A compositional account of "only" doubling[*]

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Contents

1   Introduction

Doubling of exclusive particles (also called 'only' concord), literally 'John **only** bought **only** *lamb'*, is extensively found in natural languages (see Appendix 2 for more):

(1)   A non-exhaustive list of languages with exclusive particle doubling

    a.   Dutch (Sjef Barbiers 2014)

    b.   German (Hole 2015; J. Bayer 2020)

    c.   Hindi (Bajaj 2016)

    d.   Korean (Y. Lee 2005)

    e.   Mandarin Chinese (Hole 2017; Sun 2021)

    f.   Vietnamese (Hole 2013, 2017; Erlewine 2017b)

➜ poses a challenge for **compositionality** since both particles associate with the same focus, but apparently only one particle is interpreted as the exclusive operator.

The prevailing approach in the literature is the **operator-particle analysis** (Y. Lee 2004, 2005; Quek and Hirsch 2017; Sun 2021, *i.a.*):[1]

- One particle as a (i) semantically vacuous concord marker that (ii) establishes a syntactic dependency with an exclusive operator (may be null or realized as the other particle)

(2)   [$_{TP}$ Subj [**Operator-ONLY**$_{[ioNLY()]}$ [$_{vP}$ V [**Particle-only**$_{[uoNLY(+)]}$ [$_{DP}$ Focused element]]]]]]

- Syntactic dependency: *Agree* (Quek and Hirsch 2017) and/or *(C)overt movement* (S. Bayer 1996; Y. Lee 2005; Sjef Barbiers 2014; Erlewine and Kotek 2018; Sun 2021)

- However, there are several research gaps:

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(3)   a.   **Empirical gaps**

    (i) *Types of particles*: Previous studies focus on doubling of *adverbial* and *adfocus* particles, whereas **sentence-final particles (SFPs)** receive little attention ← today

    (ii) *Dimension of meaning*: ***Non-at-issue*** meaning is rarely considered. ← today

    b.   **Theoretical gaps**

    The operator-particle approach is a *syntactic* solution to an interface problem motivated largely by *semantic* considerations (e.g. compositionality & split scope)

    (i) Is there a ***semantic*** solution possible? ← today

    (ii) Inadequate recruitment of syntactic evidence (with notable exception like E&K 2018)

    ← will be addressed on PLC-47 (for Cantonese) and WCCFL-41 (more generally)

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1. See also A. Law (2004) and P. P.-l. Lee (2019), who alluded to a multiple-'only' analysis in Cantonese, and Hole (2017), who proposed a scalar analysis on adfocus particles in Vietnamese and Mandarin (but see Sun 2021 for counter-arguments).

The empirical focus of this study is doubling of **SFP** *zaa3* with adverbial *zinghai* 'only' in Cantonese:

(4)   Doubling of exclusive particles in Cantonese
      阿明**淨係**買咗羊肉畀阿芬**咋**

Aaming	**zinghai**	maai-zo	joengjuk$_F$	bei	Aafan	$\boxed{\textbf{zaa3}}$	(Cantonese)
Ming	only	buy-PERF	lamb	to	Fan	SFP.only	

      'Ming only bought Fan *lamb* (but not beef or pork).'

Also found in Mandarin Chinese (e.g. Erlewine 2011) and Vietnamese (e.g. Hole 2013):

(5)   張三只買了牛肉**而已**

Zhangsan	**zhi**	mai-le	niurou$_F$	$\boxed{\textbf{eryi}}$	(Mandarin)
Zhangsan	only	buy-PERF	beef	SFP.only	

      'Zhangsan only bought beef.'

(6)

Nam	**chỉ**	ăn	[thịt bò]$_F$	$\boxed{\textbf{thôi}}$	(Vietnamese)
Nam	only	eat	beef	SFP.only	

      'Nam only eats beef.'

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(7)   Overview of the talk

  a.   The empirical focus is on an understudied case of doubling with 'only' **SFPs** in Cantonese.

  b.   While I follow the main tenet of the Operator-Particle approach analysis that one particle is dependent on another one (which is an operator), I argue that ***both*** particles have *focus-sensitive* contributions, and none of them are semantically vacuous.

  c.   Specifically, I propose a **two-dimensional** compositional account, where
       (i) *zinghai* denotes $\boxed{\text{an exclusive operator}}$ on the AT-ISSUE level, and
       (ii) *zaa3* $\boxed{\text{relates the focus alternative sets to the discourse}}$ on the NOT-AT-ISSUE level.

  d.   I explore a ***semantic*** explanation of the dependency between the two particles, built on the need to identify excluded alternatives.

  e.   I also discuss how doubling may shed light on the ***scalar*** reading of 'only'.

- **Road map**

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2 Doubling of exclusive particles in Cantonese

2.1 The core puzzle: Same truth conditions

Cantonese sentences with either *zinghai*, or *zaa*, or both (i.e. doubling) convey **at-issue** exclusiveness, similar to English *only* (Horn 1969 *et seq.*). They also presuppose the truth of the prejacent proposition. The at-issue status of exclusiveness is confirmed by the three tests below:

(8)   Exclusiveness in singleton *zinghai* & *zaa* sentences and doubling sentences is at-issue

    a.   Can be directly challenged, (9)

    b.   Can be questioned, (10)

    c.   Can be negated, (11)

(9)   Can be directly challenged

    a.   A1: Aaming **zinghai** maai-zo   joengjuk$_F$
          Ming   only   buy-PERF lamb
        'Ming only bought lamb.'

    b.   A2: Aaming maai-zo   joengjuk$_F$ **zaa3**
          Ming   buy-PERF lamb   SFP.only
        'Ming only bought lamb.'

    c.   A3: Aaming **zinghai** maai-zo   joengjuk$_F$ **zaa3**
          Ming   only   buy-PERF lamb   SFP.only
        'Ming only bought lamb.'

    d.   *Can directly challenge the exclusiveness in A1-A3*
        B: M-hai. (Aaming zung maai-zo   zyujuk.)
          no   Ming   also   buy-PERF pork
        'No. (Ming also bought pork.)'

The same patterns carry over to questions in (10):

(10)   Can be questioned

    a.   A1: Aaming hai-m-hai **zinghai** maai-zo   joengjuk$_F$?
          Ming   be-not-be only   buy-PERF lamb
        'Did Ming only buy lamb?'

    b.   A2: Aaming hai-m-hai maai-zo   joengjuk$_F$ **zaa3**?
          Ming   be-not-be buy-PERF lamb   SFP.only
        'Did Ming only buy lamb?'

    c.   A3: Aaming hai-m-hai **zinghai** maai-zo joengjuk$_F$ ⌐zaa3¬?

        Ming   be-not-be only   buy-PERF lamb   SFP.only

        'Did Ming only buy lamb?'

    d.   *The direct negative answer to A1-A3 can only be on the exclusiveness but not the prejacent*

        B: M-hai. {^{OK}Aaming zung maai-zo zyujuk/ #Aaming mou   maai joengjuk}

           no   Ming   also buy-PERF pork   Ming   not.PERF buy lamb

        'No. (^{OK}Ming also bought pork/ #Ming didn't buy lamb.)'

The exclusiveness can also be negated, as in (11).[2] Note that (11) additionally shows that the prejacent is presupposed since its truth projects up through negation.

(11)   <u>Can be negated</u>

    a.   Aaming m-hai **zinghai** maai-zo joengjuk$_F$ (, #soji gammaan mou joengjuk sik)

        Ming   not-be only   buy-PERF lamb   so   tonight   no   lamb   eat

        'Ming didn't only buy lamb (, #so we don't have lamb for dinner tonight).'

        (cf. ^{OK}Ming didn't buy only lamb, so we have a choice between lamb and pork tonight.)

    b.   Aaming m-hai maai-zo joengjuk$_F$ ⌐zaa3¬   me?! (#Soji gammaan mou joengjuk

        Ming   not-be buy-PERF lamb   SFP.only SFP.Q so   tonight   no   lamb

          sik)

          eat

        'Didn't Ming only buy lamb? (#So we don't have lamb for dinner tonight).'

        (cf. ^{OK}Didn't Ming only buy lamb? Of course we'll have lamb stew again!)

    c.   Aaming m-hai **zinghai** maai-zo joengjuk$_F$ ⌐zaa3¬   (, #soji gammaan mou

        Ming   not-be only   buy-PERF lamb   SFP.only   so   tonight   no

          joengjuk sik)

          lamb   eat

        'Ming didn't only buy lamb (, #so we don't have lamb for dinner tonight).'

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2. *Zaa3* can only be negated by the sentential negation *m-hai* 'not' in a rhetorical question like (11b), or with the presence of *zinghai* like (11c). Without these elements, *zaa3* cannot occur with *m-hai*, regardless of the scope readings, as in (i).

(i) ??Aaming m-hai maai-zo joengjuk$_F$ ⌐zaa3¬
    Ming   not-be buy-PERF lamb   SFP.only
    Int.: 'Ming didn't only buy lamb.'/'Ming didn't buy only lamb.'

Note that sentences like (i) are however judged as acceptable in P. Law (2021). Among the five native speakers I consulted, two found (i) unacceptable and three found it unnatural.

The paradigm immediately gives rise to an apparent **form-meaning mismatch**, posing problems for compositionality:

> - If both *zinghai* and *zaa3* are exclusive operators ...
>   ← DOUBLING: Why does the truth condition remain the **same** in doubling cases (vs. a multiple-'only' reading)?
>
> - If either one particle, say, *zaa3*, is not an exclusive operator ...
>   ← OBLIGATORINESS: Why do the singleton *zaa3* cases **always** convey exclusiveness?

