

Only ‘only’ only: A distributed meaning approach to exclusive doubling*

Ka-Fai Yip
Yale University

Abstract Cross-linguistically, exclusive particles ‘only’ may be doubled with a single focus association, giving rise to an apparent form-meaning mismatch. Focusing on an understudied case of doubling of exclusive adverbial particle *zinghai* and sentence-final particle (SFP) *zaa3* in Cantonese, this study refines the operator-particle approach (e.g., [Quek & Hirsch 2017](#)) and argues for a novel view where exclusive doubling instantiates a scalar focus structure. I demonstrate that both particles have focus-sensitive contributions: *zinghai* encodes at-issue exclusivity and *zaa3* encodes not-at-issue scalar meaning. I further propose that *zaa3* is semantically dependent on *zinghai*, and acquires access to the lower alternative set quantified by *zinghai* via co-indexation of Roothian C_i ([Rooth 1992](#)). This view not only implicates that there is more than one way to access lower alternatives across another focus operator (cf. [Bade & Sachs 2019](#); [Erlewine 2024](#)), but it also offers a possible answer to why languages allow exclusive focus particles to be doubled.

Keywords: exclusive focus particle ‘only’, doubling, alternative semantics, co-indexation, scalar focus, not-at-issueness, compositionality, intervention effects

1 Introduction

1.1 Setting up the stage

Cross-linguistically, exclusive particles have multiple uses in terms of (i) syntactic positions and (ii) semantic contributions, which may or may not be lexicalized differently. To begin with, *only* in English may be used as an adverbial particle before

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the verb, or an adfocal particle before the focused element (Horn 1969; Jackendoff 1972; Rooth 1985, *i.a.*). Yet, the two particles cannot co-occur/“double” with the same focus association, as illustrated in (1). Doubling in (1c), even if grammatical, does not have the same truth conditions with (1a-b).¹

- (1) a. Mary **only** read ONE_F book. (Adverbial/“sentential” only)
 b. Mary read **only** ONE_F book. (Adfocal/“constituent” only)
 c. # Mary **only** read **only** ONE_F book. (Exclusive doubling prohibited)

Nevertheless, doubling of exclusive particles (“**exclusive doubling**”), is attested in a wide range of languages, including Akan (C. Ahenkorah p.c.), Bangla (U. Banerjee p.c.), Cantonese (Law 2004; Lee 2019; Yip 2023), Dutch (Barbiers 2014), Ga (Renans 2017), German (Hole 2015; Bayer 2020), German sign language (Herrmann 2013), Hindi (Bajaj 2016), Japanese (Erlewine 2012), Kasem (Aremu 2024), Korean (Lee 2005), Mandarin (Hole 2017; Sun 2021; Yip 2023), Vietnamese (Hole 2013, 2017; Erlewine 2017b; Sun 2021; Yip 2023), and Yoruba (Yip & Adedeji 2024). An example in Vietnamese is given in (2), where adverbial *chỉ* and adfocal *mỗi* associate with the object focus, but the truth condition remains as if only one particle is interpreted. (2) does not give a reading with multiple exclusive operators. There is thus a *form-meaning mismatch*, posing a challenge for compositionality.

- (2) Nam [**chỉ** [mua [**mỗi** một_F cuốn sách]]]. [Vietnamese]
 Nam only buy only one CL book.
 Single-‘only’: ‘Nam only bought one book.’
 (NOT multiple-‘only’: ‘What Nam only did was to buy only one book.’)

In the prevailing **operator-particle** approach (Bayer 1996, 2020; Lee 2005; Barbiers 2014; Quek & Hirsch 2017; Bassi, Hirsch & Trinh 2022; Hirsch 2022; Sun 2021; Branam & Erlewine 2023; Yip 2023; Aremu 2024; *i.a.*), it is proposed that adfocal particles are *semantically vacuous* concord markers, which establish a syntactic dependency with an exclusive operator (e.g., Agree or (c)overt movement), as in (3). The operator may be either null or realized as the adverbial particle. In this way, there is no form-meaning mismatch—one of the doubled particles does not carry exclusive semantics in the first place. Notice that in these cases, the adfocal particles are syntactically lower than the adverbial particles.

- (3) [TP Subj [**OP**_{EXCL} [VP V [**Adfoc**_{EXCL} DP_F]]]]

¹ Though see Bayer (2020), who reports some rare cases of exclusive doubling in English, such as *the stakes have never been higher as he **only** has **only** 48 hours to find someone to take care of his young daughter* (p.64-65). Notice that these cases are associated with a scalar reading, which will be important for the approach developed in this paper.

On the other hand, *only* in English has two readings: a *quantificational* reading, where all the non-prejacent alternatives are excluded as in (4a); and a *scalar* reading, where the prejacent is ranked lower than some other alternative(s) on a given scale, and only those alternative(s) are excluded, as in (4b) (Klinedinst 2004, 2005; Beaver & Clark 2008; Coppock & Beaver 2014; Alxatib 2020).²

- (4) a. Mary **only** invited ALEX_F. (Quantificational) (Klinedinst 2004, ex.1)
 b. Bill is **only** a JUNIOR_F/ #SENIOR_F. (Scalar) (Klinedinst 2004, ex.14)

The two readings may be lexicalized differently in other languages. In Dutch, for example, *alleen* ‘only’ is quantificational whereas *slechts* ‘only/just’ is scalar (Winterstein 2012), as shown by the contrast in (5). Such lexical contrasts can also be found in English, such as quantificational *solely* vs. scalar *merely* (see Coppock & Beaver 2014 for an extensive investigation).

- (5) Jan is {#**alleen**/ **slechts**} een luitenant_F. [Dutch]
 John is only only a lieutenant.
 ‘John is only a lieutenant.’ (Winterstein 2012:15)

There is, however, very little attention on the role of scalar readings in exclusive doubling. Most previous studies focus on the quantificational uses (with notable exceptions like Hole 2015, 2017; Bajaj 2016 with a non-operator-particle approach). This paper aims to bridge this gap. I show that doing so enables a new conception of exclusive doubling and has a bearing on current issues in alternative semantics.

1.2 The current paper

This paper focuses on exclusive doubling of adverbial *zinghai* and sentence-final particle (SFP) *zaa3* (mid-level tone 3) in Cantonese (Law 2004; Lee 2019), as exemplified in (6). Both particles associate with the object focus and give a single-‘only’ reading. Additionally, there is a scalar flavor made salient by *zaa3*, where ‘beer’ is ranked lower than the excluded alternatives on a scale such as ABV.

