only $\underbrace{\text{4 people came.}}_{p_2}$ **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.
$$\underbrace{\phantom{\text{Only kids below 18 came to my juice bar.}}}_{p_1}$$

    In fact, only kids below 14 came to my juice bar.' $p_2 \vDash p_1$
$$\underbrace{\phantom{\text{In fact, only kids below 14 came to my juice bar.}}}_{p_2}$$

(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.
$$\underbrace{\phantom{\text{We only hire people with a PhD degree.}}}_{p_1}$$

    In fact, we only hire people with a PhD degree in linguistics.' $p_2 \vDash p_1$
$$\underbrace{\phantom{\text{In fact, we only hire people with a PhD degree in linguistics.}}}_{p_2}$$

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.
$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad}_{p_1}$

In fact, only kids below 14 came to my juice bar.' $p_2 \vDash p_1$
$\underbrace{\qquad\qquad\qquad\qquad\qquad}_{p_2}$

(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 $\underbrace{\text{I'm 40}}_{p_2}$.' $p_2 \vDash p_1$

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

- Both can be cancelled by continuing with a stronger alternative.

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

'We only $\underbrace{\text{hire people with a PhD degree.}}_{p_1}$

In fact, we only $\underbrace{\text{hire people with a PhD degree in linguistics.'}}_{p_2}$ $\quad p_2 \vDash p_1$

(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 $\underbrace{\text{I'm 40.'}}_{p_2}$ $\qquad\qquad p_2 \vDash p_1$

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.

                ⤳ **weak, cancellable positive inference**

    b.   Not only kids below 18 came to my juice bar,
        # but perhaps they didn't.

                ⤳ **strong, uncancellable positive inference**

(12)   (see also e.g., Sauerland et al. 2005, Spector 2007)

    a.   The kids flew kites in the park.

                ⤳ **uncancellable plural inference**

    b.   The kids didn't fly kites in the park.

                ⤳ **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 $\underbrace{pakk\text{-}ey}_{\text{NPI}}$ + 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
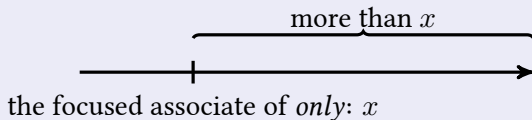 - The use of *only* shows a sensitivity to scalarity (see also e.g., Alxatib 2020)

Outline

Proposal

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

more than x

the focused associate of *only*: x

(3) $[\![\text{only } x]\!] = \underbrace{\text{not}}_{\text{Negation}} \underbrace{\text{any}}_{\text{NPI}} \underbrace{\text{more/other}}_{\text{an additive part}} \text{than } x$

(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).
    - ★ 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
    - ★ Anti-additivity does not itself guarantee maximal informativeness in addressing the CQ (see examples like (8) and (9))

(14)   Current question: Who came?

    a.   (Amy   came). Another girl also came.
           base item   increase

    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.'

Outline

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.

                                               $\leadsto$ (obligatory) scalar implicature

    b.   **Negative inference**: No one else read poems. $\leadsto$ literal meaning

2. The positive and negative inference of *only*
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)
       $\rightsquigarrow$ 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)
       $\rightsquigarrow$ Bill is 17 years old

2. The positive and negative inference of *only*: 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.
      ⊨ 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.
      ⊨ 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-image312105296.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.
        $\nvDash$ if $[A]_F$, then C.

(27)   I will read a book only if its reviews are good.
        $\rightsquigarrow$ 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 $\lambda x.\text{linguistics-book}(x) \subseteq \lambda x.\text{book}(x)$,
  while $[\![(29a)]\!] \vDash [\![(29b)]\!]$, *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 [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 $\lambda x.\text{poodle}(x) \subseteq \lambda x.\text{dog}(x)$,
while $[[(31b)]] \models [[(31a)]]$, 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. $\rightsquigarrow$ 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

Outline

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 $\langle\langle et\rangle, t\rangle$,
  - and [[John introduced to Sue]] is of type $\langle et\rangle$
  - 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$_F$ 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* x = NEGATION + other than x (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$_F$ (Crnič 2022: (11))

- This analysis attributes the 'diminishing' effect to world knowledge:

(18)   Bill is only 17 years old.
        $\rightsquigarrow$ 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

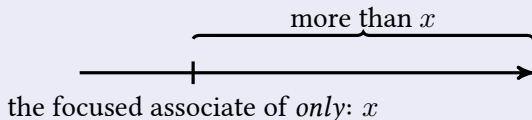|	Theory components			how are empirical data explained		
	NEG	exception	NPI	cross-domain use	positive inference	'diminishing' effect
Van Rooij and Schulz (2007)	/	/	/	not discussed	implicature	not discussed
von Fintel and Iatridou (2007)	✓	unclear on whether it's scale-based	hinted	not discussed	a weakened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

Outline

Take-home messages

Only means **anti-additivity** and includes three components:
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the focused associate of *only*: x

(3) $[\![\text{only } x]\!]$ = $\underbrace{\text{not}}_{\text{Negation}}$ $\underbrace{\text{any}}_{\text{NPI}}$ $\underbrace{\text{more/other}}_{\text{an additive part}}$ than x

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    b.   **Negative inference**: No one else read poems. $\rightsquigarrow$ literal meaning

Thank you!

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The version of May 12, 2024
For more updates of this project, please see TBA

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