

Doubling Down on Exclusivity: Issues at the Syntax-Semantics Interface

A Dissertation
Presented to the Faculty of the Graduate School
of
Yale University
in Candidacy for the Degree of
Doctor of Philosophy

by
Ka-Fai Yip

Dissertation Director: Prof. Veneeta Dayal

May, 2026

Copyright © 2026 by Ka-Fai Yip

All rights reserved.

This is a slightly modified version of the dissertation available on ProQuest.

Please refer to this version for citation.

Cite as:

Yip, Ka-Fai. 2026. Doubling Down on Exclusivity: Issues at the Syntax-Semantics Interface. Doctoral dissertation, Yale University.

Abstract

Doubling Down on Exclusivity: Issues at the Syntax-Semantics Interface

Ka-Fai Yip

2026

Quantifier doubling is a ubiquitous phenomenon in natural languages that raises important issues for the syntax-semantics interface. Quantifier doubling refers to cases where two quantifier expressions occur in a sentence, but apparently only one is interpreted as logical quantification. For instance, in languages like Cantonese, Mandarin, Vietnamese, among others, “John only bought lamb only” may mean ‘John only bought lamb.’ This is referred to as “exclusive doubling” (focus particle concord). A form-meaning mismatch is found, which raises an issue of how syntax is mapped onto semantics. More generally, there is an intuitive sense that quantifier doubling is “redundant”: if one suffices, why two?

This dissertation motivates a novel view on the mapping between syntax and semantics to provide a principled explanation for quantifier doubling, with a special focus on the doubling of exclusive focus particles. I hypothesize that quantifier doubling is a parametric strategy for languages to realize complex meaning structures with meaning pieces in distinct dimensions of (not-)at-issueness. Specifically, quantifier doubling is a syntactic manifestation (“syntacticization”) of quantification structures that are otherwise lexicalized as a whole in languages without doubling. Based on East Asian, Southeast Asian and West African languages including Cantonese, Mandarin, Vietnamese, and Yorùbá, I argue that exclusive doubling instantiates scalar focus structures. Specifically, one particle encodes at-issue exclusivity, such as the adverbial particle *zinghai* ‘only’ in Cantonese, while the other particle ‘only’ contributes a not-at-issue scalar component that ranks the prejacent lower than excluded alternatives on a contextually salient scale, such as the sentence-final particle (SFP) *zaa3* in Cantonese. In other words, both particles in exclusive doubling are not semantically vacuous: they have focus-sensitive contributions, though on two separate dimensions of (not-)at-issueness. Therefore, exclusive doubling is neither redundant nor purely syntactic, but reflects a structured division of semantic labor.

Moreover, I discuss how alternatives can be accessed and the consequences for intervention effects. I argue for a syntactio-semantic dependency in exclusive doubling. The scalar operator and the exclusive operator share the same quantificational domain, which is the alternative set they quantify over. I

propose a co-indexation approach for alternative accessing. The quantificational domains of the exclusive and scalar operators, which are the alternative sets, are co-indexed via syntactic Agree that transmits indices. This approach receives support from a radical immediate scope constraint that underlies the intervention effects in doubling of adverbial particles with SFPs, and the locality of (c)overt movement in doubling of adverbial particles with adfocal particles. Precisely, only truth-condition-altering quantificational elements that intervene between the scope of the two particles trigger intervention effects in exclusive doubling, but non-truth-conditional focus operators do not. These quantifier-only intervention effects speak against a syntactic minimality account and a semantic alternative-based account, and call for a semantic account that draws on illicit scopal configurations that follow from the co-indexation approach. I also discuss the role of witnessability of quantifiers in creating a widest scope that escapes intervention effects. The implications are that higher operators may have multiple pathways to access lower alternatives, and moreover the notion of “intervention effects” is best understood as a descriptive label for a heterogeneous set of phenomena spanning syntax and semantics.

Last but not least, I address the locus of quantification in the clausal and nominal domains. I demonstrate that both A-quantification (clausal) and D-quantification (nominal) are available strategies for natural language to express exclusives, but the choice is parameterized. Concretely, adverbial exclusive particles in Vietnamese carry the semantic import, whereas in Yorùbá it is the adfocal exclusive particles that carry the semantic exclusion. The locus of scalarity shows a mirroring pattern, which is on the adfocal particles in Vietnamese but on the adverbial particles in Yorùbá. A battery of tests based on association and scopal behaviors is proposed for testing the semantic import. Applying this set of tests to other languages, I develop a parametric analysis that yields a four-way typology of exclusives, extended to languages such as Kasem where the exclusive semantics is neither encoded by adverbial nor adfocal particles, but by a null operator; and to Mandarin, where the exclusive semantics is encoded by both adverbial and adfocal particles. This four-way typology is similar to the typology of negative concord, supporting the clausal-nominal parallelism in different domains of quantification.

Taken together, this dissertation offers an answer to “why doubling” by arguing that quantifier doubling distributes meaning across multiple elements while regulating their interaction through syntactio-semantic dependencies. The findings contribute to theories of quantification, focus association, and the interface between syntax and semantics. They also lay the groundwork for future research on cross-linguistic variations in focus operators and other concord phenomena.

Acknowledgments

It feels surreal to come to an end of a six-year journey. I was once asked what a major change was I had during grad life, and my immediate answer was gaining weight. Certainly, I gained much more than that. I gained knowledge, opportunities, and, most importantly, mentorship and friendship. All of it wouldn't have been possible without many people's kindness.

The first person I wish to thank is my advisor, Professor Veneeta Dayal. I am deeply indebted to her. I still remember the day I got the admission offer from Yale, Veneeta immediately reached out to have a Skype meeting (Yes, Zoom wasn't a thing back then). She was one of the major reasons I came to Yale, and it was the best choice in my life. We students often say Veneeta is like a grandma and she is indeed one: she is warm, caring, and supportive of her students. I'll miss the parties in her gorgeous apartment (with a "private" lift!), where she sat on the rocking chair and did knitting, and the picnic in Wooster Square Park with spectacular cherry blossoms. There were ups and downs during the six years, and I owe her a lot. On the academic side, she is rigorous in both theory and empirical data, and wouldn't let "bullshits" stay. I learnt a lot from her about the importance of the depth of research. She taught me it is insight that matters, and I admire her "eagle eyes": she can always spot the key component in a phenomenon and asks that crucial question in one's talk (and seems very satisfied after asking). I can never thank her enough for her mentorship and guidance, for her kindness, flexibility, and the degree of freedom she gave me, and for her tolerance for my procrastination and distraction by other side projects. I feel extremely lucky and (not the best term, perhaps) *safe* to be one of her students. I was identified as a syntactician (as how I was trained in my BA and MPhil), and I think now I am confident in saying I am a semanticist too. I guess that's the best compliment? At any rate, thank you, Veneeta.

I am truly grateful for having Professor Michael Yoshitaka Erlewine, mitcho, as my mentor and external committee member. He is legendary (at least to me!) in being both a great syntactician and a

great semanticist, whose work has deeply influenced me too. It all started from a SALT review where the first line wrote “Review by Michael Yoshitaka Erlewine” (apparently it wasn’t accidental). Then I reached out to him—and it has been three years already. He works on exactly the topics and languages I’m most interested in: focus, and Chinese and Vietnamese, which is rare and I feel very fortunate. I always gained something fruitful from our meetings, not to mention how enjoyable it was to talk to an “insider” (who knows the topics and languages well). Frankly speaking, mitcho is my role model: he is so knowledgeable, sharp, and reliable. I’m thankful for his unwavering and patient support especially for my professional development, extremely detailed comments on my dissertation (which would have been much more unreadable!), and all the things I learnt from him.

I am very thankful to my dissertation committee members, Professor Raffaella Zanuttini and Professor Zoltán Gendler Szabó. Raffaella is one of the sweetest persons I’ve ever met. My first TF duty was for Syntax I with her, and I learnt a lot from her on how to walk through students abstract concepts clearly—similarly, this dissertation benefited a lot from her on readability and clarity. I’ll also never forget the thanksgiving dinner at her place (thank you to Bob too, of course!). Zoltán has a very sharp mind, which I admire a lot. I am also impressed by how fast he reads a semantic formula. I am grateful for his insights and comments, which have improved the dissertation a lot. It feels good to have a philosopher to back you up.

I wish to thank all the language consultants, without whom the dissertation would not have been possible. For Vietnamese, I am especially grateful to Hong Quy (Nguyen Thi Hong Quy), who sparked my interest in the language back in 2019, and thầy Quang, my Vietnamese teacher at Yale, who led me into speaking the language and supported me with the fieldwork grant application. I thank Nhật Linh (Linh Pham) for her help and warm friendship. I will never forget how pretty it was to see the lake in Đà Lạt at night, while sitting on the backseat of her motorcycle. I must also thank my TF cô Tuyen (Alice Nguyen), who introduced me to a volunteer program in Điện Biên Phủ where I met my wonderful Vietnamese friends (and many lovely kids) in an unforgettable summer in 2024: Danh, Huỳnh, Allie, chị Hà Anh, Duyên, Nhi, Phương Anh, Thái, Trân, and Vanessa. For elicitation and judgment of the data, I am thankful to Hong Quy, Nhật Linh, cô Tuyen, Linda Do, Thomas Truong, and my 33 anonymous language consultants in Vietnam (Hà Nội, Sài Gòn, and Đà Lạt) (only initials showed): BTL, CNH, DDP, DNV, DPL, HMTT, HTLC, HTTM, LNK, LPA, LQD, LXHL, NHP, NND, NPT, NTD, NTHA, NTHQ,

NTN, NTT, NVD, PDPT, PLAQ, PLNL, PMT, TDH, THDT, TNA, TQV, TTM, VPK, and VTH and their son. I also thank Daniel Hole, Trần Phan, and Trang Phan for discussion of the data.

For Yorùbá, I am really grateful to Bode (Olabode Adedeji), without whom I would not have continued my work on Yorùbá since the fieldwork class on Yorùbá at Yale. I thank the language consultant of that class “Semantic Investigations in an Unfamiliar Language” (2020 Fall), Aishat Adekunle. I also thank Daud Abolade, Lolade Omotilewa Adedeji, Bolaji Olusoji, Babatunde Popoola, and Ismail Yusuf for elicitation of the data, and Daniel Aremu for discussion.

For Cantonese data, I thank Ka-Wing Chan, Sheila Shu-Laam Chan, Tommy Tsz-Ming Lee, Peppina Po-lun Lee, Margaret Chui Yi Lee, Jonathan Him Nok Lee, Carmen Kin Man Tang for judgment and discussion.

For Mandarin data, I thank Yuyang Liu, Yitong Luo, and Irene Yi, for judgment; and Fulang Chen, Yen-an Sun, and Xueting Yuan for discussion.

For judgment and discussion on data in other languages, I thank Comfort Ahenkorah, Nana Pewode Obeng, Joyce Nuamah, and Faustina Boamah for Akan; Ushasi Banerjee for Bangla; Sirrý Sigurðardóttir for Dutch; Veneeta Dayal and Ushasi Banerjee for Hindi; Mitcho Erlewine and Yusuke Yagi for Japanese; Jiyeong Kim for Korean; Olivia Ndapo for Oshiwambo; and Andrew Simpson and Woraprat (Gump) Manowang for Thai.

The dissertation work was partially funded by MacMillan International Dissertation Research Fellowship with the project title “Exclusive doubling in Vietnamese from a comparative perspective” (USD 8860). I thank the MacMillan Center at Yale University for the financial support.

Part of the dissertation work has been presented at the following conferences and workshops: SNEWS (2021), NACCL-34 (2022), LSHK-ARF-2022, WCCFL-41 (2023), ACAL-55 (2024), SALT-34 (2024), SEALS-33 (2024), Yue-28 (2024), Workshop on the Syntax and Semantics of Scalarity (2025), WCCFL-43 (2025), ICFAMC-4 (2025), LSA-2026, ISVL-6 (2026), and ACAL-57 (2026); as well as the following venues: LFRG at MIT (2023), Colloquium at Goethe-Universität Frankfurt (2024), Syntax/Semantics Reading Group at NUS (2025), SURGE at Rutgers (2025), and Academia Sinica (2026). I’m grateful to the audience on the above occasion for feedback. For discussion, I thank Bode Adedeji, Comfort Ahenkorah, Daniel Aremu, Ushasi Banerjee, Simon Charlow, Elizabeth Coppock, Kathryn Davidson, Yael Greenberg, Daniel Hole, Larry Horn, Hans Kamp, Jeremy Kuhn, Jess Law, Paul Law, Margaret Chui Yi Lee, Peppina Po-lun Lee, Haoze Li, Wei-wen Roger Liao, Jo-wang Lin, Gump Manowang,

Ka Hin Ng, Maribel Romero, Uli Sauerland, Andrew Simpson, Yenan Sun, Sze-Wing Tang, Huilei Wang, Yusuke Yagi, Hedde Zeijlstra, and Malte Zimmermann, as well as the members of Yale Semantics Reading Group. I'm especially thankful to Tommy Tsz-Ming Lee, who I can always talk to; Aron Hirsch, whose energy and ideas always amaze me; and Xuotong Yuan, who showed me another perspective of semantics.

Beyond the dissertation, I am fortunate enough to receive many people's helps throughout the PhD program. I must thank my mentors in Hong Kong, Professor Sze-Wing Tang and Professor Benjamin K. Tsou. Prof. Tang (*Dang Lousi* 鄧老師) led me into the field of linguistics. Prof. Tsou offered me opportunities to explore another part of the linguistic world on corpus and variation. I am grateful for their unfailing support.

I thank all other faculty at Yale Linguistics: Jim Wood, Larry Horn, Simon Charlow, Bob Frank, Maria Piñango, Claire Bower, Athulya Aravind, Tom McCoy, and especially Natalie Weber and Jason Shaw, who guided me to explore the "P-side" of language in my QP2. I wish to also thank the lecturers and postdocs I met at Yale, especially Suzana Fong, who made me feel less lonely at Yale in talking about Copy Deletion, hyperraising, composite probe and Agree and stuff; Sreekar Raghotham, for his understanding when I was his TF while finalizing my dissertation; and Milena Šereikaitė, for her kindness and all the help even after leaving Yale. I would also like to thank Julie and Suzanne, the registrars of Yale Linguistics, for their administrative help throughout the years. Of course, I thank my amazing cohort at Yale! They are: Comfort Ahenkorah, Ushasi Banerjee, and Mike Stern. I also thank all the peers at Yale: Finn Amber, Sunny Ananthanarayan, Sammy Andersson, Sarah Babinski, María Teresa Borneo, Manasvi Chaturvedi, Coralie Cram, Rina Furusawa, Christopher Geissler, Anton Hampe, Sophie Hao, Xuehuai He, Jeremy Johns, Ayla Karakaş, Dani Katenkamp, Jiyeong Kim, Richard Luo, Yitong Luo, Randi Martinez, Josh Phillips, Alessandra Pintado-Urbanc, Isabella Senturia, Sirrý Sigurðardóttir, Catarina Soares, Squid Tamar-Mattis, Clara Terlaak, Andy Zhang, Florence Zhang-Yukun, Herbert Zhou, Miranda Zhu, and especially Bode Adedeji and Yuyang Liu. Moreover, I thank the undergrads I met at Yale for friendship: Alyssa Chen, Priscilla Ehrgood, Leander He, Jeremiah Jewell, Lydia Lee, and Esther Park (and many others!).

This six-year journey has been accompanied by many peers. First of all, I thank Tommy Tsz-Ming Lee, who has been an amazing friend/collaborator/mentor (add as many as slashes as you want!). I

also thank Xuotong Yuan for chitchats and gossip (and beyond), Fulang Chen for sharing excitement in linguistics, Sheila Chan for long-standing friendship, and Mei-ying Ki for the accompany. I would also like to thank a lot of my friends for sharing linguistics (so many that I probably have missed some): Daniel Aremu, Carla Bombi, Thuong Beryl Bui, Ariel Chan, Ka-Wing Chan, May Chan, Sheila Shu-Laam Chan, Jiayuan Chen, Qiushi Chen, Zhuo Chen, Youngdong Cho, Tsun Hei Choi, Alan Dai (for learning Vietnamese together!), Han Dong, Xiao Dong, Yoshiki Fujiwara, Xin Gao, Kaustubh Ghoshal, Daniel Greeson, Christine Gu, My Thi Ha, Matt Hewett, Thomas Ho, Yaqing Hu, the late Jiahui Huang, Yaxuan Renee Ji, Jasper Jian, Dicky Ko, Yik-Po Lai, Charles Lam, Esther Lam, Suet Ying Lam, Chaak-Ming Lau, Cindy Lau, Ka Fai Gary Law, Chris Lee, Jonathan Him Nok Lee, Margaret Chui Yi Lee, Si Kai Lee, Soo-Hwan Lee, Justin Leung, Yanting Tina Li, Kiki Liu, Peng Liu, Zhendong Liu, Zixi Liu, Lena Lohninger, Gump Manowang, Giulio Ciferri Muramatsu, Olivia Ndapo, Keely New, Ka Hin Ng, Thi Hong Quy Nguyen, Chika Okada, Satoru Ozaki, Luismi Toquero Pérez, Sreekar Raghotham, Aidan Sharma, Matthew Shi, Jian-Leat Siah, Yingyu Su, Tamisha Tan, Yin Lin Tan, Carmen Kin Man Tang, Huilei Wang, Yuxuan Melody Wang, Alexander Wimmer, Kam Pang Wong, Danfeng Wu, Oscar Wong, Yvette Yi-Chi Wu, Yusuke Yagi, Pepper Yan, Gareth Junjie Yang, Heesun Yang, Yike Yang, Ariela Ye, Jianrong Yu, and Jiayi Zhou (and more). I also thank the members of the “many time zone reading group” and the “Cantonese crash judgment reading group.”

I wish to thank my non-linguist friends in New Haven, including the Hong Kong group: Saichia, www, Kit, Chris, Victor, Ethan, Belinda, Gary, Luis, and Kevin; and the ELP Asian group: Saichia (again), Youngeun, Masashi, and Joy.

Last but not least, I thank my parents, my older brother, and my younger sister. It's beyond words.

Contents

Acknowledgments	i
1 Introduction	1
1.1 Quantifier doubling on the syntax-semantics interface	3
1.1.1 Empirical landscape	5
1.1.2 Theoretical issues	7
1.2 Doubling of exclusive focus particles	10
1.2.1 Empirical diversity	10
1.2.2 Previous accounts and their inadequacies	13
1.3 Overview of the thesis	18
1.3.1 Theoretical background: Alternative Semantics	18
1.3.2 Main hypothesis	20
1.3.3 Organization of the dissertation	23
1.3.4 A note on the data sources	25
1.3.5 Glossing and transcription convention	25
2 Exclusive doubling as scalar focus structures	27
2.1 Introduction	28
2.2 A syntactic primer on Cantonese exclusive doubling	31
2.2.1 Background on the cartographic syntax of Cantonese SFPs	32
2.2.2 The syntactic position of adverbial <i>zinghai</i>	35
2.2.3 The syntactic position of SFP <i>zaa3</i>	42
2.2.4 Relative position of <i>zinghai</i> and <i>zaa3</i> in doubling	52

2.3	Form-meaning mismatches in Cantonese exclusive doubling	53
2.3.1	At-issue exclusivity	53
2.3.2	Diagnosing the semantic import	57
2.4	Scalarity in exclusive doubling	59
2.4.1	A scalar component	59
2.4.2	The not-at-issue status	68
2.4.3	Interim summary	72
2.5	Proposal: scalar focus	72
2.5.1	A scalar focus approach	73
2.5.2	Driving the dependencies	78
2.6	On the nature of covert exclusive operators	79
2.6.1	Exhaustification	81
2.6.2	Is the operator in exclusive doubling EXH?	92
2.7	Varieties of scalarity in exclusives	101
2.7.1	Variation in exclusives in Cantonese	103
2.7.2	An enriched taxonomy of scalarity in exclusives	111
3	Intervention effects in exclusive doubling	118
3.1	Introduction	119
3.1.1	Syntactic approach to IEs: minimality	120
3.1.2	Semantic approach to IEs: focus intervention	123
3.1.3	Semantic approach to IEs: quantifier intervention	125
3.1.4	Issues at the syntax-semantics interface	130
3.2	Varieties of interveners in exclusive doubling	131
3.2.1	Interveners	133
3.2.2	Non-interveners	146
3.2.3	Interim summary	154
3.3	Towards a semantic account	155
3.3.1	The radical immediate scope constraint	156
3.3.2	Non-intervention of focus operators	165

3.3.3	Non-intervention of witnessable subject quantifiers	167
3.4	The non-uniformity of intervention effects	172
3.4.1	Against a syntactic minimality account	174
3.4.2	Against a semantic alternative-based account	178
3.4.3	Intervention effects are non-uniform	179
3.5	(In)variant intervention effects in other languages	180
3.5.1	Exclusive doubling in Mandarin Chinese	180
3.5.2	Exclusive doubling in Vietnamese	199
3.5.3	Interim summary	222
4	On the typology of exclusives	223
4.1	Introduction	224
4.2	Exclusive doubling in Vietnamese and Yorùbá	227
4.2.1	Basic paradigm in Vietnamese	227
4.2.2	Basic paradigm in Yorùbá	232
4.3	Similarity: syntactic dependency	238
4.3.1	Wide scope readings	239
4.3.2	Island sensitivity	243
4.3.3	Interim summary	247
4.4	Differential semantic import	248
4.4.1	Backward association with focus	248
4.4.2	Multiple focus association	255
4.4.3	Scopal interaction with other operators	258
4.4.4	Wide scope under ellipsis	270
4.4.5	The locus of scalarity	277
4.4.6	Interim summary	295
4.5	Parameterizing ‘only’	297
4.5.1	Vietnamese: Exclusivity as A-quantification	297
4.5.2	Yorùbá: Exclusivity as D-quantification	316
4.5.3	On the so-called split scope readings	331

4.6	Towards a typology of exclusive doubling	339
4.6.1	A four-way typology	339
4.6.2	Remarks on parameters	346
5	Conclusion	349
5.1	Summary of the dissertation	349
5.2	Future directions	351
	Bibliography	356
	Appendix A: Exclusive doubling across languages	398
A1	West African languages	398
A1.1	Akan	398
A1.2	Ga	399
A1.3	Kasem	400
A1.4	Kusaal	400
A1.5	Yorùbá	401
A2	Indian (Indo-Aryan) languages	402
A2.1	Bangla	402
A2.2	Hindi	402
A3	East Asian languages	403
A3.1	Cantonese	403
A3.2	Mandarin Chinese	407
A3.3	Japanese	407
A3.4	Korean	408
A4	Southeast Asian languages	409
A4.1	Thai	409
A4.2	Vietnamese	409
A5	European (Germanic) languages	410
A5.1	Dutch	410
A5.2	English	411

A5.3	German	412
A6	German sign language (Deutsche Gebärdensprache, DGS)	413
Appendix B: Storyboards		414

List of Tables

1.1	The empirical landscape of quantifier doubling (non-exhaustive)	7
2.1	Testing the syntactic position of adverbial <i>zinghai</i>	36
2.2	Testing the syntactic position of SFP <i>zaa3</i>	43
2.3	Summary of the tests of scalarity in Cantonese exclusive doubling	72
2.4	Summary of the types of scalarity in Cantonese exclusive doubling	111
3.1	Intervention effects in exclusive doubling (object focus) in Cantonese	154
3.2	The semantic properties of (non-)interveners in Cantonese exclusive doubling	157
3.3	Intervention effects to different syntactic dependencies in Cantonese	177
4.1	The locality constraint on exclusive doubling in Vietnamese and Yorùbá	247

Chapter 1

Introduction

This dissertation explores the syntax-semantics interface through the lens of quantifier doubling from a cross-linguistic perspective. Quantifier doubling refers to cases where two quantifier expressions occur in a sentence, but apparently only one is interpreted as logical quantification, leading to a form-meaning mismatch. I motivate a novel view on the mapping between morphosyntax and semantics by arguing that quantifier doubling is a parametric strategy for languages to realize complex meaning structures, with a special focus on doubling of exclusive focus particles (“focus particle concord”).

Quantifier doubling is a ubiquitous phenomenon in natural languages. In some English varieties, for example, *I didn't see nobody* may mean ‘I didn't see anybody’, where only one logical negation is conveyed despite the appearance of two negative elements. Doubling of other quantifier particles like exclusive focus particles (henceforth “exclusive doubling”) is also attested in a number of languages. In those languages, literally, “John **only** bought **only** *lamb_F*” may mean ‘John only bought *lamb_F*’ (where focus is indicated by the subscripted F).

The apparent form-meaning mismatch of quantifier doubling raises an important issue on how morphosyntax is mapped onto semantics, since doubling does not appear to conform to the Principle of Compositionality that the meaning of sentences is composed from their building blocks (Frege 1892). More generally, there is an intuitive sense that quantifier doubling is “redundant”: if one suffices, why two? While previous literature has sought to resolve the form-meaning mismatch from syntactic, semantic, or a mix of both perspectives, most situated their claims in a particular kind of quantifier doubling and drew implications for syntactic or semantic theories. Few have attempted to answer *why* quantifier doubling exists, particularly from the perspective of syntax-semantics mapping. This disser-

tation aims at providing a principled explanation for quantifier doubling as a general phenomenon in natural languages.

In this dissertation, I motivate a view where quantifier doubling is realization of complex meaning structures that are universally available.

Specifically, I hypothesize that quantifier doubling is a syntactic manifestation (“syntacticization”) of quantification structures that are otherwise lexicalized as a whole in languages without doubling. Under this hypothesis, dubbed as the Syntacticization Hypothesis of Quantifier Doubling, languages map the same quantificational meaning pieces differently to morphosyntactic structures, either “distributed” over multiple syntactically linked morphemes (analyticity), or realized together on one lexical item (synthesis). I further suggest that the distributed meaning pieces may operate on different semantic dimensions, namely at-issue and not-at-issue dimensions, an often neglected aspect of quantifier doubling. There is thus no true sense of “doubling”: the doubled particles indeed carry distinct (yet related) meanings, and quantifier doubling is not “redundant”.