2.2 A neglected aspect: Different felicity conditions

Zaa3 does not share the same felicity conditions with *zinghai*, which is unexpected if we treat *zaa3* as a semantically vacuous concord marker. For example, *zaa3* cannot be used in a "listing" scenario:

(12) [Scenario: There will be a hotpot party tomorrow. You are listing people's dietary restrictions to the organizer:]

Aaming **zinghai** sik joengjuk (#**zaa3**). Aafan **zinghai** sik ngaujuk (#**zaa3**). (...)
Ming   only   eat lamb   SFP.only Fan   only   eat beef   SFP.only
'Ming only eats lamb. Fan only eats beef. (... and so on)'

A close scrutiny shows that *zaa3* requires **at least one excluded alternative to be salient** in the context. Below, I discuss three ways to obtain a contextually salient alternative.

2.2.1 *Zaa3* requires contextual salience

(13) Three ways to facilitate contextual salience

   a. Contextual information in the current discourse
   b. World knowledge activated in the current discourse
   c. Linguistic antecedents in the current discourse

#1: Contextual information

Salience of alternatives can be regulated by purely contextual information. In (14), *Zaa3* adds a "contrastive" flavor to the exclusive focus: 'lamb' vs. 'beef'.

- In (14a), none of the alternatives (i.e. pork, beef, lamb, chicken, etc.) is highlighted in the context ➜ No salient alternative: *zinghai* ✔; *zaa3* ✗

- In (14b), beef is highlighted in the context because of its good quality such that both speaker and addressee are aware of it ➜ Salient alternative: *zinghai* ✔; *zaa3* ✔

- Note that the quantification domain of *zinghai* does not change: non-salient 'pork' is still excluded (i.e. not all excluded alternatives need to be salient)

(14)   **Contextual information: (non-)salience**

a.   [Scenario: 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:]

Go   haak   (**zinghai**) maai-zo   joengjuk$_F$ │(**#zaa3**)│
CL   customer   only   buy-PERF lamb   SFP.only

'The customer only bought lamb.'

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

Go   haak   (**zinghai**) maai-zo   joengjuk$_F$ │(**zaa3**)│   (#keoi zung maai-maai zyujuk)
CL   customer   only   buy-PERF lamb   SFP.only 3SG   also buy-ALSO   pork

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

#2: World knowledge

The second case concerns whether the prejacent or the alternative is the only option according to world knowledge:

- In (15a), the prejacent 'cows eat plants' is the only option allowed by world knowledge, given that cows are herbivore ➡ No salient alternative: *zinghai* ✔; *zaa3* ✘

- In (15b), the *alternative* 'the Solar system has nine planets' that is in world knowledge (in 2006 where Pluto was still a planet), but not the prejacent ➡ Salient alternative: *zinghai* ✔; *zaa3* ✔

(15)   **World knowledge only allows one option: prejacent vs. alternative**

a.   [Scenario: Ming, Fan and you are biology students. Ming and Fan are debating whether beef or pork can be eaten raw as sashimi. You walk by, and suggest that the debate has to do with what cows and pigs eat. You say:]

Ngau (**zinghai**) sik zikmat$_F$ │(**#zaa3**)│. Soji ngaujuk hoji zou   cisan.
cow   only   eat plant   SFP.only   So   beef   can serve.as sashimi

'Cows only eat plants. So, beef can be used for sashimi.' (Pigs also eat insects, so pork cannot.)

b.   [Scenario: Ming, Fan and you were biology students in 2006. On September 13, 2006, you read a breaking news that Pluto is not a planet according to the new definition by the International Astronomical Union. You said to Ming and Fan: "Do you know that? ...]

... Jyunloi Taaijoenghai (**zinghai**) dak   baat$_F$ go haangsing │(**zaa3**)│!
   actually Solar.System only   have eight CL planet   SFP.only

'(Do you know that?) The Solar System only contains eight planets!' (but not nine!)

#3: Linguistic antecedent

Alternatives that are not part of world knowledge can still be made salient by linguistic means, e.g. previous assertion in (16). *Zaa3* strengthens a "corrective" sense: Cows only eats plants, not insects.

(16)   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.'

D-linked and alternative questions have the same effects, as opposed to non-D-linked *wh*-questions.

- (17a) is a non-D-linked *wh*-question where the context is neutral with regard to the salience of any alternatives ➜ No salient alternative (though they are all in QUD): *zinghai* ✔; *zaa3* ✘
- (17b) and (17c) highlight the alternatives 'pork' and 'beef' by explicitly mentioning them ➜ Salient alternative: *zinghai* ✔; *zaa3* ✔

(17)   **Non-D-linked *wh*-questions vs. alternative questions/D-linked *wh*-questions**
    [Scenario: Ming went to the meat section of a US market with us. I left earlier (and did not know what Ming bought), and ask you (a)/(b)/(c). You answer (18).]

    a.   Non-D-linked *wh*-questions
       Aaming maai-zo   matje?
       Ming   buy-PERF what
       'What did the Ming buy?'

    b.   Alternative questions
       Aaming maai-zo   joengjuk zyujuk, ding ngaujyuk?
       Ming   buy-PERF lamb   pork   or.Q beef
       'Did Ming buy lamb, pork, or beef?'

    c.   Restricted, D-linked *wh*-questions
       Joengjuk, zyujuk tung ngaujyuk zizung, Aaming maai-zo   bin   jat   joeng?
       lamb   pork   and   beef   among,   Ming   buy-PERF which one   CL
       'Among lamb, pork, and beef, which one did Ming buy?'

(18)   With *zaa*: infelicitous answer to (17a), felicitous answer to (17b,c)
    Aaming (**zinghai**) maai-zo   joengjuk$_F$ ┃ $^{\{a.\#/b.OK/c.OK\}}$**zaa**) ┃.
    Ming   only   buy-PERF lamb   SFP.only
    'Ming only bought lamb.'

2.2.2   Contextual salience vs. Contextual relevance (QUD)

Another notion that is often used to formulate contextual information: Question Under Discussion (QUD) (Roberts 1996, 2012).

- QUD regulates contextual ***relevance*** - a proposition is relevant to the context if it addresses the current QUD - but not contextual ***salience***

- *Zaa* is only sensitive to contextual *salience/awareness* but not contextual *relevance*:

  - A QUD-addressing proposition does not license *zaa* if there is no salient alternative, such as an answer to a non-D-linked *wh*-question in (17a)
  - Conversely, a non-QUD addressing proposition can license *zaa*, as in (19)

- (19): QUD = whether Fan bought beef

  - (a) triggers a presupposition 'Ming bought beef' ➜ not included in the QUD YET contextually salient (participants are aware of it)
  - In (b), the speaker challenges 'Ming bought beef' by asserting 'Ming only bought lamb' ➜ Salient alternative: *zinghai* ✔; *zaa3* ✔
  - Crucially, (b) does not address the current QUD

(19)   [Scenario: Ming went to the meat section of a US market with Fan and you. I did not come with you. When you all are back, I saw red meat in Ming's bag and thought it is beef. I wonder whether Fan also bought beef, and ask you (a). You answer (b).]

  a. $QUD_c = \{\phi_{f,b}, \neg\phi_{f,b}\}$; presupposition: $\phi_{m,b}$
       Ceoi-zo   Aaming, Aafan hai-m-hai dou maai-zo ngaujuk?
       apart.from Ming   Fan   be-not-be also buy-PFV beef
       'Apart from Ming, did Fan also buy beef?'

  b. $ALT_{c,r} = \{\phi_{m,l}, \phi_{m,b}, ...\}$
       Mai-zyu. Aaming **zinghai** maai-zo   joengjuk   (**zaa3**)
       wait   Ming   only   buy-PERF lamb   SFP.only
       'Wait. Ming only bought lamb.'

Readings		'only' particles	
Exclusive	**Salience**	*zinghai*	*zaa3*
YES	NO	✔	✘
YES	YES	✔	✔

Table 1: The possible readings of 'only' particles in Cantonese

- It should be noted all the cases discussed are limited to ***non*-scalar** readings

- All the infelicitous instances of *zaa3* can be licensed with **scalar** readings, see Sect. 5

3   A two-dimensional compositional account

I suggest that the different felicity condition of *zaa3* gives a handle for resolving the twofold compositionality problems. The proposal in a nutshell:

> - (i) *zinghai* denotes $\boxed{\text{an exclusive operator}}$ on the AT-ISSUE level, and
>   (ii) *zaa3* $\boxed{\text{relates the focus alternative sets to the discourse}}$ on the NOT-AT-ISSUE level.
> - Addressing the problem of DOUBLING: There is **only one exclusive operator** on the at-issue level in the doubling cases, namely *zinghai*.
> - Addressing the problem of OBLIGATORINESS: *Zaa3* **identifies the excluded alternatives** and requires them to be contextually salient. By doing so, *its semantics requires an exclusive operator under its scope*. The exclusiveness in singleton *zaa3* cases comes from a null 'only' EXCL.

3.1   The proposed semantics of *zinghai* and *zaa3*

3.1.1   *Zinghai* as an at-issue exclusive operator

I propose that only *zinghai*, but not *zaa3*, denotes an exclusive operator. It is a one-place propositional operator that presupposes the truth of the prejacent proposition p and excludes all the alternative propositions (in a given context) that are not equal to p (cf. Horn 1969; Rooth 1992; Alonso-Ovalle and Hirsch 2022).[3]

(20)   The semantics of *zinghai*
$[\![zinghai]\!]^c = \lambda p \lambda w : p(w).\forall p'[(p' \in ALT_{c,p} \land p'(w)) \to p = p']$;
(where $ALT_{c,p}$ stands for a function ALT that takes a context c and a proposition p and returns a set of alternative propositions with respect to p given the contextual restrictions in c)

   a.   At-issue (AI) assertion: $\forall p'[(p' \in ALT_{c,p} \land p'(w)) \to p = p']$

   b.   Not-at-issue (NAI) presupposition: $p(w)$ (i.e. $p \in CG$)

I suggest there is a null exclusive operator EXCL, the covert counterpart of *zinghai*. EXCL is similar to the ONLY operator posited for exclusive particle doubling (Y. Lee 2005; Quek and Hirsch 2017) and the covert EXH operator for scalar implicature (Chierchia 2006; Chierchia, Fox, and Spector 2012; Fox 2007; Fox and Spector 2018).