- (6) Doubling of exclusive adverbial particles and SFPs in Cantonese
Context: At yesterday’s party, there were vodka, wine, and beer.
 [Aaming **zinghai** jam-zo bezau_F] **zaa3**.
 Ming only drink-PFV beer SFP.only
 Single-‘only’ + Scalar: ‘Ming only drank *beer* (so weak!).’
 (NOT multi-‘only’: ‘The only thing happened was that M. only drank *beer*.’)

² The terms “quantificational” and “scalar” are meant to be descriptive. It has been proposed that the two readings may have a single semantic entry with flexibility on whether the scale is entailment-based (e.g., Beaver & Clark 2008; Coppock & Beaver 2014; Alxatib 2020; but see Winterstein 2012 for objections). This paper remains open on this issue.

Adverbial-SFP exclusive doubling in Cantonese is remarkable in two senses. First, it is empirically an understudied type of doubling. The SFP *zaa3* is in the CP layer (Law 2004; Tang 2015; Law 2021), and is higher than adverbial *zinghai* which may attach to positions in-between CP and VP, as in (7).³ This is different from the more understood adverbial-adfocal doubling where the adfocal particle is syntactically lower. This will matter for the alternative computation in the LF.

(7) [CP **SFP**_{EXCL}(=*zaa3*) ... [**Adv**_{EXCL}(=*zinghai*) ... [VP ... XP_F ...]]]

Second, *zaa3* is *not* semantically vacuous, but it contributes meaning on the **not-at-issue** (NAI) dimension, which has not been adequately addressed in the operator-particle approach. Such NAI meaning is scalar, and, as we will see, dependent on the exclusive focus contributed by *zinghai*.

This paper argues for the following. I propose that exclusive doubling does not involve form-meaning mismatches, nor is it a pure operator-particle “concord” phenomenon. Instead, exclusive doubling instantiates a scalar focus structure where *zinghai* encodes *exclusivity* and *zaa3* encodes *scalarity*. Thus, exclusive doubling is not “redundant” in natural language: meaning is “distributed” on different particles.

(8) Exclusive doubling realizes scalar focus structures in Cantonese

[*zaa3*_[Scalarity] ... [*zinghai*_[Exclusivity] ... XP_F ...]]

Furthermore, I argue that *zaa3*’s focus association is parasitic on *zinghai*, and *zaa3* always targets the very *same alternative set* quantified by *zinghai*. There is a semantic *dependency* between the two particles. In order for the higher operator (i.e., *zaa3*) to access the lower alternatives across another operator (i.e., *zinghai*), I propose to co-index the Roothian *C* variables of both operators. I show that the existing $\sim_{\text{pass}}$ mechanism, independently motivated by other focus phenomena (e.g., recursive exhaustification, Fox 2007; Crnič 2013; Bade & Sachs 2019; see also Erlewine 2024), cannot capture the dependency in exclusive doubling. In other words, there need to be multiple ways for higher operators to access alternatives.

The paper is organized as follows. §2 introduces SFP exclusive doubling in Cantonese and shows that *zaa3*’s focus association is dependent on *zinghai*. §3 discusses the NAI dimension in doubling. §4 proposes a novel compositional account to doubling where exclusivity and scalarity are “distributed” on *zinghai* and *zaa3* respectively, coupled with the co-indexation approach to alternative computation. §5 derives the dependency in exclusive doubling and when the dependency would be disrupted. §6 concludes with cross-linguistic implications.

³ For expository purposes, I represent *zaa3* in the left periphery, but remain neutral to its head-directionality (see Simpson & Wu 2002; Paul 2014; Erlewine 2017a; Pan 2022).

2 Exclusive doubling with SFPs in Cantonese

Let us start with the paradigms of exclusive SFP doubling in Cantonese. As shown in (9a-b), both *zinghai* and *zaa3* yield exclusiveness when used alone. Yet, they may be doubled with the same focus association without changing the truth conditions.

(9) Doubling of exclusive particles in Cantonese

- a. Aaming **zinghai** maai-zo joengjuk_F bei Aafan. (adverbial)
Ming only buy-PFV lamb to Fan
- b. Aaming maai-zo joengjuk_F bei Aafan **zaa3**. (SFP)
Ming buy-PFV lamb to Fan SFP.only
- c. Aaming **zinghai** maai-zo joengjuk_F bei Aafan **zaa3**. (doubling)
Ming only buy-PFV lamb to Fan SFP.only
(a-c): ‘Ming only bought Fan *lamb* (but not beef or pork).’

The exclusiveness is *at-issue*, and may be directly dissented as in (10). It may also be questioned by yes-no question SFP *aa4* (low falling tone 4) in (11),⁴ negated, and take narrow scope under epistemic modals (examples not shown due to space).

- (10) B: M-hai. (Aaming zung maai-zo zyujuk bei Aafan.)
no Ming also buy-PFV pork to Fan
‘No. (Ming also bought Fan pork.)’ *responding to (9a-c)*
- (11) a. Aaming **zinghai** maai-zo joengjuk_F aa4?
Ming only buy-PFV lamb SFP.Q
- b. Aaming maai-zo joengjuk_F **zaa4**?
Ming buy-PFV lamb SFP.only.Q
- c. Aaming **zinghai** maai-zo joengjuk_F **zaa4**?
Ming only buy-PFV lamb SFP.only.Q
(a-c): ‘Did Ming only buy lamb?’ *questioning the exclusiveness*

Zinghai and *zaa3* also subsume the truth of the prejacent proposition, like English *only* (e.g., Horn 1969). The inference may project through questions, as shown in (12). The nature of this inference is subject to debate in English.⁵ Since it does not have a direct bearing on the proposal in this paper, I set aside this issue and take it to be a presupposition of the prejacent.

⁴ *Aa4* is syntactically higher than *zaa3* at a speech act phrase (SAP) (Tang 2015; Yip 2025; cf. Dayal 2023). The two SFPs fuse into *zaa4* when they co-occur.

⁵ The inference has been taken to be a presupposition (Horn 1969; Alonso-Ovalle & Hirsch 2022), some presupposition in other forms (e.g., existential in Horn 1996; von Stechow & Iatridou 2007; scalar in Beaver & Clark 2008; conditional in Ippolito 2008), an implicature (McCawley 1981), or even a non-assertoric entailment (Horn 2002), among others.