Exclusive doubling is chosen as the primary empirical focus of this dissertation for the following reasons. First, exclusive focus particles, such as English *only*, have been one of the central topics of semantics and the syntax-semantics interface regarding focus alternatives, scalarity, semantics-pragmatics distinction and (not-)at-issueness, among others. Studying exclusive doubling allows us to see the interaction of different language components on the syntax-semantics interface, and furthers our understanding of those topics as well. Second, the empirical landscape of exclusive doubling is particularly diverse, such that one can observe how languages utilize available strategies to realize different meanings and understand cross-linguistic variations.

This introductory chapter is organized as follows. §1.1 synthesizes the empirical and theoretical issues of quantifier doubling on the syntax-semantics interface. §1.2 overviews the empirical landscape of doubling of exclusive focus particles, and summarizes previous accounts and research gaps. §1.3 proposes the main hypothesis that quantifier doubling is the syntacticization of complex meaning structures, and presents the flow of argumentation. Theoretical background and methodologies of data collection are also given.

1.1 Quantifier doubling on the syntax-semantics interface

This section introduces the empirical landscape of quantifier doubling and the theoretical issues it raises on the syntax-semantics interface, as well as previous approaches that have been proposed to deal with them.. To begin with, I provide the working definition of quantifier doubling in (1):

- (1) A linguistic expression α and a linguistic expression β form a case of *quantifier doubling* iff:
- a. Both α and β , when occurring alone in a structure (i.e. in their singleton uses), convey a logical quantificational meaning Q ; and
 - b. α and β , when occurring together in a structure, jointly convey the same logical quantificational meaning Q . (where the term “logical” refers to the fact that the truth conditions can be expressed by logical quantifiers.)

From (1), a case of quantifier doubling involves two linguistic expressions, which may be in different forms, or in identical forms in different syntactic positions.¹ (1a) states that the occurrence of each of the two expressions conveys a meaning with logical quantifiers (including both propositional quantifiers and generalized quantifiers, Montague 1973; Partee 1991; Chierchia 2021). (1b) states that the co-occurrence of the two expressions yields the same quantificational meaning, rather than a nested quantifier reading. The paradigm of quantifier doubling is summarized in (2).

- (2) The core paradigm of quantifier doubling

<i>Case</i>	<i>Form</i>	<i>Logical meaning</i>	<i>Example (below)</i>
a. Singleton α	... α ...	Q	(3a) with <i>zinghai</i>
b. Singleton β	... β ...	Q	(3b) with <i>zaa3</i>
c. Doubling	... α ... β ...	Q (but not $Q[Q]$)	(3c) with <i>zinghai</i> and <i>zaa3</i>

An illustration of exclusive doubling in Cantonese that satisfies the definition and paradigm is given in (3). Cantonese has an exclusive adverbial particle *zinghai* ‘only’ and an exclusive sentence-final particle (SFP) *zaa3* ‘SFP.only’. They both convey exclusivity by excluding the alternatives of the focused element, such as excluding *all* the meat other than ‘lamb’ from what Ming bought for Fan in (3a) and (3b), respectively. A universal quantifier is contained in the exclusive reading and definition (1a) is sat-

1. An example is English *only*, which may occur in the adverbial and adfocal positions. As reported by Bayer (2020), there are some rare cases where they can co-occur.

ified. The case of interest with doubling is (3c), where *zinghai* and *zaa3* co-occur in the same sentence (i.e., are “doubled”). Notably, the reading remains a single-‘only’ one instead of a multiple-‘only’ one, as one can tell from the English translation:²

(3) Doubling of exclusive particles in Cantonese

- a. Aaming **zinghai** maai-zo joengjuk_F bei Aafan. (Adverbial particle)
Ming only buy-PERF lamb to Fan
‘Ming only bought Fan *lamb* (but not beef or pork).’
- b. Aaming maai-zo joengjuk_F bei Aafan **zaa3** (Sentence-final particle, SFP)
Ming buy-PERF lamb to Fan SFP.only
‘Ming only bought Fan *lamb* (but not beef or pork).’
- c. Aaming **zinghai** maai-zo joengjuk_F bei Aafan **zaa3** (Doubling)
Ming only buy-PERF lamb to Fan SFP.only
‘Ming only bought Fan *lamb* (but not beef or pork).’ (Doubled reading)
BUT NOT: ‘Ming only bought Fan lamb only. (i.e. the only thing Ming did was to buy Fan only lamb.)’ (*Multiple-‘only’ reading)

More precisely, the doubling case in (3c) is interpreted as having one exclusive operator instead of two, and shares the same truth conditions with the singleton cases where *zinghai* and *zaa3* occur alone in (3a)-(3b), as given informally in (4). This satisfies definition (1b). The shared truth condition can confirmed by directly dissenting with the three sentences using (5), which amounts to the same inference that it is the exclusion of other meat that is being challenged.

(4) Truth conditions of (3a)-(3c) (informal)

All the non-lamb meats were not bought for Fan by Ming, i.e. Ming didn’t buy any non-lamb meat for Fan.

(5) Can directly challenge the exclusiveness in (3a-c)

B: M-hai. (Aaming zung maai-zo zyujuk bei Aafan.)
no Ming also buy-PERF pork to Fan
‘No. (Ming also bought Fan pork.)’ (Cantonese)

2. The multiple-‘only’ involves a “nested” scope, where the higher ‘only’ takes a preadjacent with the lower ‘only’ contained in it, such as ‘the only thing Ming did was to buy Fan only lamb.’

In the following, I give an overview of quantifier doubling cases that satisfies the definition in (1).

1.1.1 Empirical landscape

Quantifier doubling is found across different types of quantification. The most well-studied case is “negative concord”, which is doubling of negative elements (Labov 1972; Laka 1990; Zanuttini 1991; Haegeman and Zanuttini 1991, 1996; Giannakidou 2000; Simpson and Wu 2002a; Zeijlstra 2004, 2022, and reference therein). One type of negative concord involves doubling of a sentential negation and the so-called n-words. While they both may express a logical negation in their singleton uses (cf. definition (1a)), only one logical negation rather than double negation is conveyed in the doubling/concord case (cf. definition (1b)), as illustrated in Italian in (6) below.

(6) Negative concord in Italian

- a. Gianni **non** ha telefonato. (Singleton *non*: $\neg$)
Gianni neg has called
‘Gianni didn’t call’ (Zeijlstra 2004, ex. 1a)
- b. **Nessuno** ha telefonato. (Singleton n-word: $\neg\exists$)
n-body has called
‘Nobody called.’ (Giannakidou and Zeijlstra 2017, ex. 28a)
- c. **Non** ha telefonato **nessuno**. (Doubling: $\neg\exists$, not $\neg\neg\exists = \exists$)
NEG has called n-body
‘Nobody called.’ (Giannakidou and Zeijlstra 2017, ex. 25a)

Apart from negation, doubling has also been attested for quantifiers with different (i) *quantificational forces* and (ii) *domains of quantification*, and even different (iii) *kinds of semantic values regarding alternatives*. First, both quantifiers with universal force and quantifiers with existential force have feature in reported cases of doubling. The former cases include “distributive concord”, which involves doubling of a distributive adverb and a distributive numeral (similar to binominal *each* in English) (Oh 2006; Henderson 2014; Kuhn 2017; Kuhn and Aristodemo 2017; Rushiti 2019; J. H.-K. Law 2019, cf. Cable 2014), and “universal concord”, where universal quantification seems to be jointly conveyed by a D-quantifier and an A-quantifier (Dong 2009; C.-y. E. Tsai 2015; Yip 2022b). The latter case with

existential force is dubbed “existential concord” (Kratzer and Shimoyama 2002; Kratzer 2005). This is found in the pair-list reading accompanied with the free-choice condition on multiple indefinites in German, and is analyzed as an existential quantifier binding multiple variables contributed by the indefinites.

Second, while most of the above cases involve quantification over individuals, other quantification domains are also found in doubling. These include some cases of distributive concord (e.g. Oh 2006) and universal concord (e.g. Yip 2022b) with quantification over events, as well as “modal concord”, which involves the domain of possible worlds. Modal concord typically refers to doubling cases of a modal adverb and a modal auxiliary with a matching force and modal base, that yield a single modal reading rather than a stacked modal reading (Geurts and Huitink 2006; Zeijlstra 2007; Huitink 2008, 2012; Anand and Brasoveanu. 2010; Grosz 2010; T. Liu 2015; Wijnbergen-Huitink 2021, and references therein). Moreover, propositions, which can be viewed as sets of possible worlds, are the domain negation operates on as in the case of negative concord.

Third, doubling is also found for quantifiers that are sensitive to *alternative semantic values*, as opposed to ordinary semantic values (Hamblin 1973; Rooth 1992, *et seq.*; i.e. alternative-based quantifiers in Chierchia 2021). One case is the so-called “interrogative concord”, as suggested by Kratzer (2005) for multiple *wh*-questions, where two *wh*-words do not signal two question operators, but only one.³ She adopts a Hamblinian approach and suggest that *wh*-words trigger focus alternatives quantified by the question operator (analyzed as having universal force). A related case is “*wh*-concord” in Okinawan, where the question reading appears to be doubly marked by a particle on the *wh*-word and a sentence-final particle (Kinjo and Oseki 2016). The final case, which is the focus of this dissertation, concerns doubling of exclusive focus particles (Y. Lee 2005; Hole 2013; Barbiers 2014; Hole 2017; Quek and Hirsch 2017, *i.a.*; also called “*only*-concord”). As we have briefly mentioned before, exclusive operators quantify over focus alternatives and assert that the non-prejacent ones are false. The empirical landscape of quantifier doubling is summarized in Table 1.1. Note that additive focus particles like ‘also’ and ‘even’ may also be doubled (e.g., Hole 2017), but they do not have truth conditional effects and are not included in this brief survey. Needless to say, the discussion above is not exhaustive of all the quantifier doubling phenomena.

3. At least in a single-pair-reading case.

Doubling/concord cases	Force	Domain	Attested languages
Negative concord	$\neg$	proposition	Romance, Germanic, Slavic, Japanese, ...
Distributive concord	$\forall$	entity/event	Korean, Kaqchikel, ASL, Albanian, ...
Universal concord	$\forall$	entity/event	Cantonese, Mandarin
Existential concord	$\exists$	entity	German
Modal concord	$\forall/\exists$	world	English, Dutch, German, Mandarin, ...
Interrogative/ <i>wh</i> -concord	$\forall$	ALT-proposition	English, Okinawan, ...
Exclusive doubling	$\forall/\neg\exists$	ALT-prop./entity	Cantonese, Dutch, Korean, Vietnamese, ...

Table 1.1: The empirical landscape of quantifier doubling (non-exhaustive)

1.1.2 Theoretical issues

Quantifier doubling has raised important issues for the syntax-semantics interface. The most significant one is the **form-meaning mismatch**: if two elements α and β are independently able to induce a quantificational meaning $\mathcal{Q}$, how is it possible for α and β to jointly also yield only $\mathcal{Q}$ (formulated after Giannakidou and Zeijlstra 2017)? Apparently, it poses a challenge on the Principle of Compositionality which states that the meaning of sentences is composed from their building blocks (Frege 1892). This problem may be divided into two puzzles in (7). The first one is the DOUBLING puzzle: the $\mathcal{Q}$ -reading (rather than the stacked $\mathcal{Q}[\mathcal{Q}]$ reading) in the doubling case suggests that either one of α and β should not be mapped onto $\mathcal{Q}$. The second one is the OBLIGATORINESS puzzle: that $\mathcal{Q}$ is always interpreted in the singleton cases suggests both α and β should be mapped onto $\mathcal{Q}$.

(7) The form-meaning mismatch puzzles of quantifier doubling

- a. DOUBLING: The forms α and β cannot *both* be mapped on the meaning $\mathcal{Q}$.
- b. OBLIGATORINESS: *Both* forms α and β should be mapped on the meaning $\mathcal{Q}$.

Another issue of quantifier doubling is **locality**: the doubled reading is only possible in a local configuration with α and β , as formulated in (8). In cases like negative concord, it is even ungrammatical if a post-verbal n-word does not occur with the sentential negation in the same finite clause in Italian (i.e. a so-called Non-Strict negative concord language, cf. Zeijlstra 2004). The locality constraints suggest that doubling is not a mere semantic phenomenon that does not respect syntactic locality (e.g.,

co-reference), but an interface phenomenon that has close relationship with syntax.

(8) The locality constraints of quantifier doubling

In a configuration [α ... [... β ...]] or [β ... [... α ...]], quantifier doubling is only possible if α is *local* to β . (Where the notion of locality may be manifested as clausemateness, island sensitivity, minimality, etc.)

In order to resolve these issues, different approaches have been proposed, which in turn provoke debates on the division of labor between syntax and semantics in doubling, as given in (9).

(9) The roles of syntax and semantics in quantifier doubling

- a. *The multiple-quantifier approach*: Both elements α and β are mapped onto $\mathcal{Q}$

The form-meaning mismatch is explained by a *semantic* “absorption” mechanism, with an augmented *syntactic* mechanism for locality.

- b. *The single-quantifier approach*: Only one element is mapped onto $\mathcal{Q}$

The form-meaning mismatch is explained by either a *syntactic* or an *interface* mechanism that licenses another element, which also captures locality.

The multiple-quantifier approach takes both elements α and β to be mapped onto $\mathcal{Q}$, which immediately explains the OBLIGATORINESS puzzle, and proposes a *semantic* mechanism to resolve the DOUBLING puzzle. The representative mechanisms are Neg Absorption (Zanuttini 1991; Haegeman and Zanuttini 1991, 1996; see Watanabe 2004 for a revision) and quantifier resumption (de Swart and Sag 2002; de Swart 2010; Iordăchioaia and Richter 2015) for negative concord. The former is along the lines of Quantifier Absorption (May 1985), and the latter is couched in a polyadic quantifier approach (Benthem 1989). These proposals introduce additional machinery in semantics and do not necessarily cohere with the Principle of Compositionality (see the criticism in Penka 2021). Notice that syntax still plays a role in some of the proposals, such as the Neg Criterion in Haegeman and Zanuttini (1991) which requires n-words to be on the specifier of NegP via syntactic means like movement, capturing the locality constraints.

Another line of proposals, the single-quantifier approach, voids the $\mathcal{Q}$ -semantics of one of the two elements, or even both with an extra null element denoting $\mathcal{Q}$. This immediately explains the DOUBLING puzzle. To resolve the OBLIGATORINESS puzzle, the proposals recruit an existing standard *syntactic* or

interface mechanism, which does not violate the Principle of Compositionality. In this sense, these proposals are *reductionist*: no additional machinery is introduced. One influential approach is syntactic agreement, where the non- Q denoting element β (which may or may not be semantically vacuous) establishes an Agree relation with the other element α that denotes Q (see Zeijlstra 2004 for negative concord; Zeijlstra 2007 for modal concord; Kratzer 2005 for existential and interrogative concord; Yip 2022b for universal concord; Quek and Hirsch 2017 for exclusive doubling). Under this approach, β is *syntactically* licensed by the genuine quantifiers which may be null in singleton β cases, accounting for both the OBLIGATORINESS puzzle and the locality constraints (reduced to independent constraints on Agree), whereas the role of semantics is minimal.⁴

A different approach along this line is also to propose a non- Q semantics for β , but the semantic value is specified in a way that β needs to be licensed by the quantifier Q . Crucially, the correct licensing configuration requires Quantifier Raising (QR), an operation on the interface Logical Form (LF) level. Examples include Giannakidou (2000)’s proposal that n-words are universal NPI elements taking scope over negation by QR, and Kuhn (2022)’s recent dynamic semantic approach where n-words induce a post-supposition (i.e. a delayed presupposition) that can only be satisfied by local logical negation in a split scope configuration created by QR (see also Kuhn 2017 for distributive concord). While semantics plays an important role in the licensing, the input from syntax with QR is also necessary to create the licensing scopal configuration, as well as to capture the locality constraints (reduced to independent constraints on QR).

Taking stock, quantifier doubling is empirically a general phenomenon in natural language quantification and does not seem to be restricted by the quantification force, domain, or kinds of semantic values. It is also an interface phenomenon that raises serious theoretical issues on the mapping between syntax and semantics.

4. There are a number of other implications from this approach for the mechanism of Agree, including (i) directionality, i.e., whether Agree is upward (Zeijlstra 2004, 2012, 2022; cf. Wurmbrand 2014; Bjorkman and Zeijlstra 2019), (ii) the number of Goals, i.e., whether Multiple Agree is allowed (Zeijlstra 2004; Haegeman and Lohndal 2010; Penka 2011; cf. Ura 1996; Hiraiwa 2001, 2005), and (iii) fallibility, i.e., whether Agree can fail - which seems not in negative concord (e.g. Zeijlstra 2012; *pace* Preminger 2014 for phi-agreement). These issues are, however, less central to the mapping between syntax and semantics and will be set aside in this dissertation for now.

1.2 Doubling of exclusive focus particles

This subsection focuses on the main empirical scope of this dissertation, doubling of exclusive focus particles, and addresses the issues it raises on the syntax-semantics interface against the background introduced above. I first showcase the empirical diversity of exclusive doubling in §1.2.1, and discuss the previous approaches as well as their inadequacies in §1.2.2.

1.2.1 Empirical diversity

One signature property that sets exclusive doubling apart from other quantifier doubling cases is that it has rich empirical diversity. It has various types depending on the grammatical status of the doubled particles and their relative syntactic positions, as given in (10) (note that the relative order between the focus and the adfocal particles does not matter here). The first two types, Adv-SFP doubling and Adv-Adfoc doubling, are the focus of this dissertation. Appendix A collects data of exclusive doubling from different languages.

(10) The varieties of doubling of exclusive focus particles

- a. ***Adv-SFP doubling***: *adverbial particles - SFP (sentence-final particles)*

Schema: [[**Adv_{EXCL}** [... XP_F]] ... **SFP_{EXCL}**]

Attested languages: Cantonese, Mandarin, Vietnamese, etc.

(also Dutch and German Sign Language with sentence-final adverbs included)

- b. ***Adv-Adfoc doubling***: *adverbial particles - adfocal particles*

Schema: [[**Adv_{EXCL}** [... **Prt_{EXCL}**-XP_F]]

Attested languages: Dutch, German, Vietnamese, Yorùbá, etc.

(also Cantonese, English and Korean)

- c. ***Adfoc-Adfoc doubling***: *adfocal particles - adfocal particles*

Schema: [... [... XP_F-**Prt1_{EXCL}**-**Prt2_{EXCL}**]]

Attested languages: Akan, Ga, Japanese(, Korean?), etc.

- d. ***Adfoc-SFP doubling***: *adfocal particles - SFP*

Schema: [... [... XP_F-**Prt_{EXCL}**] ... **SFP_{EXCL}**]

Attested languages: Vietnamese, Thai, etc.

The first type is doubling of exclusive sentence-final particles (SFPs) and adverbial particles, where the SFPs take sentential scope and are syntactically *higher* than the adverbial particles. Adv-SFP doubling is attested in Cantonese as already discussed briefly (see also A. Law 2004; P. P.-l. Lee 2019), as well as in Mandarin (Erlewine 2011) and in Vietnamese (Hole 2013). If sentence-final adverbials are also included, Dutch (Barbiers 2010, 2014) and German sign language (Deutsche Gebärdensprache, DGS) (Herrmann 2013) also fall into this type of languages.⁵

The second type is doubling of exclusive focus adverbial particles and adfocal particles, where the adverbial particles are syntactically *higher* than the adfocal particles which occur immediately before/after the focus associate:

(11) [[**Adv**_{EXCL} [... **Prt**_{EXCL}-XP_F]]]

This is the most well-documented type of doubling, for Dutch (Barbiers 2010; Hole 2015), German (Hole 2015, 2017; Bayer 2020), Vietnamese (Hole 2013, 2017; Erlewine 2017b; Park 2020; Sun 2021), Yorùbá (documented by the author, Yip 2021; also Olabode Adedéji p.c.), and, relatively under-documented, Cantonese (Sun 2021:352, fn.15), English (Bayer 2020:64-65), and Korean (Jiyeong Kim p.c.).⁶ A set of Vietnamese examples of doubling of adverbial *chi* and adfocal *mõi* is given in (12). *Mõi* occurs immediately before the focus associate ‘the book’, and may be doubled with *chi* which occurs outside the verb phrase, as in (12c).

5. For example, *maar* ‘only’ in Dutch may occur at a pre-focus position or a sentence-final position in (ia) and (ib) respectively. It may occur twice in these two positions with the same truth condition in (ic). Exclusive focus particle *NUR* in DGS, similarly, may be doubled after the focus associate and at a sentence-final position (Herrmann 2013).

(i) Doubling of exclusive focus particles in Dutch

- 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*.’

(Barbiers 2014:198)

6. Korean allows doubling of adverbial *oloji* ‘only’ and adfocal *-man* ‘only’ (Jiyeong Kim p.c.). To the best of my knowledge, this fact has not been documented in the literature.

(12) Doubling of 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)

Other types are less discussed in the literature. For example, Adfoc-Adfoc doubling is doubling of two adfocal particles on a single focus associate:

(13) [... [... XP_F-**Prt1**_{EXCL}-**Prt2**_{EXCL}]]

Attested languages reported in the literature include Ga (Renans 2016, 2017), Japanese (Erlewine 2012), and Korean with a slightly different paradigm (Y. Lee 2004, 2005; Park 2020).⁷ Akan also has this type of doubling (Comfort Ahenkorah p.c.), as exemplified in (14). Akan has two exclusive adfocal particles *nkoaa* ‘only’ and *pɛ* ‘only’, both of which immediately follow the focus associate, as in the singleton cases with subject-internal exclusive focus in (14a-b). Notably, they may also be doubled with the same focus associate in (14c). Notice that the two particles are contained in the subject noun phrase, and hence can only be analyzed as adfocal particles rather than adverbial particles. I will set aside this type of doubling (but see Appendix A for more data and Yip and Ahenkorah 2026 for an account of Akan).

7. Korean allows the adfocal particle *-man* to occur twice on *different* noun phrases with a doubling reading that quantifies over a pair $\langle NP_1, NP_2 \rangle$, as in (i). However, *-man* cannot be doubled and stacked on the same focused NP.

(i) Doubling exclusive focus particles in Korean

a. [NP1_F-*man* ... NP2_F-*man* ...]

b. John-**man** sakwa-**man** mekesse.

John-only apple-only ate

Doubling reading: ‘John is the only one who ate something, and John ate only apples (not other fruits).’

Multiple-‘only’ reading: ‘John is the only one who ate only apples. Others ate other fruits as well as apples.’

(Y. Lee 2005:183-184)

(14) Doubling of exclusive focus particles in Akan

a. [[John]_F **pɛ** na ne fie] ɛpɔ.

John only FOC POSS house 3sg.break.pst

‘Only *John*’s house fell down.’

b. [[John]_F **nkoaa** na ne fie] ɛpɔ.

John only FOC POSS house 3sg.break.pst

‘Only *John*’s house fell down.’

c. [[John]_F **nkoaa pɛ** na ne fie] ɛpɔ.

John only only FOC POSS house 3sg.break.pst

‘Only *John*’s house fell down.’

(Comfort Ahenkorah p.c.)

Before proceeding to the previous accounts on exclusive doubling, note that different types of doubling may co-exist in a language or even in a single sentence. For example, Vietnamese has adverbial *chỉ*, SFP *thôi*, and adfocal *mỗi*, and they can all co-occur in (15), constituting a case of ‘tripling’ (see also Hole 2017).

(15) Nam **chỉ** ăn **mỗi** [thịt bò]_F **thôi**.

(Vietnamese)

Nam only eat prt.only beef sfp.only

‘Nam only eats *beef*.’

1.2.2 Previous accounts and their inadequacies

There are two major approaches to exclusive doubling: (i) the operator-particle analysis (e.g. Quek and Hirsch 2017; Hirsch 2022; Sun 2021), and (ii) the distributed syntax analysis (Hole 2015, 2017), both belonging to the single-quantifier approach. They mainly focus on Adv-Adfoc doubling. As we can see, however, they each have some inadequacies when the larger empirical picture (in §1.2.1) and the theoretical issues of quantifier doubling (in §1.1.2) are considered.⁸

8. See also A. Law (2004) and P. P.-I. Lee (2019), who alluded to a multiple-quantifier analysis in Cantonese. They however do not provide an explicit analysis of doubling and thus are not discussed here.

1.2.2.1 The operator-particle analysis

The operator-particle analysis is by far the most prevailing approach, which is proposed in a broader context of accounting for focus structure with exclusive doubling included (Bayer 1996, 2020; Kayne 1998; Y. Lee 2004, 2005; Horvath 2007; Barbiers 2010, 2014; Erlewine 2017b; Quek and Hirsch 2017; Bassi, Hirsch, and Trinh 2022; Hirsch 2022; Sun 2021; Branen and Erlewine 2023, *i.a.*; also called the bipartite analysis of focus), and for question structure (Cable 2010; Kotek 2019; i.e. Q-particles). The leading idea is that the adfocal particle is treated as a (i) semantically vacuous concord marker that (ii) establishes a syntactic dependency with an exclusive operator, which may be null or realized as the adverbial particle, as illustrated in (16).⁹

(16) The operator-particle analysis

[TP Subj [**Operator**_[iEXCL] [_{VP} V [**Particle**_[uEXCL] [_{DP} Focused element]]]]]

└──────────────────────────────────┘

The locality constraints of doubling are directly captured by the proposed syntactic dependency, which has been analyzed as (i) Agree (Quek and Hirsch 2017; Hirsch 2022), (ii) covert movement (Bayer 1996; Y. Lee 2005; Barbiers 2014; *cf.* Erlewine and Kotek 2018), or (iii) overt movement (Sun 2021). The form-meaning mismatch problem in doubling is also accounted for by the semantic inertness of adfocal particles and their syntactic dependency with adverbial particles.