(21)   The semantics of EXCL (=*zinghai*)
$[\![EXCL]\!]^c = \lambda p \lambda w : p(w).\forall p'[(p' \in ALT_{c,p} \land p'(w)) \to p = p']$

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3. An alternative formulation could be that the excluded propositions are not entailed by (rather than not equal to) the prejacent (Alonso-Ovalle and Hirsch 2022), given below:

(i) $[\![zinghai]\!] = \lambda p \lambda w : p(w).\forall p'[(p' \in ALT_c \land p'(w)) \to p \subseteq p']$

(i) is needed if an entailment relation exists between alternatives. In this paper, I assume with Wagner (2006, 2012) that an alternative set taken by *zinghai* forms partitions (i.e. no $l \oplus b$ in the alternative sets), and (20) will be used throughout the paper. See also Fox (2007) for "innocent exclusion" in a non-mutually exclusive set with disjunction.

3.1.2 *Zaa3* as a discourse particle relating alternatives to CPS

I argue that *zaa3* is not an exclusive operator. Rather, *zaa3* is a discourse particle that imposes a non-at-issue requirement of contextual salience on the excluded alternatives.

- **Contextual salience** is formulated by Common Proposition Space (CPS, Portner 2007, 2009), a set of propositions that discourse participants are *aware of*.

(22) Common Proposition Space (CPS)   (Portner 2007)
      The set of propositions of which the participants in the conversation are mutually aware (A is aware of φ, B is aware of φ, A is aware that B is aware of φ, B is aware that A is aware of φ, etc.).

- **Identification of the excluded alternatives** is achieved by a requirement of *zaa3* that at least one alternative proposition q in the alternative set (e.g. 'Ming bought beef') which is inconsistent with r (e.g. 'Ming *only* bought lamb') - q excluded by r, the latter being a resulting proposition from exclusive operators.

(23) The semantics of *zaa*
      $[\![zaa]\!]^c =$ **AI:** $\lambda r \lambda w.r(w)$; where r is a proposition returned by exclusive operators
            NAI: $\exists q[q \in ALT_{c,r} \land (r \cap q = \varnothing) \land q \in CPS_c]$

- AT-ISSUE level: *zaa3* is a partial identity function that takes r and returns the same r
- NOT-AT-ISSUE level: *zaa3* requires at least one excluded alternative q to be in CPS
  ➜ captures the felicity conditions

3.2 A compositional analysis

Before proceeding to the compositional analysis, two assumptions are needed:

(24) Two assumptions

  a. **The syntactic position of *zaa3***: on the CP level and takes wide scope over *zinghai* (*cf.* A. Law 2004; Tang 2015; P. Law 2021 for arguments; but also see Erlewine 2017a for a *v*P position of Mandarin SFP *eryi* 'only')

  b. **The non-resetting nature of *zinghai***: it does *not* "reset" the focus alternative value to be a singleton set. Rather, it just "passes on" the alternative set to the higher levels (i.e. to *zaa3*).

Zinghai does not reset the focus alternative value

- *Zinghai* does not come with Rooth (1992)'s $\sim$ squiggle operator on the TP level.
- Similar non-resetting behavior is also argued for EXH extensively in the literature (Fox 2007; Wagner 2012; Crnič 2013; Bade and Sachs 2019)
- Allows *zaa3* to access the alternative set and identity the ones that are excluded by r

- A novel argument from an asymmetry of intervention effects in *wh*-questions:

(25)   Lack of focus intervention effects of *zinghai*

    a.   Aaming **zinghai** sik-zo   **mat/bin joeng**$_F$?
        Ming   only   eat-PERF what/which CL
        'What/which one is the x such that Ming only ate x?'

    b.   **Zinghai**$_F$ **bingo**   wui lai?
        only   who/which.person will come
        'Who/which person is the x such that only x will come?'

- Assuming Alternative Semantics for *wh*-questions, focus operators are predicted to induce intervention effects in *wh*-questions by resetting the focus value to be a singleton set, which disrupts the question operator from seeing the *wh*-alternatives (cf. Beck 2006).
- *Zinghai* does not induce such focus intervention effects in *wh*-questions, suggesting its non-resetting nature.
- In contrast, *zaa3* triggers focus intervention effects (A. Law 2002; Yang 2012)
   ➡ The "resetting" function of the ∼ operator is done by *zaa3*.

(26)   Focus intervention effects of *zaa3*

    a.   *Aaming zik-zo   **mat/bin joeng**$_F$ $\boxed{\textbf{zaa3}}$?
        Ming   eat-PERF what/which CL   SFP.only
        Int.: 'What is the x such that Ming only ate x?'

    b.   ***Bingo**$_F$ wui lai $\boxed{\textbf{zaa3}}$?
        who/which.person will come SFP.only
        Int.: 'Who/which person is the x such that only x will come?'

A derivation

(27)   [Scenario: Ming went to a meat market with us. We saw that pork and beef just arrived and they were really good today. I left earlier and asked you what Ming bought, you answer (a)/(b)/(c).]

$$ALT_{c,x} = \begin{Bmatrix} y|y \text{ is good meat in c,} \\ z|z \text{ is other meat that one can buy in a US market} \end{Bmatrix} = \begin{Bmatrix} p,b, \\ l,c,... \end{Bmatrix}$$

$$CG_c = \{\phi_{\exists x}, \phi_{good,p}, \phi_{good,b}, ...\}$$

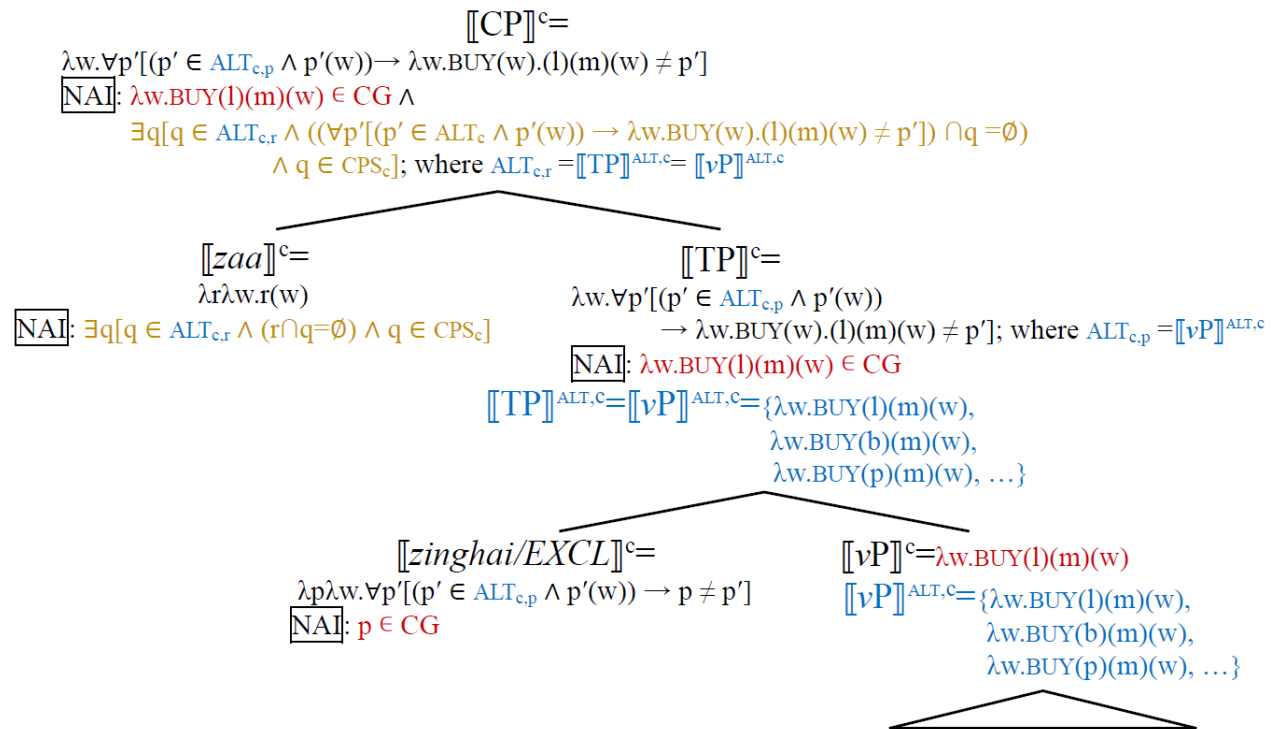$$CPS_c = \{\phi_{\exists x}, \phi_{good,p}, \phi_{good,b}, \phi_p, \phi_b, ...\}$$

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

b. Aaming maai-zo   joengjuk$_F$ $\boxed{\textbf{zaa3}}$.

   Ming   buy-PERF lamb   SFP.only

   'Ming only bought lamb.'

c. Aaming **zinghai** maai-zo   joengjuk$_F$ $\boxed{\textbf{zaa3}}$.

   Ming   only   buy-PERF lamb   SFP.only

   'Ming only bought lamb.'

