Intervention effects are not uniform: evidence from exclusive doubling in Cantonese

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Background: Intervention effects

- Intervention effects (IEs) refer to the disruption of a syntactic/semantic dependency between two elements by quantificational/focus elements.

(1) X … **Z$_{\text{quantificational/focus}}$** … Y

(where Z c-commands (or takes scopes over) Y and Z does not c-command X)

- Long-standing debate on the nature of IEs:

(2) a. **Syntax**: Relativized Minimality effects (e.g., Rizzi 1990, 2004; Yang 2012; cf. Chomsky 1995)

b. **Semantics**: Focus (alternative) calculation crashes (e.g., Beck 2006; Kotek 2014; Li and Law 2016; Erlewine 2025)

c. **Semantics**: Illicit scopal configurations of quantifiers (e.g., Swart 1992; Szabolcsi and Zwarts 1993; Mayr 2014)

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  - Only **focus operators** trigger IEs (henceforth **FIEs**).
  - No IEs triggered by **quantificational elements** (henceforth **QIEs**).

(3) a. *{**Zhiyou**/ **shi**} Zhangsan gan gen shei dajia? (✔ **FIEs**)
only/ be Zhangsan dare with who fight
Int.: 'Who is x such that it was (only) Zhangsan who dare to fight with x?'

b. {**Meiyou-ren**/ **meige-ren** **dou**} gan gen shei dajia? (✘ **QIEs**)
nobody/ every.person DOU dare with who fight
'Who does nobody/everyone dare to fight with?' (adpated from Yang 2012:46)

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This talk: IEs are not uniform

- I demonstrate a reverse pattern in **Cantonese exclusive doubling**:
  Quantifier-only IEs
- ➜ IEs are also not uniform across **dependencies**.
  - *Cf.* *Wh*-nominals: FIEs only
  - *Cf.* *Wh*-adverbs: both FIEs and QIEs (Tsai 1994, 1999; Yang 2012)

- I further show that not all quantifiers trigger QIEs
  - **Witnessability** of quantifiers matters
  - Patterning with *wh*-adverbials in Chinese (Jin 2020; cf. strong-weak distinction in H. Li 2024)

- Despite QIEs, the dependency in exclusive doubling involves focus inherently
  ➜ Supporting a **semantic** approach over a syntactic approach
  ➜ Supporting a general scopal approach over an alternative-based approach

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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 2025)

(4) 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).'

➜ Same truth conditions with exclusivity

- At-issue: the exclusivity can be *directly assented/dissented negated, questioned*, or take *narrow scope under epistemic modals* (See Yip 2024)

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The syntax 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

(5) SFP doubling[1]

[$\textbf{SFP}_{\textbf{excl}}$=*zaa3* ... [$\textbf{Adv}_{\textbf{excl}}$=*zinghai* ... [XP_F ...]]]

- See Appendix A for the tests.

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)