This approach settles a long-standing debate on whether exclusive particles are two-place quantifiers like determiners (e.g. Horn 1969, 1996; Rooth 1985) or propositional quantifiers on the sentential level (e.g. Jacobs 1986; Rooth 1992; Buring 2001; see also Erlewine 2017b). In English, for example, *only* has both the adverbial use in (17a) and the adfocal use in (17b).

(17) a. Mary [**only**_{Op} [read one_F book]].

b. Mary [read [**only**_{Prt} one_F book]].

Quek and Hirsch (2017), Bassi, Hirsch, and Trinh (2022), and Hirsch (2022), building on a number of scopal arguments, have convincingly shown that the adfocal *only* should *not* be analyzed as a D-quantifier. They propose that the adfocal *only* merely signals the presence of a sentential exclusive operator (i.e. the adverbial *only*), which is obligatory null in (17b), but may be pronounced in languages

9. In featural terms, the operator carries an interpretable [iEXCL] feature that is mapped onto an exclusive operator, and the particle carries an uninterpretable [uEXCL] feature that is deleted after agreement with the operator, and is thus *not* mapped onto an exclusive operator.

with doubling such as Vietnamese. Under this view, exclusive operators are uniformly propositional quantifiers, and exclusive doubling is the overt manifestation of the same focus structure shared with singleton cases.

There are, however, several issues with this approach. **First**, empirically, it is not immediately clear how this approach can extend to other cases of doubling while retaining the original insights with a bipartite structure, including Adv-SFP doubling where the SFPs also take sentential scope and are higher than the adverbial particles, and Adfoc-Adfoc doubling where two adfocal particles are stacked on one focus associate. This problem is most obvious in the ‘tripling’ case.¹⁰

Second, the approach is primarily concerned with the at-issue semantic dimension, but the not-at-issue dimension is rarely discussed. The adfocal particles are dubbed semantically inert based on examination of scopal effects on truth conditions (e.g. Quek and Hirsch 2017), but their felicity conditions are not addressed. There are however reasons to believe that not-at-issue content may play an important role in doubling. As we have already mentioned, Kuhn (2022)’s approach to negative concord involves a not-at-issue post-supposition on n-words that can only be satisfied by a local logical negation. Moreover, as pointed by Hole (2015, 2017), adfocal particles may also signal scalarity (see the distributed syntax approach below).

Third, more crucially, it is conceptually unclear why such semantically vacuous particles are needed in the first place from the view of the syntax-semantics interface. These particles are unlikely to be overt realization of F-markings that trigger focus alternative formation, since different mismatching cases are found (as argued by Branan and Erlewine 2023 from anti-pied-piping). Unlike n-words, which denote indefinites in the syntactic agreement approach to negative concord, these particles are not required at all in the semantic interpretation of exclusive focus under the operator-particle approach.¹¹

10. It is of course possible to implement the proposal by saying that only the (null) adverbial particles are operators whereas SFPs and stacked adfocal particles are semantically vacuous particles, but extra structures are then introduced.

11. One potential explanation is to situate these adfocal particles in a movement theory where A'-movement always targets particle phrases (Cable 2010; Branan and Erlewine 2023) and a focus theory where focus movement is always needed for focus association (cf. Wagner 2006; Erlewine 2014; Erlewine and Kotek 2018). Given that focus movement is A'-movement, the particles (even not pronounced) are obligatory for movement purposes. A further conceptual question that arises is why syntactic movement is always needed for focus association, if the moved element does not match up to the focus associate. Another kind of possible explanation could be historical, see Simpson and Wu (2002a) for a proposal where focus layers decay into a simple concord shell, resulting in syntactic agreement.

1.2.2.2 The distributed syntax analysis

Another approach, the distributed syntax analysis (Hole 2015, 2017), puts a focus on the not-at-issue content associated with adfocal particles. The core idea is that there is a syntactic projection of scalarity (EVAL in Hole 2015, SCAL in Hole 2017) with which the adfocal particles establish a syntactic dependency (either Agree or overt movement), and the exclusive components are solely expressed by the adverbial particles or a null operator. The adfocal particles themselves do not trigger scalar presuppositions, but the EVAL/SCAL heads do.¹²

(18) The distributed syntax analysis

- a. [CP ... [EVALP EVAL_{LITTLE/BAD} [TP Subj [_{VP} ... **EXCL-Adv** ... [AdFoc-Prt [_{DP} Focus]]]]]]
- b. [CP ... [TP Subj [**EXCL-Adv** [_{SCALP} SCAL_{LITTLE} ... [_{VP} ... [AdFoc-Prt [_{DP} Focus]]]]]]]]

One support of this approach comes from doubling of adverbial and adfocal particles in Vietnamese. As shown in (19a), adverbial *chỉ* does not trigger a scalar presupposition that the focus associate (i.e., beef) is low on the scale, and the sentence can be continued by saying that beef is high on the scale. In (19b), in contrast, when the focus is overtly moved with the presence of adfocal *mỗi*, the scalar adverb *mới* (not to be confused with adfocal *mỗi*) is required, and such a scalar presupposition is triggered.¹³ According to Hole, only *chỉ* is the exclusive operator, and adfocal *mỗi* is semantically void and simply indicates the presence of a scalar head, which may be pronounced as *mới*.

(19) Scalarity in Vietnamese Adv-Adfoc doubling

- a. Nam **chỉ** [_{VP} ăn thịt bò], nhưng ăn thịt bò thì đã là nhiều.
 Nam ADV_{ONLY} eat beef but eat beef TOP already is much
 ‘Nam eats nothing but beef, but to eat beef is a lot already.’ (Hole 2017, ex. 9)

12. See also Bajaj (2016) for a scalar analysis of Hindi *-hii* ‘only’ which may co-occur with other exclusive adverbs like *sirf* ‘only’. However, there is a complication concerning whether *-hii* asserts or presupposes exclusivity (Kaustubh Ghoshal p.c.), which questions whether this case satisfies the definition of quantifier doubling in (1). I will examine whether *-hii* really has the truth conditions like an exclusive operator in the dissertation.

13. The same scalar reading is also reported for in-situ cases with *mỗi*, where *mới* is not pronounced (Hole 2017, ex. 14a).

- b. Nam **chỉ** [m^hoi thit bò]_i ^{??}(m^hoi) ăn *t_i*, #nhưng ăn thit bò thì đã là
 Nam ADV_{ONLY} AdFoc beef SCAL_{LITTLE} eat but eat beef TOP already is
 nhiều.
 much
 ‘Only beef does Nam eat, #but to eat beef is a lot already.’ (Hole 2017, ex. 14b)

This approach offers new insights to quantifier doubling by incorporating the non-at-issue dimension, as well as to the semantics of scalar ‘only’ sentences by disentangling the exclusive component from the scalar component. It, however, also faces some challenges. **First**, unlike the operator-particle analysis, the adfocal particles do *not* establish a syntactic dependency with an exclusive operator (i.e., adverbial particles), but rather the scalar projection (which does not encode exclusivity). The form-meaning mismatch problem is not accounted for, as well as the locality constraints. Additional dependencies need to be posited between the scalar projection/adfocal particles and the exclusive operators.¹⁴

Second, empirically, this approach also requires non-trivial refinement to incorporate Adv-SFP (and Adfoc-Adfoc) doubling. Although the scalar projection could be a potential position for exclusive SFPs, Hole (2017) takes the projection to be hosted by scalar adverbs. It is important to note that the relation between adfocal particles and scalar adverbs has been explicitly challenged by Sun (2021) (but see Hole 2023 for replies). She demonstrates that scalar adverbs are not required even in overt movement cases and that the presence of scalar adverbs induces additional semantic effects. The facts appear to suggest the scalar projection may not be always present in cases with adfocal particles, which undermines the core idea of this analysis.

Third, although the not-at-issue content is taken into account, the adfocal particles are still treated as semantically vacuous, which raises the same conceptual question that the operator-particle analysis faces, namely, why such particles are needed.

In short, both the operator-particle and distributed syntax approaches have implications not only for quantifier doubling, but also for the semantics of exclusive focus operators. Nevertheless, they have several inadequacies, as summarized below:

14. This problem is acknowledged recently in Hole (2023) for Mandarin, where he proposes two dependencies of adfocal particles, one with an exclusive operator, which is obligatory, another one with the scalar projection, which is essentially only present when the scalar adverbs are pronounced. This amounts to say that scalar readings are not always present with adfocal particles.

(20) The inadequacies of previous accounts on exclusive doubling

- a. Empirical gaps of Adv-SFP (and Adfoc-Adfoc) doubling
- b. Neglected role of not-at-issue content (for the operator-particle analysis)
- c. Failure to explain the relation between doubled particles (for the distributed syntax analysis)
- d. Conceptually unmotivated structure with semantically inert adfocal particles, from the point of view of the syntax-semantics interface

1.3 Overview of the thesis

I first give the theoretical tools that are crucial to the thesis in §1.3.1, and introduce my main hypothesis in §1.3.2. Then, §1.3.3 gives the organization of the dissertation. Lastly, the data collection methods are given in §1.3.4 and glossing and transcription conventions are given in §1.3.5.

1.3.1 Theoretical background: Alternative Semantics

I adopt Roothian focus semantics in dissertation. I introduce the essential formal tools below. Rooth (1992) distinguishes between two types of semantic values: ordinary values (notated by superscripted *o*, or unmarked) and focus alternative (ALT) values (notated by superscripted *alt*). 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.¹⁵

- (21) a. $\llbracket \alpha_F \rrbracket^o = a$
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.

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

A sample entry of quantificational *only* is given in (23):

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

$$(23) \quad \llbracket \text{only} \rrbracket(C_i) = \lambda p \lambda w : p(w). \forall q [(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$$

It takes C (instead of the ALT value) before taking the prejacent proposition $p_{\langle s, t \rangle}$ (after Rooth 1992; Alonso-Ovalle and Hirsch 2022). This is motivated by the fact that contextually irrelevant alternatives are not excluded. For example, *Mary only READ_F The Recognitions* does not necessarily exclude the possibility that Mary likes *The Recognitions*, depending on the context (see the discussion in Rooth 1992:78-79,90-95). In this regard, C 's function is similar to domain restriction of quantifiers (von Stechow 1994). The need of C is also supported by focus anaphor effects (cf. Beck 2006:18–20).

A sample derivation with *only* is given in (24) (where $\wedge \alpha = \lambda w. \alpha$ in w). The focus alternatives $\{l, b, p, \dots\}$ undergo pointwise functional application with the verb to form $\{\lambda y. y \text{ buy } l, \lambda y. y \text{ buy } b, \lambda y. y \text{ buy } p\}$, and with the subject to form a set of alternative propositions in (24b). This set constrains C in (24c), which is operated on by *only* to exclude propositions not entailed by the prejacent *Ming bought lamb* in (24e).

(24) 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. $\llbracket [DP]^o \rrbracket = l$; $\llbracket [DP]^{alt} \rrbracket = \{l, b, p, x, \dots\}$
- b. $\llbracket [vP1]^o \rrbracket = \wedge^m \text{ buy } l$; $\llbracket [vP1]^{alt} \rrbracket = \{\wedge^m \text{ buy } l, \wedge^m \text{ buy } b, \wedge^m \text{ buy } p, \wedge^m \text{ buy } x, \dots\}$
- c. $C_i = \{\wedge^m \text{ buy } l, \wedge^m \text{ buy } b, \wedge^m \text{ buy } p\} \subseteq \llbracket [vP1]^{alt} \rrbracket$
- d. $\llbracket [vP2]^o \rrbracket = \wedge^m \text{ buy } l$; $\llbracket [vP2]^{alt} \rrbracket = \{\wedge^m \text{ buy } l\}$
- e. $\llbracket [TP]^o \rrbracket = \lambda w: \wedge^m \text{ buy } l(w). \forall q [(q \in C_i \wedge q(w)) \rightarrow \wedge^m \text{ buy } l \subseteq q]$

Due to the resetting nature of $\sim$, when there are two focus operators like (25), only the lower one can access the alternatives. The higher operator cannot access the alternatives. Up to the point of $\sim C_j$, 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 $\sim C_i$ (e.g., multi-‘only’ readings, Rooth 1996; Erlewine 2025).¹⁶

$$(25) \quad [\text{OP1}(C_j) \sim C_j [\dots [\text{OP2}(C_i) \sim C_i \dots [\text{XP}_F \dots]]]]$$

16. Below are the schemas of focus-*wh* intervention effects and multiple associations (Erlewine 2025):

- (i) a. $*[\text{OP1}(C_j) \sim C_j [\dots \text{OP2}(C_i) \sim C_i \dots [\dots \text{wh} \dots \text{XP}_{F1} \dots]]]$
-
- b. $[\text{OP1}(C_j) \sim C_j [\text{YP}_{F2} [\dots \text{OP2}(C_i) \sim C_i \dots [\text{XP}_{F1} \dots]]]]$
-

1.3.2 Main hypothesis

I begin by setting up the theoretical desiderata of quantifier doubling. Despite the empirical diversity of quantifier doubling, there are three striking patterns that recur in different types of quantification, as summarized in (26):

(26) Three recurring patterns of quantifier doubling

- a. The form-meaning mismatch (i.e. the defining property of quantifier doubling)
- b. Functional equivalence between doubling cases in doubling languages and singleton cases non-doubling languages
- c. Asymmetric local relations (i.e. dependencies) between doubled elements

First, as the defining property of quantifier doubling, all the quantifier doubling cases involve an apparent form-meaning mismatch. In languages with doubling, the doubling cases have the same truth conditions as the singleton cases.

Second, doubled quantifiers are functionally equivalent to their correspondingly (singleton) uses in languages *without* doubling. The term “functionally equivalent” refers to the fact that equivalent truth conditions *and* felicity conditions can be expressed by doubled quantifiers in some languages or singleton quantifiers in other languages.¹⁷ This takes a step further from the form-meaning mismatch: while singleton and doubling cases in languages *with* doubling do share the same truth conditions (which is the origin of the puzzle), they may have different *felicity* conditions, as we have already seen for Vietnamese scalar readings. Yet, such scalar readings are arguably available in English using just the adverbial *only* or the adfocal *only* (e.g. Klinedinst 2005). The same is true for other types of quantifiers, such as Italian negative concord cases with the sentential negation *non* and n-words (e.g. *nessuno* ‘nobody’) correspond to sentences in English with just the negative quantifier (e.g. *nobody*).

Third, the doubled quantifiers often have *asymmetric* relations: one element is dependent on another one, but not the other way round. This is most obvious in negative concord, where (post-verbal) n-words require licensing by negation, but the negation itself does not need so. In exclusive particle doubling, adfocal particles are dependent on adverbial particles for scopal interpretation, but not the other way round (Quek and Hirsch 2017). As we will see, exclusive SFPs are also dependent on adver-

17. This is not to say that doubling cases are identical to the *strings* with a single quantifier in non-doubling languages, since the latter can be ambiguous by themselves, such as *only* in English which has both scalar uses and non-scalar uses.

bial particles for focus association. This dependency is captured in all the single-quantifier approaches, but not necessarily in the multiple-quantifier approaches. Crucially, the relation is also *local* in nature such that the doubled elements cannot be too “far” away from each other, such as clauseboundedness in negative concord (Zeijlstra 2004), and island sensitivity in distributive concord (Kuhn 2017), modal concord (Zeijlstra 2007), and exclusive doubling (Sun 2021). Locality is a signature property of syntax. Note that this property in quantifier doubling does not follow from the above two patterns that are determined by meaning, which makes it even more striking.

To the extent that these three patterns are robust (if not universal) in quantifier doubling, a successful theory must be able to account for them.

The main hypothesis pursued in this dissertation is given in (27). I hypothesize that quantifier doubling is by nature the overt realization of quantificational structures that are otherwise not visible in languages without doubling. Specifically, quantifier doubling is the syntacticization of complex quantificational meaning pieces that may be lexicalized together in non-doubling languages. Thus, syntactic dependencies are always required in quantifier doubling.

(27) The Syntacticization Hypothesis of Quantifier Doubling

Doubling of quantifiers is an utilization of syntactic dependencies to realize different components of a quantificational structure that are expressed with a single overt morpheme in languages without doubling.

The intuition behind the hypothesis is that doubling cases in doubling language and singleton cases in non-doubling languages share the *same* underlying quantificational structure, yielding meaning equivalent sentences. In other words, the different components of the quantificational structure are lexicalized differently across languages: either as two syntactically linked items, or as one lexical item.

This intuition goes back to the analyticity and synthesis parameters on the syntax-morphology interface in the Principle and Parameters framework (Borer 1984; C.-T. J. Huang 2015, cf. Sapir 1921) or the [+strong]/[+weak] features in early Minimalist Program (Chomsky and Lasnik 1993; Chomsky 1995; Tang 1998). The parameters decide whether associated morphemes are two separate words as in analytic languages, or one word as in synthetic languages. One example is plural morphemes realized as separate numeral classifiers or plural affixes attached to noun stems (Borer 2005). The hypothesis represents a parallel view on the syntax-semantics interface: (complex) meaning pieces may either

be “distributed” on separate morphemes, or lexicalized all together on a single morpheme (alternatively, a single morpheme associated with some covert elements). I further propose that the syntactic dependency is derived from the featural composition of the particles: one carries an interpretable quantificational $[iQ]$ feature, and the other carries an uninterpretable quantificational $[uQ]$ feature. The hypothesis is schematized in (28).

(28) Analyticity and synthesis on the syntax-semantics interface

a. Analyticity: Languages with doubling

$$\begin{array}{ccc} [\beta_{[\text{Meaning B}]} \dots [\alpha_{[\text{Meaning A}]}]] & & \text{(syntacticization)} \\ [uQ] & & [iQ] \\ \hline & & \end{array}$$

b. Synthesis: Languages without doubling

$$\begin{array}{ccc} [\dots \alpha_{[\text{Meaning A+B}]} \dots] & & \text{(lexicalization)} \\ [iQ] & & \end{array}$$

The choice of meaning A and B should be restricted to the extent that they can be lexicalized together across languages. For now, I entertain the possibility that meaning A is the core quantificational meaning (with the logical quantifier) on the *at-issue* dimension, and meaning B is some associated meaning on the *not-at-issue* dimension.

The core patterns of quantifier doubling are accounted for by this hypothesis. First, the form-meaning mismatch is just apparent under this view. The doubled particles are mapped onto different meaning pieces. A covert counterpart of α is recruited in singleton β cases (following the syntactic agreement approach of negative concord and the operator particle analysis of exclusive doubling). Second, the same meaning pieces are recruited in both doubling cases in doubling languages and singleton cases in non-doubling languages, giving rise to the functional/meaning equivalence. Note that doubling and singleton cases *in doubling languages* may have different meanings. Third, these meaning pieces are associated with each other by either lexical means or syntactic means. In the latter case, an asymmetric local relation between the doubled elements arises from the nature of syntactic dependencies, where one item serves as the Probe seeking for feature checking/valuation, targeting another one that serves as the Goal (Chomsky 2000).

The hypothesis has implications for our understanding of quantifier doubling. First, there is no

true sense of “doubling” in the doubling cases since the two doubled particles carry different meanings (i.e. $\neq [\text{Prt}_{[\text{Meaning } A]} + \text{Prt}_{[\text{Meaning } A]}]$). The true sense of “doubling” involves two identical quantifiers which always results in a multiple-quantifier meaning such as multiple-only readings or double negation. These are however not the doubling cases discussed here. Second, there is no semantically vacuous concord marker in doubling (i.e. $\neq [\text{Prt}_{[\text{Meaning } A]} + \text{Prt}_{[\text{Meaning } \emptyset]}]$). Both double particles have semantic contribution. Third, notably, the contributed meaning pieces are not isolated: they belong to a uniform quantificational structure and are syntactically associated. Quantifier doubling is thus not a “redundant” strategy, nor a compositionality-violating case. It follows the Principle of Compositionality and signals a complex meaning structure that is not directly observable otherwise.

More generally, the hypothesis has further implications for the syntax-semantics interface and the language architecture. It represents a view where meaning structure is *universal*, and the locus of variation is the choice of strategies to grammaticalize the structure, namely, how to map morphosyntax into semantics. Similar views have been proposed for nominal semantics as the Nominal Mapping Parameter (Chierchia 1998 *et seq.*), where languages share a universal set of meanings for nominals (e.g. kind reference, object level meanings), but differ in the way how these meanings are built up in morphosyntax. Here, the current hypothesis focuses on the choice between lexicalization (as one morpheme) and syntacticization (as two morphemes) of meaning. The hypothesis also raises questions on how syntax may interact with multiple dimensions of semantics concerning (not-)at-issueness.

1.3.3 Organization of the dissertation

Chapter 2 lays out the empirical and theoretical foundation of the dissertation by arguing that exclusive doubling instantiates scalar focus structures. I provide a detailed case study of Cantonese exclusive doubling with the adverbial particle *zinghai* and sentence-final particle *zaa3*. By examining the syntactic and semantic properties—concerning both at-issue and not-issue levels—of exclusive doubling, I propose a “distributed meaning” approach, according to which exclusivity and scalarity are encoded by distinct particles that nevertheless depend on each other semantically. Specifically, this chapter shows that the adverbial *zinghai* encodes at-issue exclusivity, while the sentence-final particle *zaa3* contributes a not-at-issue scalar component that ranks the prejacent relative to excluded alternatives on a contextually salient scale. Importantly, *zaa3* is semantically dependent on *zinghai* in taking its alternative set, which is a result of syntactic Agree that transmits indices to co-index their quan-

tificational domains. To resolve apparent form–meaning mismatches, I motivate a covert exclusive operator, *EXCL*, as the null counterpart of *zinghai*, and distinguishes it from exhaustification operators such as *EXH*. I also discussed the variety of scales encoded by exclusive and scalar particles. The analysis demonstrates that exclusive doubling involves a syntactico-semantic dependency between two focus operators accessing a shared set of alternatives, thereby providing a principled answer to the question of why doubling arises in natural language.

Chapter 3 builds on the proposal of Chapter 2 by examining intervention effects in exclusive doubling. This chapter shows that intervention effects in exclusive doubling are non-uniform, both in terms of which elements act as interveners and in how they differ from canonical intervention effects observed in *wh*-dependencies. Based on detailed empirical patterns from Cantonese, as well as comparative evidence from Mandarin and Vietnamese, this chapter argues that these intervention effects are semantic in nature and arise from illicit scopal configurations imposed by the dependency between exclusive and scalar operators. I also investigate the role of semantic notions like witnessability and truth-conditional effects in (non-)intervention cases. The findings provide further support for the view that exclusive doubling involves two focus-sensitive operators that must access the same alternatives (i.e., there is a grammatical dependency between them), and they contribute to a broader re-conceptualization of intervention effects as a heterogeneous phenomenon at the interface of syntax and semantics.

Chapter 4 extends the investigation to a different type of exclusive doubling, namely adverbial-adfocal doubling, and situates the discussion within a long-standing debate on the locus of quantification in the clausal and nominal domains. Focusing on Vietnamese and Yorùbá, this chapter shows that while the syntactic dependency involved in exclusive doubling is similar across languages, which is (c)over movement of the focus and the adfocal particles, the semantic carrier of exclusivity varies cross-linguistically. In Vietnamese, exclusivity is encoded by adverbial particles as A-quantifiers, whereas in Yorùbá it is encoded by adfocal particles as D-quantifiers. Moreover, I show that the scalar component is still found in exclusive doubling in both languages, but the locus of scalarity is also subject to variations with a mirroring pattern—it is at the non-exclusive particle, namely adfocal particles in Vietnamese, and adverbial particles in Yorùbá. This chapter develops a parametric analysis that captures these differences and expands it into a four-way typology, incorporating other languages such as Kasem and Mandarin. The proposed typology has broader implications for theories of quantifi-

cation, clausal-nominal parallelism, and the analysis of concord phenomena. I also discuss how the co-indexation approach derives the locality of movement semantically, and the lexical parameters involved in exclusive doubling.

Chapter 5 concludes the dissertation by summarizing the main findings, discussing their theoretical implications for the study of other quantifier doubling phenomena such as negative concord and modal concord, and more generally for quantification, focus, and the syntax-semantics interface, and outlining directions for future research.

1.3.4 A note on the data sources

Before proceeding, there is a note on the data sources. I collected first-handed data on these four languages to support the main thesis: Cantonese, Mandarin, Vietnamese, and Yorùbá.

The Cantonese data were constructed by me and confirmed with seven other native speakers from Hong Kong.

The Mandarin data were constructed by me and subsequently confirmed with at least three native speakers.

The Vietnamese data were collected by two means. First, they were collected in interview sessions with four primary consultants in 2023-2025. Second, the data were collected during two field trips in Vietnam (Hanoi, Ho Chi Minh City, and Dalat; covering both Northern Vietnamese and Southern Vietnamese) using storyboard elicitation, translation, and naturalness judgment task (on a likert scale from 1 to 7). The storyboards can be found in Appendix B. The dataset is based on 33 participants and was collected between July-August 2024 and December 2024-January 2025. Most examples were elicited from and/or confirmed by at least 19 speakers (some by more, up to 24), with a few exceptions that will be specified whenever appropriate.

The Yorùbá data were obtained through elicitation sessions with four native speakers (some with six) in 2024-2025 and partially from a fieldwork class at Yale in Fall 2020.

Finally, data from other languages are cited from the literature for cross-linguistic comparisons.

1.3.5 Glossing and transcription convention

I follow the Leipzig glossing rules, with the following additions/exceptions:

(29) Glossing abbreviation (in addition to the Leipzig glossing rules)

- CL = classifier
 EXP = experiential aspect
 HTS = High Tone Syllable in Yorùbá (see Bisang and Sonaiya 1999)
 SEC = secundative preposition (see Atoyebi, Haspelmath, and Malchukov 2011)
 SFP = sentence-final particles

Cantonese examples are transcribed using *Jyutping* (the Linguistic Society of Hong Kong Cantonese Romanization Scheme in 1993). Tones are only represented for SFPs or when necessary, with the tone marks in (30). Mandarin examples are transcribed using *Hanyu Pinyin*. Tones are displayed only when necessary (SFPs are generally toneless), using tone marks instead of diacritics, as in (31).

