Semantic dependency between focus particles in exclusive doubling

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Background #1: Doubling of exclusive particles

- It is well known that English *only* has two uses (Jackendoff 1972; Rooth 1985; Büring 2001)

(1) a. Mary **only** read ONE$_F$ book. (Advberbial/sentential)

b. Mary read **only** ONE$_F$ book. (Adfocal/constituent)

- While the two uses generally do not co-occur in English **with the same focus associate**, such "doubling" cases have been reported for other languages
  - Dutch (Barbiers 2014), Ga (Renans 2017), German (Hole 2015; J. Bayer 2020), Hindi (Bajaj 2016), Kasem (Aremu 2024), Korean (Y. Lee 2005), Mandarin Chinese (Hole 2017; Sun 2021), Vietnamese (Hole 2013, 2017; Erlewine 2017b), Yoruba (Yip and Adedeji 2024), ... , and **Cantonese** in this talk! (see also Appendix A)

(2) # Mary **only** read **only** ONE$_F$ book.

(3) Doubling of exclusive adverbial and adfocal particles in Vietnamese

Nam [**chỉ** [mua [**mỗi** một$_F$ cuốn sách]]]. (Single-'only'/"concord" reading)
Nam only buy only one CL book.
'Nam only bought one book.' (Quek and Hirsch 2017, ex.23, adpated)
(NOT multiple-'only': 'what Nam only did was to buy only one book')

Background #1: The operator-particle approach

- In doubling cases, apparently only one exclusive particle is interpreted

➜ **Compositionality problems** if both particles are exclusives

- The prevailing **operator-particle** approach (S. Bayer 1996; J. Bayer 2020; Y. Lee 2005; Barbiers 2014; Quek and Hirsch 2017; Hirsch 2022; Bassi, Hirsch, and Trinh 2022; Sun 2021; Branan and Erlewine 2023; Yip 2023; Aremu 2024):
  - Adfocal particles is a *semantically vacuous* concord marker,
  - which establishes a *syntactic dependency* with an exclusive operator (either null or realized as the adverbial particles)

(4) $[_{TP}$ Subj [**OP-EXCL** $[_{vP}$ V [**Prt-only** $[_{DP}$ Focused element]]]]]

➜ No compositionality problems

➜ Also very successful in explaining a number of otherwise unexpected scopal behavior of adfocal particles (e.g., Y. Lee 2005; Quek and Hirsch 2017; Bassi, Hirsch, and Trinh 2022; Hirsch 2022; cf. Branan and Erlewine 2023 for particle-associate mismatches)

Background #2: Scalar 'only'

- It is well-known that English *only* has a **quantificational** and a **scalar** use (Klinedinst 2004, 2005; Beaver and Clark 2008; Coppock and Beaver 2014; Alxatib 2020)
  - The prejacent is ranked lower than some other alternative(s) on a given scale

(5) a. Mary **only** invited ALEX$_F$. (Quantificational) (Klinedinst 2004, ex.1)

b. Bill is **only** a JUNIOR$_F$/#SENIOR. (Scalar) (Klinedinst 2004, ex.14)

- In a number of languages, there are again **two** distinct corresponding forms (*cf.* English *just* vs. quantificational *only*)

(6) a. Jan is {#**alleen**/ OK**slechts**} een luitenant (Dutch, adverbial)
John is only$_{quant.}$ only$_{scalar}$ a lieutenant.
'John is only a lieutenant.' (Winterstein 2012, ex.26)

b. è-jí bachelor student {??**tóó**/ OK**pɛ́**} (Ga, adfocal)
3SG-COP bachelor student only$_{quant.}$ only$_{scalar}$
'He is only a bachelor student.' (adpated from Renans 2017, ex. 11)

Exclusive SFP doubling in Cantonese

- Adverbial ***zinghai*** (淨係) & sentence-final particle ***zaa3*** (咋)
  (A. Law 2004; Y.-N. Li 2014; P. P.-I. Lee 2019; Yip 2023)

(7) Doubling of exclusive adverbial particles and SFPs in Cantonese

Context: Yesterday's party, there were vodka, wine, and beer.

[Aaming **zinghai** jam-zo bezau$_F$] **zaa3** (doubling)
Ming only buy-PERF beer SFP.only
'Ming only drank *beer* (so weak!).' (doubled + scalar reading)
NOT: 'The only thing happened was that M only drank *beer* (multi-'only')

#1 Empirically, a type of exclusive doubling that is understudied
(vs. the more-studied adfocal doubling)

#2 SFP *zaa3* is **not** semantically vacuous, but it contributes meaning to the **not-at-issue** (NAI) dimension, which has not been adequately addressed in the Op-Prt approach (but see Hole 2015, 2017; Bajaj 2016)

- Such NAI meaning is **scalar**, and
- **Dependent** on the exclusive focus, as will be shown

Overview of the talk

- I propose that exclusive doubling does not involve form-meaning mismatches, nor is it a pure Op-Prt "concord" phenomenon
- Exclusive doubling instantiates scalar focus structure where *zinghai* encodes **exclusivity** and *zaa3* encodes **scalarity**
- I further propose that *zaa3* does not associate with the focus directly. Instead, always targets the very **same alternative set** quantified by *zinghai*
  ➜ *zaa3* is **dependent** on *zinghai*

(8) Exclusive SFPs realize scalar focus structures in Cantonese

[***zaa3***$_{[\text{Scalarity}]}$ … [***zinghai***$_{[\text{Exclusivity}]}$ … XP_{F} …]]

- I propose to capture the dependency by **co-indexing** Roothian C variable
  ➜ there are multiple ways for **higher operators to access alternatives**, in addition to the existing $\sim_{\text{pass}}$ mechanism (e.g. Bade and Sachs 2019; Erlewine 2025)
- Predicts (non-)intervention effects of quantificational and focus elements
  ➜ intervention effects are not uniform (*cf.* Li and Law 2016; H. Li 2024)

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The position of *zinghai* and *zaa3*

- The SFP *zaa3* is higher than CP (cf. A. Law 2004; Tang 2015; P. Law 2021)
- *Zinghai* is an adverb that may attach to positions in-between CP and VP
- That is, *zinghai* is **lower** than *zaa3* and *zinghai*'s output feeds *zaa3* in the LF

(9) SFP doubling[1]

[**SFP$_{\text{excl}}$**=*zaa3* ... [**Adv$_{\text{excl}}$**=*zinghai* ... [XP$_{\text{F}}$ ...]]]

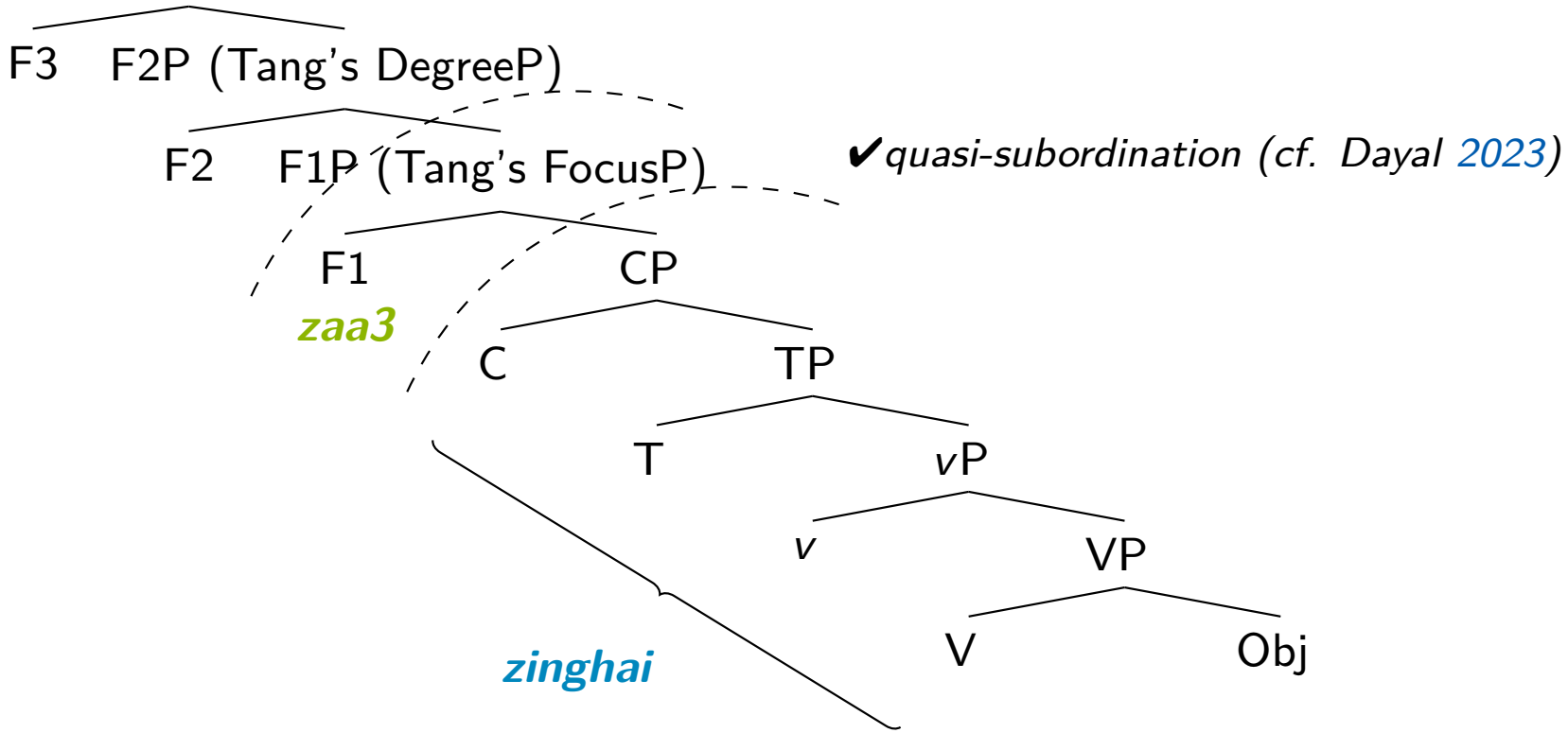
1. For expository purposes, I represent *zaa3* in the left periphery, and remain neutral to its head-directionality (see Simpson and Wu 2002; Paul 2014; Erlewine 2017a; Pan 2022 for how the sentence-final order is derived)

A cartographic tree

- Tests: ❶ Focus association; ❷ Embedding; ❸ Ordering with adverbs/SFPs

(10) The syntax of Cantonese exclusive particles *cf. Tang 2020's cartography*

F3P (Tang's CoAP) (see also A. Law 2004; Tang 2015; P. Law 2021; Yip 2023 for *zaa3*'s position)



❶ Focus association

- ***Zinghai***: associate at a distance in a pre-verbal position
- Cannot occur within VPs, like Vietnamese adverbial *chỉ* (unlike, e.g., adfocal *mỗi* and English *only*; Erlewine 2017b)

(11) Aaming (**zinghai**) [$_{VP}$ maai-zo (***zinghai**) joengjuk (***zinghai**) bei (***zinghai**) Aafan] (***zinghai**)
Ming only buy-PERF only lamb only to only Fan only
Int.: 'Ming only bought lamb for Fan.' (Association: DO/IO/V/VP)

- ✔ Subject focus when placed before it (unlike, e.g., Mandarin adverbial *zhi*)

(12) Honang **zinghai** [$_{TP}$ Aaming$_F$ jinggoi gaau gungfo].
be.possible only Ming should submit homework
'Maybe only *Ming* should submit the homework.' ('... but not Fan')

❶ Focus association (cont.)