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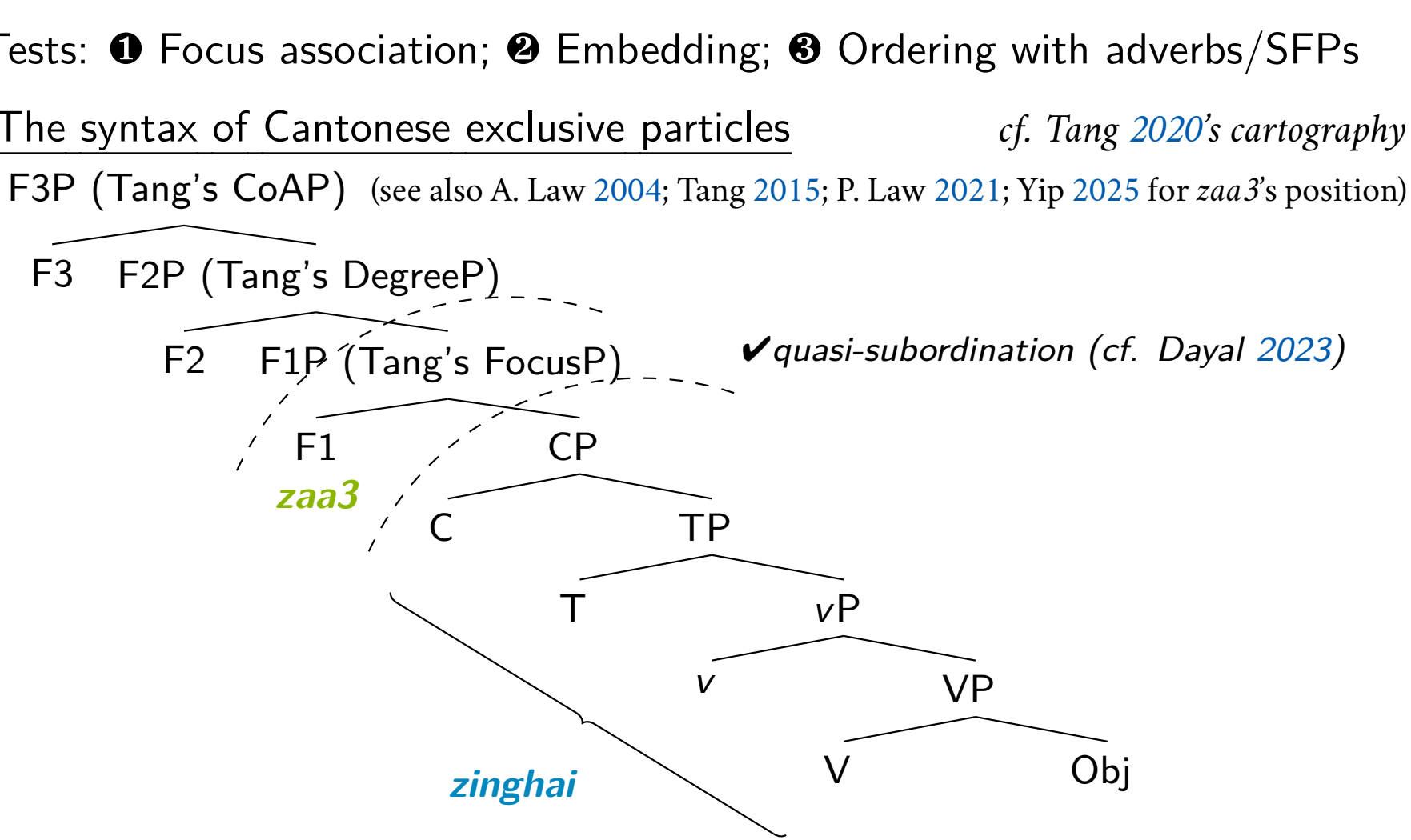
The syntax of *zinghai* and *zaa3* (cont.)

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

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



Exclusive doubling as scalar focus structures

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

(7) 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 syntactic agreement/"concord" phenomenon
(vs. The **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 2025; Aremu, n.d.)

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Difference in scalar meaning

- *Zaa3*: at least one excluded alternative is ranked higher than the prejacent <beer, wine, vodka>$_{ABV}$, where *beer* $<_s$ *wine*/*vodka*

(8) *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)

- *Zaa3* is banned in contexts without a salient scale (e.g., a listing scenario)

(9) A listing scenario that lacks a salient scale

At a liquor store, you report 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, ...'

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Semantic dependency in exclusive doubling

- *Zinghai*: the exclusive operator

(10) 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: $p(w)$

Semantic dependency in exclusive doubling (cont.)

- *Zaa3*: the scalar operator that is **semantically dependent** on *zinghai*
  ➜ targets the same alternative set and ranks the prejacent lower than salient alternatives on a scale (dependent on **focus association**)
- Formulated as co-indexation of Roothian C_i variable

(11) $[_{CP}$ zaa(C_i) $[_{TP}$ zinghai(C_i) **[** $\sim C_i$ $[_{vP}$ Ming $[_{v'}$ drink $[_{DP}$ beer$_F$]]**]**]]

(12) The semantics of *zaa3*

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

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Interveners

- Negation
- Modals
- Quantificational adverbs (Q-Advs)
- (Some) quantifier subjects (Q-Subjs)

#1: Negation

- **Negation** cannot intervene between *zinghai* and *zaa3*.

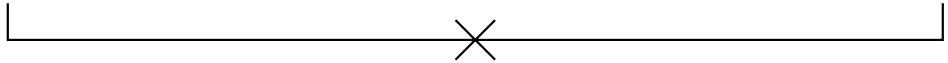
(13) Intervention effects by aspectual negation

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 ...