(30) Tones in Cantonese

- 1 = high level [55]
 2 = high rising [35]
 3 = mid-level [33]
 4 = low falling [21]
 5 = low rising [13]
 6 = low level [22]

(31) Tones in Mandarin

- 1 = high level [55]
 2 = high rising [35]
 3 = low falling [21] (or falling-rising [214])
 4 = high falling [51]

Vietnamese and Yorùbá examples are presented in their orthography with all the tones, as in (32) and (33) respectively.

(32) Tones in Vietnamese

- | | | |
|------------------------------------|-----------------------------|-------|
| <i>sắc</i> 'sharp': á | = high rising, tense | [35] |
| <i>ngã</i> 'tumbling': ã | = high rising, glottalized | [35̚] |
| <i>ngang</i> 'level': a (unmarked) | = high-mid-level, lax | [44] |
| <i>huyền</i> 'deep': à | = low trailing, lax | [221] |
| <i>hỏi</i> 'questioning': ă | = mid-low dropping, tense | [312] |
| <i>nặng</i> 'heavy': ạ | = low dropping, glottalized | [21̚] |

(33) Tones in Yorùbá

- High: á
 Mid: a (unmarked)
 Low: à

Chapter 2

Exclusive doubling as scalar focus structures

This chapter argues that exclusive doubling instantiates scalar focus structures, and motivates a “distributed meaning” approach where exclusivity is encoded on one particle and scalarity is encoded by another particle, but they nevertheless have a semantic dependency. I propose that such a semantic dependency is co-indexation of their quantificational domain, which is the alternative set that they quantify over. This is a result of syntactic Agree that transmits indices. To support the above claims, I draw on novel data from Cantonese exclusive doubling with adverbial *zinghai* ‘only’ and sentence-final particle (SFP) *zaa3* ‘only’. I demonstrate that *zaa3* encodes a not-at-issue scalar component, whose contribution is to rank *zinghai*’s prejacent lower than excluded alternatives on a contextually salient scale. To resolve the form-meaning mismatches, I also propose a null counterpart of *zinghai*, the EXCL operator, and compare it with other covert exhaustification operators. The findings 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.

This chapter is organized as follows. §2.1 provides the background on scalarity in exclusives and describes a relevant research gap in exclusive doubling. §2.2 offers a syntactic primer on exclusive doubling in Cantonese, showing that *zaa3* is syntactically higher than *zinghai*. §2.3 examines the form-

meaning mismatches in exclusive doubling on the at-issue (truth conditional) level. §2.4 examines the scalar component of *zaa3* in exclusive doubling on the not-at-issue (non-truth conditional) level. §2.5 proposes the “distributed meaning” approach where exclusive doubling instantiates scalar focus structures. §2.6 further discusses the differences between the covert EXCL operator from exhaustification operators. §2.7 discusses the variety of scalarity in exclusives.

2.1 Introduction

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 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 (Yip and Ahenkorah 2026), Bangla (U. Banerjee p.c., Dash and Datta 2022), Cantonese (A. Law 2004; P. P.-I. Lee 2019), Dutch (Barbiers 2014), Ga (Renans 2017), German (Hole 2015; Bayer 2020), German sign language (Herrmann 2013), Hindi (Bajaj 2016), Japanese (Erlewine 2012), Kasem (Aremu 2025, 2026), Korean (Y. Lee 2005), Mandarin (Hole 2017; Sun 2021), Vietnamese (Hole 2013, 2017; Erlewine 2017b; Sun 2021), and Yorùbá (see Chapter 4; also Aremu 2026). See Appendix A for examples in each language. An example in Vietnamese is given in (2), where adverbial *chỉ* and adfocal *m̃i* 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.

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 chapter.

- (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; Y. Lee 2005; Barbiers 2014; Quek and Hirsch 2017; Bassi, Hirsch, and Trinh 2022; Hirsch 2022; Sun 2021; Branan and Erlewine 2023; Aremu 2025, 2026; *i.a.*), it is usually proposed that adfocal particles are *semantically vacuous* concord markers (but see Aremu 2026), 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]]]]

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 and Clark 2008; Coppock and 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 and 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)

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 and Clark 2008; Coppock and Beaver 2014; Alxatib 2020; but see Winterstein 2012 for objections). I remain open on this issue.

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; see also Aremu 2026 for a recent discussion on Maba and Yoruboid languages). This chapter 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.

This chapter focuses on exclusive doubling of adverbial *zinghai* and sentence-final particle (SFP) *zaa3* (mid-level tone 3) in Cantonese (A. Law 2004; P. P.-I. 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 bezauf] **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*.’)

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 (A. Law 2004; Tang 2015b; P. Law 2021), and is higher than adverbial *zinghai* which may attach to positions in between CP and VP, as in (7) and will be shown in §2.2. 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 in §2.3–2.4, dependent on the exclusive focus contributed by *zinghai*.

This chapter 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 dou-

bling 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, by syntactic Agree that transmits indices. I show that the existing $\sim_{\text{pass}}$ mechanism, independently motivated by other focus phenomena (e.g., recursive exhaustification, Fox 2007; Crnič 2013; Bade and Sachs 2019; see also Erlewine 2025), cannot capture the dependency in exclusive doubling. In other words, there need to be multiple ways for higher operators to access alternatives.

2.2 A syntactic primer on Cantonese exclusive doubling

This section discusses the syntax of the exclusive particles in doubling, namely, exclusive adverbial particle *zinghai* ‘only’ and exclusive sentence-final particle (SFP) *zaa3* in a doubling case like (9) in Cantonese. Specifically, I discuss whether the structural position of *zaa3* is higher than *zinghai*.

(9) Doubling of exclusive particles in Cantonese

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

Diagnosing the syntactic position of doubling particles is not a trivial issue. First, there is a debate around whether SFP *zaa3* is lower than the (TP) subject (Tang 1998; P. P.-I. Lee 2019) or above (A. Law 2002, 2004; B. Li 2006; Tang 2015b; P. Law 2021, *cf.* S. P. Cheng 2015 for a movement approach) (see also Erlewine 2017a for a *vP* peripheral position of Mandarin exclusive SFP *eryi* ‘only’, and counterpoints in Pan 2018; P. Law 2021, 2023). A close scrutiny is thus warranted.

Second, assuming that the syntactic position serves as an input of the LF to determine scope, whether *zaa3* is higher than *zinghai* in doubling cases like (6) is crucial to determine the semantic composition. Due to the sentence-final word order of *zaa3*, the structural position is not obvious from the linear order. As we will see below, *zaa3* is higher than *zinghai* in doubling cases, schematized in (10).

$$(10) \quad [\text{SFP}_{\text{EXCL}} = \text{zaa3} \dots [\text{Adv}_{\text{EXCL}} = \text{zinghai} \dots [\text{XP}_F \dots]]]$$

In other words, *zinghai* is embedded under the scope of *zaa3*. This is quite different from the widely studied cases of doubling with adverbial and adfocal particles, where the adfocal particles must be lower than the adverbial particles like (11), as shown by, for example, Erlewine (2017b) for Vietnamese adfocal *mõi* and adverbial *chi*.³ The two scopal configurations represent two types of exclusive doubling, which may require different compositional analyses.

$$(11) \quad [[\text{Adv}_{\text{EXCL}} \dots [\text{Prt}_{\text{EXCL}} [\text{XP}_F \dots]]]]$$

(but see Branen and Erlewine 2023 for configurations where Prt_{EXCL} is contained in XP_F)

I will show below that (i) *zaa3* occupies a position higher than CP, FocusP, and that (ii) *zinghai*, as an adverb, has flexible adjunction sites ranging from VP to CP, as in (12) (The labels CoAP and DegreeP will also be clarified in the following).

(12) The syntactic position of the doubling particles

$$[\text{CoAP} [\text{DegreeP} [\text{FocusP} \textbf{zaa3} [\text{CP} (\text{zinghai}) [\text{TP} (\text{zinghai}) [\text{VP} (\text{zinghai}) [\text{VP} (\text{zinghai}) [\text{V}' \text{ V Obj} \dots]]]]]]]]$$

Before proceeding, I provide the necessary background on the cartographic syntax of Cantonese SFPs in the next subsection.

2.2.1 Background on the cartographic syntax of Cantonese SFPs

Cantonese has a rich repertoire of sentence-final particles (SFPs). The dominant view is that they are functional heads, occupying designated positions on the “periphery” in a cartographic fashion (S.-P. Law 1990; Tang 1998, 2015a, 2015b, 2020; A. Law 2002; B. Li 2006; Sybesma and Li 2007; Wakefield 2020, *i.a.*). There are two properties of SFPs that are indicative of their syntactic positions.

First, SFPs may cluster, but only in a particular ordering. For example, the SFP *gam3zai6*, which expresses temporal approximation (Tang 2009; S. P. Cheng 2015), can only precede the epistemic SFP

3. An apparent counterexample is reported by Yip (2021) (footnote 8, ex. iii) for Yorùbá, where the adfocal *nikan* ‘only’ maybe pied-piped with the focus associate to a position higher than the adverbial *kàn* ‘only’. See Chapter 4.

gwaa3 expressing speaker's uncertainty (Tang 2015b) in (13a), but not otherwise in (13b).

(13) SFP clustering

- a. Aaming sik-zo jat wun min **gam3zai6 gwaa3**. (gam3zai6 < gwaa3)
 Ming eat-PFV one CL noodle SFP SFP
 'I guess Ming almost ate one bowl of noodles.'
- b. *Aaming sik-zo jat wun min **gwaa3 gam3zai6**. (*gwaa3 < gam3zai6)
 Ming eat-PFV one CL noodle SFP SFP

The strict ordering is taken to be reflecting the syntactic positions of the SFPs: the closer to the main verb, the lower the position (cf. Baker 1985's Mirror Principle). In (13), hence, the ordering reflects a higher position of *gwaa3* than *gam3zai6*:

- (14) a. Linear order: *gam3zai6* < *gwaa3*
 b. Syntactic position: [*gwaa3* ... [*gam3zai6* ...]]

Second, SFPs may co-occur with adverbials with similar semantic functions. For example, temporal SFP *gam3zai6* may co-occur with *geifu* 'almost' that also expresses approximation in (15a), and epistemic SFP *gwaa3* may co-occur with epistemic adverb *waakze* 'perhaps' (15b).⁴

(15) Co-occurring adverbials

- a. Aaming **geifu** sik-zo jat wun min **gam3zai6**.
 Ming almost eat-PFV one CL noodle SFP
 'Ming almost ate one bowl of noodles.'
- b. Aaming **waakze** sik-zo jat wun min **gwaa3**.
 Ming perhaps eat-PFV one CL noodle SFP
 'I guess Ming ate one bowl of noodles.'

Under Cinque (1999)'s cartographic approach, adverbials are specifiers (alternatively, adjuncts) of designated functional projections on an articulated clausal spine. As shown by a series of work by Tang (2006a, 2008, 2009) *et seq.*, these co-occurring adverbials serve to delimit the scope of corresponding

4. Note that both *geifu* and *waakze* may either precede and follow subjects. Subjects in Cantonese, however, are not always in SpecTP, but they can be a topic (i.e., SpecTopP), or even an inner subject in SpecvP for non-specific nominals (as W.-T. D. Tsai 2015 argues for Mandarin; cf. Diesing 1992). The relative ordering between adverbials and subjects thus cannot be taken at surface value for diagnosing structural positions, but careful tests should be applied.

SFPs, and must occur with the SFPs in the same clause. Tang dubs the co-occurrence cases as “discontinuous constructions”. Importantly, these adverbials obey the mirror ordering of SFPs. That is, *geifu* ‘almost’ must follow *waakze* ‘perhaps’, mirroring that *gam3zai6* must precede *gwaa3*.

(16) Mirror ordering of SFPs and co-occurring adverbials

- a. Aaming **waakze** **geifu** sik-zo jat wun min **gam3zai6** **gwaa3**.
Ming perhaps almost eat-PFV one CL noodle SFP SFP
‘I guess Ming almost ate one bowl of noodles.’
- b. *Aaming **geifu** **waakze** sik-zo jat wun min **gam3zai6** **gwaa3**.
Ming almost perhaps eat-PFV one CL noodle SFP SFP
- c. *Aaming **geifu** **waakze** sik-zo jat wun min **gwaa3** **gam3zai6**.
Ming almost perhaps eat-PFV one CL noodle SFP SFP

In Tang (2015b, 2020)’s system, there are five positions for SFPs, represented by triangle Δ below. For the ease of representation, I represent syntactic higher elements to the left of lower elements, without committing to the head directionality of SFPs (i.e., either head-initial or head-final).

(17) The syntactic position of SFPs in Tang (2015b, 2020)’s system

[_{CoAP} CoA- Δ [_{DegreeP} Degree- Δ [_{FocusP} Focus- Δ [_{TempP} Temp- Δ [_{EventP} Event- Δ ...

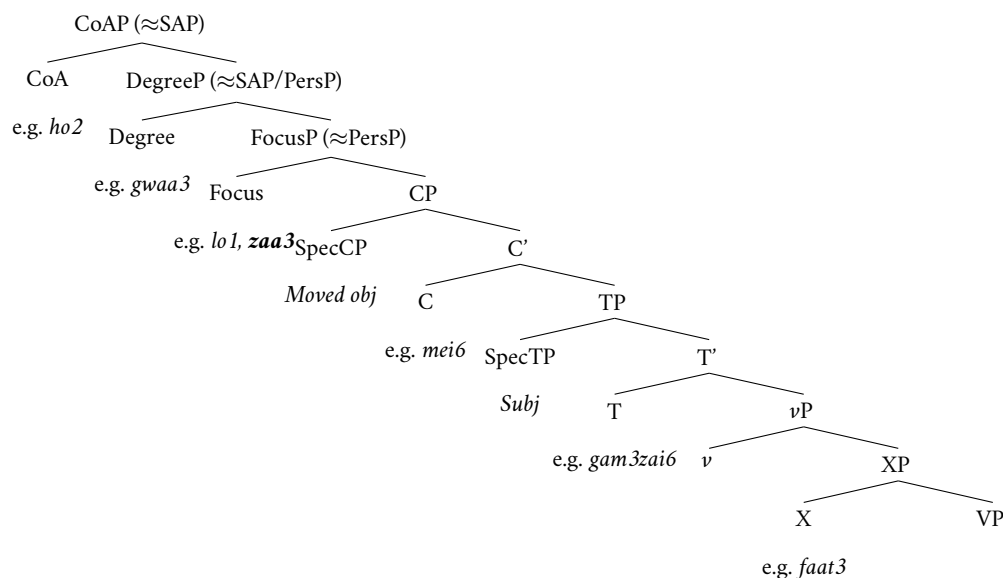
CoAP stands for Call-on-the-Addressee Phrase, which is occupied by SFPs like confirmational *ho2* that requires a response from the addressee (see Law, Li, and Bhadra 2018, 2024 for a discussion that *ho2* operates on speech acts). CoAP is the highest projection. DegreeP consists a class of SFPs of the modality type, the interrogative (question) type, and the imperative type. They express different “strengths” of the illocutionary force and degrees of the speaker’s commitment to the core proposition (i.e., Wiltschko and Heim 2016’s grounding). The rest of the projections are self-evident by their labels: focus-related SFPs for FocusP, temporal SFPs for TempP, event-related SFPs for EventP.

Tang’s CoAP and DegreeP roughly correspond to Dayal (2025a)’s SAP. FocusP and some SFPs in DegreeP roughly correspond to PersP.⁵ TempP roughly corresponds to the TP level, and EventP roughly corresponds to the ν P level. There are no SFPs corresponding to CP in Tang’s treatment. Based on his

5. For example, both *me1* and *maa3* are classified as Degree SFPs, but only the latter corresponds to PersP. *Me1* encodes negative bias and cannot be “quasi-subordinated” (in Dayal 2025a’s sense), corresponding to SAP. On the other hand, *maa3* forms neutral questions and may be quasi-subordinated, corresponding to PersP. See Yip (2025a) for a thorough discussion. Potentially, one can place *maa3* at FocusP together with *lo1* and *zaa3*, with appropriate relabeling of the projection.

2015 data on embeddability and SFP clustering, I refine Tang’s system as the following in (18) with CP and ν P added.⁶ The syntactic representation here shows the hierarchical structure instead of the linear order. The SFPs are linearized to the right of their complement.⁷

(18) The cartographic syntax of Cantonese SFPs



2.2.2 The syntactic position of adverbial *zinghai*

I begin with testing the syntactic position of the exclusive adverbial particle *zinghai* ‘only’. I employ three types of tests:

- (19) a. Focus association
- b. Syntactic embedding
- c. Adverbial ordering

The results are that *zinghai* ‘only’ has flexible adjunction position: as high as CP, as low as VP, as represented in (20) by triangle Δ :

6. While Tang (2015b, 2022b) places *mei6* on T, I follow Cheng, Huang, and Tang (1997) and put it on C since *mei6* forms interrogative clauses.

7. I remain agnostic to whether SFPs are head-initial or head-final. If SFPs are head-initial, the sentence-final order can be derived by movement of their complement to the left (Tang 1998; Simpson and Wu 2002b; T.-H. J. Lin 2006; L. Y.-L. Cheung 2009; Pan 2022). See particular Simpson and Wu (2002b) for an argument from tone sandhi in Taiwanese for this movement. If SFPs are head-final, the linear order is derived as expected, but there is an additional theoretical concern on the violation of the Final-over-Final Constraint (FOFC) (Paul 2014; Tang 2015b; Erlewine 2017b; cf. Holmberg 2000). See Erlewine (2017b) for a solution by restricting FOFC to individual Spell-Out domains.

(20) The syntactic position of adverbial *zinghai* ‘only’

[CoAP * Δ [DegreeP * Δ [FocusP * Δ [CP Δ [TP Δ [vP Δ [VP Δ [V' V * Δ Obj * Δ ...

Flexible adjunction sites of *zinghai*

The detailed test results are summarized in Table 2.1. $\geq$ indicates “higher than or equal to”, $\leq$ indicates “lower than or equal to”, $>$ indicates “higher than”. For example, $\geq v/VP$ indicates that *zinghai* is either higher than or equal to the v/VP level with regard to that test result.

Tests	Elements	<i>Zinghai</i>	Position
Focus association	Direct obj	✓ _{pre-VP}	$\geq v/VP$
	Indirect obj	✓ _{pre-VP}	$\geq v/VP$
	V	✓ _{pre-VP}	$\geq v/VP$
	VP	✓ _{pre-VP}	$\geq v/VP$
	Subj	✓ _{pre-Subj}	$\geq TP$
	Moved obj	✓ _{pre-MovedObj}	$\geq CP$
	CP	✓ _{pre-CP}	$\geq CP$
Syntactic embedding	Post-verbal	✗	$> V'$
	Type III (‘try’)	✓	$\leq vP$
	Type II (‘force’)	✓	$\leq TP$
	Type I (‘know’)	✓	$\leq CP$
Adverbial ordering - following:	Manner	✓	$\leq VP$
	Dynamic modal	✓	$\leq vP$
Adverbial ordering - preceding:	Epistemic _{objective} modal	✓	$\geq CP$
	Focus <i>mai</i>	✗	$< \text{FocusP}$
	Epistemic _{subjective} adverb	✗	$< \text{DegreeP}$
	Evidential adverb	✗	$< \text{DegreeP/CoAP}$

Table 2.1: Testing the syntactic position of adverbial *zinghai*

2.2.2.1 Focus association

I begin with testing focus association. Since adverbial exclusive particles (e.g., English *only*) must c-command their focus associate (Jackendoff 1972; Beaver and Clark 2008; Erlewine 2014), focus association serves as a useful test for the syntactic position of *zinghai* ‘only’.

First, *zinghai*, when occurring in a preverbal position as in (21), may associate with all the elements in the verb phrase, including the direct object, indirect object, verb, and the whole VP. The focus association may be made explicit by different continuations, such as “but not beef/pork” for direct object association. Different focus possibilities are notated as subscripted F (with numbering for ease of ref-

erence) in square brackets.

- (21) Aaming **zinghai** [_{VP} maai-zo_{F3} joengjuk_{F1} bei Aafan_{{F2}, {F4}}] (Association: DO/IO/V/VP)
 Ming only buy-PFV lamb to Fan
 ‘Ming only bought Fan lamb.’
 F1 (Direct object): ‘... but not beef/pork.’
 F2 (Indirect object): ‘... but not Koeng.’
 F3 (Verb): ‘... but not selling.’
 F4 (Verb phrase): ‘... but not selling pork to Koeng.’

Note that *zinghai* is an adverb, and cannot occur in a post-verbal position within VP, nor it can occur in a sentence-final position:

- (22) *Aaming [_{VP} maai-zo (**zinghai**) joengjuk (**zinghai**) bei (**zinghai**) Aafan] (**zinghai**)
 Ming buy-PFV only lamb only to only Fan only

Second, *zinghai* may precede a subject and associate with it in (23). Here, the subject is sandwiched between the epistemic modal *honang* ‘may, possible’ (above TP, after W.-T. D. Tsai 2015) and the deontic modal *jinggoi* ‘should’ (below TP), and is hence located in SpecTP (but not, say, higher at some SpecTopP or lower in SpecvP).

- (23) Honang **zinghai** [_{TP} Aaming_F jinggoi gaau gungfo]. (Association: SpecTP-subj)
 be.possible only Ming should submit homework
 ‘Maybe only *Ming* should submit the homework.’ (‘... but not Fan’)

Note that the pre-subject *zinghai* can no longer associate with VP materials at a distance, just like English pre-subject *only* (see Erlewine 2017b for an explanation based on Adjoin As Soon As Possible).

Third, *zinghai* may also precede a moved object in (24), which precedes the TP subject and is presumably located in SpecCP.

- (24) **Zinghai** [_{CP} [nibun syu]_F [_{TP} Aaming jinggoi tai _]]. (Association: SpecCP)
 only this book Ming should read
 ‘It is only *this book* that Ming should read.’

Last but not least, the whole clause may be *zinghai*’s focus associate. Here, *zinghai* takes scope over the TP-level SFP *lai4* which expresses recent past (Y. Y. Lai 2014; S. P. Cheng 2015).

- (25) a. Q: What happened in class yesterday?
- b. A: Mou dakbit, **zinghai** [_{CP} (waa) Lousi faatlau lai4]_F lo1. (Association: CP)
- not special only COMP teacher get.mad SFP SFP
- ‘Not much, only that the teacher got mad.’

In short, *zinghai* may attach to as low as *v*/VP or as high as CP to establish focus association.

2.2.2.2 Syntactic embedding

Next, I test how low *zinghai* can be embedded. As already shown in (22), *zinghai* is an adverb and cannot be embedded within VP in a post-verbal position. In the following, I recruit predicates that embed clauses with different sizes to test the position of *zinghai*. I adopt C.-T. J. Huang (2022)’s classification (see also Wurmbrand and Lohninger 2023; He 2020, 2024; Liu and Yip 2026), where Type I predicates target propositions and embed a CP-sized clause,⁸ Type II predicates target situations and embed a TP-sized clause, and Type III predicates target events and embed a *v*P-sized clause (i.e., Type III predicates are restructuring).

- (26) Three types of embedding predicates in Cantonese
- (adopted from C.-T. J. Huang 2022, originally for Mandarin)
- a. Type I: embed a CP (precisely, as large as FocusP), like *zidou* ‘know’, *gokdak* ‘think’
- b. Type II: embed a TP, like *bik* ‘force’, *kyutding* ‘decide’
- c. Type III: embed a *v*P, like *soengsi* ‘try’, *hoici* ‘begin’

As shown below, all the three types of predicates may embed *zinghai*, suggesting that *zinghai* may be as low as attaching to *v*P.

- (27) Aafan zidou [_{CP} Aaming **zinghai** tai-zo [nibun syu]_F]. (CP embedding)
- Fan know Ming only read-PFV this book
- ‘Fan knows that Ming only read this book.’

8. CP here is just a rough approximation. Some of the type I predicates allow “quasi-subordination” (i.e., can only be embedded by certain predicates like ‘wonder/want to know’ but not other predicates like ‘know’, see Dayal 2025a), and take a larger clause than CP.

(28) Aafan bik Aaming [TP **zinghai** tai [nibun syu]_F]. (TP embedding)

Fan force Ming only read this book

‘Fan forces Ming to only read this book.’

(29) Aaming soengsi [_{VP} **zinghai** tai [nibun syu]_F]. (vP embedding)

Ming try only read this book

‘Ming tries to only read this book.’

2.2.2.3 Adverbial ordering

The final set of diagnostics concerns the relative ordering of *zinghai* with adverbials with (rather) fixed positions on the clausal spine (cf. Cinque 1999). First, let us test the lower bound of *zinghai*. manner adverbs like *daaiseng-gam* ‘loudly’ can only follow dynamic modals like *gam* ‘dare’ or *hang* ‘be willing to’, but cannot precede them, as in (30). According to W.-T. D. Tsai (2015), dynamic modals are located low at the vP level. Since manner adverbs can only follow them, it is reasonable to assume that manner adverbs attach to VP, modifying the event.

(30) a. Aaming **gam/ hang** [_{VP} daaiseng-gam soeng Jyun-winggwong-gwai-HoengGong].

Ming dare be.willing.to loudly sing *Glory to Hong Kong*

‘Ming dares/ is willing to to sing *Glory to Hong Kong* loudly.’

b. *Aaming daaiseng-gam **gam/ hang** soeng Jyun-winggwong-gwai-HoengGong.