(28) The LF structures for sentences in (27)

   a.   [$_{TP}$ zinghai [$_{vP}$ Ming [$_{v'}$ bought [$_{DP}$ lamb$_F$]]]]

   b.   [$_{CP}$ zaa [$_{TP}$ EXCL [$_{vP}$ Ming [$_{v'}$ bought [$_{DP}$ lamb$_F$]]]]]

   c.   [$_{CP}$ zaa [$_{TP}$ zinghai [$_{vP}$ Ming [$_{v'}$ bought [$_{DP}$ lamb$_F$]]]]]

(29) The derivation on the CP level with *zaa*

$$[\![CP]\!]^c=$$

$\lambda w.\forall p'[(p' \in ALT_{c,p} \wedge p'(w)) \rightarrow \lambda w.BUY(w).(l)(m)(w) \neq p']$

$\boxed{NAI}$: $\lambda w.BUY(l)(m)(w) \in CG \wedge$

$\exists q[q \in ALT_{c,r} \wedge ((\forall p'[(p' \in ALT_c \wedge p'(w)) \rightarrow \lambda w.BUY(w).(l)(m)(w) \neq p']) \cap q = \emptyset)$

$\wedge q \in CPS_c]$; where $ALT_{c,r} = [\![TP]\!]^{ALT,c} = [\![vP]\!]^{ALT,c}$

$$[\![zaa]\!]^c=$$

$\lambda r\lambda w.r(w)$

$\boxed{NAI}$: $\exists q[q \in ALT_{c,r} \wedge (r \cap q = \emptyset) \wedge q \in CPS_c]$

$$[\![TP]\!]^c=$$

$\lambda w.\forall p'[(p' \in ALT_{c,p} \wedge p'(w))$

$\rightarrow \lambda w.BUY(w).(l)(m)(w) \neq p']$; where $ALT_{c,p} = [\![vP]\!]^{ALT,c}$

$\boxed{NAI}$: $\lambda w.BUY(l)(m)(w) \in CG$

$[\![TP]\!]^{ALT,c} = [\![vP]\!]^{ALT,c} = \{\lambda w.BUY(l)(m)(w),$
$\lambda w.BUY(b)(m)(w),$
$\lambda w.BUY(p)(m)(w), ...\}$

$$[\![zinghai/EXCL]\!]^c=$$

$\lambda p\lambda w.\forall p'[(p' \in ALT_{c,p} \wedge p'(w)) \rightarrow p \neq p']$

$\boxed{NAI}$: $p \in CG$

$$[\![vP]\!]^c = \lambda w.BUY(l)(m)(w)$$

$[\![vP]\!]^{ALT,c} = \{\lambda w.BUY(l)(m)(w),$
$\lambda w.BUY(b)(m)(w),$
$\lambda w.BUY(p)(m)(w), ...\}$

(30) Inferences from (29)

   NAI: $\phi_l \in CG \wedge ((\phi_p \in CPS) \vee (\phi_p \in CPS) \vee ...)$

   AI: $\neg \phi_p \wedge \neg \phi_b \wedge ...$

➜ Settles the problem of DOUBLING: only one at-issue exclusive operator (*zaa3* = not-at-issue)

But the compositionality problems are two-fold: in **singleton** *zaa3* cases, there is always a covert exclusive operator. Can this problem of OBLIGATORINESS receive a ***semantic*** explanation, other than a syntactic Agree relation?[4]

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4. A semantic explanation *can* be compatible with a syntactic agree relation, if the latter is independently motivated by *syntactic* evidence such as locality and minimality effects.

3.3 Deriving the requirement on exclusiveness

I suggest that the identification of excluded alternatives already gives rise to the requirement of an exclusive operator within the scope of *zaa3*:

(31)   The semantics of *zaa3*

$\llbracket zaa \rrbracket^c =$ **AI:** $\lambda r \lambda w.r(w)$; where r is a proposition returned by exclusive operators

NAI: $\exists q[q \in ALT_{c,r} \land (r \cap q = \varnothing) \land q \in CPS_c]$

- *Zaa3* in (31) requires the prejacent to be a proposition r that is inconsistent with a salient alternative q (i.e. their intersection is an empty set)

- This requirement can be satisfied by any exclusive operator that passes on the focus alternative value, such as other exclusive morphemes in Cantonese, including adverbial *zaai* 'only', adverbial *zi* 'only' (with scalar flavor), and adfocus *dak* 'only'.[5]

(32)   [Scenario: Fan and I are discussing which one in our class is always late. Fan said that person is Lok. I say:]

[**Dak** Aaming]$_\text{F}$ wui cidou $\boxed{\textbf{zaa3}}$

only Ming   will late SFP.only

'Only *Ming* is always late (but Lok and other people are not).'

- This requirement, however, *cannot* be satisfied by:
    - (i) **Non-exclusive** focus operators
    - (ii) **Non-focal** negation or NEG+EXC constructions

3.3.1   Non-exclusive focus operators cannot license *zaa3*

"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.*). Assume that "even" passes on the alternative set just like *zinghai*.

(33) $\llbracket EVEN \rrbracket^c =$ **AI:** $\lambda r \lambda w.r(w)$

NAI: $\forall q[(q \in ALT_{c,p} \land q \neq p) \rightarrow p <_{likely} q]$

Crucially, "even" does not exclude the possibility of other alternatives q.

- The intersection of q and the proposition with "even" applied is not an empty set: $r \cap q \neq \varnothing$

    ➡ The output of applying *zaa3* will then be undefined.

- Hence, "even" fails to license *zaa3*, as attested below:

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5. The adfocus *dak*, following Sun 2021's treatment for Mandarin adfocus *zhiyou*, can also be said to imply the presence of EXCL through some syntactic dependency.

(34)   _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 $\boxed{\textbf{(*zaa3)}}$

       Ming   unexpectedly even lobsters also buy-ALSO   SFP.only

       'Ming even bought **lobsters**!'

    b. $r = \phi_{m,l}$ ('Ming bought lobsters')

       $ALT_{c,r} = ALT_{c,p} = \{\phi_{m,l}, \phi_{m,r}, \phi_{m,b}, ...\}$

       $\rightsquigarrow \nexists q[q \in ALT_{c,r} \wedge (r \cap q = \varnothing)]$

3.3.2   Non-focal NEG+EXC constructions cannot license _zaa3_

- For operators such as negation, it simply cannot trigger focus alternatives on its own (i.e. negation is not a focus particle).

- Even if the negation comes with a focused expression (e.g. "Ming did not buy _lamb_$_F$"), the resulting proposition $\neg\phi_l$ is _consistent_ with the alternative propositions **combined pointwise with negation**: $\{\neg\phi_p, \neg\phi_b, ...\}$

von Fintel and Iatridou (2007) propose that 'only' can be decomposed into negation (NEG) and an exceptive (EXC) phrase.

(35)   He did **_not_** buy anything **_other than_** lamb.

    $\rightsquigarrow$ He only bought _lamb_.

(36)   [NEG [buy [anything [EXCEPT [lamb$_F$]]]]]

    a.   Step 1: The exceptive phrase combines with the focused DP, yielding

       Assertion: $\exists y[y \neq l \wedge buy(l)(m)]$ (M bought something other than lamb)

       Presupposition: $\exists x[buy(x)(m)]$ (M bought something)

    b.   Step 2: negation applied:

       Assertion: $\neg\exists y[y \neq l \wedge buy(l)(m)]$ (M did not buy non-lamb)

       Presupposition: $\exists x[buy(x)(m)]$ (projected up) (M bought something)

Although NEG+EXC constructions have the same truth condition as 'only', it however _cannot_ license _zaa3_. The alternatives, containing the negation (e.g. 'M didn't buy non-pork'), are compatible with the prejacent r (e.g. 'M didn't buy non-lamb') in a world where Ming bought nothing ($r \cap q \neq \varnothing$).

(37)   NEG+EXC constructions cannot license *zaa3*

    a.   [Scenario: Ming went to a meat market with us. I left earlier (and did not know what Ming bought), and ask you whether Ming bought lamb, beef, or pork. You answer:]

         Aaming mou   maai [ceoi-zo joengjuk$_F$ zingoi]   ge   jamho je   (#**zaa**)

         Ming   not.PERF buy   except lamb   apart.from MOD any   thing SFP.only

         'Ming didn't buy anything except lamb.'

    b. $r = \neg\exists y[y \neq l \wedge buy(l)(m)]$ ('M did not buy non-lamb')

       $ALT_{c,r} = ALT_{c,p} = \{\neg\exists y[y \neq l \wedge buy(l)(m)], \neg\exists y[y \neq l \wedge buy(b)(m)], ...\}$

       $\rightsquigarrow \nexists q[q \in ALT_{c,r} \wedge (r \cap q = \varnothing)]$ (e.g. M bought nothing)

➜ Settles the problem of OBLIGATORINESS: *zaa3* need to embed EXCL

➜ Also suggests that 'only' cannot be decomposed into NEG+EXC, at least in Cantonese

4   Against a multiple-'only' analysis

As an alternative, A. Law (2004) and P. P.-l. Lee (2019) have alluded to an analysis where both *zinghai* and *zaa* denote exclusive operators, and apply in an embedding fashion where *zaa* takes wide scope over *zinghai*. I refer to this alternative as the multiple-'only' analysis. The suggested entries are given below, where *zaa3* encodes both exclusiveness and contextual salience:

(38)   The semantics of *zinghai* and *zaa* under the multiple-'only' analysis

    a. $[\![zinghai]\!]^c =$ **AI:** $\lambda p\lambda w : \forall p'[(p' \in ALT_{c,p} \wedge p'(w)) \rightarrow p = p']$

            NAI: $p \in CG_c$

    b. $[\![zaa]\!]^c =$ **AI:** $\lambda r\lambda w : \forall r'[(r' \in ALT_{c,r} \wedge r'(w)) \rightarrow r = r']$

           NAI: $r \in CG_c \wedge \exists q[q \in ALT_{c,r} \wedge q \neq r \wedge q \in CPS_c]$

The multiple-'only' analysis, however, is subject to empirical challenges in the following three cases. In contrast, the proposed account in Sect. 3 is free from these challenges.

(39)   Problematic cases for a multiple-'only' analysis

    a.   Case #1: Negation

    b.   Case #2: Multiple foci

    c.   Case #3: Focus outside the scope of *zinghai*

4.1   Case #1: Negation

The multiple-'only' analysis even leads to contradiction between presupposition and assertion with wide scope negation. In (40), negation takes wide scope over *zinghai* and *zaa*.