#1: Negation (cont.)

- Height matters:
  Sentential negation does not intervene between *zaa3* and *zinghai*.

(14) Lack of intervention effects with sentential negation

... Aaming **m-hai** **zinghai** maai-zo [joengjuk]$_F$ **(zaa3)**. (¬ > only)
Ming NEG-COP only buy-PFV lamb SFP.only

It is not the case that Ming only bought lamb. (he bought beef in addition to lamb)

➜ Too high to intervene:

(15) [$_{SNegP}$ *m-hai* 'NEG-COP' [zaa [$_{CP}$ ... [$_{TP}$ ... zinghai ...

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#2: Modals

- IEs by **deontic modals** like permission *hoji* 'may':

(16) Intervention effects of deontic modals in doubling

a. *Scenario: Each student must take both German and French to fulfill the language requirement. Since Ming is from France, he is exempted from French, though he may still take French for fun.*

Aaming **hoji** **zinghai** duk [Dakman]$_F$ (*zaa3). ($\Diamond^{Deo}$ > only)
Ming may only take German SFP.only
'Its okay for Ming to only take German. (though Ming can also take French)

b. *[zaa [$_{CP}$ ... [$_{ModP^{Deo}}$ ***hoji* 'may'** ... [zinghai ...

- Also strong necessity *bitseoi/jatding jiu* 'must' and weak necessity *jinggoi*^{Deo} 'should'; as well as dynamic modals
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#3: Quantificational adverbs

- IEs by **universal Q-adv** *sengjat (dou)*

(17) Intervention effects of quantificational adverbs in doubling

a. *Scenario: You and Fan are discussing Ming being a picky eater. Fan wonders whether Ming does not eat tomato. You say:*
Aaming **sengjat dou** **zinghai** sik-zing hunglobak$_F$ (***zaa3**).
Ming always DOU only eat-leave carrot SFP.only
Ming always only left carrot uneaten. (But not tomato.)

b. *[$_{CP}$ zaa3 ... [$_{TP}$ ... ***sengjat dou*** **'always'** ... [zinghai ....

- Also (upward entailing) *zaubatsi* 'occasionally' and (downward entailing) *housiu* 'seldom'

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#4: Quantifier subjects

- IEs by **negative quantifiers** like *mou NP* 'no NP'

(18) Intervention effects of negative quantifier subjects in doubling

a. *Scenario: You and Fan are debating whether they should submit only one abstract to a conference if the host allows two submissions. Fan thinks that they should submit only one, and you say:*

Moujan **zinghai** gaau jat$_F$ bin zaakjiu (***zaa3**).
No.one only submit one CL abstract SFP.only
No one submits one abstract. (We always submit two when it is allowed.)

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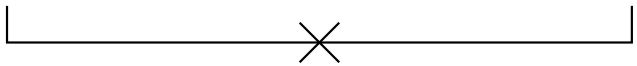

- Same for *mou-geigo jan* 'not several (few) people', *housiu jan* 'few people', etc.

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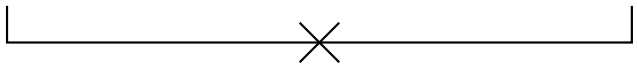

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Two types of non-interveners

- Some Q-Subjs: **Witnessable** quantifiers
- Other **focus** operators

#1: Quantifier subjects

- No IEs by universal Q-Subjs

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every person all person DOU only submit-PFV one CL abstract
(**zaa3**).
SFP.only
'Everyone/all (the) people only submitted one abstract.'

- As well as existential Q-Subjs with *jau* 'have':

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#1: Quantifier subjects (cont.)

- Same pattern: IEs in *weishenme* 'why' questions in Mandarin (Jin 2020).

(21) **Mei-ge-ren**/ **daduoshu ren** weishenme dou yao cizhi?
everyone most person why DOU want resign
'Why do(es) everyone/ most people want to resign?'

(22) *__Meiyou-ren__/ __henshao ren__ weishenme yao cizhi?
nobody few person why want resign
Int.: 'Why do(es) nobody/ few people want to resign?'

#1: Witnessable quantifiers

- Witnessable: 'everyone', 'most NP', 'at least 3 NP', etc.
- Non-witnessable: 'no one', proportional 'few NP', etc.

(23) A quantifier is witnessable iff it entails the existence of a minimal witness set.