Ming loudly dare be.willing.to sing *Glory to Hong Kong*

Applying to *zinghai*, it can either precede or follow manner adverbs, as in (31). In other words, *zinghai* may attach to the VP level, either higher or lower than manner adverbs. Note that *zinghai* may still associate with the object when preceding the manner adverb. I notate the two focus association possibilities as F1 (with the adverb) and F2 (with the object) in curly brackets.

(31) a. Aaming **zinghai** [_{VP} daaiseng-gam_{F1} soeng-zo Jyun-winggwong-gwai-HoengGong_{F2}].

Ming only loudly sing-PFV *Glory to Hong Kong*

F1 (Adv focus): ‘Ming only sang *Glory to Hong Kong* loudly.’ (but not silently)

F2 (Obj focus): ‘Ming only sang *Glory to Hong Kong* loudly.’ (but not other songs)

- b. Aaming [_{VP} **daaiseng-gam** **zinghai** soeng-zo Jyun-winggwong-gwai-HoengGong_F].
 Ming loudly only sing *Glory to Hong Kong*
 ‘Ming only sang *Glory to Hong Kong* loudly.’ (but not other songs)

For the sake of completeness, we may also test the ordering of *zinghai* with regard to dynamic modals. As in (32), *zinghai* also can either take scope over (precede) or under (follow) dynamic modals. Thus, *zinghai* can also attach slightly higher to the *vP* level.

- (32) a. Aaming **zinghai** [_{VP} **gam** [_{VP} soeng Jyun-winggwong-gwai-HoengGong_F]].
 Ming only dare sing *Glory to Hong Kong*
 ‘Ming only dares to sing *Glory to Hong Kong*.’
 b. Aaming [_{VP} **gam** [_{VP} **zinghai** soeng Jyun-winggwong-gwai-HoengGong_F]].
 Ming dare only sing *Glory to Hong Kong*
 ‘Ming dares to only sing *Glory to Hong Kong*.’

Then, let us test the upper bound of *zinghai*. According to W.-T. D. Tsai (2015), epistemic modals like *honang* ‘may’ are higher than TP, that is, on the CP level. *Zinghai* may take scope over *honang* as in (33):

- (33) Nidi si zau **zinghai** [_{CP} **honang** wui hai keita gwokgaa faatsang].
 these event then only be.possible will at other country occur
 ‘It is only possible that these situations occur in other countries.’ (Internet example)

However, *zinghai* fails to take scope over the epistemic adverb *waakze* ‘perhaps’ as in (34), which co-occurs with the epistemic SFP *gwaa3* that conveys speaker’s uncertainty.

- (34) a. *Nidi si **zinghai** [_{DegreeP} **waakze** wui hai keita gwokgaa faatsang (gwaa3)].
 these event only perhaps will at other country occur SFP
 b. Nidi si [_{DegreeP} **waakze** **zinghai** wui hai keita gwokgaa faatsang (gwaa3)].
 these event perhaps only will at other country occur SFP
 ‘Perhaps that these situations will only occur in other countries.’

The difference between *waakze* and *honang* is that the former always conveys subjective epistemic attitude, whereas the latter may convey objective epistemic attitude (i.e., a mere possibility). Since *waakze*

(38) The syntactic position of adverbial *zinghai* ‘only’

[CoAP *Δ [DegreeP *Δ [FocusP *Δ [CP Δ [TP Δ [vP Δ [VP Δ [V' V *Δ Obj *Δ ...

Flexible adjunction sites of *zinghai*

2.2.3 The syntactic position of SFP *zaa3*

As mentioned above, there is a debate on whether SFP *zaa3* is lower than the (TP) subject or not, as summarized below:

(39) The syntactic position of *zaa3*

- a. TP-internal approach (Tang 1998; P. P.-l. Lee 2019)
- b. CP layer approach (A. Law 2002, 2004; B. Li 2006; Tang 2015b; P. Law 2021)
- c. PF movement from a TP-internal position to the CP layer (S. P. Cheng 2015)

I argue that only the **CP layer approach** captures the empirical facts about *zaa3*. I employ the following tests:

- (40) a. Focus association
- b. Syntactic embedding
- c. SFP cluster ordering

It will be shown that *zaa3* is located at a position higher than CP, namely, FocusP (FocP/FP):

(41) The syntactic position of SFP *zaa3*

[CoAP [DegreeP [FocusP ***zaa3*** [CP [TP [vP [VP [V' V Obj ...

The detailed test results are summarized in Table 2.2. Again, $\geq$ indicates “higher than or equal to”, $\leq$ indicates “lower than or equal to”, $>$ indicates “higher than”, $<$ indicates “lower than”. For example, $\geq$ CP indicates that *zaa3* is either higher than or equal to the CP level with regard to that test result.

2.2.3.1 Focus association

First, consider focus association. Just like adverbial *zinghai*, SFP *zaa3* may associate with elements in the verb phrase. The sentence in (42) is *at least* four-way ambiguous, depending on the whether the

Tests	Elements	Zaa3	Position
Focus association	Direct obj	✓	≥ v/VP
	Indirect obj	✓	≥ v/VP
	V	✓	≥ v/VP
	VP	✓	≥ v/VP
	Low adv	✓	≥ TP
	Subj	✓ _{marked}	≥ TP
	Moved obj	✓	≥ CP
	CP	✓	≥ CP
Syntactic embedding	Type III complement ('try')	✗	> vP
	Type II complement ('force')	✗	> TP
	RCs/NP complement clauses	✗	> CP
	Subject clauses	✗	> CP
	Central adv. clauses	✗	> CP
	Type I complement ('know')	✓	≤ FocusP
	Peripheral adv. clauses	✓	≤ FocusP
SFP ordering - following:	TP SFPs	✓	> TP
	FocusP SFPs	✗	≤ FocusP
	DegreeP SFPs	✗	≤ DegreeP
SFP ordering - preceding:	FocusP SFPs	✗	≥ FocusP
	DegreeP SFPs	✓	< DegreeP

Table 2.2: Testing the syntactic position of SFP *zaa3*

focus falls on the direct object, indirect object, verb, or the whole verb phrase.

(42) *Zaa3* may associate with VP elements

Aaming [vp maai-zo_[F3] joengjuk_[F1] bei Aafan_[F2]]_[F4] **zaa3** (Association: DO/IO/V/VP)

Ming buy-PFV lamb to Fan SFP.only

‘Ming only bought Fan lamb.’

F1 (Direct object): ‘... but not beef/pork.’

F2 (Indirect object): ‘... but not Koeng.’

F3 (Verb): ‘... but not selling.’

F4 (Verb phrase): ‘... but not selling pork to Koeng.’

It has been claimed by Tang (1998) that *zaa3* cannot associate with subjects, which are located in SpecTP, while it may associate with pre-verbal materials that are syntactically lower than TP, including disposal *zoeng*-NP (comparable to Mandarin *ba*), instrumental adverbials, locative adverbials, and causees in causatives (see also S. P. Cheng 2015). An example of association with a locative adverbial is shown below.

(43) Zaa3 may associate with low pre-verbal elements

Ngo [hai tousyugun]_F tai syu **zaa3**. (association: Locative)

1sg at library read book SFP.only

'I only read books *in the library* (but not somewhere else).' (Tang 1998:45)

However, whether *zaa3* may associate with syntactically higher elements such as temporal adverbials and subjects has been controversial. I focus on the case of subjects below.¹⁰ As mentioned above, Tang (1998) points out that *zaa3* cannot associate with subjects. It is true that with a transitive verb phrase in (44), the more natural association is with the object, rather than the subject, despite that both are proper names.

(44) Marked association of *zaa3* with subjects

Aafan_{F1} zungji Aaming_{F2} **zaa3**. (association: ??Subj / Obj)

Fan like Ming SFP.only

More plausible F2 (object): 'Fan only likes *Ming* (but not someone else).'

Less plausible F1 (subject): 'Only *Fan* (but not someone else) likes *Ming*.'

However, with an intransitive verb, like the unergative *haam* 'cry' in (45), association with the subject becomes plausible, though association with the verb is also possible.

(45) Aafan_{F1} haam_{F2} **zaa3** (ji m-hai keita jan/ siu). (association: Subj / V)

Fan cry SFP.only but not other person laugh

F1 (subject): 'Only *Fan* (but not someone else) cries.'

F2 (verb): 'Fan only *cries* (but not laughs).'

Moreover, with a demonstrative, the subject receives exclusive focus even with a transitive VP.

(46) [Nigo jan]_{F1} zungji Aaming_{F2} **zaa3**. (association: Subj / Obj)

this person like Ming SFP.only

F1 (subject): 'Only *this person* (but not someone else) likes *Ming*.'

F2 (object): 'This person only likes *Ming* (but not someone else).'

Also, as pointed by A. Law (2002, 2004) and S. P. Cheng (2015), an answer to a *wh*-subject question, or a stress on the subject (notated by big caps), facilitates the subject focus association.

10. For temporal adverbials like 'tomorrow', Tang (1998, p.45) reports that association is possible if they follow subjects, but S. P. Cheng (2015, pp.160–161) points out that there is speaker variation.

(47) a. Q: **Who** likes Ming?

b. A: Aafan_F zungji Aaming **zaa3**. (association: Subj)

Fan like Ming SFP.only

‘Only *Fan* (but not someone else) likes Ming.’

(48) AAFAN_F zungji Aaming **zaa3**. (association: Stressed Subj)

Fan like Ming SFP.only

‘Only *Fan* (but not someone else) likes Ming.’

I thus conclude that subject focus association is in principle possible, though it might not be the default interpretation with the presence of an object.

Apart from TP-internal materials, *zinghai* may also associate with a moved object in SpecCP, as in

(49).¹¹

(49) Zaa3 may associate with moved objects in SpecCP

[_{CP} [nibun syu]_F [_{TP} Aaming jinggoi tai _]] **zaa3**. (Association: SpecCP)

this book Ming should read SFP.only

‘It is only *this book* that Ming should read.’

Last but not least, *zaa3* may also associate with a whole CP, just like *zinghai*.¹²

(50) Zaa3 may associate with the whole clause (CP)

a. Q: What happened in class yesterday?

b. A: Mou dakbit, [_{CP} Lousi faatlau (lai4)]_F **zaa3**. (Association: CP)

not special teacher get.mad SFP SFP.only

‘Not much, only that the teacher got mad.’

11. Note that A. Law (2002) (p.389-390) and S. P. Cheng (2015) (p.162-163) report that association with a topic is not possible (even with a stress), as in (i) below. There are two differences between (i) and (49): the derived object in (i) comes in a bare form whereas it has a demonstrative in (49); and the derived object in (i) serves as an aboutness topic followed a topic marker *ne I* and a pause, whereas in (49) it bears a cleft-like focus without a following pause.

(i) [Si]_[F1] ne1, [_{CP} [_{TP} Ngo tai-gwo]_[F2] _]] **zaa3**. (Association: *Topic / V)
poem TOP 1SG read-EXP SFP.only
Only F2 (V): ‘As of poems, I only read (but not wrote) them.’
Impossible F1 (Topic): ‘I read only poems (but not novels).’

12. Tang (1998) and S. P. Cheng (2015) report that in some sentences (e.g. with a definite object), the co-occurrence of *lai4* and *zaa3* is not natural, though in some other cases it is natural (e.g. with an indefinite object). See the section on SFP clustering for more discussion.

2.2.3.2 Syntactic embedding

Now we turn to syntactic embeddability. As we will see below, *zaa3* cannot be embedded in regular-size CPs, but may be embedded in the environments that allow main clause phenomena (like quasi-subordination in Dayal 2025a; also known as embedded root phenomena Heycock 2006, 2017; Aelbrecht, Nye, and Haegeman 2012; Haegeman 2012, *i.a.*).

- (51) a. *_{[CP-matrix ... [CP-embedded ... *zaa3* ...] ...}
 b. ^{OK}_{[CP-matrix ... [FP-embedded-root ... *zaa3* ...] ...} (FP = FocusP)

First, *zaa3* cannot be embedded in relative clauses in (52) or complement clauses of a noun in (53). Assuming the RCs/NP complement clauses are CPs, the unembeddability indicates that *zaa3*'s position is higher than CP. Note that these sentences would have been grammatical with *zinghai* replacing *zaa3*.

(52) *Zaa3* cannot be embedded under relative clauses

- *Ngo sikdak [_{DP} gogo [_{CP} tai-zo [nibun syu]_F **zaa3**] ge jan].
 1SG know that read-PFV this book SFP.only GE person
 Int.: 'I know that person [who only read *this book*].'

(53) *Zaa3* cannot be embedded under NP complement clauses

- *Ngo zidou-zo [_{DP} [_{CP} Aafan tai-zo [nibun syu]_F **zaa3**] ge siusik].
 1SG know-PFV Fan read-PFV this book SFP.only GE news
 Int.: 'I know the news that [Fan only read *this book*].'

Second, similarly, subject clauses also reject *zaa3* in (54):

(54) *Zaa3* cannot be embedded under subject clauses

- *_{[CP} Aafan tai [nibun syu]_F **zaa3**] beigaau hapsik.
 Fan read this book SFP.only more suitable
 Int.: '[That Fan only reads this book] is better.'

Third, we test complement clauses taken by a verb using C.-T. J. Huang (2022)'s typology of embedding predicates. Type I predicates like *zidou* 'know' may embed *zaa3*, as evidenced by the ambiguity in (55). There are two scopal readings, yielding different felicitous continuations. *Zaa3* may take wide scope over the matrix verb *zidou* 'know', indicative of the matrix clause position; or take narrow scope

under ‘know’, indicative of the embedded position. This is due to the sentence-final word order of *zaa3*, where the embedded and matrix parsings are indistinguishable by linear order.

(55) *Zaa3* can be embedded under Type I predicates

Go lousi zidou Aaming duk-zo faatman_F **zaa3**.

CL teacher know Ming take-PFV French SFP.only

only > know: ‘The teacher only knows that Ming took French.’ (and doesn’t know that Ming took German)

know > only: ‘The teacher knows that Ming only took French.’ (and knows that Ming didn’t take German)

(56) Two parsings

a. The teacher knows [Ming took French] *zaa3*

b. The teacher knows [Ming took French *zaa3*]

To avoid this confound, we may front the complement clause. As can be seen in (57), *zaa3* can be fronted along with the clause, and disambiguate the reading to a narrow scope one, suggesting that *zaa3* can indeed be embedded.

(57) [Aaming duk-zo faatman_F **zaa3**], go lousi zidou __.

Ming take-PFV French SFP.only CL teacher know

‘The teacher knows that Ming only took French.’ (and knows that Ming didn’t take German)

While the above initially seems to contradict the results in relative, NP complement and subject clauses, it is well-known that complement clauses may accommodate embedded root materials (e.g., quasi-subordination in Dayal 2025a, see also Heycock 2017). I thus take the embedded facts to indicate that *zaa3* is higher than CP, but not as high as DegreeP SFPs (e.g., negative biased question SFP *me1* which cannot be quasi-subordinated, see Yip 2025b). In other words, *zaa3* is at FocusP.

Proceeding to Type II and Type III predicates, unsurprisingly, they both cannot embed *zaa3*, suggesting that *zaa3* must be higher than TP and *v*P. The complement clauses are fronted from the final position to the initial position to avoid the confound that *zaa3* may be parsed on the matrix level.

(58) Zaa3 cannot be embedded under Type II (TP-embedding) predicates

*[_{TP} Tai [nibun syu]_F **zaa3**], Aafan bik Aaming __.

read this book SFP.only Fan force Ming

Int.: 'Fan force Ming to only read this book.'

(59) Zaa3 cannot be embedded under Type III (vP-embedding) predicates

*[_{vP} Tai [nibun syu]_F **zaa3**], Aaming soengsi __.

read this book SFP.only Ming try

Int.: 'Ming tries to only read this book.'

Finally, turning to adverbial clauses, we see a non-uniform pattern just like complement clauses. In the so-called central adverbial clauses (CACs; see citations below), *zaa3* cannot be subordinated, such as the event conditional clause in (60). In contrast, *zaa3* may be subordinated in the so-called peripheral adverbial clauses (PACs; also see below), such as the inferential (rationale) clause in (61).

(60) Zaa3 cannot be subordinated in central adverbial clauses

*[Jyugwo keoi tou-dak [jatbun syu]_F **zaa3**], lousi zau m-lau. (CAC)

if 3SG steal-only one book SFP.only teacher then not-mad

Int.: 'If s/he only stole one book, the teacher won't get mad.'

(61) Zaa3 can be subordinated in peripheral adverbial clauses

[Geijin keoi tou-dak [jatbun syu]_F **zaa3**], nei zau m-hou lau laa1. (PAC)

since 3SG steal-only one book SFP.only 2SG then not mad SFP

'Since s/he only stole one book, let's not get mad.'

It is again well-known that peripheral adverbial clauses also allow main clause phenomena (Aelbrecht and Haegeman 2012; Haegeman 2012; see also Yip 2022a for Cantonese). For example, the discourse particle *jau* 'lit. again', which signals that "the speaker finds [some salient] action or assumption to be unjustified" (Wei 2020:59 for Mandarin *you*), displays main clause phenomena (Wei and Li 2018). While it cannot be embedded in a CAC such as an event conditional, it can be embedded under a PAC like an inferential clause.¹³

13. Similar contrasts have been reported for complement clauses (OK) vs. relative clauses (*) in Wei and Li (2018).

(62) Contrasts in adverbial clauses in main clause phenomena

- a. *[Jyugwo Aaming **jau** m-hai jausam ge3], nei zau fonggwo keoi laa1. (CAC)
 if Ming JAU not intentional SFP 2SG then forgive 3SG SFP
 Int.: ‘You might as well forgive Ming if he (*obviously) is not intentional (in doing something).’
- b. [Geijan Aaming **jau** m-hai jausam ge3], nei zau fonggwo keoi laa1. (PAC)
 since Ming JAU not intentional SFP 2SG then forgive 3SG SFP
 ‘Since Ming obviously is not intentional (in doing something), you might as well forgive him.’
 (Adopted from Wei and Li 2018’s Mandarin example, ex 80a-b)

In short, the above tests suggest that *zaa3* is located at a position that displays main clause phenomena, i.e., it is higher than CP but not as high as DegreeP (or Dayal 2025a’s SAP) such that it may be embedded under complement clauses and peripheral adverbial clauses, namely, FocusP.

Notice that, however, the above test results could be reinterpreted according to a decompositional analysis of *zaa3*. Under the influential approach in Sybesma and Li (2007) (see also Fung 2000; Leung 2005; B. Li 2006; Tang 2006a, i.a.), *zaa3* may be decomposed into *z* + *aa3*, the latter being an SFP that is higher up in the structure. For expository purpose, I notate the *aa3*-less version as *z3*. It is thus possible that *z3* is way lower in the structure (going back to the TP-internal approach), and it is only *aa3* that is not readily embeddable. Following S. P. Cheng (2015), *z3* moves to *aa3* to form *zaa3* in the PF.

(63) Hypothesized TP-internal position of *z3* with decomposition (to be rejected)

[FocusP *aa3* [CP [TP ... **z3** ...]]]

Nevertheless, (63) is not tenable. First, the focus association patterns already showed that *zaa3* can associate with subjects (SpecTP), SpecCP or the whole CP. To the extent that focus sensitive operators must c-command their associates in the LF, *z3* must move to the higher FocusP position as early as in narrow syntax (*against* S. P. Cheng 2015’s PF movement approach), to ensure that it c-commands the focus associate in the CP/TP layer.

Second, SFP clustering provide a configuration where *z3* is *separated* from *aa3*, yet *z3* still occupies a position higher than T. This is the direct evidence against placing *z3* in a TP-internal position, which will be discussed in the next subsection.

2.2.3.3 SFP cluster ordering

When *zaa3* is followed by other SFPs, its realization is reduced to *z3*. The vowel of *z3* may be a schwa (not in the phonological inventory of Cantonese lexical words), a short <a> /ɐ/, or a harmonic vowel (such as <o> /ɔ/ when the following SFP's vowel is /ɔ/). I notate all the reduced forms as *z3* below.

First, *z3* can be followed by DegreeP SFPs like the epistemic *gwaa3*, but not otherwise (Tang 2015b: 301), as in (64). Here, *aa3* is “taken up” by *gwaa3* and *z3* cannot be pronounced in a full form as *zaa3*.

(64) *z3* can only precede DegreeP SFPs

- a. Keoi sik-zo jat wun ***z3*** ***gwaa3***. (z3 < gwaa3)
 3SG eat-PFV one CL SFP.only SFP
 ‘I guess s/he only ate one bowl.’
- b. *Aaming sik-zo jat wun ***gwaa3/gw3*** ***z3/zaa3***. (*gwaa3/gw3 < z3/zaa3)
 3SG eat-PFV one CL SFP SFP.only

Second, importantly, even when *z3* precedes *gwaa3*, *z3* still can only follow TP-level SFPs such as *gam3zai6* ‘almost’, but not otherwise.

(65) *z3* can only follow TP-level SFPs

- a. Dak keoi jatgo lai ***gam3zai6*** ***z3*** gwaa3. (gam3zai6 < z3)
 only 3SG one come SFP SFP.only SFP
 ‘I guess only almost s/he alone come.’
- b. *Dak keoi jatgo lai ***z3*** ***gam3zai6*** gwaa3. (*z3 < gam3zai6)
 only 3SG one come SFP.only SFP SFP

An Internet example is given below, where *z3*, while preceding evidential SFP *wo3*, follows *gam3zai6*:

- (66) a. Nidaan je zanhai seon-faasang ***gam3zai6*** ***z3*** wo3. (gam3zai6 < z3)
 this thing really pure-peanut SFP SFP.only SFP
 ‘This is really only almost purely gossips (lit.: peanut).’ (Internet)
- b. *Nidaan je zanhai seon-faasang ***z3*** ***gam3zai6*** wo3. (*z3 < gam3zai6)
 this thing really pure-peanut SFP.only SFP SFP

Crucially, the ungrammaticality (65b) and (66b) is unlikely to be due to semantic conflict. As shown in (67), adverbial *geifu* ‘almost’, which co-occurs with *gam3zai6*, may take wide scope over exclusive *zinghai* ‘only’, indicating the failure of the order *gam3zai6* < *z3* in the above two examples is syntactic.

(67) **Geifu zinghai** keoi jatgo lai **gam3zai6**.

almost only 3SG one come SFP

‘Almost only s/he alone come.’

The same ordering restriction applies to other TP-level SFPs such as *zyu6* (NPI ‘yet’) and *lai4* (recent past) (but see footnote 12):

(68) a. Keoi mei hoici tai [nibun syu]_F **zyu6 z3** gwaa3. (zyu6 < z3)

3SG not.yet begin read this book SFP SFP.only SFP

‘I guess it’s only that s/he hasn’t started reading this book yet.’

b. *Keoi mei hoici tai [nibun syu]_F **z3 zyu6** gwaa3. (*z3 < zyu6)

3SG not.yet begin read this book SFP.only SFP SFP

(69) a. Keoi tausin sei-zo saamgaaf ce **lai4 z3** gwaa3. (lai4 < z3)

3SG just.now wash-PFV three car SFP SFP.only SFP

‘I guess s/he only washed three cars just now.’ (modified from S. P. Cheng 2015:165)

b. *Keoi tausin sei-zo saamgaaf ce **z3 lai4** gwaa3. (*z3 < lai4)

3SG just.now wash-PFV three car SFP.only SFP SFP

Third, *z3* cannot co-occur with another FocusP SFP *lo1*, in both orders:

(70) *z3* is incompatible with other FocusP SFPs

a. *[Nigo jan]_F wui lai **z3 lo1**. (*z3 < lo1)

this person will come SFP.only SFP

Int.: ‘Obviously it’s only this person who will come.’

b. *[Nigo jan]_F wui lai **lo1 z3/zaa3**. (*lo1 < z3/zaa3)

this person will come SFP SFP.only

Int.: ‘It’s just that obviously this person will come.’

Again, the ban does not seem to be a semantic conflict. Recall in (37) (reproduced below) that *zinghai* can only follow *mai6*, which marks the scope of *lo1* (a focus particle of “obviousness”, cf. P. P.-I. Lee 2024). Hence, in principle *lo1* may embed a focus sensitive operator under its scope. The ban on the order *z3 < lo1* is thus likely to be syntactic. In other words, *z3* and *lo1* occupy the same position: head of FocusP.

- (71) [_{FocusP} **Mai zinghai** Aaming_F wui tingjat lai **lo1**].
 FOC only Ming will tomorrow come SFP
 ‘Isn’t it just that only *Ming* will come tomorrow?’

To summarize, *zaa3*, even in its reduced form *z3*, occupies a position higher than TP SFPs but lower than DegreeP SFPs, and cannot co-occur with another FocusP SFP *lo1*. It is thus natural to conclude that *z3/zaa3* hosts FocusP.

2.2.4 Relative position of *zinghai* and *zaa3* in doubling

It is now clear that the SFP *zaa3* is higher up at FocusP, whereas adverbial *zinghai* ‘only’ can only attach as high as to CP:

- (72) The syntactic position of the doubling particles
 [CoAP [_{DegreeP} [_{FocusP} **zaa3** [_{CP} (*zinghai*) [_{TP} (*zinghai*) [_{VP} (*zinghai*) [_{VP} (*zinghai*) [_{V'} V Obj ...

Thus, in doubling cases like (6) (reproduced below), *zaa3* is *syntactically higher* than *zinghai*:

- (73) Aaming **zinghai** maai-zo joengjuk_F bei Aafan **zaa3** (Doubling)
 Ming only buy-PFV lamb to Fan SFP.only
 ‘Ming only bought Fan *lamb* (but not beef or pork).’

One direct argument comes from co-occurring adverbials. Recall that *geifu* ‘almost’ marks the scope of TP SFP *gam3zai6*. When *zinghai* occurs lower than *geifu*, it also takes scope under *gam3zai6*, as in (74). In other words, *zinghai* is lower than TP.

- (74) Keoi **geifu zinghai** sik-zo [jatwun min]_F **gam3zai6**.
 3SG almost only eat-PFV one noodle SFP
 ‘S/he almost only ate one bowl noodle.’