I will apply a test of (attempted) multiple focus associations to show that *zinghai* is the operator that carries exclusive semantics. To set it up, note that *zinghai*, when put below the subject, fails to associate with it since it is outside of *zinghai*'s scope/c-commanding domain (*cf.* Jackendoff 1972; Tancredi 1990; Erlewine 2014, *i.a.*):

- Note further that SFP *zaa3* may associate with subjects (Law 2004; Cheng 2015):

- Now, consider (15) where both the subject and object are focused. Surprisingly, *zaa3* now *fails* to associate with the stressed subject, unlike (14). There is no multiple/“stacked” ‘only’ reading like English (*cf.* Horn 1969) as shown in the translation. The associate(s) must be within *zinghai*’s scope, which is the object in this case.

- 485

In other words, *zaa3*'s focus association is dependent/"parasitic" on *zinghai*. It cannot establish its own association in doubling cases.

(16) Dependent focus association in exclusive doubling

- a. $*[Zaa3 \dots \mathbf{F1} [zinghai \dots F2]]$ b. $[Zaa3 \dots \mathbf{F1} [zinghai \dots F2]]$
- $\underbrace{\hspace{1.5cm}}$ $\underbrace{\hspace{1.5cm}}$
 $\underbrace{\hspace{1.5cm}}$ $\underbrace{\hspace{1.5cm}}$

In contrast, when there is another *zinghai* above the subject, *zaa3* may associate with the subject as in (17).⁶ The multi-‘only’ reading becomes available, and indeed is the only available reading.

- (17) **Zinghai** (dak) AAMING_{F1} **zinghai** taai zungmansyu_{F2} **zaa3**.
 only only.have Ming only read Chinese.book SFP.only
 ‘Only M. only reads Chinese books. (F. reads both English & Chinese books.)’

The above patterns fall out if *zinghai* is the operator, but would otherwise be surprising if *zaa3* (or a null element) were the operator, given that it is *zinghai* that determines focus association possibilities. Therefore, SFP doubling displays an operator-particle-like dependency: *zaa3* does not carry exclusive semantics and is dependent on the operator. To explain the at-issue exclusiveness in singleton *zaa3* cases, I follow [Quek & Hirsch \(2017\)](#); [Bassi et al. \(2022\)](#); [Hirsch \(2022\)](#) and suggest that the dependency is established with a null exclusive operator EXCL. I assume that EXCL can only occur when there are no overt *clausemate* exclusives like *zinghai*, and *zaa3* is present (to satisfy *zaa3*'s requirement, which will be addressed in §5).

- (18) a. $[zaa3 \dots [\mathbf{OP(=zinghai)} \dots [XP_F \dots]]]$ (doubling cases)
 $\underbrace{\hspace{1.5cm}}$
 b. $[zaa3 \dots [\mathbf{OP(=EXCL-\emptyset)} \dots [XP_F \dots]]]$ (singleton *zaa3* cases)
 $\underbrace{\hspace{1.5cm}}$

The dependency in (18) is, however, puzzling. Under the operator-particle view, *zaa3* would be a semantically vacuous concord marker. Yet, unlike adfocal particles, *zaa3* does not morphosyntactically mark the focus, and appears to be “redundant”. Why would languages employ such a “dummy” particle in doubling?

3 The not-at-issue dimension

If we turn to the not-at-issue dimension of meaning, we will see that *zaa3* is in fact not a “dummy” particle. While *zaa3* sentences have the same truth conditions with *zinghai*, their felicity conditions are different. Concretely, *zaa3* has focus sensitive contribution on the *not-at-issue* level. It requires some excluded alternatives to be (i) contextually *salient*; and/or (ii) *ranked higher* than the true prejacent on a contextually given scale.

⁶ Here, *zaa3* requires the subject to contrast with some contextually salient alternatives (*cf.* §3).

Only ‘only’ only: A distributed meaning approach to exclusive doubling

Let us consider contextual salience first. In (19), the salience of the alternatives is regulated by purely contextual information. *Zaa3*, unlike *zinghai*, can only be used when some alternative (i.e., beef) is highlighted in the context such that both speaker and addressee are aware of it (cf. Portner 2007’s notion of Common Proposition Space). Note that the non-salient pork is still excluded in both cases.

(19) Contextual information: (non-)salience

- a. *You are a cashier in a meat market in the US. You just served a customer, and your colleague seems to be curious about what they bought. You say:*
- b. *Same with (a), except that **beef is newly arrived and is really good today.***
- c. Go haak **zinghai** maai-zo joengjuk_F {a.#**zaa3**/ b.^{OK}**zaa3**}.
 CL customer only buy-PFV lamb SFP.only SFP.only
 ‘The customer only bought lamb.’ (#S/he also bought pork.)

Salience may also be achieved by linguistic antecedents in the discourse. In (20), *zaa3* is licensed by a previous assertion, and strengthens the “corrective” sense. Without (20a), uttering (20b) out of the blue would be infelicitous.

(20) Previous assertion licenses *zaa*

- a. A: Cows eat insects.
- b. B: Ngau **zinghai** sik zikmat_F **zaa3**.
 cow only eat plant SFP.only
 ‘Cows only eat plants.’

Now, consider contexts where the alternatives are equally (non-)salient. A scale must then be invoked in the context, and *zaa3* requires at least one excluded alternative to be ranked higher than the prejacent, as in (21). Here, the scale is <beer, wine, vodka>_{ABV}, with beer ranked lower than the excluded alternatives wine and vodka. The scale becomes salient when evaluating whether Ming is a good drinker.

(21) A contextually salient scale licenses *zaa3* (modified from (6) in §1)

- You are discussing with friends whether people were good at drinking at yesterday’s party, which had vodka, wine, and beer.*
- [Aaming **zinghai** jam-zo bezau_F] **zaa3**! (doubling)
- Ming only drink-PFV beer SFP.only
- ‘Ming only drank *beer* (so weak!).’

I present two tests below to confirm *zaa3*’s scalar contribution. First, *zaa3* is not allowed in contexts without a salient scale, such as the listing scenario in (22). Due to listing, all the alternatives are equally salient (beer=_{salient}wine=_{salient}vodka). Also, no ABV scale is invoked.

(22) A listing scenario that lacks a salient scale

At a liquor store, you're reporting types of alcohol each customer bought to the boss.