(24) A set W is a witness set of G iff $W \in G$ and W is a subset of the smallest live-on set of G. Accordingly, a minimal witness set M is a set that is smallest among the witness sets of G, i.e., M is a witness set of $G \wedge \neg\exists M'[M' \in G \wedge M' \subset M]$.

#2: Focus operators

- No IEs by focus operators like 'even' and 'also' (✘ FIEs)

(25) '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: Focus operators (cont.)

- Cleft focus with copula *hai* 'be' also does not trigger intervention effects.

(26) Cleft focus *hai* 'be' associating with objects (=inside *zinghai*'s scope)

[Context: someone said Ming read two papers.]

Guihai! Aaming **hai** [**zinghai** tai-zo *jat-bin* *man*$_{F1=F2}$] **zaa3**!

no Ming be only read-PFV one-CL paper SFP.only

No! Ming only read *one paper*!' (i.e., It is only one paper that Ming read!)

#2: Lack of FIEs

- Exclusive doubling: subject to **QIEs** only, but not FIEs
- $\neq$ *weishenme* 'why' (=**wh**-adverb) questions: subject to both **FIEs** and **QIEs**
- $\neq$ **wh**-nominal questions: subject to **FIEs** only

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The radical immediate scope constraint

- As a *generalization* of the IEs in exclusive doubling:

(27) **The radical immediate scope constraint**

a. Let the exclusive proposition (EXCL p) be r, alternative propositions excluded by *zinghai* be q (i.e., [EXCL p]$\models \neg q$), and the prejacent of *zaa3* be s.

b. In the LF, no elements may intervene between *zinghai* & *zaa3* (i.e., takes r & returns s), s.t.:
(i) r does not entail s ($r \not\subseteq s$) and
(ii) there is no q incompatible with s ($\neg\exists q[q \cap s = \varnothing]$)

(28) $[_{CP}$ zaa(C_i) $[_{TP=s}$ ... **(Non-)interveners** $[_{TP=r}$ zinghai(C_i) **[** $\sim C_i$ $[_{vP}$ p **]**]]

- Not stipulation, but a natural consequence of *zaa3*'s semantics + dependency with *zinghai* (see Appendix C)

Accounting for (non-)interveners

- Interveners: Negation, modals, Q-Advs, Q-Subjs: **alter truth conditions**
  ➜ Resulting r does not entails s
- Non-interveners: focus operators like 'even', 'also', and cleft operators: **presuppositonal** and do not affect truth conditions
- For example, EVEN is a partial identity function on the at-issue level

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

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

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

- Among focus operators, only 'only' affects truth conditions—but it's the licenser of *zaa3* in doubling

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Accounting for (non-)interveners

- (Non-)interveners: Only witnessable quantifiers may be topicalized

(30) **Mui-go jan**/ ***housiu jan** ne, (dou) **zinghai** gaau-zo jat$_F$ bin
every one few people TOP DOU only submit-PFV one CL
zaakjiu **zaa3**.
abstract SFP.only
'Everyone/ *few people submitted only one abstract.'

- Jin (2020): witnessable quantifiers are ambiguous between a generalized quantifier reading and a referential, plural indefinite reading (Reinhart 1997)
  ➜ Allowing topicalization

- LF: Quantifiers take widest scope ➜ too high to be interveners

(31) [**Witnessable Q-subjs** [$_{CP}$ zaa(C_i) [$_{TP=s}$ … t [$_{TP=r}$ zinghai(C_i) **[** $\sim C_i$ [$_{vP}$ p **]**]]

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Interim summary

Interveners	Truth-cond. effect	Domain	Witnessability	Doubling
Negation	YES	Proposition	—	*
Modal	YES	World	—	*
Q-adv: 'seldom, always'	YES	Time/situation	—	*
Q-subj.: 'no, few, $some_{non\text{-}ref}$'	YES	Individual	NO	*
Additive ALSO (e.g., *dou*, *zung*)	NO	Proposition	—	OK
EVEN (e.g., *lin*, *samzi*)	NO	Proposition	—	OK
Cleft focus marker *hai* 'be'	NO	Proposition	—	OK
Q-subj.: 'every, most, $some_{ref}$'	YES	Individual	YES	OK

Different approaches to IEs

- **Syntactic**: Unifying focus and quantifiers by [QU], e.g., Relativized Minimality (Rizzi 1990, 2001, 2004; cf. Yip 2025 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 ∼ (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.