Importantly, doubling is possible, where *zaa3* follows *gam3zai6* and is higher than TP.

- (75) Keoi **geifu** **zinghai** sik-zo [jatwun min]_F **gam3zai6** **zaa3**.
 3SG almost only eat-PFV one noodle SFP SFP.only
 ‘S/he almost only ate one bowl noodle.’

To summarize the whole second part, the above discussion has shown that *zaa3* is **syntactically higher** than *zinghai* in doubling cases, with the schema in (76). This also serves as the LF configuration feeding the semantic composition.

- (76) [**SFP**_{EXCL}=*zaa3* ... [**Adv**_{EXCL}=*zinghai* ... [XP_F ...]]]

2.3 Form-meaning mismatches in Cantonese exclusive doubling

Let us start with the paradigms of exclusive SFP doubling in Cantonese. As shown in (77a-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.

- (77) 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).’

2.3.1 At-issue exclusivity

The exclusiveness of *zinghai*, *zaa3*, and their doubling is *at-issue*, and may be directly challenged, questioned or negated, as illustrated in (78)-(81). Consider (78) first. The singleton cases in (a-b) with either *zinghai* or *zaa3* express an exclusive proposition that Ming did not buy anything besides lamb. Such exclusiveness can be directly challenged by (d), followed by an additive proposition of Ming buying pork. Importantly, the doubling case in (c) has the same truth conditions as in the singleton cases and

can be directly challenged by (d).

(78) Can be directly challenged

- a. A1: Aaming **zinghai** maai-zo joengjuk_F
Ming only buy-PFV lamb
'Ming only bought lamb.'
- b. A2: Aaming maai-zo joengjuk_F **zaa3**
Ming buy-PFV lamb SFP.only
'Ming only bought lamb.'
- c. A3: Aaming **zinghai** maai-zo joengjuk_F **zaa3**
Ming only buy-PFV 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-PFV pork
'No. (Ming also bought pork.)'

(79) shows that the same patterns carry over to questions, where the exclusiveness in both the singleton cases (a-b) and the doubling case (c) can be questioned with the negative answer in (d).

(79) Can be questioned

- a. A1: Aaming hai-m-hai **zinghai** maai-zo joengjuk_F?
Ming be-not-be only buy-PFV lamb
'Did Ming only buy lamb?'
- b. A2: Aaming hai-m-hai maai-zo joengjuk_F **zaa3**?
Ming be-not-be buy-PFV 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-PFV 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 prejacents*

B: M-hai. {^{OK}Aaming zung maai-zo zyujuk/ #Aaming mou maai joengjuk}
 no Ming also buy-PFV pork Ming not.PFV buy lamb
 ‘No. (^{OK}Ming also bought pork/ #Ming didn’t buy lamb.)’

It may also be questioned by yes-no question SFP *aa4* (low falling tone 4) in (80).¹⁴

- (80) 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

The exclusiveness can also be negated, as in (81).¹⁵

- (81) Can be negated

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

Ming not-be only buy-PFV lamb therefore 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.)

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

15. *Zaa3* can only be negated by the sentential negation *m-hai* ‘not’ in a rhetorical question like (81b), or with the presence of *zinghai* like (81c). 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-PFV 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) (with the [$\neg$ > only] reading, i.e., *zaa3* is negated by *m-hai*). Among the five native speakers I consulted, two found (i) unacceptable and three found it unnatural. I set aside this issue now, but stress that the crucial point here is that negation may take wide scope over exclusivity in the fully acceptable doubling case (c) or the rhetorical question (b).

- b. Aaming m-hai maai-zo joengjuk_F **zaa3** me?! (#Soji gammaan mou joengjuk
Ming not-be buy-PFV lamb SFP.only SFP.Q therefore 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-PFV lamb SFP.only therefore tonight no
joengjuk sik)
lamb eat
'Ming didn't only buy lamb (, #so we don't have lamb for dinner tonight).'

Note that (81) additionally shows that the prejacent is presupposed since its truth projects up through negation and cannot be followed by a proposition that is inconsistent with the prejacent. The presupposition is not-at-issue and cannot be questioned and answered directly, as can be seen from the contrast in possible negative answers in (79d) above. This is similar to English *only* (e.g., Horn 1969). The inference may project through questions, as can be seen above. The nature of this inference is subject to debate in English. Since it does not have a direct bearing on the proposal, I set aside this issue and take it to be a presupposition of the prejacent.¹⁶

The paradigms above constitute a form-meaning mismatch. The presence of either *zinghai* or *zaa3* (singleton cases) yields at-issue exclusiveness, implying that both are exclusive operators. Yet, the truth conditions remain unchanged with doubling, suggesting that only one can be the operator for compositionality. The immediate question is which one is the operator. There are three logical possibilities: (i) *zinghai*, (ii) *zaa3*, or (iii) neither one—there always is a null operator.

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

(82) Three logical possibilities in the doubling cases

- a. *Zinghai* is the exclusive operator; or
- b. *Zaa3* is the exclusive operator; or
- c. Neither one is the exclusive operator—there always is a null operator.

2.3.2 Diagnosing the semantic import

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.):

- (83) AAMING_{*F1} **zinghai** tai zungmansyu_{F2} (, Aafan dou hai.)
 Ming only read Chinese.book Fan also be
 'Ming only reads *Chinese books*. (Fan as well.)'

Note further that SFP *zaa3* may associate with subjects (A. Law 2004; S. P. Cheng 2015) as discussed above and illustrated again below.

- (84) AAMING_F tai zungmansyu **zaa3** (, #Aafan dou hai.)
 Ming read Chinese.book SFP.only Fan also be
 'Only *Ming* reads Chinese books. (# Fan as well.)'

Now, consider (85) where both the subject and object are focused. Surprisingly, *zaa3* now *fails* to associate with the stressed subject, unlike (84). 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.

AAMING_(*F1) **zinghai** tai zungmansyu_{F2} **zaa3** (, seojin Aafan dou zinghai tai
Ming only read Chinese.book sFP.only though Fan also only read
zungmansyu_{F2} syu.)
Chinese book

Not multi-‘only’: ‘Only MING only reads Chinese books. (And Fan reads both Chinese books and English books.)’ (Subj & Obj exclusive focus)

(86) Dependent focus association in exclusive doubling

- In contrast, when there is another *zinghai* above the subject, *zaa3* may associate with the subject as in (87).¹⁷ The multi-‘only’ reading becomes available, and indeed is the only available reading.

- 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 and Hirsch (2017), Bassi, Hirsch, and Trinh (2022), and 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 later).

58

(88) a. [*zaa3* ... [**OP(=zinghai)** ... [XP_F ...]]] (doubling cases)

b. [*zaa3* ... [**OP(=EXCL-Ø)** ... [XP_F ...]]] (singleton *zaa3* cases)

The dependency in (88) 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?

2.4 Scalarity in exclusive doubling

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. In other words, *zaa3* encodes an extra scalar component. I will first give tests for this component in §2.4.1, and then turn to its not-at-issue status in §2.4.2.

2.4.1 A scalar component

2.4.1.1 Salience

Let us consider contextual salience first. In (89), 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.

(89) 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.)

There are different ways for discourse participants to be aware of a salient alternative proposition, summarized in (90).

(90) Ways for discourse participants to be aware of a salient alternative proposition

- a. Through linguistic means (modals, questions, assertions, etc.)
- b. Contextually structured alternatives (exhaustive sets and partitioned sets)
- c. Alternatives through world knowledge

For example, salience may be achieved by linguistic antecedents in the discourse. In (91), *zaa3* is licensed by a previous assertion, and strengthens the “corrective” sense. Without (91a), uttering (91b) out of the blue would be infelicitous.

(91) Previous assertion licenses *zaa3*

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

Epistemic modals also make their prejacent proposition salient by “proffering” it (Portner 2009). Consider (92), where P asserts a modalized proposition. This proposition, together with the prejacent ‘there are two reds’, is salient.

(92) *Po and Ming are playing Mastermind. After some rounds where Ming gives Po hints about the solution,*
 ... (adapted from von Stechow and Gillies 2007:45)

- a. P: Neidou honang jau loeng lap hungsik.
 here possible have two CL red
 ‘There might be two reds.’
- b. Set of salient propositions = $\{\Diamond \phi_{red,2}, \phi_{red,2}, \dots\}$

Zaa3 is able to target the proposition $\phi_{red,2}$. *Zaa3* is felicitous in (93a), where $\phi_{red,2}$ is an alternative proposition excluded by *zinghai*. Also, *zaa3* can target the asserted modalized proposition $\Diamond\phi_{red,2}$ as well, as shown in (93b). *Zinghai* takes wide scope over the epistemic modal, and $\Diamond\phi_{red,2}$ is one of the excluded alternatives.

(93) *Zaa3* is felicitous in (92)

- a. $ALT_{c,r} = \{\phi_{red,1}, \phi_{red,2}, \dots\}$ ¹⁸

M1: M-hai. Neidou **zinghai** dak jat_F lap hungsik (**zaa3**).

no here only have one CL red SFP.only

‘No, there is only *one* red.’

(targeting ϕ)

- b. $ALT_{c,r} = \{\Diamond\phi_{red,1}, \Diamond\phi_{red,2}, \dots\}$

M2: M-hai. Neidou **zinghai** honang jau jat_F lap hungsik (**zaa3**).

no here only possible have one CL red SFP.only

‘No, the only possibility is that there is *one* red.’

(targeting $\Diamond\phi$)

Next, consider the contrast between non-D-linked *wh*-questions and alternative questions. *Zaa3* is only allowed in the latter but not the former. The scenarios are reproduced in (94). While a non-D-linked *wh*-word triggers a set of alternatives and combines pointwise with other items to become a set of possible answers, I suggest that the answer set is not salient. Instead, only an existential proposition is made salient, namely, ‘Ming bought something’ (or ‘Ming bought some meat that one can buy in a US market’ with contextual restriction). In (a), without the alternatives being named, the addressee “you” is not aware of which alternative proposition the speaker “I” is aware of. No excluded alternatives are salient enough to license *zaa3* in (c). In (b), in contrast, the speaker creates an exhaustive set by explicitly mentioning the alternatives lamb, beef and pork in the question. The addressee’s attention is drawn to ϕ_l , ϕ_p , ϕ_f , as well as the fact that the speaker is aware of the three propositions, achieving mutual awareness. ϕ_p and ϕ_f are excluded in (c), which satisfies *zaa3*’s requirement.

18. $ALT_{c,r}$ stands for the alternative set that *zaa3* operates on, which is the same as the set that *zinghai* operates on, as will be proposed.

(94) Non-D-linked *wh*-questions vs. alternative questions¹⁹

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). You answer (c).

a. *Scenario A: non-D-linked *wh*-questions*

“What did Ming buy?”

$ALT_{c,x} = \{x | x \text{ is meat that one can buy in a US market}\} = \{l, p, b, c, \dots\}$

(“grow” into $\{\phi_l, \phi_p, \phi_b, \phi_c, \dots\}$; where $\phi_l = \lambda w. BUY(l)(m)(w)$, etc.)

Set of salient propositions = $\{\phi_{\exists x}, \dots\}$ (where $\phi_{\exists x} = \lambda w. \exists x [BUY(x)(m)(w)]$)

b. *Scenario B: alternative questions*

“Did Ming buy lamb, pork, or beef?”

$ALT_{c,x} = \{l, p, b\}$

Set of salient propositions = $\{\phi_{\exists x}, \phi_l, \phi_p, \phi_b, \dots\}$

c. *Zaa3 felicitous in B, infelicitous in A*

Aaming **zinghai** maai-zo joengjuk_F (^{a./b.OK}**zaa3**).

Ming only buy-PFV lamb SFP.only

‘Ming only bought lamb.’

Apart from linguistic means, a contextually structured alternative set may also make propositions salient and make *zaa3* felicitous. First, consider the difference between the non-exhaustive set in Scenario A and the exhaustive set in Scenario B in (95). With *zaa3*, (96) can be used in Scenario B but not Scenario A. In Scenario A, no alternatives are made salient in the context for discourse participants to be aware of. Scenario B, in contrast, creates an exhaustive set $\{\text{lamb, beef, lamb}\}$ and excludes the possibility of buying other meat, which narrows the domain ALT_c like alternative questions in (94b). Discourse participants are thus attentive to the only three available items and the corresponding propositions ‘Ming bought lamb’, ‘Ming bought pork’, and ‘Ming bought beef’. The three propositions are made salient (with the latter two excluded by *zinghai*), licensing the use of *zaa3*.

19. The alternative question has the relevant partition regarding the context and hence is D-linked.

(95) Making alternatives salient by creating an exhaustive set

a. *Scenario A: Unstructured non-exhaustive sets*

Ming went to the meat section of a US market with us. I left earlier.

$$ALT_{c,x} = \{x|x \text{ is meat that one can buy in a US market}\} = \{l, p, b, c, \dots\}$$

$$\text{Set of salient propositions} = \{\phi_{\exists x}, \dots\}$$

b. *Scenario B: exhaustive sets*

Ming went to the meat section of a US market with us in the evening. The store was about to close, and the only things left in the section were lamb, pork, and beef. I left earlier.

$$ALT_{c,x} = \{l, p, b\} \quad \text{Set of salient propositions} = \{\phi_{\exists x}, \phi_l, \phi_p, \phi_b, \dots\}$$

(96) Zaa3 felicitous in Scenario B but not A

... I asked you what Ming bought, you answer:

Aaming **zinghai** maai-zo joengjuk_F (^{A./B.OK}**zaa3**).

Ming only buy-PFV lamb SFP.only

'Ming only bought lamb.'

Second, the context may also "highlight" some alternatives without excluding the others. Consider Scenario C in (97) and Scenario D in (98). *Zaa3* can only be used in the former.

(97) Scenario C: Making alternatives salient by creating a partitioned non-exhaustive set

Ming went to the meat section of a US market with us. We saw that pork and beef just arrived and they were really good today. I left earlier.

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

$$\text{Set of salient propositions} = \{\phi_{\exists x}, \phi_{good,p}, \phi_{good,b}, \phi_p, \phi_b, \dots\}$$

(98) Scenario D: asymmetry in alternative-relevant contextual information

Ming went to the meat section of a US market with you. Ming and I saw that pork and beef just arrived and they were really good today. I did not come with you two.

$$\text{For Spkr: } ALT_{c,x} = \left\{ \begin{array}{l} y|y \text{ is good meat to the speaker only (i.e., you),} \\ z|z \text{ is other meat that one can buy in a US market} \end{array} \right\} = \left\{ \begin{array}{l} p, b, \\ l, c, \dots \end{array} \right\}$$

$$\text{For Addressee: } ALT_{c,x} = \{x|x \text{ is meat that one can buy in a US market}\} = \{l, p, b, c, \dots\}$$

$$\text{Set of salient propositions} = \{\phi_{\exists x}, \dots\}$$

(99) Zaa3 felicitous in Scenario C but not D

... I asked you what Ming bought, you answer:

Aaming **zinghai** maai-zo joengjuk_F (C.OK/D.#} **zaa3**).

Ming only buy-PFV lamb SFP.only

‘Ming only bought lamb.’

In Scenario C, pork and beef are salient because of their good quality. This may be understood as a consequence of partition: the alternative is partitioned according to quality: meat that is in good quality (pork and beef), and other unmentioned meat. Since it is a normal expectation that one buys good meat, discourse participants are aware of the possibility that ‘Ming bought pork’ and ‘Ming bought beef’; but not buying other meat. Note that the focused expression itself does not need to be salient in the preceding context: ‘Ming bought lamb’ is *not* mentioned before. For *zaa3* to be felicitous, only the excluded alternatives pork or beef (either one, or both) need to be salient (i.e. lamb is contrasted with them).²⁰

Yet, discourse participants might not share the same contextual information. In Scenario D, for example, “I” did not know that pork and beef are of good quality, though that piece of information is available to “you”. Hence, when the speaker “you” utters *zaa3* in (99), the addressee “I” does not have access to the alternative set with the relevant partition, unlike the speaker. Such asymmetry leads to non-mutual-awareness of the salience of ϕ_p, ϕ_b . Thus *zaa3*’s requirement is not satisfied and cannot be used.

20. (i) gives one more case of partitioning $ALT_{c,x}$. The context partitions the set to be Japanese food and other food. By common knowledge to the discourse participants, sushi and ramen are typical Japanese food. Thus, both participants are aware of the possibility that ‘Ming ate x such that x is typical Japanese food’, i.e. ‘Ming ate sushi’ and ‘Ming ate ramen’. *Zaa3* can thus be used.

(i) *Scenario: Ming went to a food court with you. That food court has many Japanese restaurants. I heard about that and wanted to come. Yet, I could not make it, and asked you what Ming ate. You answered (b).*

a. $ALT_{c,x} = \left\{ \begin{array}{l} y|y \text{ is Japanese food,} \\ z|z \text{ is other food in a typical US food court} \end{array} \right\} = \left\{ \begin{array}{l} \text{sushi, ramen,} \\ \text{pizza, burger, salad...} \end{array} \right\}$
Set of salient propositions = $\{\phi_{\exists x}, \phi_{many.J.food}, \phi_{sushi \in J.food}, \phi_{ramen \in J.food}, \phi_{sushi}, \phi_{ramen}, \dots\}$

b. Aaming **zinghai** sik-zo pisaaf_F (**zaa3**)
Ming only eat-PFV pizza SFP.only
‘Ming only ate pizza.’ (but not sushi or ramen)

I discuss cases of world knowledge below, as in (100). By world knowledge, cows are herbivore and pigs are omnivore. For cows, only the proposition with focus ‘cows eat *plants*’ is in the world knowledge, which is part of the Common Ground (CG), but not the excluded alternatives such as ‘cows eat insects’. *Zaa3* is thus infelicitous.

(100) World knowledge only allows one option

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 (b).

- a. $ALT_{c,x} = \{x | x \text{ is food for cows or pigs}\} = \{plants, insects, eggs, \dots\}$
 $CG = \{\phi_{cows, plant}, \phi_{pig, grass}, \phi_{pig, insects}, \dots\}$
- b. Ngau **zinghai** sik zikmat_F (**#zaa3**). Soji ngaujuk hoji zou cisan. (Zyu zung cow only eat plant SFP.only So beef can serve.as sashimi pig also sik-mai kwancung, soji zyujuk m-hoji.)
eat-ALSO insect so pork not-may
‘Cows only eat plants. So, beef can be used for sashimi.’ (Pigs also eat insects, so pork cannot be used.)

Different from (100), (101) discusses pigs and multiple alternatives (e.g. ‘pigs eat plants’, ‘pigs eat insects’, etc.) are in world knowledge. Hence, the excluded alternatives (e.g. ‘pigs eat insects’) are in the CG. *Zaa3*’s felicity condition is met.

(101) Excluded alternatives are in the world knowledge

Ming, Fan and you are biology students. Today, you read a recent paper that due to domestication, pigs only eat plants now. You say (b) to Ming and Fan.

- a. $ALT_{c,x} = \{x | x \text{ is food for pigs}\} = \{plants, insects, eggs, \dots\}$
 $CG = \{\phi_{pig, plants}, \phi_{pig, insects}, \dots\}$
- b. Nei zi-m-zi aa3? Jyunloi zyu **zinghai** sik zikmat_F (**zaa3**)!
you know-not-know SFP actually pig only eat plants SFP.only
‘Do you know that? Pigs actually only eat plants!’

2.4.1.2 Contextual scale

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 (102). 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.

(102) A contextually salient scale licenses *zaa3*

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 bezauf] **zaa3!** (doubling)

Ming only drink-PFV beer SFP.only

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

I present three 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 (103). Due to listing, all the alternatives are equally salient (beer=_{salient} wine=_{salient} vodka). Also, no ABV scale is invoked.

(103) 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 hungzau (#**zaa3**), C **zinghai**

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

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

buy-PFV vodka SFP.only

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

Second, consider a test of an "equal-to-expectation" reading. It involves a numeral, which is supposed to trigger a numerical scale <1,2,3,...> elsewhere. However, the context below *suppresses* the numerical scale by making the expectation "1" salient, which is the **same** number in the prejacent. *Zaa3* is not licensed.

(104) An “equal-to-expectation reading” with scales suppressed

*Bear, Snake, and Fish threw a party. Since very often people/animals overlap in bringing drinks but not food, they planned for each to bring one kind of thing. Squirrel asks Crab what they brought. Crab answers, **everyone was supposed to bring one thing, and they did only bring one thing**: Bear brought the food, Snake brought the drink, and Fish brought the music.*

- a. Mui-zek dungmat dou **zinghai** daai-zo jatjoeng_F je lai (#**zaa3**).
 every animal all only bring-PFV one thing come SFP.only
 ‘Every animal (did) only bring one thing.’
- b. #Mui-zek dungmat dou daai-zo jatjoeng_F je lai **zaa3**.
 every animal all bring-PFV one thing come SFP.only
 Int.: ‘Every animal (did) only bring one thing.’

To salvage this sentence, one must make a higher number on the numerical scale be salient, such as “2”. Hence, at least one excluded alternative is ranked higher than “1” on a contextually salient scale, which renders *zaa3* felicitous.

(105) *Bear, Snake, and Fish threw a party. They planned to each bring two kinds of things. However, all of them failed and only brought one.*

Mui-zek dungmat dou **zinghai** daai-zo jat-joeng_F je lai **zaa3**.
 every animal all only bring-PFV one thing come SFP.only
 ‘Every animal only brought one thing.’

Third, *zaa3* is banned when associating with the *upper bound* of a scale. The context in (106) 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).²¹ 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.

21. While Beaver and 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).

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

You ask a teacher who is the {a. best/ b. worst} student. The teacher answered: Ming is the {a. best/ b. 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.'

In the following, I discuss the not-at-issue status of this scalar component of *zaa3*.

2.4.2 The not-at-issue status

I show the not-at-issue status of *zaa3* by discussing (i) its projection behavior and (ii) its absence of truth conditional effects in exclusive doubling, with comparison to English scalar *only* which has different truth conditions from the quantificational *only*.

2.4.2.1 Projection

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 (with *zaa4* in low falling tone 4) is given in (107). The scalar component cannot be questioned.

(107) *Same context as (102):*

- 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.)

Zaa3's scalar component is different from presuppositions in that it is always projective and even projects through 'plugs' (Karttunen 1973). Let us contrast *zaa3*'s scalar component with *zinghai*'s pre-

suppositions of the prejacent, which concerns the CG. First, *zinghai*'s NAI component regarding the truth of the prejacent, like presuppositions, shows different projection properties regarding 'holes' and 'plugs' (Karttunen 1973): while it may project through negation and questions as we have seen, it is blocked by non-factive attitude verbs (as in (108a) below). In contrast, *zaa3*'s NAI contribution projects through non-factive attitude verbs as in (108b), showing similarities to conventional implicature (Potts 2005, 2007). In (108b), *zaa3* is embedded under 'think', but it is still infelicitous since both discourse participants are not aware of any salient alternatives.

(108) *Scenario: Ming went to the meat section of a US market with Fan. You and I did not come, and I ask you what Fan thinks that Ming bought. You answer:*

a. Non-factive attitude verbs block *zinghai*'s presupposition

Aafan gokdak [Aaming **zinghai** maai-zo joengjuk]. (Daan ngo gokdak Aaming
Fan think Ming only buy-PFV lamb but I think Ming
ganbun mou maai joengjuk.)
indeed not.PFV buy lamb

'Fan thinks that Ming only bought lamb. (But I think that Ming did not buy lamb at all.)'

b. Non-factive attitude verbs do not block *zaa3*'s requirement

Aafan gokdak [Aaming **zinghai** maai-zo joengjuk (**#zaa3**)]
Fan think Ming only buy-PFV lamb SFP.only
Int.: 'Fan thinks that Ming only bought lamb.'

Second, *zinghai*'s presupposition can be accommodated if the prejacent is not controversial (cf. von Stechow 2008). Yet, *zaa3*'s requirement cannot be accommodated: in Scenario D in (98), reproduced below, the addressee did not go to the market and was not aware of the excluded alternatives (i.e. pork and beef, which are of good quality). Since the addressee knew that the speaker went to the market, there is no reason for the addressee to think that no alternatives are salient to the speaker. If accommodation were possible, the speaker should be able to use *zaa3*, contrary to the facts. These two differences suggest that *zaa3*'s NAI component, unlike *zinghai*'s, is not a presupposition-like requirement.²²

22. Curiously, Simons et al. (2010) also notes that the CG requirement of anaphors resists accommodation: *she* in (i) can be felicitous only when there is a salient unique woman in the "common ground" (p.313), which cannot be accommodated.

(i) If she didn't sleep in the hammock, I don't know where she slept.

(109) Scenario D: asymmetry in alternative-relevant contextual information

- a. *Ming went to the meat section of a US market with you. Ming and I saw that pork and beef just arrived and they were really good today. I did not come with you two.*

$$\text{For Spkr: } ALT_{c,x} = \left\{ \begin{array}{l} y|y \text{ is good meat in } c \text{ in relative to the speaker (i.e. you),} \\ z|z \text{ is other meat that one can buy in a US market} \end{array} \right\} = \left\{ \begin{array}{l} p, b, \\ l, c, \dots \end{array} \right\}$$

$$\text{For Addressee: } ALT_{c,x} = \{x|x \text{ is meat that one can buy in a US market}\} = \{l, p, b, c, \dots\}$$

$$\text{Set of salient propositions} = \{\phi_{\exists x}, \dots\}$$

- b. *... I asked you what Ming bought, you answer:*

Aaming **zinghai** maai-zo joengjuk_F (#**zaa3**).

Ming only buy-PFV lamb SFP.only

'Ming only bought lamb.'