A **zinghai** maai-zo bezauf (#**zaa3**), B **zinghai** maai-zo hongzau

A only buy-PFV beer SFP.only B only buy-PFV red.wine

(#**zaa3**), C **zinghai** maai-zo fukdakgaa (#**zaa3**), ...

SFP.only C only buy-PFV vodka SFP.only

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

Second, *zaa3* is banned when associating with the *upper bound* of a scale. The context in (23) facilitates a scale of difficulty of the problem sets (PSs) to evaluate student performance. Because doing harder PSs indicates better performance, the scale is arranged as: <easiest PS, ..., hardest PS>_{difficulty}. *Zaa3* is only allowed when the focus is at the lower bound with the excluded alternatives ranked higher (more difficult PSs).⁷ In contrast, when the upper bound becomes the focus, all the excluded alternatives are ranked lower (i.e., the easier PSs), and *zaa3* is infelicitous.

(23) Superlatives targeting the upper/lower bound of the scale

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

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

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

The salience/scalar requirement by *zaa3* is not-at-issue. It may project through negation, question, epistemic modals, and attitude verbs, among others. An example with questions is given in (24). The scalar component cannot be questioned.

(24) *Same context as (21):*

- a. A: [Aaming **zinghai** jam-zo bezauf] **zaa4**? (yes-no question)
Ming only drink-PFV beer SFP.only
'Did Ming only drink *beer* last night? (Was Ming that weak?)'
- b. B: No! (Ming didn't only drink beer/# Beer actually has the highest ABV since other alcohols were diluted.)

⁷ While Beaver & Clark (2008) suggest that scalar *only* in English cannot associate with the "bottom" element on a scale, Alxatib (2020) shows it is indeed possible, with examples like *Tal only reached A_F in the alphabet song* (p.47).

Only ‘only’ only: A distributed meaning approach to exclusive doubling

Before proceeding to account for the above patterns, it is instructive to reinforce that the scalar requirement by *zaa3* has no truth-conditional effects, unlike English scalar *only*. Scalar *only* is known to differ from quantificational *only* in two truth-conditional-related aspects (e.g., [Klinedinst 2004](#); [Coppock & Beaver 2014](#); [Alxatib 2020](#)). First, non-logically weaker alternatives are *not* excluded when being lower ranked, as in (25). SFP doubling with *zaa3*, in contrast, excludes all the relevant alternatives as long as they are not entailed by the prejacent, as confirmed by (26).⁸

- (25) a. Jess only managed to interview Alex_F (, # also Mary). (quantificational)
 b. Jess only managed to interview a [first lieutenant]_F. (She also interviewed second lieutenants.) (scalar) (adapted from [Alxatib 2020:30](#))
- (26) *Scenario: [Taiwan (Chinese Taipei): 1 gold | Hong Kong: 1 silver 1 bronze] Ming and you are discussing which team performed the best in the last Olympic game. You said: Taiwan was definitely better, because ...*
 ??Gongdeoi **zinghai** ling-zo jat-go aagwan_F **zaa3**.
 HK.team only get-PFV one-CL 1st-runner-up SFP.only.
 Int.: ‘Hong Kong Team only got a silver. (What a loser.)’

Second, while quantificational *only* cannot be used when other alternatives are already excluded in the Common Ground (i.e., “vacuous uses” are banned), scalar *only* can, as illustrated in (27). By world knowledge, one can only be born in one place and get one grade on a test, which naturally excludes other alternatives when the prejacent is presupposed to be true. SFP doubling with *zaa3*, however, is less natural when used in such scenarios as in (28).

- (27) a. #Jackie was only born in [Boston]_F (quantificational) ([Alxatib 2020:45](#))
 b. Did Jamie only get a [B]_F on the test? (scalar) ([Alxatib 2020:45](#))
- (28) ??Nei-ci caakjim Aaming **zinghai** paai dai-ji ming **zaa3**.
 this-CL test Ming only rank second place SFP.only.
 Int.: ‘Ming only/just ranked the second (highest score) on this test.’

4 Proposal: Doubling as scalar focus

This section develops a “distributed meaning” approach where both particles have focus-sensitive contributions in exclusive doubling, but on different dimensions. The leading idea is that exclusive doubling instantiates a scalar focus structure (see similar insights in [Hole 2015, 2017](#)’s syntactic proposal). *Zinghai* encodes at-issue *exclusivity* and *zaa3* encodes not-at-issue *scalarity*.

- (29) Exclusive doubling realizes scalar focus structures in Cantonese
 [**zaa3**_[Scalarity] ... [**zinghai**_[Exclusivity] ... XP_F ...]]

⁸ For (26) to be natural, *zinghai* must be replaced by scalar *zihai* ‘only, just’. Same for (28) below.

In this way, exclusive doubling is not a form-meaning mismatch, nor a pure operator-particle “concord” phenomenon. Nevertheless, I maintain the core insight in the operator-particle approach that there is a *dependency* between the two particles (e.g., Quek & Hirsch 2017; Hirsch 2022; Sun 2021)—exclusive doubling is not an accidental assembling of an exclusive morpheme and a scalar morpheme. Concretely, *zaa3* is semantically dependent on *zinghai* (or null EXCL) in three ways:

(30) The semantic dependency of *zaa3* in exclusive doubling

- I. *Zaa3* requires the presence of *zinghai*/EXCL; (see §5 for explanation)
- II. *Zaa3*’s focus association is determined by *zinghai*/EXCL’s;
- III. *Zaa3* ranks the alternatives excluded by *zinghai*/EXCL, i.e., *zaa3* always targets the very *same alternative set* quantified by *zinghai*.

I adopt Roothian focus semantics to develop an account that captures (30). I first introduce the essential formal tools below. Rooth (1992) distinguishes between two types of semantic values: ordinary values and focus alternative (ALT) values. ALT values are the set that contains all the elements in the same semantic type with the ordinary values, which is triggered by focus marking indicated by subscript F.⁹

- (31) a. $\llbracket \alpha_F \rrbracket = a$
 b. $\llbracket \alpha_F \rrbracket^{ALT} = \{a, b, c, d, e, f, g, \dots\}$

Focus operators introduce $\sim$ (squiggle) that takes the ALT value and a contextual variable C . $\sim$ performs two functions: (i) constrains C to be a subset of the ALT value; and (ii) “resets” the ALT value to be a singleton set of the ordinary value.