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Implications for IEs

- 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 alternative set (C_i) fed to *zaa3* predicts the quantifier-only intervention

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Conclusion: Intervention effects are not uniform

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   - Exclusive doubling
   - Wh-dependencies: wh-nominals vs. wh-adverbs
   - Verb doubling (T. T.-M. Lee 2024)
   - ...

2. By interveners: We need to distinguish between quantifiers and focus operators (cf. Li and Law 2016)
   ➜ By semantic properties!
   - Alternative-based or not (Beck's effects)
   - Truth-conditional vs. Presuppositional (in exclusive doubling)
   - Witnessable vs. Non-witnessable (scopal configurations)
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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 *mõi* and English *only*; Erlewine 2017b)

(32) 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*)

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

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❶ Focus association (cont.)

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

(34) 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!

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

❶ Focus association (cont.)

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

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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)

(36) 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, ...)

(37) 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.'

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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

(38) [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)

(39) 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)

(40) (***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

(41) *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.'

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

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A compositional analysis

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

(43) 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)

(44) 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

(45) $[_{CP}$ 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 2025) (*cf.* binding as Agree, Reuland 2001; Kratzer 2009, *i.a.*)

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A compositional analysis (cont.)

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

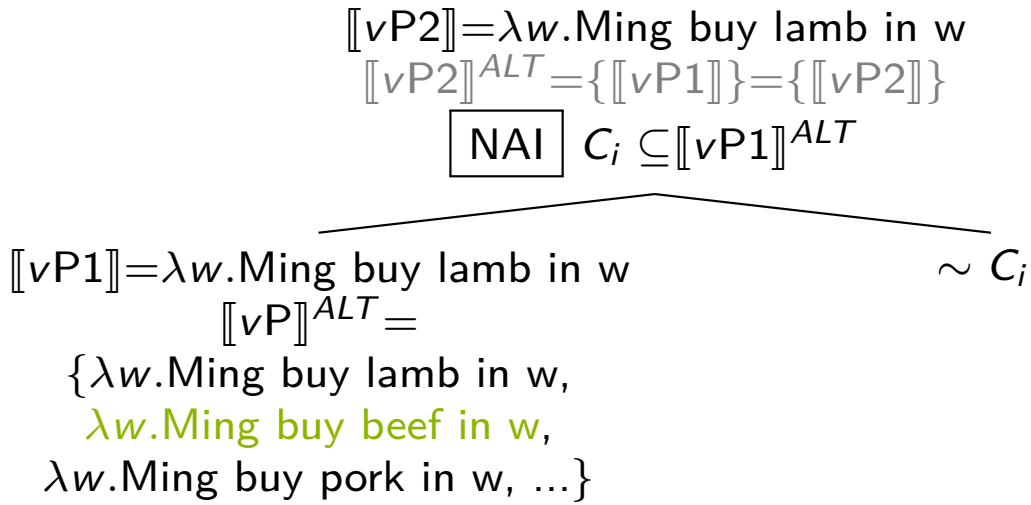
(46) Contextual information: (non-)salience

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.)

(47) The composition of (46)



A compositional analysis (cont.)

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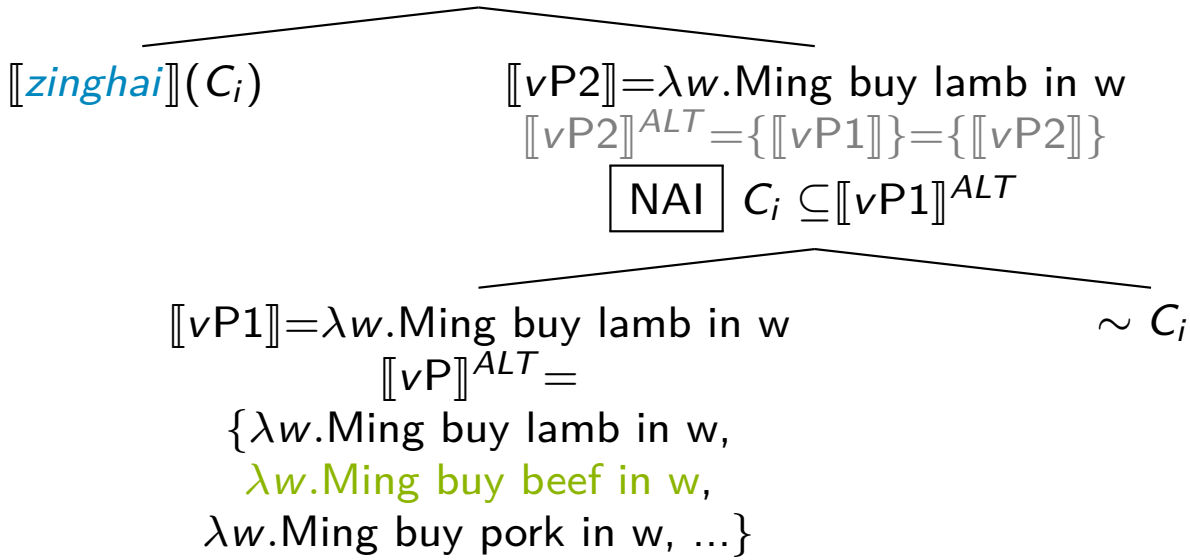