- ***Zaa3***: can also associate at a distance in a sentence-final position
  ➜ including subjects ➜ higher than TP

(13) Aaming [$_{VP}$ maai-zo joengjuk bei Aafan] **zaa3**
Ming buy-PERF lamb to Fan SFP.only
'Ming only bought lamb for Fan.' (Association: **S**/DO/IO/V/VP)

- It has been argued otherwise that *zaa3* is lower than TP (e.g., Tang 1998; P. P.-I. Lee 2019; cf. Erlewine 2017a for Mandarin exclusive SFP *eryi*)
- Yet, with sufficient context (e.g., *wh*-Q/A or continuation) and/or stress, *zaa3* can associate with subjects (A. Law 2002, 2004; Cheng 2015)
  ➜ And even fronted objects at SpecCP!

(14) [$_{CP}$ [NIBUN syu]$_F$ [$_{TP}$ Aaming jinggoi tai __]] **zaa3**.
this book Ming should read SFP.only
'It is only *this book* that Ming should read.'

❷ Syntactic embedding

- ***Zinghai***: embeddable even under *v*P (taken by C.-T. J. Huang 2022's Type III predicates, cf. N. Huang 2018; Liu and Yip 2025)

(15) Aaming soengsi [$_{vP}$ **zinghai** tai [nibun syu]$_F$].
Ming try only read this book
'Ming tries to only read this book.'

- ***Zaa3***: Not embeddable under CPs (e.g., relative clauses, subject clauses, central adverbial clauses, ...)

(16) a. *[Jyugwo keoi tou-dak [jatbun syu]$_F$ **zaa3**], lousi jau m-lau. (CAC)
if 3SG steal-only one book SFP.only teacher then not-mad

b. [Jyugwo keoi **zinghai** tou-dak [jatbun syu]$_F$], lousi jau m-lau.
if 3SG steal-only one book SFP.only teacher then not-mad
'If s/he only stole one book, the teacher won't get mad.'

❷ Syntactic embedding (cont.)

- ***Zaa3*** is only embeddable under clauses that can accommodate main clause phenomena, i.e., Dayal (2023)'s quasi-subordination
  ➜ e.g., peripheral adverbial clauses (Yip 2022, cf. Haegeman 2012; Wei and Li 2018) and (verb) complement clauses

(17) [Geijin keoi tou-dak [jatbun syu]$_F$ **zaa3**], nei zau m-hou lau laa1.
since 3SG steal-only one book SFP.only 2SG then not mad SFP
'Since s/he only stole one book, let's not get mad.' (PAC)

(18) Go lousi zidou **[** Aaming duk-zo faatman$_F$ (**]**) **zaa3** (**]**).
CL teacher know Ming take-PFV French SFP.only
only > know: 'The teacher only knows that Ming took French.' (and doesn't know that Ming took German)
know > only: 'The teacher knows that Ming only took French.' (and knows that Ming didn't take German)

❸ Ordering with adverbs/SFPs

- ***Zinghai***: must be ordered after focus scope marker *mai* (forming a discontinuous construction with focus SFP *lo1*, Tang 2008; P. P.-I. Lee 2024)

(19) (***Zinghai**) [$_{\text{FocusP}}$ **mai** **zinghai** Aaming$_{\text{F}}$ wui tengsat lai **lo1**].
only FOC only Ming will tomorrow come SFP
'Isn't it just that only *Ming* will come tomorrow?'

- ***Zaa3***: competes with *lo1* for the same position

(20) *Mai [Nigo jan]$_{\text{F}}$ wui lai {**zaa3** **lo1**/ **lo1** **zaa3**}.
FOC this person will come SFP.only SFP SFP SFP.only
Int.: 'Obviously it's only this person who will come.'

(21) The relative ordering with other SFPs

faat3/sin1 <	*gam3zai6/lai4* <	*mei6* <	***zaa3****/lo1/maa3*[1] <	*gwaa3/aa4* <	*ho2*
vP	TP	CP	F1P$_{\text{Focus}}$	F2P$_{\text{"Degree"/Force}}$	F3P$_{\text{CoA}}$

1. Neutral Y/N-Q SFP: **zaa3 maa3* or **maa3 zaa3*, cf. Mandarin *eryi ma*

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At-issue exclusiveness

- Exclusivity in cases with singleton *zinghai*, singleton *zaa3*, and both particles

(22) Doubling of exclusive particles in Cantonese

a. Aaming **zinghai** maai-zo joengjuk$_F$ bei Aafan. (adverbial)
Ming only buy-PERF lamb to Fan

b. Aaming maai-zo joengjuk$_F$ bei Aafan **zaa3** (SFP)
Ming buy-PERF lamb to Fan SFP.only

c. Aaming **zinghai** maai-zo joengjuk$_F$ bei Aafan **zaa3** (doubling)
Ming only buy-PERF lamb to Fan SFP.only
(a-c): 'Ming only bought Fan *lamb* (but not beef or pork).'

- **At-issue**: exclusivity may be *directly assented/dissented*
- Can also be *negated*, *questioned*, or take *narrow scope under epistemic modals* (See Appendix B)

Truth of the prejacent

- Besides exclusiveness, *zinghai* and/or *zaa3* also subsume the truth of the prejacent (See Appendix B)

(23) Ming only bought Fan *lamb*
⇝ Ming bought Fan lamb

- The nature of this inference is subject to debate
  - being a presupposition (Horn 1969; Alonso-Ovalle and Hirsch 2022), some presupposition in other forms (e.g., existential in Horn 1996; von Fintel and Iatridou 2007, scalar in Beaver and Clark 2008, conditional in Ippolito 2008), an implicature (McCawley 1981), or even a non-assertoric entailment (Horn 2002), among others.
- I set aside this issue and take the inference to be a **presupposition of the prejacent** for simplicity

The source of exclusiveness

- On the one hand: The presence of either *zinghai* or *zaa3* yields at-issue exclusiveness ➜ both are exclusive operators
- On the other hand: The truth conditions remain unchanged in the doubling case ➜ only one can be the exclusive operator ➜ **but which one?**

(24) Three logical possibilities in the doubling cases

a. ***Zinghai* is the operator**

b. *Zaa3* is the operator

c. Neither is the operator - there is a null operator

➜ A test with (attempted) multiple focus associations

Dependent focus association

- First, SFP *zaa3* may associate with subjects (A. Law 2004; Cheng 2015)

(25) AAMING$_{F}$ taai zungmansyu **zaa3** (, #Aafan dou hai.)
Ming read Chinese.book SFP.only Fan also be
'Only *Ming* reads Chinese books. (# Fan as well.)'

- Second, *zinghai* fails to associate with subjects outside of its scope/c-commanding domain (*cf.* English *only*, Jackendoff 1972; Erlewine 2014, *i.a.*)
- Association with subjects is only possible when *zinghai* is pre-subject

(26) a. AAMING$_{\{*\mathbf{F1}\}}$ **zinghai** taai zungmansyu$_{\{F2\}}$ (, Aafan dou hai.)
Ming only read Chinese.book Fan also be
'Ming only reads *Chinese books*. (Fan as well.)'

b. **Zinghai** AAMING$_{\{\mathbf{F1}\}}$ taai zungmansyu$_{\{*F2\}}$ (, #Aafan dou hai.)
Ming only read Chinese.book Fan also be
'Only *Ming* reads Chinese books. (# Fan as well.)'

Dependent focus association (cont.)

- In **multiple-focus** cases, however, *zaa3* **fails** to associate with the subject, which is outside *zinghai*'s scope
- No multiple 'only' reading like English *only*

(27) *Zaa3* fails to associate with subject focus in a multiple-focus case

AAMING$_{\{*\mathbf{F1}\}}$	**zinghai**	taai	zungmansyu$_{F2}$	**zaa3**	(,	Aafan	dou	hai
Ming	only	read	Chinese.book	SFP.only		Fan	also	be

zinghai	zungmansyu$_{F2}$	syu.)
only	Chinese	book

'M only reads Chinese books. (F also only reads Chinese books.)'
BUT NOT: 'Only M only reads Chinese books. (F reads both Chinese books and English books.)'

➜ *Zaa3*'s focus association is **dependent/"parasitic"** on *zinghai*

(28) a. *[Zaa3 ... **F1** [zinghai ... F2]

b. [Zaa3 ... **F1** [zinghai ... F2]

Dependent focus association (cont.)

- Multiple *zinghai*, though slightly marked, give the multiple 'only' reading

➜ *Zinghai* is the exclusive operator, *zaa3* is not

(29) **Zinghai** (dak) AAMING$_{F1}$ **zinghai** taai zungmansyu$_{F2}$ (, #Aafan
only only.have Ming only read Chinese.book Fan
dou hai zinghai zungmansyu$_{F2}$ syu.)
also be only Chinese book
'Only M only reads Chinese books. (# F also only reads Chinese books.)'

An operator-particle-like dependency

- SFP doubling displays an operator-particle-like dependency

(30) [***zaa3*** ... [**OP**=*zinghai* ... [XP_F ...]]]

- In singleton *zaa3* cases, the dependency is established with a null exclusive operator, EXCL
- I assume that EXCL can only occur when:
  - (i) There is no overt *clausemate* exclusives like *zinghai*
  - (ii) It is required to satisfy the dependency with *zaa3* (to be addressed later)

(31) [***zaa3*** ... [**OP**=EXCL-∅ ... [XP_F ...]]] (singleton *zaa3* cases)

- **However, is *zaa3* truly a semantically vacuous concord marker? Why would languages employ such a "dummy" particle in doubling?**

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Different felicity conditions

- While *zaa3* sentences apparently have the same truth conditions with *zinghai*, their felicity conditions are different
- *Zaa3* has **focus sensitive** contribution on the **not-at-issue** level, and requires some excluded alternatives to be:

#1	Contextually **salient** and/or
#2	**Ranked higher** than the true prejacent on a contextually given scale

#1: Contextual salience

- Salience regulated by purely contextual information
  - *Zaa3*, unlike *zinghai*, can only be used when some alternative (i.e., beef) is highlighted in the context such that both speaker and addressee are aware of it (*cf.* Portner 2007's notion of Common Proposition Space)

(32) Contextual information: (non-)salience

a. *You are a cashier in a meat market in the US. You just served a customer, and your colleague seems to be curious about what they bought. You say:*

b. *Same with (a), except that* ***beef is newly arrived and is really good today****.*

c. Go haak {**zinghai**} maai-zo joengjuk$_F$ {a.#/b.^{OK}**zaa3**}

CL customer only buy-PERF lamb SFP.only

'The customer only bought lamb.' (#S/he also bought pork.)