(40)   A doubling case with scope under negation

    a.   Aaming m-hai   **zinghai** maai-zo joengjuk$_F$ **zaa**.   ($\neg$ > only)

        Ming   NEG-COP only   buy-PERF lamb   SFP.only

        'Ming not only bought lamb (but he also bought pork or beef).'

    b.   LF: [$_{NegP}$ not [$_{CP}$ zaa [$_{TP}$ zinghai [$_{vP}$ Ming [$_{v'}$ bought [$_{DP}$ lamb$_F$]]]]]]

    c.   *Attested reading*: asserted $\neg(\neg\phi_p \wedge \neg\phi_b, ...) = \phi_p \vee \phi_b, ...$;

                           presupposed ϕ_l ; salient ϕ_p/ϕ_b

Under the multiple-'only' analysis:

- Step 1: the exclusive component contributed by *zinghai*, as *zaa*'s prejacent, is presupposed and projects through the wide scope negation.

- Step 2: The exclusive assertion by *zaa*, however, is negated by the negation

- ⤳ A contradiction between presupposition and assertion

(41)   The derivation of (40) under a multiple-'only' analysis

    a. $[\![TP]\!]^c =$
       AI: $\lambda w.\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']$
       NAI: $\lambda w.BUY(l)(m)(w) \in CG_c$

    b. $[\![CP]\!]^c =$
       AI: $\lambda w.\forall p''[(p'' \in [\![TP]\!]^{ALT,c} \wedge p''(w)) \rightarrow$
       $(\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) = p'']$
       NAI: $\lambda w.BUY(l)(m)(w) \in CG_c \wedge$
       $(\lambda w.\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) \in CG_c \wedge$
       $\exists q[q \in [\![vP]\!]^{ALT,c} \wedge q \neq (\lambda w.\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) \wedge$
       $q \in CPS_c]$

    c. $[\![NegP]\!]^c =$
       AI: $\lambda w.\neg(\forall p''[(p'' \in [\![TP]\!]^{ALT,c} \wedge p''(w)) \rightarrow$
       $(\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) = p''])$
       NAI: $\lambda w.BUY(l)(m)(w) \in CG_c \wedge$
       $(\lambda w.\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) \in CG_c \wedge$
       $\exists q[q \in [\![vP]\!]^{ALT,c} \wedge q \neq (\lambda w.\forall p'[(p' \in [\![vP]\!]^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.BUY(l)(m)(w) = p']) \wedge$
       $q \in CPS_c]$

    d.   *Contradiction*: asserted $\neg(\neg\phi_p \wedge \neg\phi_b, ...) = \phi_p \vee \phi_b, ...$;

                      presupposed $\neg\phi_p \wedge \neg\phi_b, ...$

Under the current proposal:

- *zaa3* is an identity function on the at-issue level (=23)
  - ➜ The exclusive assertion by *zinghai* just passes up to the CP level
- The exclusive assertion is negated, without being presupposed - only prejacent ϕ_l 'M bought lamb' is presupposed
- ⤳ No contradiction arises.

4.2   Case #2: Multiple foci

The multiple-'only' analysis also makes different - and problematic - predictions from the current proposal on multiple-focus cases.

- **The multiple-'only' analysis**: *zaa3* is able to associate with a focus *not* associated with *zinghai* when there are multiple foci

- **The current proposal**: *zaa3* is *only* able to (indirectly) associate with a focus associated with *zinghai* when there are multiple foci, i.e. the focus association of *zaa3* is mediated by *zinghai*

(42)   Focus association possibilities predicted by the multiple-'only' analysis

   a.   *[zaa ... [zinghai ... F1 ... F2]   b.   [zaa ... [zinghai ... F1 ... F2]

(43)   Focus association possibilities predicted by the current proposal

   a.   [zaa ... [zinghai ... F1 ... F2]   b.   *[zaa ... [zinghai ... F1 ... F2]

Consider the multiple-focus case in (44), where both objects are stressed and focused:

(44)   Multiple-focus on the direct object and the indirect object: only can be uttered in (45c)

   a.   Aaming **zinghai** sung-gwo JOENGJUK$_F$ bei AAFAN$_F$ **zaa**.
        Ming   only   give-EXP lamb   DAT Fan   SFP.only
        'Fan is the only one who Ming gave *lamb* to; *lamb* is the only thing that Ming gave to Fan.'
        ≠ 'Ming bought *only* lamb for *only* Fan.' (in English)
        ≠ '*Fan* is the only person who Ming gave only *lamb*, i.e. Ming also gave lamb along with something else (e.g. pork) for someone else (e.g. Lok)'
   b.   A: $(\neg\phi_{F,p} \wedge \neg\phi_{F,b}) \wedge \neg(\phi_{L,l} \wedge \neg\phi_{T,l})$

The assertion can only be true in (45c), but not (45a) and (45b).[6]

(45) a. Ming bought lamb, pork & beef for Fan; but he bought nothing for Lok & Ting. ⤳ (44) = F

   b. Ming bought lamb for Fan; lamb, pork & beef for Lok & Ting. ⤳ (44) = F

   c. **Ming bought lamb for Fan; pork & beef for Lok & Ting.** ⤳ (44) = T

(46) LF: [$_{CP}$ zaa [$_{TP}$ zinghai [$_{vP}$ Ming [$_{v'}$ v [$_{VP}$ Fan$_F$ [$_{V'}$ give [$_{DP}$ lamb$_F$]]]]]]]]

Under the multiple-'only' analysis:

- *zinghai* triggers an alternative set w.r.t *lamb*, and excludes *non-lamb* from the things M gave Fan:
  - ➜ ALT: {M gave F lamb, M gave F pork, M gave F beef ...}
  - ➜ Exclusive assertion: The only thing Ming gave Fan is lamb.

- *zaa3* triggers an alternative set w.r.t *Fan*, and **embeds** the exclusive operator in the alternatives:
  - ➜ ALT: {The only thing M gave Fan is *lamb*, The only thing M gave Lok is *lamb*, ...}
  - ➜ Exclusive assertion: *Fan* is the only person who Ming gave only *lamb*
  - ⤳ ¬(The only thing M gave Lok is lamb) ⤳ i.e. M also gave something else to Lok (e.g. pork)

- Not the attested reading

Under the current proposal:

- Both foci trigger alternative sets: 'lamb' triggers a set of meat, and 'Fan' triggers a set of Ming's friends. ➜ an alternative set with the skeleton 'Ming gave x to y'

- *zinghai* exclusion + *zaa* passing up
  ⤳ <Fan,lamb> is the only pair that satisfies the relation 'Ming gave x to y'

(47) The derivation of (46) under the current proposal

   a. $\llbracket vP \rrbracket = \lambda w.GIVE(h)(f)(m)(w)$
       $\llbracket vP \rrbracket^{ALT} =$
       $\{\lambda w.GIVE(l)(F)(m)(w), \lambda w.GIVE(p)(F)(m)(w), \lambda w.GIVE(b)(F)(m)(w),$
       $\lambda w.GIVE(l)(L)(m)(w), \lambda w.GIVE(p)(L)(m)(w), \lambda w.GIVE(b)(L)(m)(w),$
       $\lambda w.GIVE(l)(T)(m)(w), \lambda w.GIVE(p)(T)(m)(w), \lambda w.GIVE(b)(T)(m)(w)\}$

   b. $\llbracket TP \rrbracket^c =$
       AI: $\lambda w.\forall p'[(p' \in \llbracket vP \rrbracket^{ALT,c} \wedge p'(w)) \rightarrow \lambda w.GIVE(l)(F)(m)(w) \neq p']$
       NAI: $\lambda w.GIVE(l)(F)(m)(w) \in CG_c$

   c. $\llbracket CP \rrbracket^c =$
       AI: $\lambda p \lambda w : \forall p'[(p' \in ALT_c \wedge p'(w)) \rightarrow \lambda w.GIVE(l)(F)(m)(w) \neq p']$
       NAI: $\lambda w.GIVE(l)(F)(m)(w) \in CG_c \wedge \exists q[q \in ALT_c \wedge q \neq \lambda w.GIVE(l)(F)(m)(w) \wedge q \in CPS_c]$

   d. *Attested reading*: asserted: $(\neg\phi_{F,p} \wedge \neg\phi_{F,b}) \wedge (\neg\phi_{L,l} \wedge \neg\phi_{T,l})$;
       presupposed $\phi_{F,l}$; salient $\phi_{F,p}/\phi_{L,l}...$

6. The English reading *Ming bought only lamb for only Fan* is compatible with the scenario in (45b). To express similar meaning in Cantonese, fronting of *Aafan* 'Fan' marked by the adfocus exclusive particle *dak* is needed, as shown in (48)

To convey the genuine 'multiple only' reading, fronting with adfocus *dak* is required:

(48) **Dak₁** [Aafan$_i$]$_{F1}$ Aaming **zinghai₂** maai-gwo [joengjuk]$_{F2}$ bei keoi$_i$.
       only Fan   Ming   only   buy-EXP   lamb   DAT 3SG
       '*Fan* is the only person who Ming bought only *lamb* for.' = T in (45b)

4.3   Case #3: Focus outside the scope of *zinghai*

Zinghai, just like English *only*, is subject to a restriction that it must c-command its focus associates. Hence, a subject focus is outside the scope of *zinghai* when it occurs in a post-subject position.

- **The multiple-'only' analysis**: *zaa3 can* associate with a subject focus outside *zinghai*'s scope
- **The current proposal**: *zaa3 cannot* associate with a subject focus outside *zinghai*'s scope

(49) Focus association possibilities predicted by the multiple-'only' analysis

       a. [zaa ... F1 ... [zinghai ... F2]   b. [zaa ... F1 ... [zinghai ...]
            └──┘   └─────┘   └─────┘

(50) Focus association possibilities predicted by the current proposal

       a. *[zaa ... F1 ... [zinghai ... F2]   b. *[zaa ... F1 ... [zinghai ...]
             └────┘   └─────┘   └─────┘

Again, only the current proposal makes the correct prediction. The multiple-'only' analysis wrongly predicts an exclusive focus on the subject outside *zinghai*'s scope, which is not attested:

(51) *Zaa3* fails to associate with a different focus in a multiple-focus case

       a.   Q: Who only reads Chinese books?
       b.   A: Aaming$_F$ **zinghai** taai zungmansyu$_F$ ☐**zaa**☐   (, Aafan dou hai.)
             Ming   only   read Chinese.book SFP.only   Fan   also be
            'Ming only read Chinese books. (Fan as well.)'
            BUT NOT: 'only Ming only read Chinese books.'