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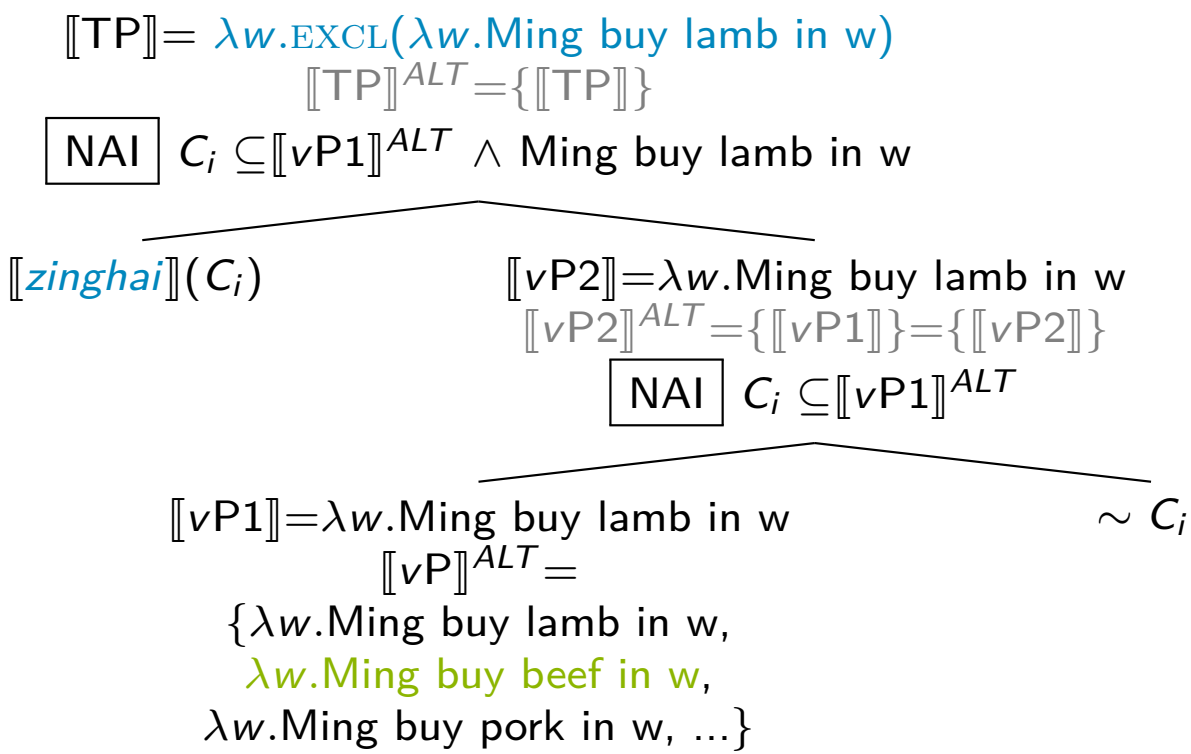