- At least one excluded alternative is more salient than the prejacent
- Notice that non-salient yet contextually relevant alternatives (e.g., pork) are still excluded

#1: Contextual salience (cont.)

- Salience achieved by linguistic antecedent in the discourse
  - *Zaa3* is licensed by a previous assertion and strengthens the "corrective" sense

(33) Previous assertion licenses *zaa*

a. Ming: Ngau sik kwancung.
cow eat insect
Ming: 'Cows eat insect.'

b. You: Ngau {**zinghai**} sik zikmat$_F$ {**zaa3**}.
cow only eat plant SFP.only
'Cows only eat plants.'

#2: Scalar meaning

- In contexts where all the alternatives are equally (non-)salient, a scale must be invoked to license *zaa3*
- At least one excluded alternative is ranked higher than the prejacent on a contextually given scale (e.g., ABV)
  $<$beer, wine, vodka$>_{\text{ABV}}$, where *beer* $<_s$ *wine*/*vodka*

(34) *Yesterday's party: there were vodka, wine, and beer.* (=7)

[Aaming **zinghai** jam-zo bezau$_F$] $\boxed{\{\textbf{zaa3}\}}$ (doubling)

Ming only buy-PERF beer SFP.only

'Ming only drank *beer* (so weak!).' (doubled + scalar reading)

- Two tests to confirm *zaa3*'s scalar contribution
  - Contexts without a salient scale (e.g., a listing scenario)
  - Superlatives targeting the upper bound of the scale

#2: Scalar meaning (cont.)

- *Zaa3* is banned in contexts without a salient scale (e.g., a listing scenario)
  - All the alternatives are equally salient due to listing: *beer* = *wine* = *vodka*
  - No scale (e.g., ABV) is invoked

(35) A listing scenario that lacks a salient scale

At a liquor store, you are reporting the type of alcohol each customer bought to your boss.

A {**zinghai**} maai-zo bezau$_F$ {#**zaa3**}, B {**zinghai**} maai-zo hongzau
A only buy-PFV beer SFP.only B only buy-PFV red.wine
{#**zaa3**}, C {**zinghai**} maai-zo fokdakga {#**zaa3**}, ...
SFP.only C only buy-PFV vodka SFP.only

'A only bought beer, B only bought (red) wine, C only bought vodka, ...'

#2: Scalar meaning (cont.)

- *Zaa3* is banned when associating with the upper bound of a scale
  - A context facilitating a scale of difficulty to evaluate student performance
  - <easiest PS, ..., hardest PS>$_{\text{difficulty}}$

(36) Superlatives targeting the **upper/lower bound** of the scale

Context: You ask a teacher who is the best/worst student. The teacher answered: Ming is the best/worst student, because ...

a. Keoi {**zinghai**} zou [zeoi naan]$_F$ ge taimuk {#**zaa3**}. (Upper)
3SG only do most hard GE question SFP.only
'He only does *the hardest* problem set.'

b. Keoi {**zinghai**} zou [zeoi jungji]$_F$ ge taimuk {**zaa3**}. (Lower)[1]
3SG only do most easy GE question SFP.only
'He only does *the easiest* problem set.'

1. While Beaver and Clark (2008) suggests that scalar *only* cannot associate with the "bottom" element on a scale, Alxatib (2020, p.46-47) shows it is indeed possible

Projection of the salience/scalar component

- The salience/scalar requirement by *zaa3* is not-at-issue
- Projects through negation, question, epistemic modals, attitude verbs, etc.

(37) [At yesterday's party, there were vodka, wine, and beer.]

a. A: [Aaming **zinghai** jam-zo bezau$_F$] {**zaa4**}? (yes-no question)

Ming only buy-PERF beer SFP.only

'Did Ming only drank *beer* last night? (Was Ming that weak?)'

b. B: No! (Ming didn't only drink beer/# Beer actually has the highest ABV since other alcohols were diluted)

Interim summary

Tests	$p <_{\textit{non-logical}} q$?	*Zinghai*	*Zaa3*	Doubling
#1a ✘ salience	No	OK	#	#
#1b ✔ salience	Yes (salience)	OK	OK	OK
#2a Listing	No	OK	#	#
#2b Upper bound	No	OK	#	#
#2c Lower bound	Yes (difficulty)	OK	OK	OK

Table 1: Scalarity in Cantonese exclusive doubling

- See Appendix C for comparison with English scalar *only*'s rank order readings (e.g., Coppock and Beaver 2014)

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Exclusive doubling as scalar focus structures

- The leading idea: Exclusive doubling instantiates scalar focus structure where *zinghai* encodes **exclusivity** and *zaa3* encodes **scalarity**

(38) Exclusive SFPs realize scalar focus structures in Cantonese

[***zaa3***$_{\text{[Scalarity]}}$ … [***zinghai***$_{\text{[Exclusivity]}}$ … XP_F …]]

➜ No compositionality problems/form-meaning mismatches

➜ **NOT** a pure Op-Prt "concord" phenomenon (where Prt = semantically vacuous)

Exclusive doubling as scalar focus structures (cont.)

- However, I maintain the core insight in the Op-Prt approach that there is a **dependency** ➜ Not simply "1+1"

(39) ***Zaa3*** is **dependent** on ***zinghai*** in three senses

a. ***zaa3*** requires the presence of ***zinghai*/EXCL**

b. ***Zaa3***'s focus association is determined by ***zinghai*/EXCL**'s

c. ***Zaa3*** ranks the alternatives excluded by ***zinghai*/EXCL**
➜ *zaa3* always targets the very **same alternative set** quantified by *zinghai*

The Roothian theory of focus

- Rooth (1992) ordinary vs. focus alternative (ALT) values

(40) a. $[\![\alpha_F]\!] = a$

b. $[\![\alpha_F]\!]^{ALT} = \{a, b, c, d, e, f, g, ...\}$

- Focus operators always introduce a $\sim$ (squiggle) that takes the ALT value and a contextual variable C
  - $\sim$ constrains C to be a subset of the ALT value
  - $\sim$ "resets" the ALT value to be a singleton set of the ordinary value

(41) a. $C_i = \{a, b, c\}$

b. $[\![\alpha_F]\!]^{ALT} \sim C_i = \{a\}$ iff $C_i \subseteq [\![\alpha]\!]^{ALT}$, undefined otherwise

- Focus operators like 'only' take C instead of the ALT value, before taking the prejacent (a proposition$_{<s,t>}$, after Alonso-Ovalle and Hirsch 2022)

(42) $[\![\text{only}]\!](C_i) = \lambda p \lambda w : p(w).\forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$

The Roothian theory of focus (cont.)

- A sample derivation

(43) Ming only bought lamb$_F$ (but not beef or pork).
LF: [$_{TP}$ *only*(C_i) [$_{vP2}$ $\sim$ C_i[$_{vP1}$ Ming buy [$_{DP}$ lamb$_F$]]]] (tense ignored)

a. $[\![\text{DP}]\!]=l$; $[\![\text{DP}]\!]^{ALT}=\{l, b, p, x, ...\}$

b. $[\![\text{vP1}]\!]=\hat{}m \text{ buy } l$; $[\![\text{vP1}]\!]^{ALT}=\{\hat{}m \text{ buy } l, \hat{}m \text{ buy } b, \hat{}m \text{ buy } p, \hat{}m \text{ buy } x, ...\}$

c. $C_i = \{\hat{}m \text{ buy } l, \hat{}m \text{ buy } b, \hat{}m \text{ buy } p\} \subseteq [\![\text{vP1}]\!]^{ALT}$

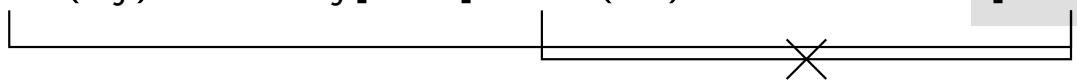
d. $[\![\text{vP2}]\!]=\hat{}m \text{ buy } l$; $[\![\text{vP2}]\!]^{ALT}=\{\hat{}m \text{ buy } l\}$

e. $[\![\text{TP}]\!]= \lambda w{:}\hat{}m \text{ buy } l(\text{w}).\forall q[(q \in C_i \wedge q(w)) \rightarrow \hat{}m \text{ buy } l \subseteq q]$

Accessing alternatives with multiple focus operators

- In exclusive doubling, both particles associate with the same focus association
  ➜ Both are focus sensitive ***operators***!
- Higher OP cannot access the focus if $\sim$ resets the focus value (cf. Beck 2006)

(44) [OP1(C_j) $\sim_{\text{reset}}$ C_j[... [OP2(C_i) ... $\sim_{\text{reset}}$ C_i [XP_F ...]]]



  - Either associates with other foci *above* $\sim$ (multiple focus association cases like multi-'only', Rooth 1996; Erlewine 2025)
  - Or *ungrammaticality* (focus intervention effects, Beck 2006; cf. Li and Law 2016)

Accessing alternatives with multiple focus operators (cont.)

- Two possibilities:

#1 Passing up alternatives

- There is a variant of $\sim$ that **passes up the alternatives** (Fox 2007; Wagner 2012; Crni 2013; Bade and Sachs 2019; Erlewine 2025)

➜ motivated by recursive exhaustification for free-choice inferences, etc.

(45) [OP1(C_j) $\sim_{\text{reset}}$ C_j[... [OP2(C_i) ... $\sim_{\text{pass}}$ C_i [XP_F ...]]]

#2 Co-indexation of C ➜ The proposed one

- Instead of introducing another $\sim$ C, the higher focus operator's C is **co-indexed** with the lower one

(46) [OP1(C_i) [... [OP2(C_i) ... $\sim_{\text{reset}}$ C_i [XP_F ...]]]

A compositional analysis

- I propose that ***zinghai*** is the exclusive operator

(47) The semantics of *zinghai*/EXCL

$[\![\textit{zinghai}/\textsc{excl}]\!](C_i) =$ **AI:** $\lambda p \lambda w. \forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$
NAI: $p(w)$

- At-issue (AI): negates all the alternatives in C_i that are not entailed by the prejacent p on the at-issue level
- NAI: presupposes p

A compositional analysis (cont.)