To convey the intended reading, fronting with adfocus *dak* is again required:

(52) **Dak** [Aaming]$_F$ **zinghai** maai-zo [joengjuk]$_F$.
       only Ming   only   buy-PFV lamb
       'Only Ming bought only lamb.'

5   The interaction with scalar readings

So far, all the cases considered involve a *non-scalar* 'only' reading. It is observed that, however, a **scalar** reading always licenses *zaa3*, even without any salient alternatives in the context:

(53)   Scalar reading licenses *zaa*

 [Scenario: You are a cashier in a meat market. You just served a customer, and your colleague seems to be curious about what s/he bought. You say:]

Go	haak	(**zinghai**)	maai-zo	joengjuk$_F$	(**zaa3**)	! Zanhai	guhon!
CL	customer	only	buy-PERF	lamb	SFP.only	really	stingy

'The customer only bought lamb! How stingy!'

- The close relation between *zaa3* can be further appreciated from the follow pair with a **rank order** (a non-entailment-based scale).

- While *zinghai* along still allows for a non-scalar quantificational reading, the presence of *zaa3* forces a ***scalar*** reading:

(54)   Obligatory scalar reading with *zaa3* with a rank order

   a. | Soengci | Ouwan, | Gongdeoi | **zinghai** | ling-zo | aagwan$_F$. |
       |---------|--------|----------|-------------|---------|-------------|
       | last | Olympics | HK.team | only | get-PFV | runner-up |

   'In the last Olympic game, the only medal Hong Kong Team got was a runner-up.'

   b. | Soengci | Ouwan, | Gongdeoi | **zinghai** | ling-zo | aagwan$_F$ | zaa3 |
       |---------|--------|----------|-------------|---------|------------|------|
       | last | Olympics | HK.team | only | get-PFV | runner-up | SFP.only |

   'In the last Olympic game, Hong Kong Team only/merely got a runner-up. (What a loser.)'

Note that Cantonese has a designated form for scalar 'only', the adverb ***zihai*** 'just/merely'. It can also be doubled with *zaa3*.

(55) | Soengci | Ouwan, | Gongdeoi | **zihai** | ling-dou | aagwan$_F$ | (**zaa3**) |
       |---------|--------|----------|-----------|----------|------------|------------|
       | last | Olympics | HK.team | just | get-PFV | runner-up | SFP.only |

   'In the last Olympic game, Hong Kong Team just got a runner-up. (What a loser.)'

- *Zihai* only operates on scales: it does not require entailment-based exclusion (i.e. it lacks a purely quantificational reading).

(56)   a. | Aaming | **zinghai** | maai-gwo | [lunghaa]$_F$ | bei | Aafan | zaa3 | . (#Tungmaai | di |
           |--------|-------------|----------|---------------|-----|-------|------|--------------|-----|
           | Ming | only | buy-EXP | lobster | DAT | Fan | SFP.only | also | CL.PL |

zung-cheap-di	ge	zyujuk.)
more-cheap-bit	MOD	pork

   'Ming only bought Fan *lobsters* before. (#Also pork, which is even cheaper.)'

b. Aaming **zihai** maai-gwo [lunghaa]_F bei Aafan. (Tungmaai di   zung-cheap-di

    Ming   just buy-EXP lobster DAT Fan   also   CL.PL more-cheap-bit

    ge   zyujuk.)

    MOD pork

    'Ming just bought Fan *lobsters* before. (Also pork, which is even cheaper)' i.e. 'Ming didn't

    buy Fan more expensive gifts (e.g. a big fancy car).'

- Indeed, *zaa3* also does not require entailment based-exclusion in a scalar reading.
- *Ad hoc* rank order in (57) <boy, girl> built on expectation, where girl is ranked higher
- The use of quantificational *zinghai* 'only' gives rise to abnormality since the alternative set only contains two members (boy & girl), and the negation of 'boy' is also already asserted.
- *Zaa3*, unlike *zinghai*, can be used here with a counter-expectation reading just like scalar *zihai*.

(57) Counter-expectation reading[7]

    [Context: Mary just gave birth to *one* baby (not a twin). Her husband really wants a girl, and asked the nurse whether the baby is a girl. The nurse answered:]

a. # M-hai aa3. Keoi **zinghai** saang-zo   naamzai_F.

    no   SFP 3SG only   give.birth-PFV boy

    Int.:'No. She only gave birth to a boy.'

b. M-hai aa3. Keoi saang-zo   naamzai_F | **zaa3** |.

    no   SFP 3SG give.birth-PFV boy   SFP.only

    'No. She only/merely gave birth to a boy.'

c. M-hai aa3. Keoi {#**zinghai**/^OK**zihai**} saang-zo   naamzai_F | **zaa3** |.

    no   SFP 3SG only/just   give.birth-PFV boy   SFP.only

    'No. She just gave birth to a boy.'

Readings			'only' particles		
Quantificational	**Salience**	**Scalar**	*zinghai*	*zihai*	*zaa3*
YES	NO	NO	✔	✗	✗
YES	YES	NO	✔	✗	✔
YES	NO	YES	✔	✔	✔
NO	NO	YES	✗	✔	✔

Table 2: The possible readings of 'only' particles in Cantonese

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7. I thank Yusuke for bringing up this example.

- If contextual salience is also a scale, the quantificational and scalar uses of *zaa3* can be unified.

- *Zaa3* requires a specific ordering of alternatives along some scale - when the context does not have an obvious scale, contextual salience kicks in

(58) The semantics of *zaa* (revised)

    a. $[\![zaa]\!]^c =$ **AI:** $\lambda r \lambda w.r(w)$; where r is a proposition returned by exclusive operators
                     NAI: $\forall p \exists q[(p \in ALT_{c,r} \wedge (r \cap p \neq \varnothing)) \rightarrow (q \in ALT_{c,r} \wedge (r \cap q = \varnothing) \wedge p <_s q)]$

    b.   **NAI:** : for all proposition p such that p is in the focus alternative set ALT of the prejacent r
        relative to context c, and p is compatible with r (i.e. p is not excluded by r);
        there exists some proposition q such that q is in the same ALT, and q is not compatible with
        r (i.e. p is excluded);
        and q is ranked higher than p on some scale s.

- ➜ A decomposition of scalar 'only':
  (i) *Zinghai* is always non-scalar/quantificational;
  (ii) The scalar flavor is added by *zaa3* in doubling;
  (iii) In a non-scalar context, *zaa3* adds a "contrastive" flavor.
  ➜ The scalar meaning is in a sense ***distributed*** over different morphemes in Cantonese

- Reminiscent of Hole (2017)'s idea that adfocus particles add scalar readings (but see Sun 2021 for counter-evidence)

- English scalar vs. non-scalar *only*? Ambiguity vs. covert "*zaa3*" (prosody...?) ?

The picture can be even more complicated in Cantonese ...

- Another 'only' SFP: ***ze1*** 'just'
  only has scalar readings with a downplaying flavor (cf. P. P.-l. Lee 2019)

- Also allows doubling[8]

(59) a.   Ngo tai   [siusyut]$_F$ **ze1**
        1SG   read novel   SFP.just
        'I just read *novels*. (Nothing special.)'

    b.   Ngo {zinghai/ zihai} tai   [siusyut]$_F$ **ze1**
        1SG   only   just   read novel   SFP.just
        With *zinghai*: 'I just only read *novels*. (Nothing special.)' (quantificational + scalar)
        With *zihai*: 'I just read *novels*. (Nothing special.)' (scalar)

---

8. *zaa3 ze1* SFP clusters are reported to be acceptable by P. P.-l. Lee (2019), but all my consultants found the cluster unnatural if not completely unacceptable.

Readings			'only' particles			
Quantificational	**Salience**	**Scalar**	*zinghai*	*zihai*	*zaa3*	*ze1*
YES	NO	NO	✔	✘	✘	✘
YES	YES	NO	✔	✘	✔	✘
YES	NO	YES	✔	✔	✔	✔
NO	NO	YES	✘	✔	✔	✔

Table 3: The possible readings of 'only' particles in Cantonese (with *ze1* added)

6 Concluding remarks

Through a case study of "only" doubling of SFP *zaa3* and adverbial *zinghai* in Cantonese:

- A different empirical profile: *zaa3* has same truth conditions yet distinct **felicity** conditions
- 'Only' SFPs are not semantically vacuous - *zaa3* relates to the focus alternatives to the discourse on the NOT-AT-ISSUE level
- ➥ enables a two-dimensional compositional account, as well as a possible *semantic* explanation of the dependency between *zaa3* and the exclusive operator
- A potential unification of non-scalar and scalar *zaa3* can be achieved if *zaa3* is an operator to (re-)order the alternatives by imposing the requirement on not-at-issue level
- Further questions on the decomposition of scalar *only*

A preliminary investigation reveals that 'only' SFPs in Mandarin and Vietnamese also (i) have distinct *felicity* conditions (hence not semantically vacuous), and (ii) cannot associate with a subject focus outside adverbial 'only' scope (hence not an exclusive operator):

(60)   Different felicity conditions of 'only' SFPs from adverbial 'only'
       [Scenario: There will be a hotpot party tomorrow. You are listing people's dietary restrictions to the organizer:]

   a. Zhangsan **zhi**   chi niurou$_F$ (#**eryi**) . Lisi **zhi**   chi yangrou$_F$ (#**eryi**) . (...)
       Zhangsan only eat beef   SFP.only Lisi only eat lamb   SFP.only
       'Zhangsan only eats beef. Lisi only eats lamb. (... and so on)'   (Mandarin)

   b. Nam **chỉ**   ăn thịt bò$_F$ (#**thôi**) . Minh **chỉ**   ăn cừu non$_F$ (#**thôi**) . (...)
       Nam only eat beef   SFP.only Minh only eat lamb   SFP.only
       'Nam only eats beef. Minh only eats lamb. (... and so on)'   (Vietnamese)

(61)   'Only' SFPs cannot associate with subject focus outside the scope of adverbial 'only'

    a.   [Who only reads Chinese books?]