- (32) a. $C_i = \{a, b, c\}$
 b. $\llbracket \alpha_F \rrbracket^{ALT} \sim C_i = \{\llbracket \alpha_F \rrbracket\}$ (i.e., $\{a\}$) iff $C_i \subseteq \llbracket \alpha_F \rrbracket^{ALT}$, undefined otherwise

A sample entry of quantificational *only* is given in (33). It takes C (instead of the ALT value) before taking the preadjacent proposition $p_{\langle s, t \rangle}$ (after Rooth 1992; Alonso-Ovalle & Hirsch 2022), with the derivation in (34) (where $\wedge \alpha = \lambda w. \alpha$ in w).

- (33) $\llbracket \text{only} \rrbracket(C_i) = \lambda p \lambda w : p(w). \forall q [(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$

- (34) Ming only bought lamb_F (but not beef or pork).
 LF: $[_{TP} \text{only}(C_i) [_{VP2} \sim C_i [_{VP1} \text{Ming buy } [_{DP} \text{lamb}_F]]]]$ (tense ignored)
 a. $\llbracket DP \rrbracket = l$; $\llbracket DP \rrbracket^{ALT} = \{l, b, p, x, \dots\}$
 b. $\llbracket vP1 \rrbracket = \wedge^m \text{buy } l$; $\llbracket vP1 \rrbracket^{ALT} = \{\wedge^m \text{buy } l, \wedge^m \text{buy } b, \wedge^m \text{buy } p, \wedge^m \text{buy } x, \dots\}$
 c. $C_i = \{\wedge^m \text{buy } l, \wedge^m \text{buy } b, \wedge^m \text{buy } p\} \subseteq \llbracket vP1 \rrbracket^{ALT}$
 d. $\llbracket vP2 \rrbracket = \wedge^m \text{buy } l$; $\llbracket vP2 \rrbracket^{ALT} = \{\wedge^m \text{buy } l\}$
 e. $\llbracket TP \rrbracket = \lambda w : \wedge^m \text{buy } l(w). \forall q [(q \in C_i \wedge q(w)) \rightarrow \wedge^m \text{buy } l \subseteq q]$

⁹ For non-focused elements, the ALT value is simply the singleton set of the ordinary value $\{a\}$.

Due to the resetting nature of $\sim$, when there are two focus operators like (36), only the lower one can access the alternatives. The higher operator cannot access the alternatives. Up to the point of $\sim_{\text{reset}}C_j$, the lower alternatives have already been reset. Such configurations either result in ungrammaticality (e.g., focus intervention effects with *wh*, Beck 2006), or are avoided by association of OP1 with other foci above the lower $\sim_{\text{reset}}C_i$ (e.g., multi-‘only’ readings, Rooth 1996; Erlewine 2024).¹⁰

$$(36) \quad [\text{OP1}(C_j) \sim_{\text{reset}}C_j [\dots [\text{OP2}(C_i) \dots \sim_{\text{reset}}C_i [\text{XP}_F \dots]]]]$$

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With the formal tools in place, we can proceed to the analysis of exclusive doubling in Cantonese. I propose that adverbial *zinghai* as well as its null counterpart EXCL are the exclusive operators with the semantics in (37). On the AI level, they negate all the alternatives in C_i that are not entailed by the prejacent p . They also presuppose p on the NAI level.

$$(37) \quad \llbracket \text{zinghai/EXCL} \rrbracket(C_i) = \mathbf{AI}: \lambda p \lambda w. \forall q [(q \in C_i \wedge q(w)) \rightarrow p \subseteq q] \\ \mathbf{NAI}: p(w)$$

As for the SFP *zaa3*, I propose that its focus-sensitive component is not-at-issue, which requires at least one alternative excluded by the lower operator to be ranked higher than the true prejacent (of the lower operator). The semantics is given in (38). On the AI level, it is just a (partial) identity function that takes r and returns r . Since *zaa3* always requires *zinghai/EXCL* within its scope, r is the exclusive proposition returned by *zinghai/EXCL* that negated some alternatives.¹¹ On the NAI level, there exist two alternatives p and q in C_i such that p is compatible with r but q is not (i.e., q is negated by r), and q is ranked higher than p on a contextually given scale.

$$(38) \quad \llbracket \text{zaa3} \rrbracket(C_i) = \mathbf{AI}: \lambda r \lambda w. r(w); \text{ where } r \text{ is an exclusive proposition (see §5)} \\ \mathbf{NAI}: \exists p, q \in C_i [(r \cap q = \emptyset \wedge r \cap p \neq \emptyset) \rightarrow p <_s q]$$

There is however a problem with accessing alternatives. As motivated by the empirical patterns in §2 and §3, both particles are focus-sensitive and associated with the *same* focus. Under standard Roothian semantics, the higher *zaa3* cannot access the lower alternatives across *zinghai*. There are two possible solutions. The first is “non-resetting”, which posits that $\sim$ comes with two variants. $\sim_{\text{reset}}$ “resets” the ALT value to a singleton set (=32b), whereas $\sim_{\text{pass}}$ does not and simply passes up the ALT input value (=39), as in (40a). This solution has been proposed by

10 Below are the schemas of focus-*wh* intervention effects and multiple associations (Erlewine 2024):

$$(35) \quad \text{a. } * [\text{OP1}(C_j) \sim_{\text{reset}}C_j [\dots \text{OP2}(C_i) \dots \sim_{\text{reset}}C_i [\dots \text{wh} \dots \text{XP}_{F1} \dots]]] \\ \text{b. } [\text{OP1}(C_j) \sim_{\text{reset}}C_j [\text{YP}_{F2} [\dots \text{OP2}(C_i) \dots \sim_{\text{reset}}C_i [\text{XP}_{F1} \dots]]]]$$

✗

11 See §5 for discussions on how to derive this requirement of *zaa3*.

several authors in different empirical domains (e.g., recursive exhaustification for free-choice inferences, Fox 2007; Crnič 2013; Bade & Sachs 2019; association of exclusives with *wh*, Erlewine 2024). The second solution proposed here is to *co-index* the higher focus operator's *C* variable with the lower one instead of introducing another *C'* variable restricted by $\sim$, as in (40b). It directly captures Dependencies II (parasitic focus association) and III (ranking the same ALT) in (30).¹²

$$(39) \quad \llbracket \alpha_F \rrbracket^{ALT} \sim_{\text{pass}} C_i = \llbracket \alpha_F \rrbracket^{ALT} \text{ iff } C_i \subseteq \llbracket \alpha_F \rrbracket^{ALT}, \text{ undefined otherwise}$$