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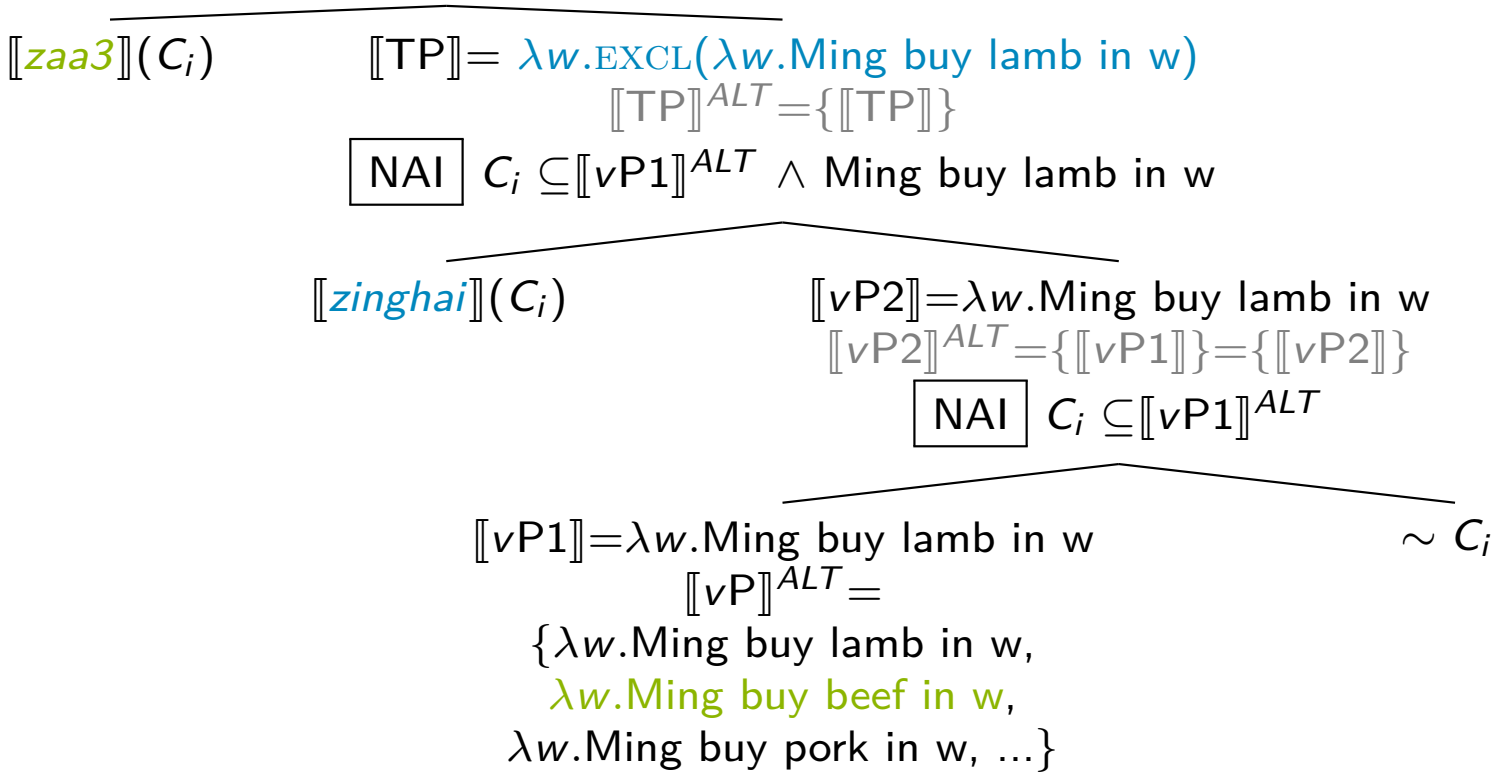

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(47) The composition of (46)

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

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

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

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

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

$[\![vP1]\!]=\lambda w.$Ming buy lamb in w
$[\![vP]\!]^{ALT}=$
{$\lambda w.$Ming buy lamb in w,
$\lambda w.$Ming buy beef in w,
$\lambda w.$Ming buy pork in w, ...}

$\sim C_i$

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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**

(48) 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

Deriving the IEs compositionally

- The LF structure and the derivation of a sentence with negation IEs is given below.

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

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

(51) The derivation of (49)

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

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

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

d. $[\![NegP]\!] = \lambda w.\neg\forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_l \subseteq q] = \lambda w.\exists q[(q \in C_i \wedge q(w)) \rightarrow \phi_l \not\subseteq q]$
$= \phi_b \vee \phi_p \vee \ldots$ **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

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