       Zhangsan$_F$ **zhi** du   zhongwenshu$_F$ | **eryi** | .   (Lisi ye   shi.)

       Zhangsan only read Chinese.book   sFP.only Lisi also be

       'ZHANGSAN only reads Chinese books. (Lisi as well.)'

       NOT: 'Only Zhangsan only reads Chinese books.'   (Mandarin)

    b.   NAM$_F$ **chỉ** ăn thịt bò$_F$ | **thôi** | .

       Nam   only eat beef   sFP.only

       'NAM only eats BEEF (but not pork or lamb).'

       NOT: 'Only Nam only eats beef.'   (Vietnamese)

---

(62)   Take home messages

    a.   The less explored role of **NOT-AT-ISSUE** meaning in 'only' doubling or even quantifier doubling in general

    b.   Possibility of a ***semantic*** solution to an interface problem that is mainly semantic in nature

    c.   The role of syntax requires independent evidence from syntax (to be addressed on PLC-47 and WCCFL-41)

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7   Appendices

7.1   Appendix 1: Exclusive focus particles in Cantonese

Cantonese has at least eight morphemes that may be translated as 'only': *zaai1, zing6, zi2, sin1, zi3, dak1, zaa3, ze1*.[9] They form lexical items in various word categories:

(63)   The inventory of exclusive focus particles in Cantonese

   a.   Adverbs: *zaai1* 'only', *zing6* 'only', *zi2* 'only', *zing6hai6* '(lit.) only-be', *zi2hai6* '(lit.) only-be', *sin1* 'only', *zi3* 'only', *sin1zi3* 'only' etc.

   b.   Verbs (also serve as adfocus particles): *dak1* 'only', *zi2jau5* '(lit.) only-have'

   c.   Verbal suffix: *-dak1* 'only'

   d.   Sentence-final particles: *zaa3* 'only', *ze1* 'only, just' (also other variants like *zaa4, zek1*)

Adverbs

Zaai1 'only', *zing6* 'only' and *zi2* 'only' are all adverbs with an exclusive meaning. Unlike English, Cantonese adverbs must occur pre-verbally. They also lack an adnominal/ adfocus use.

(64)   Ngo {**zaai**/ **zing**/ **zi**}   tai   [siusyut]_F
       1SG   only   only   only   read   novel
       'I only read *novels*.'

   Zing6hai6 '(lit.) only-be' and *zi2hai6* '(lit.) only-be' are adverbs that consist of an 'only' morpheme and a copula. *Zaai1hai6* '(lit.) only-be' is also possible but less frequently used. While *zihai* is more formal than *zinghai* in terms of registers, there is also a sense that *zihai* is more "subjective" than *zinghai*. They may co-occur with the "bare" adverbs such as *zaai* 'only' in (66).

(65)   Ngo {**zinghai**/ **zihai**}   tai   [siusyut]_F
       1SG   only   only   read   novel
       'I only read *novels*.'

(66)   Ngo {**zinghai**/ **zihai**} **zaai**   tai   [siusyut]_F
       1SG   only   only   only   read   novel
       'I only read *novels*.'

   Apart from canonical exclusive adverbs that associate with a focus rightward, there are also adverbs that may associate leftward, namely *sin1* 'only', *zi3* 'only' and *sin1zi3* 'only'.[10]

(67)   [Aaming]_F {**sin**/ **zi**/   **sinzi**} tai   siusyut
        Ming   only only only   read   novel
       'Only *Ming* read novels.'

---

9. Note that *zi2* and *zi3* are different morphemes with distinct tones.
10. They are polysemous and have another temporal meaning 'until'.

Verbs/ Adfocus particles

Dak1 'only' and *zi2jau6* '(lit.) only-have' are verbs, as in (68). They may also be used as adfocus particles, as shown in (69) with a subject focus and (70) with an (ex-situ) object focus. Note that they trigger obligatory focus movement which can be in a long-distance (=70a) or a local fashion (=70b). Also note that their relative linear order determines the scope with other operators. In (70a), the exclsuive focus has wide scope over 'know' whereas it takes narrow scope in (70b).

(68) Ngo {**dak**/ **zijau**}   [ni   bun siusyut]_F
      1SG   only only.have this CL   novel
      'I only have *this novel*.'

(69) {**Dak**/ **zijau**}   [ngo]_F jau   ni   bun siusyut
       only   only.have 1SG   have this CL   novel
      'Only *I* have this novel.'

(70) a.   {**Dak**/ **zijau**}   [ni   fuk waa]_F   ngo zidou [Siuming zeoi   zungji _]
            only   only.have this CL   picture 1SG know   Ming   most like
            'I know that Ming likes only *this picture* most.'   (only > know)

      b.   Ngo zidou [{**dak**/ **zijau**}   [ni   fuk waa]_F   Siuming zeoi   zungji _]
            1SG   know   only only.have this CL   picture Ming   most like
            'I know that Ming likes only *this picture* most.'   (know > only)

                                                                    (adapted from Tang 2002:283-284, *zijau* and scope added)

    Dak 'only' may be replaced by *zijau* '(lit.) only-have' in most cases. While they have stylistic differences, e.g. *zijau* is more formal than *dak*, they also differ in the ability to co-occur with *zinghai* 'only'. Only *dak*, but not *zijau*, may co-occur with *zinghai*:

(71) Zinghai {**dak**/ ***zijau**}   [ngo]_F tai   siusyut
      Only   only only.have 1SG   read novel
      'Only *I* read novels.'

Verbal suffix

The verbal suffix *-dak1* 'only' shares the same phonetic form with the adfocus particle *dak1*. They however differ in both syntactic and semantic properties and should be treated as two distinct lexical items. As shown in (73), the verbal suffix *-dak* may associate with constituents within its scope, either with the indirect object or the direct object. Crucially, it does not attach to the focus but always to the verb. Moreover, no focus movement is triggered, unlike (70) (see Tang 2002 for other differences between the two *dak*).

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(72) Keoi tai-**dak**   [saam bun syu]_F
      3SG   read-only   three CL   book
      'He read only *three books*.'   (adapted from Tang 2002:267)

(73) a. Di   tingzung man-**dak** [loeng go gongze]_F ni   tiu mantai   (indirect object)
          CL.PL audience ask-only   two   CL speaker   this CL   question
          'The audience asked only *two speakers* this question.'

      b. Di   tingzung man-**dak** ngo [loeng tiu mantai]_F   (direct object)
          CL.PL audience ask-only   1SG   two   CL   question
          'The audience asked me only *two questions*.'

                                                                    (adapted from Tang 2002:269)

Sentence-final particles (SFPs)

The SFP *zaa3* may express a (non-scalar) exclusive focus and can be translated to 'only'. The SFP *ze1*,
however, must either express a scalar focus meaning or a downplaying meaning. It is best translated
as 'just'.

(74) Ngo tai   [siusyut]_F **zaa**
      1SG   read novel   SFP.only
      'I only read *novels*. (I don't read poems.)'

(75) Ngo tai   [siusyut]_F **ze**
      1SG   read novel   SFP.just
      'I just read *novels*. (Nothing special.)'

Doubling

Cantonese allows up to four exclusive particles occurring in the same clause with the same focus
association. (76) shows a case of quadrupling of two adverbial particles, an adfocus particle and an
SFP. A case of tripling is illustrated in (77), with an adverbial particle, a verbal suffix and an SFP. Note
that not all combinations are allowed. For example, doubling of the "bare" exclusive adverbs *zaai/zing*
'only' and the verbal suffix *-dak* 'only' is prohibited, as shown in (78).

(76) **Zinghai dak** [Aaming]_F **sin**   wui cidou gaa **zaa**
      only   only Ming   only will late   SFP SFP.only
      'Only *Ming* will be late (but others will not).'

(77) Ngo **zihai** sik-**dak** [saam wun fan]_F **zaa**
      1SG   only eat-only   three CL   rice   SFP.only
      'I only eat *three bowls of rice*.'

(78) *Keoi {**zaai**/ **zing**} tai-**dak**   [ni   saam bun syu]_F

       3SG   only   only   read-only   this three CL   book

       Int.:'He read only *these three books*.'

7.2   Appendix 2: Cross-linguistic patterns of particle doubling

This appendix gathers cross-linguistic data from languages other than Cantonese on doubling of exclusive focus particles.

7.2.1   Akan

Akan has two exclusive adfocus particles *nkoaa* 'only' and *pɛ* 'only' that immediately follow the focus (C. Ahenkorah p.c.). While they may occur alone to mark exclusive focus, they can also be doubled:

(79)   Doubling exclusive focus particles in Akan

    a.   Mary hʊ   [John]_F {**nkoaa**/ **pɛ**/   **nkoaa pɛ**}.   (Object focus)

       Mary saw John   only   only only   only

       'Mary only saw *John*.'

    b.   [John efie]_F {**nkoaa**/ **pɛ**/   **nkoaa pɛ**}   na   ɛpɔ.   (Subject focus)

       John house only   only only   only FOC 3SG.break.PST

       'Only *John's house* fell down.'

    c.   [[John]_F {**nkoaa**/ **pɛ**/   **nkoaa pɛ**}   na   ne   fie]   ɛpɔ.   (Subject-internal focus)

       John   only   only only   only FOC POSS house 3SG.break.PST

       'Only *John*'s house fell down.'

                                    (C. Ahenkorah p.c.)