- ***Zaa3*** only operates on the NAI level, that requires **at least one alternative excluded by the lower operator to be ranked higher than the true prejacent** (of the lower operator)

(48) The semantics of *zaa3*

a. $[\![zaa3]\!](C_i) =$ **AI:** $\lambda r \lambda w.r(w)$; where r is an exclusive proposition (see §5)
NAI: $\exists p, q \in C_i[(r \cap q = \varnothing \wedge r \cap p \neq \varnothing) \rightarrow p <_s q]$

- AI: a (partial) identity function that takes r and returns r
- NAI: there exists two alternatives p, q in C_i such that p is compatible with r but q is not, and q is ranked higher than p on a contextually given scale

- Dependency in doubling as co-indexation of C_i

(49) $[_{CP}$ zaa(C_i) $[_{TP}$ zinghai(C_i) **[** $\sim C_i$ $_{vP}$ Ming $[_{v'}$ buy $[_{DP}$ lamb$_F$]]**]**]]

- Co-indexation potentially as a result of syntactic Agree relation between *zinghai* and *zaa3* (see Yip 2023) (*cf.* binding as Agree, Reuland 2001; Kratzer 2009, *i.a.*)

A compositional analysis (cont.)

- An example with contextual salience
- $C_i = \{^\wedge$Ming buy pork, $^\wedge$Ming buy lamb, $^\wedge$Ming buy beef$\}$
  where [$^\wedge$Ming buy lamb] $<_{\text{salience}}$ [$^\wedge$Ming buy beef]

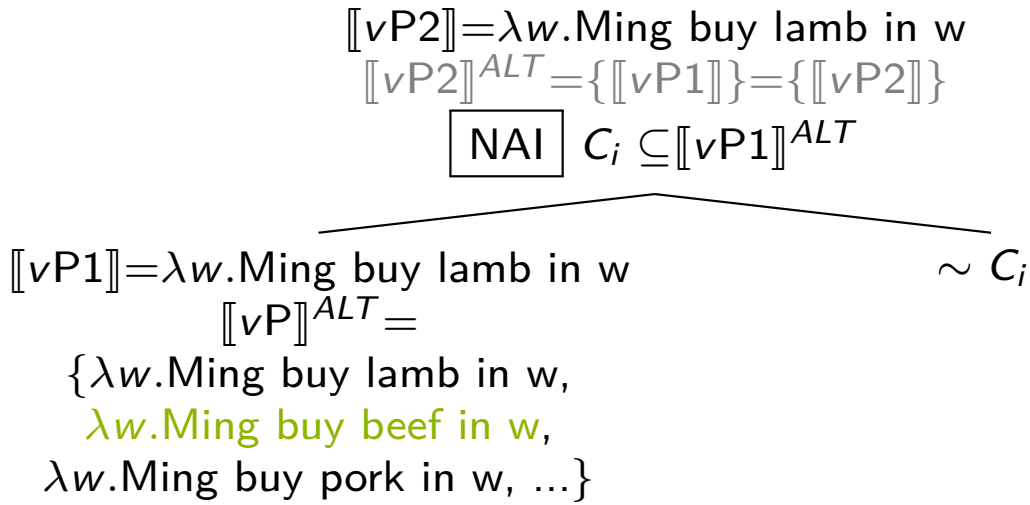
(50) Contextual information: (non-)salience

You are a cashier in a meat market in the US. ***Beef is newly arrived and is really good today****. You just served Ming, and your colleague asks you what he bought.*

Aaming **zinghai** maai-zo joengjuk$_F$ **zaa3**
Ming only buy-PERF lamb SFP.only
'Ming only bought lamb.'

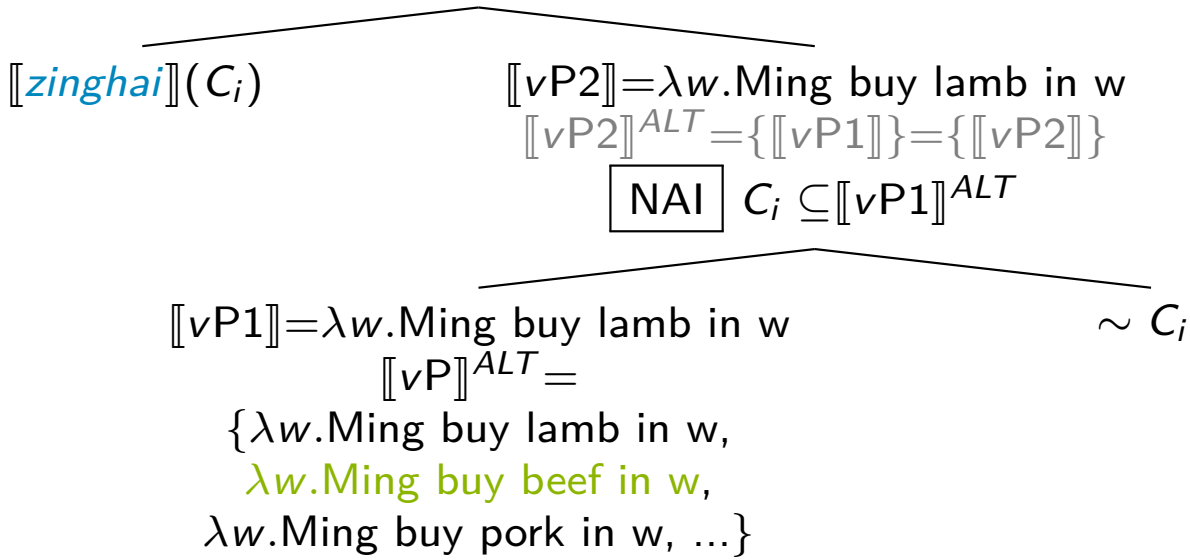
A compositional analysis (cont.)

(51) The composition of (50)



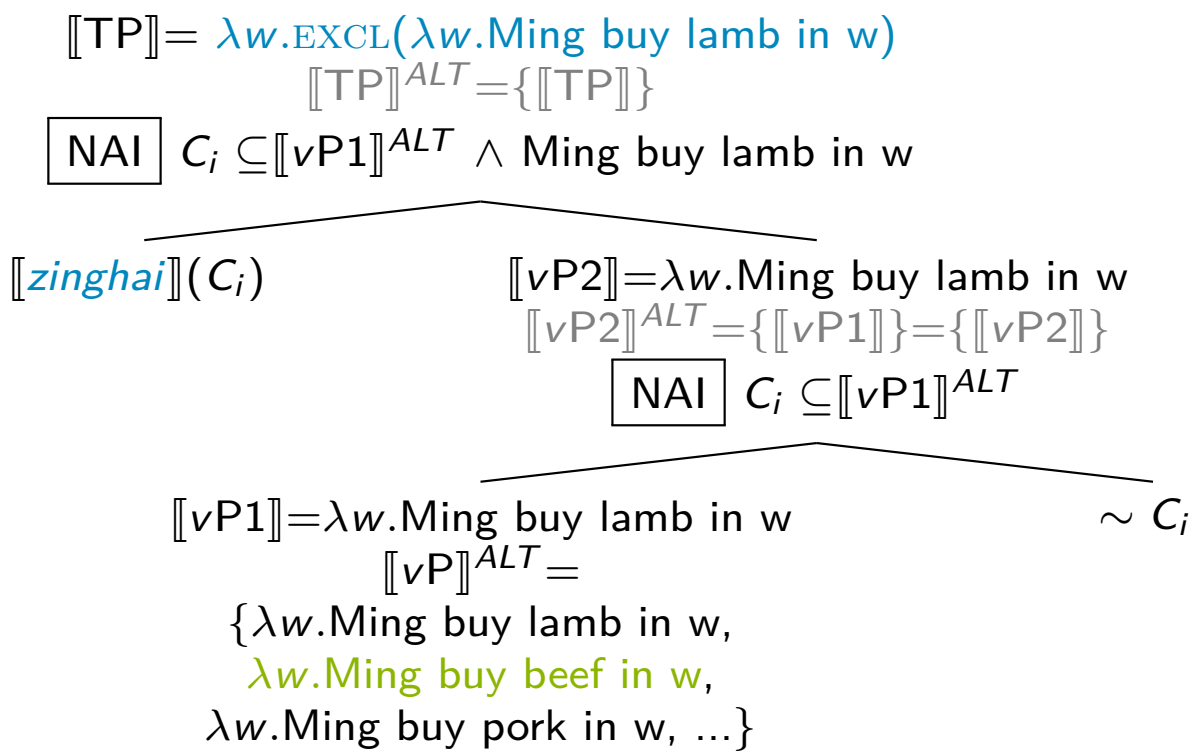
A compositional analysis (cont.)

(51) The composition of (50)



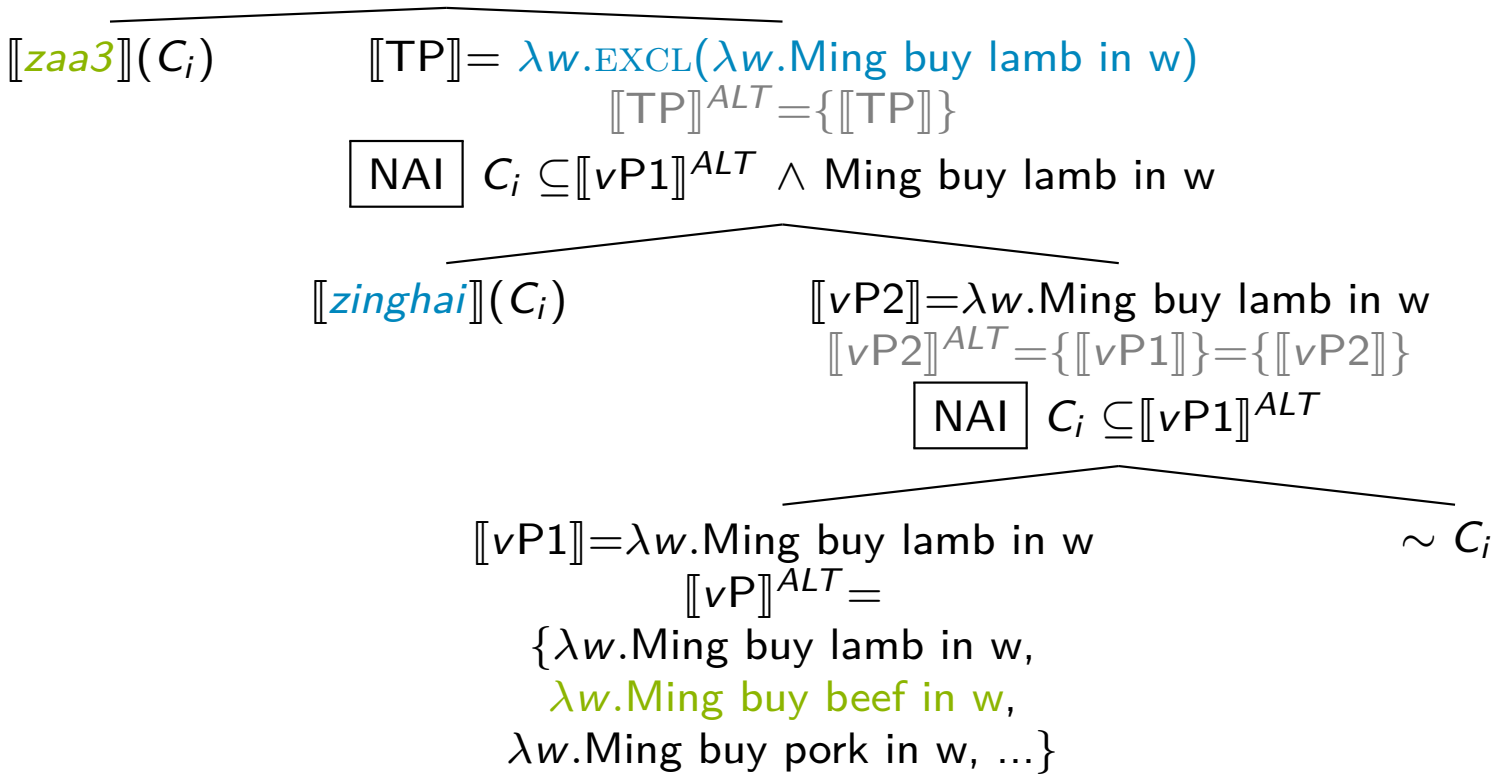
A compositional analysis (cont.)