- (40) a. The non-resetting approach

$$\llbracket \text{OP1}(C_j) \sim_{\text{reset}} C_j [\dots [\text{OP2}(C_i) \dots \sim_{\text{pass}} C_i [\text{XP}_F \dots]]] \rrbracket$$
- b. The co-indexation approach

$$\llbracket \text{OP1}(C_i) [\dots [\text{OP2}(C_i) \dots \sim_{\text{reset}} C_i [\text{XP}_F \dots]]] \rrbracket$$

In the following, I will show how the co-indexation approach derives exclusive doubling, and then discuss some unattested predictions made by the non-resetting approach. Consider (41), where *zaa3* is licensed by contextual salience. The LF structure is given in (41b). Beef is highlighted in the context and thus ranked higher than lamb and pork on the scale of salience. Expecting that customers prefer fresh meat, the proposition [[^]Ming buy beef] is more salient, as indicated in (41c).

- (41) *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.*
- a. Aaming **zinghai** maai-zo joengjuk_F **zaa3**.
 Ming only buy-PFV lamb SFP.only
 'Ming only bought lamb.'
- b. $\llbracket \text{CP } zaa(C_i) [\text{TP } zinghai(C_i) [\text{vP2 } \sim C_i [\text{vP1 } \text{Ming } [\text{v}' \text{buy } [\text{DP } \text{lamb}_F]]]]] \rrbracket$
- c. $C_i = \{ \text{^Ming buy pork}, \text{^Ming buy lamb}, \text{^Ming buy beef} \}$
 where [[^]Ming buy lamb] <_{salience} [[^]Ming buy beef]

The indexation approach derives the correct reading of (41), as computed in (42). First, the alternatives triggered by the object focus "lamb" combine pointwise with the verb and subject and form a set of ALT propositions in vP1. Then, after the application of $\sim C_i$, the ALT value is reset to a singleton set and is no longer relevant for alternative computation (in gray). *Zinghai* takes *C_i* and excludes the alternatives

¹² A question arises as to why the co-indexing must be enforced. There are two possibilities. First, it has been argued by Yip (2023) that *zaa3* establishes syntactic agreement with *zinghai*, and co-indexation may be a semantic consequence of that (cf. binding as Agree, Reuland 2001; Kratzer 2009, *i.a.*). Second, *zaa3* may always track the most salient *C_i* in the context, which also restricts the domain of *zinghai*. The second solution faces difficulties when there is another focus operator between *zinghai* and *zaa3* (hence another *C_j*), such as "even" discussed in §5.2.

[[^]*m buy b*] and [[^]*m buy p*] on the AI level (also presupposing the prejacent [*m buy l*]), abbreviated as [[^]EXCL(*m buy l*)]. At CP, *zaa3* takes the exclusive proposition ($\llbracket TP \rrbracket$) as the prejacent. Because its *C_i* is co-indexed with *zinghai*'s, the alternatives visible to *zaa3* are also {[^]*m buy l*, [^]*m buy b*, [^]*m buy p*}. On the NAI level, *zaa3* requires that the proposition compatible with $\llbracket TP \rrbracket$, i.e., [[^]*m buy l*], to be ranked lower than a proposition that is excluded by $\llbracket TP \rrbracket$ on a contextually given scale. In this case, [[^]*m buy l*] is ranked lower than [[^]*m buy b*] in terms of salience and satisfies *zaa3*'s requirement, thereby licensing exclusive doubling.

(42) $\llbracket CP \rrbracket = \wedge_{\text{EXCL}}(\wedge \text{Ming buy lamb}); \llbracket CP \rrbracket^{ALT} = \{ \llbracket CP \rrbracket \}$
 $\boxed{\text{NAI}} \ C_i \subseteq \llbracket vP1 \rrbracket^{ALT} \wedge \text{Ming buy lamb in w} \wedge$
 $\exists p, q \in C_i [\wedge_{\text{EXCL}}(\wedge \text{m buy l}) \cap q = \emptyset \wedge$
 $\wedge_{\text{EXCL}}(\wedge \text{m buy l}) \cap p \neq \emptyset \wedge p <_s q]$

 $\llbracket zaa3 \rrbracket(C_i) \qquad \llbracket TP \rrbracket = \wedge_{\text{EXCL}}(\wedge \text{Ming buy lamb})$
 $\llbracket TP \rrbracket^{ALT} = \{ \llbracket TP \rrbracket \}$
 $\boxed{\text{NAI}} \ C_i \subseteq \llbracket vP1 \rrbracket^{ALT} \wedge \text{Ming buy lamb in w}$

 $\llbracket zinghai \rrbracket(C_i) \qquad \llbracket vP2 \rrbracket = \wedge \text{Ming buy lamb}$
 $\llbracket vP2 \rrbracket^{ALT} = \{ \llbracket vP1 \rrbracket \} = \{ \llbracket vP2 \rrbracket \}$
 $\boxed{\text{NAI}} \ C_i \subseteq \llbracket vP1 \rrbracket^{ALT}$

 $\llbracket vP1 \rrbracket = \wedge \text{Ming buy lamb} \qquad \sim C_i$
 $\llbracket vP1 \rrbracket^{ALT} =$
 $\{ \wedge \text{Ming buy lamb},$
 $\wedge \text{Ming buy beef},$
 $\wedge \text{Ming buy pork, ...} \}$

After seeing how the co-indexation allows access to lower alternatives in doubling, let us consider the not-resetting approach. (43) gives the LF of (41).

$$(43) \quad [\text{CP } \textit{zaa3}(C_j) [\text{TP}_2 \sim_{\text{reset}} C_j [\text{TP}_1 \textit{zinghai}(C_i) [\sim_{\text{pass}} C_i [\text{M buy lamb}_F]]]]]$$

Computing (43) gives the same exclusiveness like (42), but the NAI reading of *zaa3* is slightly different. *Zaa3* takes C_j , which is constrained by $\llbracket TP1 \rrbracket^{ALT}$. Crucially, $\llbracket TP1 \rrbracket^{ALT}$ is a pre-exhaustified set that contains the exclusive, as in (44). The required ordering is that $[\wedge_{EXCL}(\wedge^m \textit{buy } l)]$ is ranked lower than some excluded alternatives. That is, a proposition like “Ming only bought beef” should be salient.