7.2.2   Bangla

Bangla has two exclusive particles: *sudhu* 'only', which occurs on the left of focus; and *i* 'only', which occurs on the right (U. Banerjee p.c.). There is a sense that *i* is more "grammaticalized" than *sudhu*. While they may be used separately to express exclusive focus, doubling is also possible:

(80)   Doubling exclusive focus particles in Bangla

    a.   **Sudhu** [Mary]_F Bill ke   ful   diyeche.

       only   Mary   Bill DAT flowers GIVE.PERF

       'Only *Mary* gave flowers to Bill.'

    b.   [Mary]_F **i**   Bill ke   ful   diyeche.

       Mary   only Bill DAT flowers GIVE.PERF

       'Only *Mary* gave flowers to Bill.'

c. **Sudhu** [Mary]_F **i**   Bill ke   ful   diyeche.
    only   Mary   only Bill DAT flowers GIVE.PERF
    'Only *Mary* gave flowers to Bill.'

<div align="right">(U. Banerjee p.c.)</div>

7.2.3 Dutch

According to Sjef. Barbiers ([2010](#), [2014](#)) and Hole ([2015](#)), Dutch has three exclusive focus particles: *maar* 'only', *alleen* 'only' and *slechts* 'only'. To mark exclusive focus, *Maar* 'only' may occur at a pre-focus position or a sentence-final position (=[81a](#)-[81b](#)). Interestingly, *maar* may occur twice in these two positions with the same reading (=[81b](#)). Moreover, *maar* may also co-occur with *allen* with the same focus (=[82](#)), showing another case of doubling.

(81) <u>Doubling exclusive focus particles in Dutch</u>

a. **Maar** [één student]_F ken   ik.
    only   one student   know I
    'I know only *one student*.'

b. [Eén student]_F ken   ik **maar**.
    one   student   know I   only
    'I know only *one student*.'

c. **Maar** [één student]_F ken   ik **maar**.
    only   one student   know I   only
    'I know only *one student*.'

<div align="right">(Sjef Barbiers [2014](#):198)</div>

(82) Hij is **alleen** [op Marie]_F **maar** boos   geweest.
      he   is only   at Marie   only   angry   been
      'Only *at Mary* was he angry.'

<div align="right">(Sjef. Barbiers [2010](#):27, translation cited from Hole [2017](#):406)</div>

7.2.4 English

While doubling of *only* is often disallowed in English (=[83](#)), J. Bayer ([2020](#)) has reported some rare exceptions that are found online, reproduced in ([84](#)) below.

(83) *John **only** bought **only** *lobsters*.

(84) a. they are solid options for the wireless speaker fan, even if they **only** support **only** the original AirPlay.

      b. the stakes have never been higher as he **only** has **only** 48 hours to find someone to take care of his young daughter

c.   He doesn't love me at all; he **only** thinks **only** of himself.

7.2.5   German

In German, the exclusive focus particle *nur* may be used as an adverbial particle or an adfocus particle (Reis 2005; Meyer and Sauerland 2009; but see Jacobs 1983, 1986; Büring 2001 for an adverb-only view). In most cases, their meanings just add up and lead to a multiple-focus reading. However, Hole (2015, 2017) argues that if the stress polar particle *doch* 'contrary to what you think…' is present, doubling with a single focus is also possible.[11] Hole also notes that a scalar reading is necessary to license doubling.

(85) Doubling exclusive focus particles in German
[First he said he's going to eat at least three scoops of ice-cream.]

Aber dann hat er   DOCH (**nur**) [**nur** eíne$_F$ Kugel] gegessen.
then has   he VERUM only   only one   scoop eaten
'But then he only had *one* scoop in the end (where eating one scoop and no more is considered little).'

(Hole 2017:405)

7.2.6   German sign language (Deutsche Gebärdensprache, DGS)

As reported in Herrmann (2013), German sign language (Deutsche Gebärdensprache, DGS) exclusive focus particle NUR may occur immediately after its focus or a sentence-final position. Notably, NUR may occur in these two positions at the same time, leading to doubling.

(86) Doubling exclusive focus particles in German sign language

a.   [TIM]$_F$ BLUME GIESS **NUR**.
       Tim   flower water only
      'Only *Tim* waters flowers.'

b.   [TIM]$_F$ **NUR** BLUME GIESS.
       Tim   only flower water
      'Only *Tim* waters flowers.'

c.   [TIM]$_F$ **NUR** BLUME GIESS **NUR**.
       Tim   only flower water only
      'Only *Tim* waters flowers.'

(Herrmann 2013:299-300)

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11. J. Bayer (2020) also argues that a single focus interpretation is possible in some circumstances.

7.2.7 Hindi

Hindi has two types of exclusive focus particles: *-hii*, which is a enclitic that attaches to the right of focus, and *sirf* 'only' (also other variants *bas*, *khaali*, *keval*, and *maatr*), which is a non-clitic that occurs before the focus (Bajaj 2016). Doubling of *-hii* and *sirf* are allowed, as shown below:

(87) <u>Doubling exclusive focus particles in Hindi</u>

    a.   [jon-ne]$_F$-**hii**   miThaii khaayii.
           John-ERG-only sweets   eat-PRF.F
           'Only *John* ate dessert.'   (Bajaj 2016:7)

    b.   {**sirf/bas/khaali/kebal/maatr**} [riitaa]$_F$ aayii.
           only   Rita   come-PERF.F.S
           'Only *Rita* came.'   (Bajaj 2016:53, quoted from Bhatia 2014)

    c.   **sirf** [tiin]$_F$-**hii** laRke aaye.
           only three-only boy.PL come-PRF.3.M.PL
           'Only *three* boys came..'   (Bajaj 2016:69, quoted from Verma 1971)

7.2.8 Korean

In Korean, exclusive focus is marked by the particle *man* following the focus. Y. Lee (2004, 2005) observes that multiple-occurrence of *man* may lead to a reading as if only one ONLY operator is interpreted (=i), in addition to the two-ONLY reading in (ii).

(88) <u>Doubling exclusive focus particles in Korean</u>
      John-**man** sakwa-**man** mekesse.
      John-only apple-only   ate
      (i) 'John is the only one who ate something, and John ate only apples (not other fruits).'
      (ii) 'John is the only one who ate only apples. Others ate other furits as well as apples.'
                                                              (Y. Lee 2005:184)

7.2.9 Mandarin Chinese

Mandarin has four exclusive focus particles: the adverbial *zhi* 'only' with rightward focus association, the adverbial *cai* 'only' with both rightward and leftward focus association, the adfocus *zhiyou* 'only', and the SFP *eryi* 'only'. Hole (2017) argues that *cai* triggers a scalar implicature that licenses doubling with the adfocus *zhiyou*, as illustrated in (=89a) (but see Sun 2021 for counter-evidence). Other particles that allow doubling are *eryi* and *zhi*, as shown in (89b). Yet, *eryi* does not seem to solely express exclusiveness. It often occurs with scalar *zhibuguo* 'merely' and expresses a scalar reading (Y. Sun p.c.), which is similar to Cantonese SFP *ze* but not *zaa*.

(89) Doubling exclusive focus particles in Mandarin

a.   Akiu **zhiyou** [niurou]_F ?*(**cai**) chi _ .
     Akiu only   beef   only eat
     'Akiu only eats *beef*.'   (Hole 2017:396)

b.   Zhangsan **zhi** kan-le   [zhe bun shu]_F (**eryi**).
     Zhangsan only read-PERF this CL   book SFP.only
     'Zhangsan only read *this book*.'

7.2.10 Vietnamese

Vietnamese has five exclusive focus particles: the two adverbial particles *chỉ* 'only', which associates rightward, and *mới*, 'only' which associates leftward; the two adfocus particles *mỗi* 'only' (not to be confused with *mới*) and *có* 'only'; and the SFP *thôi* (Hole 2013, 2017; Erlewine 2017b; Sun 2021). (90) shows a case where adverbial *chỉ* and adfocus *mỗi* are interchangable and may even be doubled to mark exclusive focus. Like Cantonese, Vietnamese allows up to four particles occurring together, as shown in (91). Also note that Hole (2017) argues that the adverbial *mới* always triggers a scalar implicature.

(90) Doubling exclusive focus particles in Vietnamese

a.   Nam **chỉ** mua [cuốn sách]_F.
     Nam only buy   CL   book
     'Nam only bought *the book*.'

b.   Nam mua **mỗi** [cuốn sách]_F.
     Nam buy only CL   book
     'Nam only bought *the book*.'

c.   Nam **chỉ** mua **mỗi** [cuốn sách]_F.
     Nam only buy only CL   book
     'Nam only bought *the book*.'

                                                              (Erlewine 2017b:331)

(91) a.   Nam **chỉ** [**mỗi** thịt bò]_F **mới** ăn _ **thôi**.
           Nam only only beef   only eat   only
           'Only *beef* does Nam eat.'

                                                              (Hole 2017:390)

7.2.11 Yoruba

Yoruba has two exclusive focus particles: *kan* 'only' and *nikan* 'only' (Bisang and Sonaiya 2000; Howell 2016). *Kan* must occur pre-verbally to mark focus in the VP and *nikan* is an adfocus particle that immediately follows the focus. Doubling of them with the same focus association is allowed:[12]

(92)   Doubling exclusive focus particles in Yoruba

 a. John **kan** fun [Mary]$_F$ ni   iwe.
    John only give Mary   SEC book
    'John gave only *Mary* a book.'

 b. John fun [Mary]$_F$ **nikan** ni   iwe.
    John give Mary   only   SEC book
    'John gave only *Mary* a book.'

 c. John **kan** fun [Mary]$_F$ **nikan** ni   iwe.
    John only give Mary   only   SEC book
    'John gave only *Mary* a book.'

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12. Data collected in the course "Semantic Investigations in an Unfamiliar Language" taught by Prof. Veneeta Dayal at Yale in 2020 Fall. I thank the language consultant, Aishat Adekunle, for providing the Yoruba data. See Yip 2021 for more examples.