(51) The composition of (50)



A compositional analysis (cont.)

(51) The composition of (50)



A compositional analysis (cont.)

(51) The composition of (50)

$[\![\text{CP}]\!]=\lambda w.\text{EXCL}(\lambda w.\text{Ming buy lamb in w})$; $[\![\text{CP}]\!]^{ALT}=\{[\![\text{CP}]\!]\}$

NAI $C_i \subseteq [\![\text{vP1}]\!]^{ALT} \wedge$ Ming buy lamb in w $\wedge$
$\exists p, q \in C_i$ [$\lambda w.\text{EXCL}(\lambda w.\text{m buy l in w}) \cap q = \varnothing \wedge$
$\lambda w.\text{EXCL}(\lambda w.\text{m buy l in w}) \cap p \neq \varnothing \wedge = p <_s q$]

$[\![zaa3]\!](C_i)$

$[\![\text{TP}]\!]= \lambda w.\text{EXCL}(\lambda w.\text{Ming buy lamb in w})$
$[\![\text{TP}]\!]^{ALT}=\{[\![\text{TP}]\!]\}$

NAI $C_i \subseteq [\![\text{vP1}]\!]^{ALT} \wedge$ Ming buy lamb in w

$[\![zinghai]\!](C_i)$

$[\![\text{vP2}]\!]=\lambda w.$Ming buy lamb in w
$[\![\text{vP2}]\!]^{ALT}=\{[\![\text{vP1}]\!]\}=\{[\![\text{vP2}]\!]\}$

NAI $C_i \subseteq [\![\text{vP1}]\!]^{ALT}$

$[\![\text{vP1}]\!]=\lambda w.$Ming buy lamb in w

$\sim C_i$

$[\![\text{vP}]\!]^{ALT}=$
{$\lambda w.$Ming buy lamb in w,
$\lambda w.$Ming buy beef in w,
$\lambda w.$Ming buy pork in w, ...}

Not passing up alternatives

- Passing up the alternatives means that the lower operator is included in the alternative set as well, forming a pre-exhaustified set

(52) $[_{CP}$ zaa3(C_j) $[_{TP2}$ $\sim_{reset} C_j$ **$[_{TP1}$** zinghai(C_i) $[$ $\sim_{pass} C_i$ $[$ M buy lamb$_F$ **]]]]**

- However, it would predict a meaning that is too strong!
  ➜ *zaa3* now ranks the alternative exclusive propositions

(53) a. $[\![\text{TP1}]\!] = \lambda w.\text{EXCL}(\lambda w.\text{Ming buy lamb in w})$

b. $[\![\text{TP1}]\!]^{ALT} = \{\lambda w.\text{EXCL}(\lambda w.\text{Ming buy lamb in w}),$
$\lambda w.\text{EXCL}(\lambda w.\text{Ming buy pork in w}),$
$\lambda w.\text{EXCL}(\lambda w.\text{Ming buy beef in w}), \ldots\}$

c. The required ordering by *zaa3*:
$[\lambda w.\text{EXCL}(\lambda w.\text{Ming buy lamb in w})] <_s [\lambda w.\text{EXCL}(\lambda w.\text{Ming buy beef in w})]$

Not passing up alternatives (cont.)

- A non-exclusive proposition in the discourse is enough to license *zaa3*

(54) Salient **non**-exclusive propositions in the discourse

a. A: {Ming bought beef./ Ming only bought beef.}

b. B: M-hai. Aaming {**zinghai**} maai-zo joengjuk$_F$ {**zaa3**}.
no Ming only buy-PFV lamb SFP.only
'No. Ming only bought *lamb*.'

Not passing up alternatives (cont.)

- One might say there is a covert 'only'/EXCL in plain assertion
- However, a preceding assertion like 'Ming bought all the meat' can also license *zaa3* in the next sentence.

(55) a. A: Ming bought **all** the meat (in the store).

b. B: M-hai. Aaming {**zinghai**} maai-zo joengjuk$_F$ {**zaa3**}.
no Ming only buy-PFV lamb SFP.only
'No. Ming only bought *lamb*.'

- *Zinghai* 'only' cannot associate with universal quantifiers due to the ban against its vacuous use (e.g., Alxatib 2020, a.o.)
➜ [λw.EXCL(λw.Ming buy all meat in w)] is ill-formed and cannot be ranked against [λw.EXCL(λw.Ming buy lamb in w)]

(56) *Aaming **zinghai** maai-zo **jyunbou** juk$_F$.
Ming only buy-PFV all meat
'Ming only bought all the meat.'

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The dependency in exclusive doubling

- Now we're able to capture ***zaa3***'s dependency (b-c) by co-indexation of C_i
- But how about (a)? What can't other focus operators license *zaa3*?

(57) a. ***Zaa3*** requires the presence of ***zinghai*/EXCL** ??

b. ***Zaa3***'s focus association is determined by ***zinghai*/EXCL**'s ✔

c. ***Zaa3*** ranks the alternatives excluded by ***zinghai*/EXCL** ✔

#1 Deriving the requirement on exclusiveness **semantically** (=a)

#2 Predicting (non-)intervention on the dependency

#1: Deriving requirement on exclusiveness

- Op-Prt approach: *syntactic* requirement (e.g., Quek and Hirsch 2017; Sun 2021)
- I suggest that the **identification of excluded alternatives** of *zaa3* already derives this requirement **semantically**

(58) The semantics of *zaa3*

a. $[\![zaa3]\!](C_i) =$ **AI:** $\lambda r \lambda w.r(w)$
NAI: $\exists p, q \in C_i[(r \cap q = \varnothing \wedge r \cap p \neq \varnothing) \rightarrow p <_s q]$

- r (*zaa3*'s prejacent) must exclude some propositions in C_i (i.e., so there exists q)
- r returned by non-exclusive focus operators cannot satisfy *zaa3*'s semantics

#1: Deriving requirement on exclusiveness (cont.)

- EVEN asserts the truth of the prejacent and presupposes that the prejacent is the least likely proposition among the alternative set (Horn 1969; Rooth 1985; Erlewine and Kotek 2018, *i.a.*; but see Kay 1990 and many others for (un)expectedness or noteworthiness)

(59) $[\![EVEN]\!](C_i) =$ **AI:** $\lambda r \lambda w.r(w)$
NAI: $\forall q[(q \in C_i \wedge q \not\subseteq p) \rightarrow p <_{likely} q]$

- Crucially, EVEN **does not exclude** the possibility of other alternatives q.

➜ Even if we assume *zaa3*'s C_i is co-indexed with EVEN's C_i, *zaa3* is predicted to be unlicensed.

#1: Deriving requirement on exclusiveness (cont.)

- As predicted, 'even' does **not** license zaa3.

(60) *Lin* 'even' cannot license *zaa3*

a. *Scenario: Ming went to a market with us to buy rice, and we saw that lobsters are really bad and beef is good today. You left earlier, and ask me what Ming bought other than rice. I say:*

Aaming gingjin **lin** lunghaa$_F$ dou maai-maai (***zaa3**)

Ming unexpectedly even lobsters also buy-ALSO SFP.only

'Ming even bought **lobsters**!'

b. $r = \phi_{m,l}$ ('Ming bought lobsters')
$C_i = \{\phi_{m,l}, \phi_{m,r}, \phi_{m,b}, ...\}$
$\rightsquigarrow \nexists q[q \in C_i \wedge (r \cap q = \varnothing)]$

#2: (Non-)intervention: negation

- The account also predicts that some elements like **negation** cannot intervene between *zinghai* and *zaa3*.

(61) Intervention effects by aspectual negation

a. *Fan said Ming only bought lamb for tonight's dinner. You know that Ming did buy beef as well, so you say: "no, ..."*

... Aaming **mou** **zinghai** maai [joengjuk]$_F$ **(*zaa3)**. (¬ > only)
Ming NEG.PFV only buy lamb SFP.only

'Ming didn't only buy lamb.' (he bought beef in addition to lamb)

b. *[zaa3 [$_{CP}$ ... [$_{NegP}$ ***mou*** 'NEG.PFV' ... [zinghai ...

#2: (Non-)intervention: Immediate scope constraint

- The intervention patterns are general to other quantificational elements (e.g., modals, some subj. quantifiers, quantificational adverbs)
- Intuition: There can be **no elements α with truth conditional effects** that intervene between *zaa3* and *zinghai*/EXCL.

  ➜ Follows from the semantics of *zaa3* and its semantic dependency with *zinghai*

- *Zaa3* requires its prejacent (r) to exclude at least some alternatives (q) in *zaa3*'s domain C_i (also *zinghai*'s domain)

(62) $[\![zaa3]\!](C_i) =$ **AI:** $\lambda r \lambda w.r(w)$
NAI: $\exists p, q \in C_i[(\underline{r \cap q = \varnothing} \wedge r \cap p \neq \varnothing) \rightarrow p <_s q]$

  ➜ *Zinghai*'s exclusivity must not be weakened or canceled
  ➜ Negation: cancel the exclusivity

#2: (Non-)intervention: negation (cont.)

- The LF structure and the derivation is given below.