(44) a. $\llbracket TP1 \rrbracket = \wedge_{\text{EXCL}}(\wedge^m \text{buy l})$ b. $\llbracket TP1 \rrbracket^{ALT} = \{ \wedge_{\text{EXCL}}(\wedge^m \text{buy l}),$
 $\wedge_{\text{EXCL}}(\wedge^m \text{buy p}),$
 $\wedge_{\text{EXCL}}(\wedge^m \text{buy b}), \dots \}$
 c. *Zaa3* requires: $[\wedge_{\text{EXCL}}(\wedge^m \text{Ming buy lamb})] \leq_s [\wedge_{\text{EXCL}}(\wedge^m \text{Ming buy beef})]$

Nevertheless, a *non*-exclusive proposition the discourse (45a) is sufficient to license *zaa3* in the following sentence (45b). Here, [[^]EXCL([^]*m buy l*)] is not salient.

- (45) a. A: Ming bought beef. *uttered out of the blue*
 b. B: M-hai. Aaming **zinghai** maai-zo joengjuk_F **zaa3**.
 no Ming only buy-PFV lamb SFP.only
 ‘No. Ming only bought *lamb*.’

One might suggest there is a covert EXCL in plain assertion like (45a), on a par with EXH for scalar implicature (e.g., Fox 2007). Yet, “Ming bought all the meat” in (46a) can also license *zaa3* in (46b):

- (46) a. A: Ming bought *all* the meat (in the store). *uttered out of the blue*
 b. B: M-hai. Aaming **zinghai** maai-zo joengjuk_F **zaa3**.
 no Ming only buy-PFV lamb SFP.only
 ‘No. Ming only bought *lamb*.’

Zinghai cannot associate with universal quantifiers due to the ban of vacuous uses (e.g., Alxatib 2020), as in (47). Thus, the assertion in (46a) cannot be exhaustified. What (46a) makes salient is [[^]*m buy l+b+p*] (assuming there are only three meats). It is excluded by *zinghai* and ranked higher than [[^]*m buy l*], satisfying *zaa3*’s requirement generated by the co-indexation approach (but not the non-resetting approach).

- (47) #Aaming **zinghai** maai-zo *jyunbou*_F *juk*.
 Ming only buy-PFV all meat
 ‘#Ming only bought all the meat.’

5 The dependency between focus particles

The co-indexation approach captures *zaa3*’s dependency with *zinghai* in the sense that *zaa3* ranks the alternatives quantified by *zinghai*, hence the same focus association (II and III in (30)). Nevertheless, we have not yet explained why *zaa3* requires the presence of *zinghai*/EXCL in the first place (Dependency I). While it has usually been modeled with syntactic dependencies in the operator-particle approach (e.g., Quek & Hirsch 2017; Sun 2021), I suggest that a semantic explanation is also possible, which follows from the NAI component of *zaa3* (§5.1). I also show that this explanation predicts when the dependency will and will not be disrupted (§5.2).

5.1 Deriving the requirement on exclusiveness

The semantics of *zaa3*, reproduced in (48), requires identification of excluded alternatives (underlined). This in fact is already enough to derive the requirement of *zaa3*

Only ‘only’ only: A distributed meaning approach to exclusive doubling

on exclusiveness. Concretely, r ($zaa3$ ’s prejacent) must exclude some propositions in C_i (i.e., so there exists q). If $zaa3$ ’s scope does not contain operators to exclude propositions, there will be no q excluded by r , failing (48).

$$(48) \quad \llbracket zaa3 \rrbracket(C_i) = \mathbf{AI}: \lambda r \lambda w. r(w) \\ \mathbf{NAI}: \exists p, q \in C_i [(\underline{r \cap q = \emptyset} \wedge r \cap p \neq \emptyset) \rightarrow p <_s q]$$

To further elaborate, we expect that r returned by non-exclusive focus operators cannot satisfy $zaa3$ ’s semantics. **EVEN** is such a candidate. It asserts the truth of the prejacent and presupposes that the prejacent is the least likely proposition among the alternative set, as in (49) (Horn 1969; Rooth 1985; Erlewine 2014, *i.a.*; but see Kay 1990 and many others for (un)expectedness/noteworthiness). Crucially, it does *not* exclude the possibility of other alternatives q . Even if we assume that $zaa3$ ’s C_i can be co-indexed with **EVEN**’s C_i , $zaa3$ is predicted to be unlicensed.

$$(49) \quad \llbracket \text{EVEN} \rrbracket(C_i) = \mathbf{AI}: \lambda p \lambda w. p(w) \\ \mathbf{NAI}: \forall q [(q \in C_i \wedge q \not\subseteq p) \rightarrow p <_{\text{likely}} q]$$

This prediction is borne out in (50). The focus operator within $zaa3$ ’s scope is *lin* ‘even’. As shown in (50b), *lin* does not exclude alternatives on the at-issue level, and returns a proposition that is compatible with all the alternatives in C_i . Although a non-prejacent alternative, [[^]*m buy b*], is ranked higher on the scale of quality, it is not excluded by r and does not qualify as q for $zaa3$. $Zaa3$ thus cannot be used.

(50) *Lin* ‘even’ cannot license $zaa3$

- a. *Ming went to buy rice with us. We saw that lobsters were bad yet beef was good. You left earlier, and asked me what M. bought other than rice.*
[Aaming gingjin **lin** lunghaa_F dou maai-maai] (***zaa3**).
Ming unexpectedly even lobsters also buy-ALSO SFP.only
(I say to you) ‘Ming even bought *lobsters*!’
- b. $r = \wedge \text{Ming buy lobsters}$
 $C_i = \{\wedge \text{Ming buy lobsters}, \wedge \text{Ming buy rice}, \wedge \text{Ming buy beef}, \dots\}$
 $\rightsquigarrow \nexists q [q \in C_i \wedge (\underline{r \cap q = \emptyset})]$

5.2 (Non-)intervention effects

That $zaa3$ requires its prejacent (r) to exclude alternatives also predicts that some operators cannot intervene between *zinghai* and $zaa3$, if those operators would “undo” the exclusion by *zinghai*, such as negation. This is borne out in (51). When the aspectual negation *mou* ‘didn’t’ scopes over *zinghai*, doubling with $zaa3$ is impossible. (51b) gives the LF where *mou* intervenes between the two particles.