2.4.2.2 The lack of truth-conditional effects

The second aspect of the not-at-issue status of *zaa3*'s scalarity is that it has no truth-conditional effects, unlike English scalar *only*. I will first introduce the quantificational and scalar uses of *only* in English, which differ in truth conditions. While both are exclusive, they perform exclusion on different kinds of scales (see more discussion in §2.7), leading to the difference. Then, I will compare *zaa3* with scalar *only*, and show that while both contain a scalar component, *zaa3*'s scalarity does not have truth conditional effects and is not-at-issue.

Scalar *only* is known to differ from quantificational *only* in two truth-conditional-related aspects (e.g., Klinedinst 2004; Coppock and Beaver 2014; Alxatib 2020). First, non-logically weaker alternatives are *not* excluded when being lower ranked, as in (110). SFP doubling with *zaa3*, in contrast, excludes all the relevant alternatives as long as they are not entailed by the prejacent, as confirmed by (111).²³

- (110) a. Jess only managed to interview Alex_F (, # also Mary). (quantificational)
- b. Jess only managed to interview a [first lieutenant]_F. (scalar)
- (She also interviewed second lieutenants.)

(adapted from Alxatib 2020:30)

23. For (111) to be natural, *zinghai* must be replaced by scalar *zihai* 'only, just'. Same for (113) below. See more discussion in §2.7.

(111) Scenario: [Taiwan: 1 gold | Hong Kong: 1 silver 1 bronze]

Ming and you are discussing which team performed the best in the last Olympic game. You said:
Taiwan was definitely better, because ...

??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 (112). 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 (113).

(112) 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)

(113) ??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.'

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

(114) Mary didn't invite **only/just** John and Mike. (quantificational)

→ Mary invited John and Mike (Coppock and Beaver 2014:379)

(115) a. This isn't **only** a pointless 'shoot-em-up' movie. (scalar)

→ This is a pointless 'shoot-em-up' movie. (Beaver and Clark 2008:235)

b. John isn't **just/%only** a graduate student. (scalar)

→ John is a graduate student. (Coppock and Beaver 2014:379)

Cantonese *zinghai*'s prejacent always projects up through negation, even with the presence of *zaa3*.

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

2.4.3 Interim summary

Table 2.3 summarizes the test results of the scalar component of *zaa3* in doubling cases. Note that singleton *zaa3* cases (not shown here) behave like doubling cases in #1-4, but not in #5-7—see §2.7.

Tests	Reading	$p < \text{non-logical strength } q?$	Singleton <i>zinghai</i>	Doubling with <i>zaa3</i>
#1a Lack of salience	quant.	No	OK	#
#1b With salience	quant.	Yes (salience)	OK	OK
#2 Listing	quant.	No	OK	#
#3 Equal-to-expectation	quant.	No	OK	#
#4a Upper bound	quant.	No	OK	#
#4b Lower bound	quant.	Yes (difficulty)	OK	OK
#5 Rank order (compatible alt.)	scalar	Yes (medal)	#	#
#6 Rank order (incompatible alt.)	scalar	Yes (test ranking)	#	#
#7 Prejacent negated	scalar	Yes (academic ranks)	#	#

Table 2.3: Summary of the tests of scalarity in Cantonese exclusive doubling

2.5 Proposal: 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*.

- (117) Exclusive doubling realizes scalar focus structures in Cantonese

$$[\text{zaa3}_{[\text{Scalarity}]} \dots [\text{zinghai}_{[\text{Exclusivity}]} \dots \text{XP}_F \dots]]$$

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 and 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:

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

- I. *Zaa3* requires the presence of *zinghai*/EXCL;
- 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*.

2.5.1 A scalar focus approach

2.5.1.1 The proposed semantics and implementation

I propose that adverbial *zinghai* as well as its null counterpart EXCL are the exclusive operators with the semantics in (119). On the at-issue (AI) level, they negate all the alternatives in C_i that are not entailed by the prejacent p . They also presuppose p on the not-at-issue (NAI) level.

$$(119) \quad \llbracket \text{zinghai/EXCL} \rrbracket(C_i) = \lambda p \lambda w. \quad \mathbf{AI:} \quad \forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$$

$$\mathbf{NAI:} \quad p(w)$$

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 (120). 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. 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. When the context does not provides a scale, the alternatives are ranked by their salience (i.e., contextual salience is also a scale).²⁴

24. See §2.7 for more discussion on the nature of scales that license *zaa3* and other exclusives.

(120) a. $\llbracket zaa3 \rrbracket(C_i) = \lambda r \lambda w. \mathbf{AI}: r(w)$; where r is an exclusive proposition (to be derived)

$\mathbf{NAI}: \exists p, q \in C_i [(r \cap q = \emptyset \wedge r \cap p \neq \emptyset) \rightarrow p <_s q]$

b. **NAI:**

(i) there exists a proposition q such that q is in C_i , and q is not compatible with r (i.e. q is excluded by r);

(ii) there exists a proposition p such that p is in C_i , and p is compatible with r (i.e. p is not excluded by r);

(iii) and q is ranked higher than or equal to p on some scale s .

There is however a problem with accessing alternatives. As motivated by the empirical patterns above, 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 (as Rooth 1992 originally proposes, also widely assumed), whereas $\sim_{\text{pass}}$ does not and simply passes up the ALT input value (=121), as in (122a). This solution has been proposed by several authors in different empirical domains (e.g., recursive exhaustification for free-choice inferences, Fox 2007; Crnič 2013; Bade and Sachs 2019; association of exclusives with *wh*, Erlewine 2025). 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 (122b). It directly captures Dependencies II (parasitic focus association) and III (ranking the same ALT) in (118).

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

(122) a. The non-resetting approach

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

└──┘

b. The co-indexation approach

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

└────────────────────────────────┘

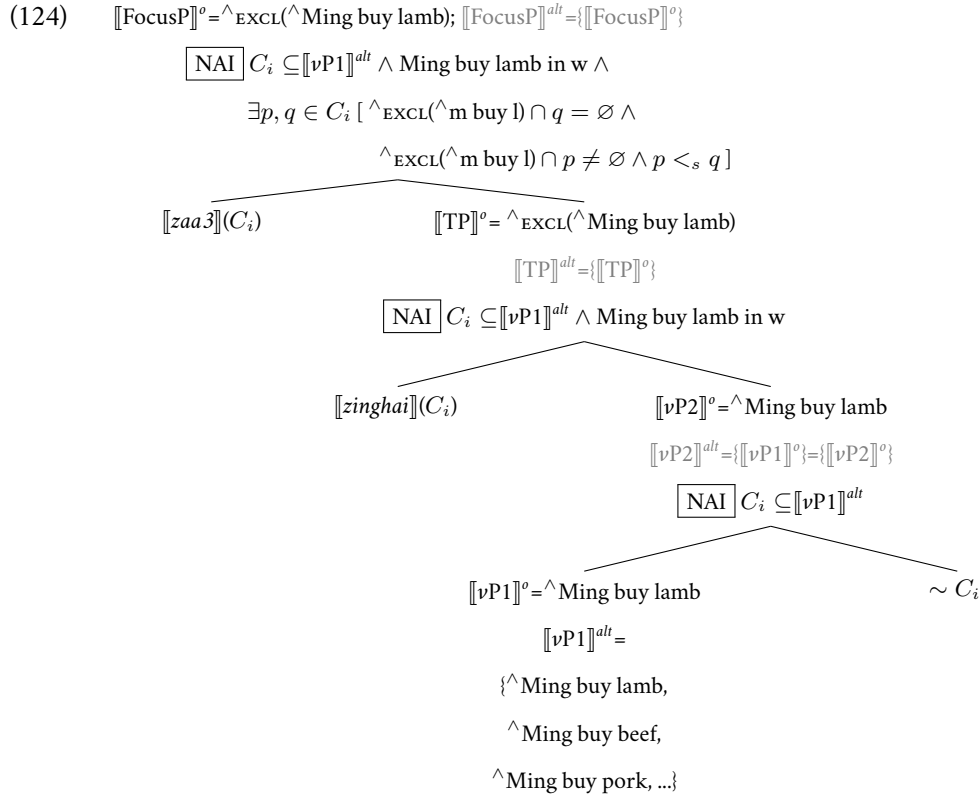
In the following, I will show how the co-indexation approach derives exclusive doubling, and then discuss some unattested predictions made by the non-resetting approach. Consider (123), where *zaa3* is licensed by contextual salience. The LF structure is given in (123b). Beef is highlighted in the context

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 (123c).

(123) *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. [_{FocusP} **zaa3**(C_i) [_{TP} **zinghai**(C_i) [_{NP2} $\sim C_i$ [_{NP1} Ming [_{v'} buy [_{DP} lamb_F]]]]]]
└──────────┘ (Structure simplified; Subj. reconstructed to SpecvP)
- c. $C_i = \{^{\wedge}\text{Ming buy pork}, ^{\wedge}\text{Ming buy lamb}, ^{\wedge}\text{Ming buy beef}\}$
where [[^]Ming buy lamb] _{salience} [[^]Ming buy beef]

The co-indexation approach derives the correct reading of (123), as computed in (124). 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 [[^]*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 FocusP (above CP, which is ignored here for simplicity), *zaa3* takes the exclusive proposition ($\llbracket \text{TP} \rrbracket$) as the prejacent. Because its C_i is co-indexed with *zinghai*’s, the alternatives visible to *zaa3* are also $\{^{\wedge}\text{m buy l}, ^{\wedge}\text{m buy b}, ^{\wedge}\text{m buy p}\}$. On the NAI level, *zaa3* requires that the proposition compatible with $\llbracket \text{TP} \rrbracket$, i.e., [[^]*m buy l*], to be ranked lower than a proposition that is excluded by $\llbracket \text{TP} \rrbracket$ 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.



A question arises as to why the co-indexing must be enforced. There are two possibilities. First, *z*aa3 may always track the most salient C_i in the context, which also restricts the domain of *zinghai*. This solution faces difficulties when there is another focus operator between *zinghai* and *z*aa3 (hence another C_j), such as “even” focus discussed later.

Second, it is possible that *z*aa3 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.*). Such an agreement approach is prevailing in the literature of exclusive doubling (e.g., Quek and Hirsch 2017). A tentative morphological evidence is that the onset *z*- is shared by exclusive morphemes in Cantonese:

- (125) a. Exclusive SFPs: *z*aa3, *z*e1 and their variants (Sybesma and Li 2007)
- b. Exclusive adverbs ‘only’: *zing*6, *z*ai1 and *zi*2²⁵

I shall also emphasize that the requirement of an exclusive operator does not follow automatically from a syntactic agreement approach, given that syntactic Agree may “fail” under the most recent framework (Preminger 2014; Deal 2025, *i.a.*). That is, if a suitable goal for agreement is absent, the features on probe may still be realized as a default, rather than giving rise to ungrammaticality. It does not

25. Except the verb/verbal suffix *dak*1 whose origin is ‘acquire’, cf. Tang (2003).

mean that Agree is optional: the probe must Agree with the goal if there is any. One can understand the “failed” agreement as a last resort by default features. If we adopt such a view, we still need an account of the requirement of exclusiveness under *zaa3*’s scope, which I argue should be semantic in nature, as will be shown later.

2.5.1.2 Accessing lower alternatives

After seeing how the co-indexation allows access to lower alternatives in doubling, let us consider the not-resetting approach. (126) gives the LF of (123).

$$(126) \quad \underbrace{[_{\text{FocusP}} \text{zaa3}(C_j) [_{\text{TP2}} \sim_{\text{reset}} C_j [_{\text{TP1}} \text{zinghai}(C_i) [\sim_{\text{pass}} C_i [_{\text{M}} \text{buy } \lambda_{\text{PF}}]]]]]]}$$

Computing (126) gives the same exclusiveness like (124), but the NAI reading of *zaa3* is slightly different. *Zaa3* takes C_j , which is constrained by $[[\text{TP1}]]^{\text{alt}}$. Crucially, $[[\text{TP1}]]^{\text{alt}}$ is a pre-exhaustified set that contains the exclusive, as in (127). The required ordering is that $[\wedge_{\text{EXCL}}(\wedge m \text{ buy } l)]$ is ranked lower than some excluded alternatives. That is, a proposition like “Ming only bought beef” should be salient.

- (127) a. $[[\text{TP1}]]^o = \wedge_{\text{EXCL}}(\wedge m \text{ buy } l)$
 b. $[[\text{TP1}]]^{\text{alt}} = \{ \wedge_{\text{EXCL}}(\wedge m \text{ buy } l),$
 $\quad \wedge_{\text{EXCL}}(\wedge m \text{ buy } p),$
 $\quad \wedge_{\text{EXCL}}(\wedge m \text{ buy } b), \dots \}$
 c. *Zaa3* requires: $[\wedge_{\text{EXCL}}(\wedge \text{Ming buy } \lambda_{\text{PF}})] <_s [\wedge_{\text{EXCL}}(\wedge \text{Ming buy } \text{beef})]$

Nevertheless, a *non*-exclusive proposition in the discourse (128a) is sufficient to license *zaa3* in the following sentence (128b). Here, $[\wedge_{\text{EXCL}}(\wedge m \text{ buy } l)]$ is not salient.

- (128) 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 (128a), on a par with EXH for scalar implicature (e.g., Fox 2007). Yet, “Ming bought all the meat” in (129a) can also license *zaa3* in (129b):

(129) 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 on vacuous uses (e.g., Alxatib 2020), as in (130). Thus, the assertion in (129a) cannot be exhaustified. What (129a) makes salient is $[\wedge m \text{ buy } l+b+p]$ (assuming there are only three meats). It is excluded by *zinghai* and ranked higher than $[\wedge m \text{ buy } l]$, satisfying *zaa3*’s requirement generated by the co-indexation approach (but not the non-resetting approach).

(130) #Aaming **zinghai** maai-zo *cyunbou*_F juk.

Ming only buy-PFV all meat

‘#Ming only bought all the meat.’

See Chapter 3 for another argument based on intervention effects, which can only be captured by the co-indexation approach but not the non-resetting approach.

2.5.2 Driving the dependencies

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 (118)). 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 and Hirsch 2017; Sun 2021), I suggest that a semantic explanation is also possible, which follows from the NAI component of *zaa3*.

The semantics of *zaa3*, reproduced in (131), requires identification of excluded alternatives (underlined). This in fact is already enough to derive the requirement of *zaa3* 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 (131).

(131) $\llbracket \text{zaa3} \rrbracket(C_i) = \lambda r \lambda w. \text{AI: } r(w)$

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 (132) (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.

$$(132) \quad \llbracket \text{EVEN} \rrbracket(C_i) = \mathbf{AI}: \quad \lambda p \lambda w. p(w) \\ \mathbf{NAI}: \quad \forall q[(q \in C_i \wedge q \not\subseteq p) \rightarrow p <_{\text{likely}} q]$$

This prediction is borne out in (133). The focus operator within *zaa3*'s scope is *lin* 'even'. As shown in (133b), *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, [$\wedge m$ 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.

(133) *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 maa_i-maa_i] (***zaa3**).

Ming unexpectedly even lobsters also buy-ALSO SFP.only

(I say to you) 'Ming even bought *lobsters*!'

- b. $r = \wedge \text{Ming buy lobsters}$

$C_i = \{\wedge \text{Ming buy lobsters}, \wedge \text{Ming buy rice}, \wedge \text{Ming buy beef}, \dots\}$

$\rightsquigarrow \nexists q[q \in C_i \wedge (r \cap q = \emptyset)]$

2.6 On the nature of covert exclusive operators

This section aims to elucidate the nature of covert exclusive operators associated with certain exclusive focus particles, taking Cantonese (*zinghai...*)*zaa3* as an illustration. Recall that I propose a null counterpart of *zinghai*, *EXCL*, to account for the exclusiveness in singleton *zaa3* cases. This follows the operator-particle approach (Quek and Hirsch 2017; Bassi, Hirsch, and Trinh 2022; Hirsch 2022; Sun

2021; Branan and Erlewine 2023, i.a.).

(134) a. Aaming maai-zo joengjuk_F bei Aafan **zaa3**. (Singleton *zaa3* cases)

Ming buy-PFV lamb to Fan SFP.only
 ‘Ming only bought Fan *lamb* (but not beef or pork).’

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

$\mathbf{NAI}: p(w)$

c. $\llbracket \text{FocusP } \text{zaa3}(C_i) \llbracket \text{TP EXCL}(C_i) [\sim C_i \llbracket_{\text{VP}} \text{Ming} \llbracket_{\text{V}} \text{buy} \llbracket_{\text{DP}} \text{lamb}_F \rrbracket \text{ for Fan}] \rrbracket \rrbracket$

On the other hand, covert exhaustification operators have also been proposed in the literature in various empirical domains (e.g., Fox 2007; Chierchia 2013, i.a.).²⁶ The semantics of the exhaustification operators like EXH, however, is different from EXCL, which presupposes the prejacent and asserts the exclusivity. EXH is proposed to assert both the prejacent and the exhaustivity. A presupposition variant of EXH, PEX, even only asserts the prejacent and presupposes the exhaustivity (Bassi, Del Pinal, and Sauerland 2021). For simplicity, I will focus on EXH and set PEX aside.

(135) a. $\llbracket \text{EXH} \rrbracket(ALT) = \lambda p \lambda w. p(w) \wedge \forall q[(q \in ALT \wedge q(w)) \rightarrow p \subseteq q]$

b. $\llbracket \text{EXCL} \rrbracket(ALT) = \lambda p \lambda w : p(w). \forall q[(q \in ALT \wedge q(w)) \rightarrow p \subseteq q]$

c. $\llbracket \text{PEX} \rrbracket(ALT) = \lambda p \lambda w : \forall q[(q \in ALT \wedge q(w)) \rightarrow p \subseteq q]. p(w)$

(136) Three types of covert exclusive operators

a. **EXCL**: for exclusive doubling

b. **EXH**: for exhaustification

c. **PEX**: for exhaustification (presuppositional EXH; Bassi, Del Pinal, and Sauerland 2021)

26. These domains include:

(i) Empirical domains of covert exhaustification operators

- Questions: strong exhaustiveness (Groenendijk and Stokhof 1984; Von Stechow and Zimmermann 1984; Nicolae 2013; Fox 2018; cf. Xiang 2022 for mention-some answers)
- Scalar implicature (Chierchia 2004; Fox 2007; Chierchia, Fox, and Spector 2012; Chierchia 2013; Fox and Spector 2018; Bassi, Del Pinal, and Sauerland 2021, a.m.o.)
- Free choice effects (Chierchia 2006; Fox 2007; Chierchia 2013; Alxatib 2014; Bar-Lev 2018; Bar-Lev and Fox 2020; cf. Kratzer and Shimoyama 2002; Alonso-Ovalle 2005)
- NPI licensing and intervention effects (Chierchia 2004, 2013)
- Exceptives (Gajewski 2013; Hirsch 2016; Crnić 2018)
- Certain occasions with *even* (Crnić 2013)

- d. *Differing in which meaning component is presupposed or asserted*

	Presupposed	Asserted
EXCL	prejacent	exclusivity
EXH		prejacent+exclusivity
PEX	exclusivity	prejacent

The co-existence of different covert exclusive/exhaustive raises the following questions. First, what is the nature of EXCL? Why does it exist in the first place? Second, can EXCL be reduced to EXH (or PEX), independently argued for in exhaustification? Third, what regulates the distribution of EXCL?

In the following, I first give a background on exhaustification in §2.6.1, outlining its crucial motivation and core cases that can be tested in exclusive doubling. After that, I argue in §2.6.2 that EXCL cannot be reduced to EXH. They are distributionally and semantically distinct. EXH fails to license *zaa3*. I suggest that EXCL's occurrence serves as a last resort to achieve *zaa3*-licensing in the same clause.

2.6.1 Exhaustification

Let us begin with the background on exhaustification. It can be understood as a grammatical mechanism for strengthening the meaning of a sentence. Its manifestation involves a covert operator, EXH, which may attach to various sentential levels of a syntactic structure or to logical form, subject to independently motivated constraints. Semantically, exhaustification consists in asserting the prejacent while simultaneously asserting an exclusivity condition over a set of alternatives. Formally, EXH takes a set of alternatives and yields a proposition that is true in a world w iff the prejacent is true in w and every alternative proposition that is true in w entails the prejacent, as reproduced below:

$$(137) \quad \llbracket \text{EXH} \rrbracket(ALT) = \lambda p \lambda w. p(w) \wedge \forall q[(q \in ALT \wedge q(w)) \rightarrow p \subseteq q]$$

The most successful domain of EXH is scalar implicature. Unlike Gricean pragmatic approaches, scalar implicature is viewed as a grammatical phenomenon with the application of EXH. Another prominent domain of EXH is strong exhaustiveness in questions. The important motivations for EXH are as listed below.

- (138) a. The symmetry problem
- b. Local/embedded/“intrusive” implicature
- c. Free choice effects
- d. Strong exhaustiveness in questions (with NPI licensing effects)

2.6.1.1 The symmetry problem

The symmetry problem is where Fox (2007) starts his ground breaking program of the grammatical approach to scalar implicatures (after Kroch 1972 and von Stechow & Heim’s class notes; cf. Fox 2007; Katzir 2007; Fox and Katzir 2011; Chierchia, Fox, and Spector 2012; Hirsch 2025; see Breheny et al. 2018 for a recent overview). A classic scalar implicature involves strengthening of a weaker scalar item with negation of the stronger one.

(139) Sue talked to John **or** Fred (boldface for readability, ≠stress)

a. *Basic Inference:*

Sue talked to John or Fred (or both). (i.e., inclusive *or*, $p \vee q$)

b. *Scalar Implicature, SI:*

i. **Sue didn’t talk to both John and Fred.** ($\neg(p \wedge q)$) (entailed by exclusive *or*, $p \vee q$)

ii. (alternatively, the speaker doesn’t know that Sue talked to both John and Fred.)

c. *Ignorance Inferences:*

i. The speaker doesn’t know that Sue talked to John. ($\neg B_s(p)$)

ii. The speaker doesn’t know that Sue talked to Fred. ($\neg B_s(q)$)

Under Gricean Maxim of Quantity, the speaker should have uttered the more informative (140) if the speaker knows (140) is true.

(140) Sue talked to both John **and** Fred.

The fact that the speaker uttered (139) leads to the implicature that the speaker does not know (140) is true, leading to the ignorance inference in (139bii). Using Horn’s scale (Horn 1972):

- (141) a. {or, and}
- b. $ALT = \{\text{Sue talked to John or Fred, Sue talked to John and Fred}\}$
- c. $\neg B_s(p \wedge q)$

Note that there is an extra “epistemic step” (Sauerland 2004) from the ignorance inference (139bii) to the SI (139bi). To achieve this strengthening, one may assume Opinionated Speaker.²⁷

(142) Opinionated Speaker

When a speaker, *s*, utters a sentence, *S*, the addressee, *h*, assumes, for every sentence $S' \in Alt(S)$, that the beliefs of *s* determine the truth value of S' , unless this assumption about S' leads to the conclusion that the beliefs of *s* are contradictory.

There is, however, always another possible stronger alternative. Apart from $p \wedge q$ (“Sue talk to John and Fred”), $p \nabla q$ (“Sue talked to either John or Fred, but not both”) is also stronger than $p \vee q$.

- (143) a. {or, and} $\rightarrow$ {Sue talked to John or Fred, Sue talked to John and Fred}
- b. {or, or_{exclusive}} $\rightarrow$ {Sue talked to John or Fred, Sue talked to either John or Fred (but not both)}

By Maxim of Quantity, the implicature can also be the negation $p \nabla q$ (exclusive *or*) when one utters $p \vee q$ (inclusive *or*). The results, however, are contradictory:

- (144) a. SI from (143a): $\neg(p \wedge q)$ (=attested)
- b. SI from (143b): $\neg(p \nabla q) = \underline{(p \wedge q)} \vee (\neg p \wedge \neg q)$
 $\rightsquigarrow$ contradicts the attested SI!

There are always two “symmetric” ways to strengthen a weaker prejacent, and the two ways are incompatible.

The same for existential quantifier *some*:

27. This is deemed stipulative by Chierchia, Fox, and Spector 2012. However, it seems that whether ignorance of *p* is strengthened to anti-belief of *p* depends on the context, or on the QUD. Consider the example below, which only trigger ignorance inference. Here, whether Sue talked to both suspects or just one of them does not matter.

- (i) *Context: John and Fred are detained in a interrogation room. They are suspects that no one should talk to before their lawyers come. However, you see Sue walks into the room and hears her voice. You report to the boss:*
 Sue talked to John or Fred. (She violated the regulations.)

(145) a. {some, all}

SI: some but not all

b. {some, some but not all}

SI: some but not “some but not all” $\rightsquigarrow$ contradicts the attested SI in (a)!

There are also possible ways to “salvage” the Gricean approach, but each is claimed to have some problems.

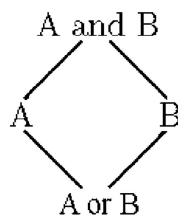
(146) Neo-Gricean approaches to SI

a. Horn (1972, 1989): Lexical and monotonicity constraints on scales

→ “p or q but not both”, “some but not all” cannot be part of the scale/ALT set

← Problem: the ignorance inferences of p and of q are left unexplained: each of the disjuncts p and q is not part of the scale, and is not subject to Gricean calculation

b. Sauerland (2004): A designated scale for disjunction



(Sauerland 2004:380)

← Problem: To satisfy the lexical constraint, two unattested entries need to be postulated:

{or, **L**, **R**, and}, where $pLq = p$ and $pRq = q$

In contrast, under the grammatical approach to SI, there is a clear division of labour between SI and ignorance inferences. SI is logical entailment from inserting a silent EXH, and ignorance inferences are conversational implicatures that arise from standard Maxim of Quantity.