(63) $[_{CP}$ zaa3(C_i) $[_{\textbf{NegP}}$ **mou** $[_{vP2}$ zinghai(C_i) $[\sim C_i$ $[_{vP1}$ Ming bought lamb$_F$]]]]]

(64) $[\![mou]\!] = \lambda p \lambda w.\neg p(w)$ (tense/aspect semantics ignored)

(65) The derivation of (63)

a. $[\![vP1]\!] = {}^{\wedge}$Ming buy lamb $= \phi_I$

b. $C_i = \{\phi_I, \phi_b, \phi_p, \ldots\}$

c. $[\![vP2]\!] = \lambda w.\forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_I \subseteq q]$
$= \neg\phi_b \wedge \neg\phi_p \wedge \ldots$ **EXCL $\rightsquigarrow$ conjunction of negated propositions**

d. $[\![NegP]\!] = \lambda w.\neg\forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_I \subseteq q] = \lambda w.\exists q[(q \in C_i \wedge q(w)) \rightarrow \phi_I \nsubseteq q]$
$= \phi_b \vee \phi_p \vee \ldots$ **negating EXCL $\rightsquigarrow$ disjunction**

e. $[\![CP]\!]$ = **undefined**, as there is ***no*** proposition in C_i that is excluded by $[\![NegP]\!]$, i.e., $\neg\exists q[(q \in C_i \wedge \underline{r \cap q = \varnothing})]$

- Derivation crashes since the intervening negation "loosens" the truth condition of *zaa3*'s prejacent ➜ negation cannot intervene

#2: (Non-)intervention: focus operators

- The account also predicts focus operators like 'even' 'also' do not trigger intervention effects, since they **do not alter the truth conditions**

(66) 'Even' focus *lin ... dou* associating with subjects

Context: There are three papers assigned for each week for a given course. Ming is the best student who always reads all the assigned papers beforehand. However, this week's reading is difficult and all the students, including Ming, only read one paper.

Lin	Aaming$_{F1}$	dou	[**zinghai**	tai-zo	*jat-bin*	*abstract*$_{F2}$]	**zaa3**.
even	Ming	also	only	read-PFV	one-CL	paper	SFP.only

'Even Ming only read one paper.'

#2: (Non-)intervention: focus operators (cont.)

- Recall:

(67) The semantics of *lin...dou*

$[\![EVEN]\!](C_k) =$ **AI:** $\lambda r \lambda w.r(w)$

NAI: $\forall q[(q \in C_k \wedge r \not\subseteq q) \rightarrow r <_{likely} q]$

- EVEN is a partial identity function on the at-issue level
  - ➜ does not alter the truth condition of the exclusive proposition with *zinghai*
  - ➜ *Zaa3*'s prejacent excludes the non-*p* alternatives in C_i
  - ➜ EVEN may intervene
- No focus intervention effects (Beck 2006):
  Zaa3 & *zinghai*'s $C_i \neq$ EVEN's C_k

(68) $[_{CP}\ zaa3(C_i)\ [_{\textbf{FocP}}\ \underline{\textbf{\textit{lin}}}(C_j)\ [\sim C_j\ [_{TP}\ \text{Ming}_{F1}\ \ldots$
$\ldots\ [_{vP2}\ zinghai(C_i)\ [\sim C_i\ [_{vP1}\ t\ \text{read one paper}_{F2}\ ]]]]]$

#2: (Non-)intervention: the full paradigam

Intervener	Type	Truth-cond. effect	Doubling
Negation	Qu	YES	*
Modal	Qu	YES	*
Subj. quantifiers (non-witnessable)	Qu	YES	*
Subj. quantifiers (witnessable)[1]	Qu	YES	OK
Q-adv (e.g., *sengjat* 'often')	Qu	YES	*
Additive ALSO (e.g., *dou, zung*)	Qu,Foc	No	OK
EVEN (e.g., *lin, samzi*)	Qu,Foc	No	OK
Cleft focus marker *hai* 'be'	Qu,Foc	No	OK?

Table 2: (Non-)intervention to exclusive doubling in Cantonese

1. These are quantifiers of individuals that have a witness set, e.g., 'everyone', 'someone'; also do not trigger intervention effects to 'why'-questions in Mandarin, unlike downward entailing 'no one' (Jin 2020). They may be topics. See also Swart 1992; Kiss 1993; Szabolcsi and Zwarts 1993; Mayr 2014 for the role of monotonicity/additivity in intervention effects.

#2: (Non-)intervention: different approaches

- **Syntactic**: Unifying focus and quantifiers by [Qu], e.g., Relativized Minimality (Rizzi 1990, 2001, 2004; cf. Yip 2023 for exclusive doubling)[1]
  - Separating focus and quantifiers (e.g., minimality vs. competition in Yang 2008, 2012; [Qu] vs. [Foc] in Yip 2022; T. T.-M. Lee 2022, 2024)
- **Semantic**: Focus intervention
  - Alternative resetting by $\sim$ (Kim and Sag 2002; Beck 2006; Beck and Kim 2006; Dong 2009; Cable 2010; Truckenbrodt 2013; Kotek 2014, 2019; Erlewine 2025)
  - Type mismatch of ALT sets with the OP (Li and Law 2016)
- **Semantic**: Quantifier intervention (Swart 1992; Kiss 1993; Szabolcsi and Zwarts 1993; Mayr 2014; Jin 2020)
- Other, e.g., pragmatic (Tomioka 2007; Eilam 2011)

1. Sometimes focus operators and focus associates are also conflated.

#2: (Non-)intervention: implications

- Exclusive doubling is only subject to quantifier intervention, despite the focus-sensitive nature of the dependency (associating with the same focus)
- The *syntactic* approach **cannot** account for the non-intervention of focus operators with [Qu,Foc]
  - Focus operators must bear [Qu] to trigger intervention effects on non-focus [Qu]-dependencies (e.g., universal concord in Yip 2022)
  - Bearing just [Foc] is still expected to trigger intervention
- The *semantic* approach of **focus intervention** (e.g., Beck 2006) makes even an **opposite** prediction that only focus operators trigger intervention

➜ Only the current ***semantic*** approach where *zinghai*'s ALT set (C_i) fed to *zaa3* predicts the quantifier-only intervention

  ➜ Only 'only' and quantifiers alter truth conditions, but not other focus operators

➜ Intervention effects are **not uniform**

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Conclusion

(69) Exclusive SFPs realize scalar focus structures in Cantonese

[***zaa3***$(C_i)_{[\text{Scalarity}]}$ ... [***zinghai***$(C_i)_{[\text{Exclusivity}]}$ $\sim C_i$ ... XP_F ...]]

1. Meaning is distributed: Exclusive doubling in Cantonese instantiates scalar focus structure where *zinghai* encodes **exclusivity** and *zaa3* encodes **scalarity**
   ➜ Not really an **Op-Prt** dependency (but **Op-Op**)
2. Dependency in exclusive doubling: *Zaa3* targets the same alternative set quantified by *zinghai* via co-indexation of C_i
   ➜ Still have an Op-Prt-like **dependency**

➜ There are multiple ways for **higher operators to access alternatives**, in addition to the existing $\sim_{\text{pass}}$ mechanism (e.g. Bade and Sachs 2019; Erlewine 2025)

Conclusion (cont.)

❸ **Non-uniform** intervention effects

- Correctly predicted from the proposed semantics and semantic dependency

➜ We need to distinguish between quantifiers and focus operators (cf. Li and Law 2016)

➜ "Intervention effects" is a descriptive label and may represent underlying different syntactic or semantic phenomena

Prospects

1. An attempt to answer "why doubling?"

- Doubling is not "redundant" nor simply a reflex of syntactic dependency, but manifests a structure where meaning pieces are **distributed** yet one is **dependent** on another one

- Cross-linguistic evidence beyond Cantonese, with similar scalar components:
  - Mandarin adverbial-SFP doubling (cf. Erlewine 2011)
  - German adverbial-adfocal doubling (Hole 2017)
  - Vietnamese adverbial-adfocal doubling (Hole 2017)
  - Akan adfocal-adfocal doubling (Comfort Ahenkorah p.c.)

(70) [Zhangsan **zhi** he-le pijiu$_F$] (**eryi**) [Mandarin]

Zhangsan only buy-PERF beer SFP.only

'Zhangsan only drank *beer* (so weak!).'

(strong scalarity contributed by *eryi*)

Prospects (cont.)

❷ Non-doubling languages (e.g., English): two possibilities

- Their scalar component is integrated into the exclusion component (cf. negative quantifiers vs. negative concord)
  ➜ Whether a meaning structure is **lexicalized** as a whole or **distributed**
- The scalar component is also distributed, but encoded on a **null** element (cf. covert scalar operator AT LEAST in Alonso-Ovalle and Hirsch 2022; or intonation)

❸ How about other focus particles like 'even' and 'also'? (cf. *lin...dou* in Cantonese vs. *mo* in Japanese)

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References I

Alonso-Ovalle, Luis, and Aron Hirsch. 2022. "Keep *only* strong." *Semantics and Pragmatics* 15 (6): 1–46.

Alxatib, Sam. 2020. *Focus, Evaluativity, and Antonymy: A Study in the Semantics of Only and its Interaction with Gradable Antonyms.* Cham, Switzerland: Springer Nature.

Aremu, Daniel. 2024. "Towards a propositional concord approach for exclusives in Kasem." In *Proceedings of 42nd West Coast Conference on Formal Linguistics.* Somerville, MA: Cascadilla Proceedings Project (To appear).

Bade, Nadine, and Konstantin Sachs. 2019. "EXH passes on alternatives: a comment on Fox and Spector (2018)." *Natural Language Semantics* 27:19–45.

Bajaj, Vandana. 2016. "Scaling up Exclusive *-hii*." Ph.D. dissertation, Rutgers, The State University of New Jersey.

Barbiers, Sjef. 2014. "Syntactic doubling and deletion as a source of variation." In *Linguistic Variation in the Minimalist Framework,* edited by M. C. Picallo, 197–223. OUP.

Bassi, Itai, Aron Hirsch, and Tue Trinh. 2022. "Pre-DP *only* is a propositional operator at LF: a new argument from ellipsis." In *Proceedings of SALT 32,* 814–830.

Bayer, Josef. 2020. "Why doubling discourse particles?" In *Linguistic Variation: Structure and Interpretation,* edited by Ludovico Franco and Paolo Lorusso, 47–72. Berlin: Mouton de Gruyter.

Bayer, Samuel. 1996. "The Coordination of Unlike Categories." *Language* 72 (3): 579–616.

References II

Beaver, David I., and Brady Z. Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning.* Chichester: Wiley Blackwell.

Beck, Sigrid. 2006. "Intervention Effects Follow From Focus Interpretation." *Natural Language Semantics* 14 (1): 1–56.

Beck, Sigrid, and Shin-Sook Kim. 2006. "Intervention Effects in Alternative Questions." *Journal of Comparative Germanic Linguistics* 9 (3): 165–208.

Branan, Kenyon, and Michael Yoshitaka Erlewine. 2023. "Anti-pied-piping." *Language* 99 (3): 603–653.

Büring, Daniel. 2001. "A Situation Semantics for Binding out of DP." In *Proceedings of SALT XI,* edited by Rachel Hastings, Brendan Jackson, and Zsofia Zvolenszky, 56–75. Cornell University, Ithaca, NY: CLC Publications.

Cable, Seth. 2010. *The Grammar of Q: Q-Particles, Wh-Movement and Pied-Piping.* Oxford: Oxford University Press.

Cheng, Siu Pong. 2015. "The Relationship of Syntactic and Semantic Aspects of Postverbal Particles and Their Preverbal Counterparts in Hong Kong Cantonese." PhD diss., The Chinese University of Hong Kong.