(51) 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**). ($\neg >$ only)
 Ming NEG.PFV only buy lamb SFP.only
 'Ming didn't only buy lamb.' (he bought beef in addition to lamb)
- b. *_{[CP zaa3(C_i) [NegP mou [_{vP2} zinghai(C_i) [$\sim$ C_i [_{vP1} m buy l_F]]]]]}
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 ✕

The ban on *zaa3* can be derived semantically, as shown in (52). After negation is applied, the proposition of $\llbracket \text{NegP} \rrbracket$ no longer excludes the alternatives, and conveys a disjunction instead. *Zaa3* takes $\llbracket \text{NegP} \rrbracket$ as its prejacent, but *zaa3*'s C_i is still co-indexed with *zinghai*'s. In effect, *r* does not exclude any alternatives in C_i . There is no q that is inconsistent with *r*, failing the NAI requirement of *zaa3*.

- (52) a. $\llbracket vP1 \rrbracket = \wedge \text{Ming buy lamb} = \phi_l$
 b. $C_i = \{ \phi_l, \phi_b, \phi_p, \dots \}$
 c. $\llbracket vP2 \rrbracket = \lambda w. \forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_l \subseteq q]$
 $= \neg \phi_b \wedge \neg \phi_p \wedge \dots$ **EXCL $\rightsquigarrow$ conjunction of negated propositions**
 d. $\llbracket \text{mou} \rrbracket = \lambda p \lambda w. \neg p(w)$ (tense/aspect semantics ignored)
 e. $\llbracket \text{NegP} \rrbracket = \lambda w. \neg \forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_l \subseteq q]$
 $= \lambda w. \exists q[(q \in C_i \wedge q(w)) \rightarrow \phi_l \not\subseteq q]$
 $= \phi_b \vee \phi_p \vee \dots$ **negating EXCL $\rightsquigarrow$ disjunction**
 f. $\llbracket \text{CP} \rrbracket = \text{undefined}$, as there is **no** proposition in C_i that is excluded by $\llbracket \text{NegP} \rrbracket$, i.e., $\neg \exists q[(q \in C_i \wedge r \cap q = \emptyset)]$

Such an account also predicts that operators that do not alter the truth conditions may intervene in exclusive doubling, even for focus operators like *EVEN* and *ALSO*. This is again what we see in Cantonese, as in (53).

(53) No intervention effects by *lin* 'even' focus

- There are three papers assigned for each week. Ming is the best student who always reads all the assigned papers beforehand. However, this week's reading was difficult and all the students, including Ming, only read one paper.*
- a. [Lin Aaming_{F1} dou [**zinghai** tai-zo *jat-bin peipa*_{F2}]] **zaa3**.
 even Ming also only read-PFV one-CL paper SFP.only
 'Even Ming only read one paper.'
- b. <sub>[CP zaa3(C_i) [FocP lin(C_j) [$\sim$ C_j [TP Ming_{F1} ...
 ... [_{vP2} zinghai(C_i) [$\sim$ C_i [_{vP1} t read one paper_{F2}]]]]]]</sub>

In (53), *zinghai* associates with the object, and *lin* 'even' associates with the subject. Importantly, *lin* intervenes between *zinghai* and *zaa3*. We have seen in

Only ‘only’ only: A distributed meaning approach to exclusive doubling

§5.1 that without an exclusive operator, *lin* alone cannot license *zaa3*, because it simply returns the same input proposition on the AI level. In other words, *lin* does not have truth-conditional effects. It is precisely because of this property that *lin* can intervene in doubling. *Lin* merely returns the *exclusive* proposition to *zaa3* as its preadjacent. Since *zaa3*’s C_i is co-indexed with *zinghai*, the evaluation of *zaa3*’s requirement remains the same in the regular doubling cases without interveners.

The case in (53) also shows that focus intervention effects (Beck 2006) are absent in exclusive doubling. This is a natural consequence of the co-indexation approach. In doubling, *zaa3* acquires the lower alternatives by co-indexing C_i , which is free from the resetting effects of $\sim_{\text{reset}}$ introduced by *zinghai*. Even if there is more than one $\sim_{\text{reset}}$ introduced by other focus operators, co-indexing remains possible.

6 Concluding remarks

To conclude, this paper has developed a novel “distributed meaning” approach to exclusive doubling, motivated by a thorough case study on doubling of adverbial *zinghai* and SFP *zaa3* in Cantonese. I argued that such doubling instantiates a scalar focus structure where *zinghai* encodes exclusivity on the at-issue level, and *zaa3* encodes scalarity on the not-at-issue level. Hence, doubling is not a pure operator-particle “concord” phenomenon (pace Lee 2005; Quek & Hirsch 2017; Bassi et al. 2022; Hirsch 2022; Sun 2021; Aremu 2024, *i.a.*).

Nevertheless, I maintained the core insight in the operator-particle approach that there is a *dependency* between the two particles in doubling, which I proposed to be semantic in nature. Concretely, *zaa3* targets the same alternative set quantified by *zinghai*. This is achieved by co-indexation of Roothian C_i , rather than passing up alternatives directly using non-resetting $\sim_{\text{pass}}$ (cf. Bade & Sachs 2019; Erlewine 2024). The proposal not only derives *zaa3*’s requirement on exclusiveness within its scope, but it also predicts when doubling will and will not be disrupted by intervention effects. The findings in this paper implicate that there are multiple pathways for higher operators to access lower alternatives, and, more generally, provide a possible answer to the question “why doubling?”. Doubling of exclusive focus particles is not “redundant” nor a mere reflex of syntactic dependencies. It manifests a structure where meaning pieces are *distributed* yet one is *dependent* on another one.

Last but not least, the role of scalarity is beyond SFP-exclusive doubling in Cantonese. Similar scalar components are found in other languages, and in different types of doubling, including adverbial-SFP doubling in Mandarin (with SFP *eryi*), adverbial-adfocal doubling in German and Vietnamese (Hole 2015, 2017), Hindi (Bajaj 2016), and Yoruba (Yip & Adediji 2024), as well as adfocal-adfocal doubling in Akan (C. Ahenkorah p.c.). It is hoped that the approach developed here is helpful for further cross-linguistic investigation in exclusive doubling.

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Ka-Fai Yip
Dow Hall, 370 Temple St
Yale University
New Haven, CT 06511
kafai.yip@yale.edu