Coppock, Elizabeth, and David I. Beaver. 2014. "Principles of the exclusive muddle." *Journal of Semantics* 31 (3): 371–432.

Crni, Luka. 2013. "Focus particles and embedded exhaustification." *Journal of Semantics* 30 (4): 533–558.

References III

Dayal, Veneeta. 2023. "The interrogative left periphery: How a clause becomes a question." *Linguistic Inquiry,* 1–50.

Dong, Hongyuan. 2009. "Issues in the semantics of Mandarin questions." Ph.D. dissertation, Cornell University.

Eilam, Aviad. 2011. "Explorations in the Informational Component." PhD diss., University of Pennsylvania.

Erlewine, Michael Yoshitaka. 2011. "Sentence-final *only* and the interpretation of focus in Mandarin Chinese." In *The Proceedings of the 22nd North American Conference of Chinese Linguistics (NACCL 22) and the 18th Annual Meeting of the International Association of Chinese Linguistics (IACL 18),* edited by Lauren Eby Clemens and Louis Liu, 18–35. Columbus, Ohio: The Ohio State University.

Erlewine, Michael Yoshitaka. 2012. "The effect of only' on quantifier scope: The dake blocking effect." In *Online Proceedings of GLOW in Asia Workshop for Young Scholars 2011,* edited by Koichi Otaki, Hajime Takeyasu, and Shin-ichi Tanigawa, 72–86. Mie: Mie University.

Erlewine, Michael Yoshitaka. 2014. "Movement out of focus." PhD diss., Massachusetts Institute of Technology.

Erlewine, Michael Yoshitaka. 2017a. "Low sentence-final particles in Mandarin Chinese and the final-over-final constraint." *Journal of East Asian Linguistics* 26 (1): 37–75.

Erlewine, Michael Yoshitaka. 2017b. "Vietnamese focus particles and derivation by phase." *Journal of East Asian Linguistics* 26 (4): 325–349.

References IV

Erlewine, Michael Yoshitaka. 2025. "Focus intervention, multiple association, and the unity of focus and *wh* alternatives." *Linguistics and Philosophy.*

Erlewine, Michael Yoshitaka, and Hadas Kotek. 2018. "Focus association by movement: Evidence from Tanglewood." *Linguistic Inquiry* 49 (3): 441–463.

Fox, Danny. 2007. "Free choice and the theory of scalar implicatures." In *Presupposition and implicature in compositional semantics,* edited by Penka Stateva and Uli Sauerland, 71–120. London: Palgrave Macmillan.

Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena, and the composition of the Left Periphery.* Oxford: Oxford University Press.

Herrmann, Annika. 2013. *Modal and focus particles in sign languages: A cross-linguistic study.* Walter de Gruyter.

Hirsch, Aron. 2022. "*Only* as a form-meaning mismatch." Paper presented at Oberseminar, University of Göttingen.

Hole, Daniel. 2013. "Focus particles and related entities in Vietnamese." In *Linguistics of Vietnamese: An International Survey,* 265–303. Berlin/Boston: de Gruyter.

Hole, Daniel. 2015. "A distributed syntax for evaluative only' sentences." *Zeitschrift für Sprachwissenschaft* 34 (1): 43–77.

References V

Hole, Daniel. 2017. "A crosslinguistic syntax of scalar and non-scalar focus particle sentences: the view from Vietnamese and Chinese." *Journal of East Asian Linguistics* 26 (4): 389–409.

Horn, Laurence R. 1969. "A presuppositional analysis of *only* and *even*." In *Proceedings of the Fifth Annual Meeting of the Chicago Linguistics Society,* 97–108. Chicago: Chicago Linguistic Society.

Horn, Laurence R. 1996. "Exclusive company: *only* and the dynamics of vertical inference." *Journal of Semantics* 13 (1): 1–40.

Horn, Laurence R. 2002. "Assertoric inertia and NPI licensing." In *Proceedings of CLS 38, vol. 2,* edited by M. Andronis, E. Debenport, A. Pycha, and K. Yoshimura, 55–82. University of Chicago, Department of Linguistics.

Horn, Laurence R. 2009. "'Only' XL: The Assertoric Asymmetry of Exponibles." In *Semantics and Linguistic Theory,* 198–222.

Huang, C.-T. James. 2022. "Finiteness opacity and Chinese clausal architecture." In *New Explorations in Chinese Theoretical Syntax: Studies in honor of Yen-Hui Audrey Li,* edited by Andrew Simpson, 17–77. Amsterdam: John Benjamins.

Huang, Nick. 2018. "Control complements in Mandarin Chinese: implications for restructuring and the Chinese finiteness debate." *Journal of East Asian Linguistics* 27 (4): 347–376.

Ippolito, Michela. 2008. "On the meaning of only." *Journal of Semantics* 25 (1): 45–91.

Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar.* Cambridge, Massachusetts: MIT Press.

References VI

Jin, Dawei. 2020. "A semantic account of quantifier-induced intervention effects in Chinese why-questions." *Linguistics and Philosophy* 43 (4): 345–387.

Kim, Jong-Bok, and Ivan Sag. 2002. "Negation without head-movement." *Natural Language and Linguistic Theory* 20 (2): 339–412.

Kiss, Katilin. 1993. "Wh-Movement and Specificity." *Natural Language and Linguistic Theory* 11 (1): 85–120.

Klinedinst, Nathan. 2004. "Only scalar *only*." Ms., University of California, Los Angeles.

Klinedinst, Nathan. 2005. "Scales and *Only*." Master's thesis, University of California, Los Angeles.

Kotek, Hadas. 2014. "Composing questions." PhD diss., Massachusetts Institute of Technology.

Kotek, Hadas. 2019. *Composing questions.* Cambridge: The MIT Press.

Kratzer, Angelika. 2009. "Making a Pronoun: Fake Indexicals as Windows into the Properties of Pronouns." *Linguistic Inquiry* 40 (2): 187–237.

Law, Ann. 2002. "Cantonese sentence-final particles and the CP domain." *UCL Working Papers in Linguistics* 14:220–233.

Law, Ann. 2004. "Sentence-final focus particles in Cantonese." PhD diss., University College London.

References VII

Law, Paul. 2021. "Scope of Cantonese SFP *zaa3* only'and Mandarin SFP *eryi* only'." Paper presented on The 25th International Conference on Yue Dialects, Guangdong-Hong Kong-Macao University Alliance for Chinese, December 18-19, 2021.

Lee, Peppina Po-lun. 2019. *Focus Manifestation in Mandarin Chinese and Cantonese: A Comparative Perspective.* London & New York: Routledge.

Lee, Peppina Po-lun. 2024. "Dependencies between adverbs and sentence-final particles: A case of confirmative and non-confirmative modals in Cantonese." *Lingua* 312:103830.1–23.

Lee, Tommy Tsz-Ming. 2022. "Towards the unity of movement: implications from verb movement in Cantonese." PhD diss., University of Southern California.

Lee, Tommy Tsz-Ming. 2024. *The Unity of Movement: Evidence from verb movement in Cantonese.* Amsterdam and Philadelphia: John Benjamins Publishing.

Lee, Youngjoo. 2005. "Exhaustivity as Agreement: The Case of Korean *Man* 'only'." *Natural Language Semantics* 13 (2): 169–200.

Li, Haoze. 2024. "Intervention Effects in Mandarin Chinese." In *Oxford Research Encyclopedia of Linguistics.*

Li, Haoze, and Jess H-K Law. 2016. "Alternatives in different dimensions: a case study of focus intervention." *Linguistics and philosophy* 39:201–245.

Li, Yee-Na. 2014. "A Semantic Study of Restrictive Particles in Cantonese." Ph.D. dissertation, City University of Hong Kong.

References VIII

Liu, Yuyang, and Ka-Fai Yip. 2025. "Again, split aspect and finiteness in Chinese languages." Ms., Yale University.

Mayr, Clemens. 2014. "Intervention effects and additivity." *Journal of Semantics* 31 (4): 513–554.

Pan, Victor Junnan. 2022. "Deriving head-final order in the peripheral domain of Chinese." *Linguistic Inquiry* 53 (1): 121–154.

Paul, Waltraud. 2014. "Why particles are not particular: Sentence-final particles in Chinese as heads of a split CP." *Studia Linguistica* 68 (1): 77–115.

Portner, Paul. 2007. "Beyond the common ground: The semantics and pragmatics of epistemic modals." In *The Perspectives of Linguistics in the 21st Century*, edited by J.-Y. Yoon and K.-A. Kim. Seoul: Hankook Publishing Company.

Quek, Yihui, and Aron Hirsch. 2017. "Severing focus form and meaning in Standard and Colloquial Singapore English." In *Proceedings of North East Linguistic Society 47*, edited by Andrew Lamont and Katerina Tetzloff, 15–24.

Renans, Agata. 2017. "Exclusive particles in Ga (Kwa)." *Journal of Semantics* 34 (4): 555–585.

Reuland, Eric. 2001. "Primitives of binding." *Linguistic Inquiry* 32 (3): 439–492.

Rizzi, Luigi. 1990. *Relativized minimality.* Cambridge, Massachusetts: MIT Press.

References IX

Rizzi, Luigi. 2001. "Relativized Minimality Effects." In *The handbook of contemporary syntactic theory,* edited by Mark Baltin and Chris Collins, 89–110. Malden, MA: Blackwell.

Rizzi, Luigi. 2004. "Locality and Left Periphery." In *Structures and Beyond: The Cartography of Syntactic Structures,* edited by Adriana Belletti, 3:223–251. Oxford: Oxford University Press.

Rooth, Mats. 1985. "Association with Focus." PhD diss., University of Massachusetts, Amherst.

Rooth, Mats. 1992. "A theory of focus interpretation." *Natural Language Semantics* 1 (1): 117–121.

Rooth, Mats. 1996. "Focus." In *The Handbook of Contemporary Semantic Theory,* edited by Shalom Lappin, 271–297. Oxford: Blackwell Publishers.

Simpson, Andrew, and Zoe Wu. 2002. "Understanding cyclic Spell-Out." In *Proceedings of North East Linguistic Society 32,* edited by Masako Hirotani, 2:499–518.

Sun, Yenan. 2021. "A bipartite analysis of *zhiyou* only' in Mandarin Chinese." *Journal of East Asian Linguistics* 30:319–355.

Swart, Helen de. 1992. "Intervention Effects. Monotonicity and Scope." In *Proceedings of SALT II,* 387–402.

Szabolcsi, Anna, and Frans Zwarts. 1993. "Weak islands and an algebraic semantics for scope taking." *Natural language semantics* 1 (3): 235–284.

Tang, Sze-Wing. 1998. "Parametrization of features in syntax." PhD diss., University of California, Irvine.

References X

Tang, Sze-Wing. 2008. "Syntactic Properties of the Discontinuous Construction "mai. . . lo" in Cantonese." *Bulletin of Chinese Linguistics* 3 (1): 145–160.

Tang, Sze-Wing. 2015. *Yueyu yufa jiangyi [Lectures on Cantonese Grammar].* Hong Kong: The Commercial Press.

Tang, Sze-Wing. 2020. "Cartographic syntax of performative projections: evidence from Cantonese." *Journal of East Asian Linguistics* 29:1–30.

Tomioka, Satoshi. 2007. "Pragmatics of LF intervention effects: Japanese and Korean wh-interrogatives." *Journal of pragmatics* 39 (9): 1570–1590.

Truckenbrodt, Hubert. 2013. "An analysis of prosodic F-effects in interrogatives: Prosody, syntax and semantics." *Lingua* 124:131–175.

von Fintel, Kai, and Sabine Iatridou. 2007. "Anatomy of Modal Construction." *Linguistic Inquiry* 38 (3): 445–483.

Wagner, Michael. 2012. "Contrastive topics decomposed." *Semantics and Pragmatics* 5 (8): 1–51.

Wei, Wei Haley, and Yen-Hui Audrey Li. 2018. "Adverbial clauses in Mandarin Chinese." *Linguistic Analysis* 1-2:163–330.

Winterstein, Grégoire. 2012. "Only without its scales." *Sprache und Datenverarbeitung* 35:29–47.

Yang, Barry Chung-Yu. 2008. "Intervention effects and the covert component of grammar." PhD diss., National Tsing Hua University, Hsinchu.

References XI

Yang, Barry Chung-Yu. 2012. "Intervention effects and *wh*-construals." *Journal of East Asian Linguistics* 21 (1): 43–87.

Yip, Ka-Fai. 2022. "Converbs and adverbial clauses: a case study in Cantonese." *Studies in Chinese Linguistics* 43 (2): 143–169.

Yip, Ka-Fai. 2023. "Agreeing with 'only'." In *Proceedings of 41st West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Proceedings Project (To appear).

Yip, Ka-Fai. 2025. "Differentiating between evidential bias and epistemic bias in questions: Evidence from Cantonese." *Ms. Yale University.*

Yip, Ka-Fai, and Olabode Adedeji. 2024. "A quantifier-particle approach to exclusive focus particles in Yorùbá." Ms., Yale University.

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Appendix A: Exclusive doubling cross-linguistically

(71)
a. Akan (C. Ahenkorah p.c.)
b. Bangla (U. Banerjee p.c.)
c. Cantonese (A. Law 2004; P. P.-l. Lee 2019; Yip 2023)
d. Dutch (Barbiers 2014)
e. English (rare cases in J. Bayer 2020), e.g., *the stakes have never been higher as he only has only 48 hours to find someone to take care of his young daughter*
f. Ga (Renans 2017)
g. German (Hole 2015; J. Bayer 2020)
h. German sign language (Herrmann 2013)
i. Hindi (Bajaj 2016)
j. Japanese (Erlewine 2012)
k. Kasem (Aremu 2024)
l. Korean (Y. Lee 2005)
m. Mandarin Chinese (Hole 2017; Sun 2021)
n. Vietnamese (Hole 2013, 2017; Erlewine 2017b)
o. Yoruba (Yip and Adedeji 2024)
p. ...

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Appendix B: At-issue exclusiveness

- The exclusiveness may be **directly dissented**

(72) Doubling of exclusive particles in Cantonese

a. Aaming **zinghai** maai-zo joengjuk$_F$ bei Aafan. (adverbial)
Ming only buy-PERF lamb to Fan

b. Aaming maai-zo joengjuk$_F$ bei Aafan **zaa3** (SFP)
Ming buy-PERF lamb to Fan SFP.only

c. Aaming **zinghai** maai-zo joengjuk$_F$ bei Aafan **zaa3** (doubling)
Ming only buy-PERF lamb to Fan SFP.only
(a-c): 'Ming only bought Fan *lamb* (but not beef or pork).'

(73) Can directly challenge the exclusiveness in (72a-c)
B: M-hai. (Aaming zung maai-zo zyujuk bei Aafan.)
no Ming also buy-PERF pork to Fan
'No. (Ming also bought Fan pork.)'

At-issue exclusiveness (cont.)

- The exclusivity **questioned**
- Yes-no question particle *aa4* (high at $\text{F2P}_{\text{Force}}$, Tang 2015; Yip 2025; *cf.* Dayal 2023)

(74) Can be questioned

a. Aaming **zinghai** maai-zo joengjuk$_F$ aa4?
Ming only buy-PERF lamb SFP.Q
'Did Ming only buy lamb?'

b. Aaming maai-zo joengjuk$_F$ **zaa4**?
Ming buy-PERF lamb SFP.only.Q
'Did Ming only buy lamb?'

c. Aaming **zinghai** maai-zo joengjuk$_F$ **zaa4**?
Ming only buy-PERF lamb SFP.only.Q
'Did Ming only buy lamb?'

Truth of the prejacent

- *Zinghai* & *zaa3* also subsume the truth of the prejacent
- The inference may project though questions:

(75) a. Ngo m-zi Aaming jau-mou maai joengjuk, ...
1SG not-know Ming have-not.have buy lamb
'I don't know whether Ming bought lamb or not, ...'

b. ... # Aaming **zinghai** maai-zo joengjuk$_F$ **zaa4**?
Ming only buy-PERF lamb SFP.only.Q
'Did Ming only buy lamb?' (doubling, same for singleton cases)

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Appendix C: English scalar *only* vs. Cantonese doubling

- English scalar *only* is known to differ from quantificational *only* from two truth-conditional-related aspects (Klinedinst 2004, 2005; Beaver and Clark 2008; Coppock and Beaver 2014; Alxatib 2020):

#1 Non-logically weaker alternatives are *not* excluded when being lower ranked

(76) a. Jess only managed to interview John (quanitifcational)

b. Jess only managed to a [first lieutenant]$_F$ (scalar) (Alxatib 2020:30)
(Jess also interviewed second lieutenants)

#2 The ban on vacuous uses

(77) a. #Jackie was only born in [Boston]$_F$ (quanitifcational) (Alxatib 2020:45)

b. Did Jamie only get a [B]$_F$ on the test? (scalar) (Alxatib 2020:45)

Appendix C: #1: Lower ranked alternatives

(78) Context facilitating scalar reading with a rank order

Scenario: [Taiwan: 1 gold | Hong Kong: 1 silver 1 bronze]
Ming and you are discussing which team performed the best in the last Olympic game. You said: Taiwan was definitely better, because ...

a. #Gongdeoi **zinghai** ling-zo go aagwan$_F$ (aa3).
HK.team only get-ACHV CL 1st-runner-up SFP.
'#The only medal Hong Kong Team got was a silver. (What a loser.)'

b. ??Gongdeoi **zinghai** ling-zo go aagwan$_F$ **zaa3**.
HK.team only get-PFV CL 1st-runner-up SFP.only.
'Hong Kong Team only/just got a silver. (What a loser.)'

c. ?Gongdeoi ling-zo go aagwan$_F$ **zaa3**.
HK.team get-PFV CL 1st-runner-up SFP.only.
'Hong Kong Team only/just got a silver. (What a loser.)'

d. Gongdeoi **zihai** ling-zo go aagwan$_F$ **zaa3**.
HK.team just get-PFV CL 1st-runner-up SFP.only.
'Hong Kong Team just got a silver. (What a loser.)'

Appendix C: #1: Lower ranked alternatives (cont.)

- To naturally utter the sentences, either 'at most' is required, or the context needs to be adjusted explicitly to eliminate bronze in the comparison with Taiwan.

(79) Context focusing on the highest medal

Same scenario with (78). Ming argued that Hong Kong got more medals and should be better. You said: well, let's forget about the number and just focus on the highest one. Taiwan was better, because ...

a. ... Gongdeoi (zeoido) **zinghai** ling-zo go aagwan$_F$ (aa3).
... HK.team at.most only get-ACHV CL 1st-runner-up SFP.
'Hong Kong Team (at most) only got a silver.' (less preferred but acceptable)

b. ... Gongdeoi (zeoido) (**zinghai**) ling-zo go aagwan$_F$ **zaa3**.
... HK.team at.most only get-ACHV CL 1st-runner-up SFP.only.
'Hong Kong Team (at most) only/just got a silver.'

Appendix C: #2: The ban on vacuous uses

(80) Scenarios where only one alternative can be true

a. #Nei-jat fo Aaming **zinghai** ling-zo dai-ji ming.
this-one subject Ming only rank second rank.
'Ming only ranked the second (highest score) on this subject.'

b.?/??Nei-jat fo Aaming **zinghai** paai dai-ji ming **zaa3**.
this-one subject Ming only rank second place SFP.only.
'Ming only/just ranked the second (highest score) on this subject.'

c. Nei-jat fo Aaming **zihai** paai dai-ji ming **zaa3**.
this-one subject Ming just rank second rank SFP.only.
'Ming just ranked the second (highest score) on this subject.'

Appendix C: #3: Negating the prejacent

- Beaver and Clark (2008) and Coppock and Beaver (2014) claim that scalar *only*'s prejacent does not survive negation (but see Horn 2009 for the contrast between *only* and *just*).

(81) Mary didn't invite **only/just** John and Mike. (quantificational)
→ Mary invited John and Mike (Coppock and Beaver 2014:379)

(82) a. This isn't **only** a pointless 'shoot-em-up' movie. (scalar)
↛ This is a pointless 'shoot-em-up' movie. (Beaver and Clark 2008:235)

b. John isn't **just**/%**only** a graduate student. (scalar)
↛ John is a graduate student. (Coppock and Beaver 2014:379)

Appendix C: #3: Negating the prejacent (cont.)

- Cantonese *zinghai*'s prejacent always projects up through negation.[1]

(83) #Aaming m-hai **zinghai** jat-go Grad Student lai (**zaa3**) (, keoi hai
Ming not only one graduate student SFP SFP.only 3SG be
Professor aa3).
professor SFP
Int.: 'Ming is not just a graduate—he is (actually) a professor!'
Only: 'Ming does not only have the role of a graduate student, but he also has the role of a professor.' (e.g., a professor of physics joins the linguistic graduate program).

1. For reasons unknown to me, without an adverb, it is difficult to negate a *zaa3* sentence. To utter (83) naturally, a scalar *zihai* 'only' can be used to replace *zinghai*, with or without *zaa3*.

Appendix C: Summary

Tests	$p <_{\textit{non-logical}} q$?	$\textbf{\textit{only}}_{\textbf{\textit{scalar}}}$	***Zinghai***	***Zaa3***	**Doubling**
#1 Rank order (cpt. alt.)	Yes (medal)	OK	#	OK?	#
#2 Rank order (incpt. alt.)	Yes (test ranking)	OK	#	OK	#
#3 Prejacent negated	Yes (academic ranks)	OK	#	(OK)	#

Table 3: English scalar *only* vs. Cantonese exclusive doubling