(147) Sue EXH talked to John **or** Fred

a. $\approx$ Sue only talked to John **or** Fred

$\models$ Sue did not talk to John **and** Fred (SI)

b. By Maxim of Quantity:

$\rightsquigarrow$ The speaker doesn't know that Sue talked to John. (ignorance)

$\rightsquigarrow$ The speaker doesn't know that Sue talked to Fred. (ignorance)

Note that exhaustification *per se* actually does **not** solve the **symmetry problem**. The alternative

set of (147) must be stipulated as below, without $p \nabla q$:

(148) ALT set: $\{p \vee q, p, q, p \wedge q\}$

The problem persists even with overt *only*. Either contextual restrictions are needed (Rooth 1992; see Hirsch 2025 for a QUD approach), or alternatives should be constrained structurally/syntactically (Katzir 2007; Fox and Katzir 2011).²⁸ Fox formulates this as a **conceptual** argument: alternatives should be constrained by the grammar, and Maxim of Quantity is a communicative principle that is not sensitive to the grammar. Moreover, whatever constraint needed for SI is also needed for *only*. The parallelism between SI and *only* serves as indirect empirical motivation for the existence of EXH.

- (149) a. SI by EXH: part of grammar, structural constraints on ALT
- b. Ignorance inferences by Maxim of Quantity: language use, no sensitivity to formal make-up of ALT

There are also non-trivial issues on how to **avoid contradictions**, since excluding p and q (i.e., $\neg p \wedge \neg q$) would be inconsistent with the prejacent $p \vee q$. Fox (2007) proposes to hard-wire the contradiction-free component into *only* and EXH's semantics, with the notion of "Innocent Exclusion" (IE), as illustrated below. This component is also independently needed in Neo-Gricean approaches, and I do not discuss further.

(150) Innocent Exclusion (Fox 2007; cf. Innocent Inclusion in Bar-Lev and Fox 2020)

- a. Informally: Try to negate a maximal subset of alternatives to the prejacent such that the result is consistent. For all those subsets, if there is an alternative shared by them, the alternative is innocently excludable. $\rightarrow$ the result will always be consistent with the prejacent.
- b. $\llbracket \text{EXH} \rrbracket(ALT) = \lambda p \lambda w. p(w) \wedge \forall q[(q \in \underline{IE}(p, ALT) \wedge q(w)) \rightarrow p \subseteq q]$
- c. $IE(p, ALT) = \cap \{ALT' \subseteq ALT : ALT' \text{ is a maximal set of } ALT, \text{ such that } \{\neg q : q \in ALT'\} \cup \{p\} \text{ is consistent}\}$

28. The set of formal alternatives can be defined as (Katzir 2007, taking the definitions from Breheny et al. 2018:89):

- (i) The set of formal alternatives $F(S)$ of sentence S in context c is the set of sentences derivable by successive replacement of constituents of S with items in the substitution source of S in c .
- (ii) An item α is in the substitution source of S in c if
- a. α is a constituent that is salient in c (e.g. by virtue of having been mentioned); or
- b. α is a subconstituent of S ; or
- c. α is in the lexicon.

(151) Illustration of IE with disjunction

- a. Prejacent: $p \vee q$
- b. $ALT = \{p \vee q, p, q, p \wedge q\}$
- c. First $ALT' = \{q, p \wedge q\}$
 $\rightarrow \neg q$ and $\neg(p \wedge q)$ are consistent with $p \vee q$
- d. Second $ALT'' = \{p, p \wedge q\}$
 $\rightarrow \neg q$ and $\neg(p \wedge q)$ are consistent with $p \vee q$
- e. No other ALT''' , e.g., excluding $\{p, q\}$ is inconsistent with $p \vee q$
- f. $(p \wedge q)$ is shared by ALT' and $ALT'' \rightarrow$ it is innocently excludable

2.6.1.2 **Local/embedded implicature**

If the symmetry problem forms theory-internal motivations for the grammatical approach to scalar implicature, then local implicature serves the empirical ground for this approach. SI is possible under **conditional antecedents**, although being downward entailing contexts, as in (152b). The conditional operator targets the strengthened meaning with the implicature ('either salad or dessert, and not both'), rather than just the disjunction. Here, EXH must be inside the conditional antecedent for strengthening to take place. This is unexpected under Gricean approaches since implicature calculation should be global and pragmatic (i.e., not targeted by conditionals).

(152) "Intrusive" implicature (Levinson 2000, cited from Chierchia, Fox, and Spector 2012:2306)

- a. If you take salad or dessert, you'll be really full.
- b. If you take salad or dessert, you pay \$20; but if you take both there is a surcharge.
 $\rightsquigarrow$ if EXH(you take salad or dessert), you pay \$20
 $\rightsquigarrow$ If you take salad or dessert **and not both**, you pay \$20

Another case involves apparent exceptions to **Hurford's constraint** (Hurford 1974), as detailed in (153) and exemplified in (154): *dog* entails *animal* and cannot be used with it in disjunction (though reversing the order as *a dog or an animal* seems to improve the judgment, Zoltán Szabó p.c.).

(153) Hurford's constraint: A sentence that contains a disjunctive phrase of the form [*S or S'*] is infelicitous if *S* entails *S'* or *S'* entails *S*.

- (154) a. # Mary saw [an animal] or [a dog].
 b. # Every girl who saw [an animal] or [a dog] talked to Jack.

There are some curious exceptions when it comes to scalar items (Chierchia, Fox, and Spector 2012):

- (155) a. Mary solved [the first or the second problem] or [both]
 b. Mary read [some] or [all] of the books

These exceptions are no longer exceptions with EXH applied inside the first disjunct. Again, a global implicature approach cannot derive these cases in accord to Hurford's constraint.

- (156) a. Mary solved [EXH (the first or the second problem)] or [both]
 $\rightsquigarrow$ Mary solved [the first or the second problem but not both] or [both]
 b. Mary read [EXH (some)] or [all] of the books
 $\rightsquigarrow$ Mary read [some but not all] or [all] of the books

2.6.1.3 Free choice (FC) effects

One important application of EXH is free choice (FC) effects with disjunction under existential quantifiers like permission modals (and conjunction under other environments).²⁹

- (157) Free choice disjunction (Fox 2007:81)
- a. You're allowed to eat the cake or the ice-cream. $\Diamond(p \vee q)$
- b. FC: $\Diamond p \wedge \Diamond q$
 $\rightsquigarrow$ You may eat the cake *and*
 $\rightsquigarrow$ You may eat the ice-cream
- c. As opposed to the weaker meaning: $\Diamond(p \vee q) = \Diamond p \vee \Diamond q$
 $\rightsquigarrow$ You may eat the cake *or*
 $\rightsquigarrow$ You may eat the ice-cream

29. FC of conjunction is possible under negation and universal modals:

- (i) a. You are not required to both clear the table and do the dishes.
 b. $\rightsquigarrow$ You are not required to clear the table **and**
 $\rightsquigarrow$ you are not required to do the dishes.

As suggested by Kratzer and Shimoyama (2002) and Alonso-Ovalle (2005) and further argued by Fox (2007), FC should be understood as SIs. One signature is that it disappears under downward entailing contexts.

(158) No one is allowed to eat the cake or the ice-cream.

- a. *Negating FC: $\neg \exists x [\Diamond P(x) \wedge \Diamond Q(x)]$
(i.e., no one is allowed to eat both, but someone may be allowed to eat just one)
- b. Negating standard meaning: $\neg \exists x [\Diamond (P(x) \vee Q(x))]$
(i.e., no one can eat the cake and no one can eat the ice-cream)

Fox (2007) puts forward a recursive exhaustification analysis of the FC effects:

(159) The LF with EXH:

$\text{EXH}(C)[\text{EXH}(C)(\Diamond (p \vee q))]$

where $C' = \{\text{EXH}(C)(r) : r \in C\}$

The basic idea is that strengthening can take place more than once. The first EXH gives a less plausible reading: I do not know whether you can eat the cake, or you can eat the ice-cream. I only know that you can eat either of them but not both.

- (160) $\text{EXH}(C)(\text{You are allowed to eat the cake or the ice-cream}) \quad \Diamond(p \vee q)$
- a. ALT: You are allowed to eat the cake. $\Diamond p$
Cannot be excluded (if excluded with (b), contradiction arises, i.e., $\neg \Diamond p \wedge \Diamond q$)
 - b. ALT: You are allowed to eat the ice cream. $\Diamond q$
Cannot be excluded (if excluded with (a), contradiction arises, i.e., $\neg \Diamond p \wedge \Diamond q$)
 - c. ALT: You are allowed to eat the cake and the ice cream. $\Diamond(p \wedge q)$
Can be excluded $\rightsquigarrow \neg \Diamond(p \wedge q)$, not FC
(i.e., you're not allowed to eat both)
 - d. Result: $\Diamond(p \vee q) \wedge \neg \Diamond(p \wedge q)$

The first EXH now applies to every alternative, and the second EXH quantifies over this pre-exhaustified set.

- (161) EXH(C)[EXH(C)(You are allowed to eat the cake or the ice-cream)] $\Diamond(p \vee q) \wedge \neg\Diamond(p \wedge q)$
- a. ALT: You are allowed to eat the cake but not the ice-cream. $\Diamond p \wedge \neg\Diamond q$
Can be excluded $\rightsquigarrow \neg\Diamond p \vee \Diamond q$
- b. ALT: You are allowed to eat the ice cream but not the cake. $\Diamond q \wedge \neg\Diamond p$
Can be excluded $\rightsquigarrow \neg\Diamond q \vee \Diamond p$
- c. ALT: You are allowed to eat the cake and the ice cream. $\Diamond(p \wedge q)$
Ignore, already excluded.
- d. Result: $\Diamond(p \vee q) \wedge \neg\Diamond(p \wedge q)$ and $\neg\Diamond p \vee \Diamond q$ and $\neg\Diamond p \vee \Diamond q$
 $\rightsquigarrow \Diamond p \wedge \Diamond q$ and $\neg\Diamond(p \wedge q)$

2.6.1.4 NPI licensing in *wh*-questions

Another important application of EXH is strong exhaustiveness in questions (Nicolae 2013; cf. Groenendijk and Stokhof 1984; Von Stechow and Zimmermann 1984; Nicolae 2013; Fox 2018). Exhaustiveness of questions requires the answers to contain the true propositions (weak exhaustiveness) and exclude the false propositions (strong exhaustiveness) in the Hamblin set of propositions denoted by the questions, called “mention-all answers”. Non-exhaustiveness of questions only require one of the true propositions to be included in the answers, called “mention-some answers”. An illustration:³⁰

- (162) *Situation: There are only three individuals, John and Bill and Harry. John and Bill danced at the party, Harry did not.*
- a. Question: Who danced at the party?
- b. Answering with the proposition “John and Bill danced.” (weakly exhaustive)
- c. Answering with the proposition “John and Bill danced and Harry did not.”
(i.e., Only John and Bill danced.) (strongly exhaustive)
- d. Answering with the proposition “John danced.” (non-exhaustive)

30. A non-exhaustive answer is not felicitous in (162). A felicitous Q/A pair with a mention-some answer is given below:

(i) *Situation: One can buy Italian newspapers at the corner bookstore and the railway station.*

a. Q: Where can I buy Italian newspapers?

b. A: You can buy Italian newspapers at the corner bookstore.

(Dayal 2016:72)

One piece of evidence for the distinction in exhaustiveness comes from selection by embedding predicates. To give an example, consider (163). Here, the question *who walks* is embedded under *know* in (163a). John believes that Bill and Suzy walk, but it turns out that only Bill walks, and the sentence in (163a) is false.

(163) *Situation: John believes that Bill and Suzy walk.*

- a. John knows who walks.
- b. Hamblin set: { $\wedge$ bill walks, $\wedge$ suzy walks, $\wedge$ bill+suzy walk}
- c. The only true proposition in the world of evaluation: $\wedge$ bill walks $\rightarrow$ (163a) is false

This indicates that the embedded question *who walks* taken by *know* in (163a) requires a strong exhaustive answer: not only the true proposition “Bill walks” needs to be included (=weak exhaustiveness), but the false propositions also need to be excluded (=strong exhaustiveness). In other words, for (163a) to be true, John needs to believe exactly that “only Bill walks”, not just “Bill walks”.

In contrast, questions embedded under *be surprised* are not strongly exhaustive (Berman 1991). Consider (164), where the questions “who called” and “who didn’t call” are embedded under *surprise* in (a) and (b) respectively (Dayal 2016:83). Under the given situation, where I expected all three people called but only Sue didn’t, only (b) is true.

(164)	Situation	individuals:	John	Bill	Sue
	my prior expectations:	Y	Y	Y	
	callers in w:	Y	Y	N	

- a. It surprised me who called. (=false)
- b. It surprised me who didn’t call. (=true)

Since strong exhaustiveness requires exclusion of the false propositions, the strongly exhaustive answer to the embedded questions in (164a) and (164b) are the same, namely, “John and Bill called, Sue didn’t”. In contrast, the weakly exhaustive answers to (164a) and (164b) only include the true propositions and are different, as shown below. Only the answer to (165b) goes counter “my” expectation, capturing that only (165b) is false. In other words, *surprise* does not embed questions with strong exhaustiveness, otherwise the difference in the truth judgment in (164) cannot be explained.

- (165) a. Strongly exhaustive answer to (164a): “John and Bill called, Sue didn’t” = (165b)
 b. Strongly exhaustive answer to (164b): “Sue didn’t called, John and Bill called” = (165a)
 c. Weakly exhaustive answer to (164a): “John and Bill called” $\neq$ (165b)
 d. Weakly exhaustive answer to (164b): “Sue didn’t call” $\neq$ (165a)

Under the EXH approach to strong exhaustiveness, a question like (166) has the EXH associating with the trace left by the *wh*-word as in the LF (a), and forms a pre-exhaustified alternative set of propositions in (c). The answer is thus always the strongly exhaustive one: the covert EXH already excludes the false propositions.³¹

(166) Who does Ann love? (adopted from Dayal 2016:70)

- a. LF: $[_{CP} [_C C^0 [_{IP} \mathbf{EXH} [_{IP} \text{Ann loves } t_F]]]]$
 b. $\text{EXH}(\text{ALT}(p))(p) = \lambda w. \forall q \in \text{ALT}(p)[q(w) = 1 \rightarrow p \subseteq q]$
 c. $\{\lambda w \text{ Ann loves}_w \text{ only John, } \lambda w \text{ Ann loves}_w \text{ only Bill,}$
 $\lambda w \text{ Ann loves}_w \text{ only John and Bill} \}$

This approach gains support from NPI-licensing (Guerzoni 2006). Only questions embedded by predicates selecting for strong-exhaustiveness license NPIs.

31. This is not the only approach to exhaustiveness in questions. In the “complete answer” approach (Dayal 2016), the source of exhaustivity is from the answer. It is originally formalized as two types of answerhood operators, Ans_w delivers the weak exhaustiveness, and Ans_s delivers the strong exhaustiveness (Heim 1994; Dayal 1996). Note that Ans_s is derived from Ans_w . By abstracting a world variable (other than the evaluation world), the answer is strongly exhaustive: only the worlds in which the true proposition holds will be in the answer, and those in which false propositions hold will not (Groenendijk and Stokhof 1982). This effectively excludes the false propositions.

(i) The Answerhood operators (adopted from Dayal 2016, §2, ex. 48)

- a. $\text{Ans}_w(Q) = \lambda w. \iota p[p_w \wedge p \in Q \wedge \forall p'[[p'_w \wedge p' \in Q] \rightarrow p \subseteq p']]$
 b. $\text{Ans}_s(Q) = \lambda w \lambda w'[\text{Ans}_w(Q)(w) = \text{Ans}_w(Q)(w')]$

As discussed in Dayal (2016), the two answerhood operators may be reduced to just one, namely, Ans_w . This is achieved by assuming that an assertion of an answer to a question is the complete answer, as formalized in (iic) making use of an identity predicate. Here, the answer contains an abstraction of a non-evaluation-world variable, in which the (weakly exhaustive) answer to the question is identical to true proposition “John and Bill danced”. This derives the effects of Ans_s , and delivers strong exhaustiveness. Dayal further suggests that the identity predicate is sensitive to discourse factors, capturing the variations in exhaustive interpretation.

- (ii) a. Who danced at the party?
 b. John and Bill danced.
 c. $\lambda w' \text{ identical}_{w'} [\text{Ans}_w(\llbracket(a)\rrbracket)(w), \llbracket(b)\rrbracket]$

(167) Difference in NPI licensing with weak/strong-exhaustiveness in English

- a. *Strong exhaustiveness, selected by “wonder”*

Claire **wonders** which students have **any** books on Negative Polarity.

- b. *Strong exhaustiveness, selected by “know”*

%Claire **knows** which students have **any** books on Negative Polarity.

- c. *Weak exhaustiveness, selected by “surprise”*

*It **surprised** Bill which students had **ever** been to Paris.

Matrix questions with strong exhaustiveness also licenses NPIs, contrasting with non-exhaustiveness questions with a mention-some answer (Mayr 2013):

- (168) a. Who cooked **anything**? (strongly exhaustive)

- b. *Where can I buy **any** newspaper? (non-exhaustive)

Importantly, the above licensing patterns parallels with *only* in English - it can also license NPI in its scope (i.e., the unfocused / background part) (cf. von Stechow 1999; Wagner 2006). This thus offers a concrete support for attributing the strong exhaustiveness to some covert counterpart of *only* in questions (but see Dayal 2016 §3.3.3 for discussions that non-exhaustiveness/mention-some readings does not rule out NPIs entirely).

- (169) a. **Only** John bought **any** car.

- b. *John bought **any** car.

2.6.2 Is the operator in exclusive doubling EXH?

This subsection discusses whether the operator in exclusive doubling is EXH. Put differently, I will test whether EXH can license *zaa3*, in addition to EXCL.

(170) Licensing of *zaa3*

- a. [*zaa3* [EXCL *p*]] (attested, in cases **without** SI triggers)

- b. [*zaa3* [EXH *p*]] (to be examined)

- (171) a. Aaming maai-zo joengjuk_F bei Aafan **zaa3**. (Without SI triggers)

Ming buy-PFV lamb to Fan SFP.only

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

- b. Aaming maai-zo [joengjuk waakze ngaujuk]_F **zaa3**. (With SI triggers)

Ming buy-PFV lamb or beef SFP.only

‘Ming only bought lamb or beef.’ (but not both or other meat)

It is very hard to test the basic SI cases, since the inferences yielded by EXH and EXCL are very similar, except for whether the prejacent is presupposed or asserted. Below, I put together two cases, where EXH and EXCL can be teased apart.

- (172) a. Free choice effects: different inferences between EXH and EXCL
 b. NPI-licensing in *wh*-questions (Cantonese-specific): possible for EXH, not for *zinghai*/EXCL

2.6.2.1 Examining free choice effects

First, I will show that the EXCL in singleton *zaa3* sentences should not be considered as EXH by examining free choice effects.

To begin with, I assume with Fox (2007) that recursive exhaustification occurs in free choice environments. The FC effects are SI (which is, under the grammatical approach, entailment).

- (173) Free choice disjunction

- a. You’re allowed to eat the cake or the ice-cream. (Fox 2007:81)
- b. Nei hoji sik go daangou waakze go syutgou
 you may eat CL cake or CL ice.cream
 ‘You may eat the cake or the ice-cream.’
- c. Both (a-b):
 ~↗ You may eat the cake *and*
 ~↗ You may eat the ice-cream

- (174) The LF with EXH:

$\text{EXH}(C')[\text{EXH}(C)(\Diamond(p \vee q))]$

where $C' = \{\text{EXH}(C)(r) : r \in C\}$

As SI, FC effects disappear in downward entailment contexts, such as with a negation.

- (175) a. Nei **m**-hoji sik go daangou waakze go syutgou
 you not-may eat CL cake or CL ice.cream
 ‘You may not eat the cake or the ice-cream.’
- b. $\sim\sim$ You cannot eat the cake and you cannot eat the ice-cream. $(\neg\Diamond p \wedge \neg\Diamond q)$
- c. $\rightarrow$ You cannot eat the cake or you cannot eat the ice-cream. (negating FC)
 $(\neg(\Diamond p \wedge \Diamond q) = \neg\Diamond p \vee \neg\Diamond q)$

Now, consider putting an overt *zinghai* ‘only’ above the permission modal. Notably, the FC is now presupposed, a fact that has been noted for English *only* (Alxatib 2014). There is also an exclusion inference that other food is disallowed.

- (176) a. Nei **zinghai** hoji sik [go daangou waakze go syutgou]_F
 you only may eat CL cake or CL ice.cream
 ‘You may only eat the cake or the ice-cream.’
- b. $\sim\sim$ You may eat the cake and you may eat ice-cream. (Presupposed: FC)
- c. $\sim\sim$ You may not eat other food. (Asserted: Exclusion)
- (177) a. For sure you are allowed to have cake or ice cream ...
 i. ...Let me check if you can have both.
 ii. ...Let me check if you can have cookies.
- b. For sure you are **only** allowed to have cake or ice cream ...
 i. ...Let me check if you can have both.
 ii. #...Let me check if you can have cookies.

We know that FC is presupposed whereas exclusion is asserted since only the former survives negation. This contrasts sharply with the above case where SI-FC disappears under negation (175).

- (178) *The map of the park shows five trails, some of which are not open to the public. I just asked a friend who is familiar with this park, and ...*
- a. ... he doesn’t think that we are only allowed to take trail [A or B]_F. ...
- b. ... #So if we take A, we might be fined.
 $\rightarrow$ infelicitous to deny $\Diamond p$ (we’re allowed to take trail A)

- (179) a. Keoi m-gokdak ngodei zinghai hoji haang [lousin A waakze lousin B]_F. ...
 s/he not-think we only may walk route A or route B
 ‘S/he doesn’t think that we may only walk route A or route B.’
- b. ... #Soji jyugwo ngodei haang lousin A, zau wui bei jan fatcin.
 so if we walk route A then will get person fine
 ‘...#So if we take A, we will be fined.’
 → infelicitous to deny $\Diamond p$ (we may take trail A)

In yes-no questions, the FC inference also has different status with or without *zinghai*:

- (180) a. Keoi hoji sik [go daangou waakze go syutgou]_F **aa4?**
 s/he may eat CL cake or CL ice.cream SFP.Q
 ‘Is it the case that s/he may eat the cake or the ice-cream?’
- b. No FC projected.
- (181) a. Keoi **zinghai** hoji sik [go daangou waakze go syutgou]_F **aa4?**
 s/he only may eat CL cake or CL ice.cream SFP.Q
 ‘Is it the case that s/he may only eat the cake or the ice cream?’
- b. $\leadsto$ S/he may eat the cake and s/he may eat ice-cream. (Presupposed: FC)
- c. $\leadsto$ Is other food allowed? (Questioned: Exclusion)

Alxatib (2014) suggests that there are three possible parses of *only* with FC disjunction: substituting one of the EXHs with *only* in (182a-b), and double EXHs below *only*. He argues that only (182b) and (182c) deliver the correct inference (but see Bar-Lev 2018; Alxatib 2020).³²

- (182) a. $\text{only}(\text{EXH} \Diamond(p \vee q)) \rightarrow \times$
- b. $\boxed{\text{EXH}(\text{only} \Diamond(p \vee q))} \rightarrow \checkmark$
- c. $\text{only}(\text{EXH}'(\text{EXH} \Diamond(p \vee q))) \rightarrow \checkmark$

I only focus on the parsing in (182b) and set aside the derivations of the other two.³³ In (182b), the

32. Bar-Lev (2018) resorts to the notion of Innocent Inclusion to get rid of recursive exhasutification. But see Alxatib (2020) for objections to extend Innocent Inclusion to *only* in particular in the free choice cases.

33. In (182a), FC is wrongly derived as an assertion, which is undesirable. The reasoning behind is simple: $(\text{EXH}'(\text{EXH} \Diamond(p \vee q)))$ yields FC as assertion, and since *only* and EXH both assert exclusivity, replacing the outer EXH' with *only* would yield the same result.

In (182c), additional assumptions on the set of alternatives quantified by the outermost *only* have to be made. Basically, ALT_{only} must not be $\{\text{EXH}(\text{EXH}(\Diamond p)), \dots\}$, but simply $\{\Diamond p, \dots\}$. This is possible under a multi-tiered semantic model where

exclusive inference is generated by assuming that ALT set to be $\{\Diamond p, \Diamond q, \Diamond r\}$, and $\Diamond r$ is excluded (hence $\neg\Diamond r$). Since EXH asserts the prejacent, the exclusion inference is also asserted. Turning to FC, EXH now takes an alternative set exhausted by *only*:

- (183) ALT of EXH = $\{\text{only } \Diamond p, \text{only } \Diamond q, \text{only } \Diamond r\}$
 $\rightarrow$ IE of EXH = $\{\text{only } \Diamond p, \text{only } \Diamond q\}$ (IE = Innocent Excludable ALT sets)

The third alternative (*only* $\Diamond r$) is dropped, since its presupposition contradicts the assertion $\neg\Diamond r$. The IE set now becomes $\{\text{only } \Diamond p, \text{only } \Diamond q\}$. There are two presuppositions: $\Diamond p$ and $\Diamond q$. These two project up through EXH, under the assumption that EXH is a presupposition hole. The FC inference $\Diamond p \wedge \Diamond q$ is thus obtained as presuppositions.

Now, we are in a position to test whether EXH can license *zaa3*. Since *zaa3* does not contribute at-issue meaning, the position of EXH should not be sensitive to *zaa3*. Given that *zaa3* is syntactically on the root level, and that EXH needs to be adjoin as soon/low as possible with disjunction as the trigger (Chow and Erlewine 2022), it is in principle possible to have EXH below *zaa3* for licensing:

- (184) [*zaa3* [EXH' (EXH) $p \vee q$]] (To be examined)

The predicted reading would be that FC is not a presupposition.

As it turns out, adding *zaa3* to a FC disjunctive sentence yields exactly the same inferences with using *zinghai* as in (185–186). This means that only EXCL but not EXH licenses *zaa3*.

- (185) a. [Nei hoji sik go daangou waakze go syutgou] **zaa3**
 you may eat CL cake or CL ice.cream SFP.only
 'You may only eat the cake or the ice-cream.'
 b. $\rightsquigarrow$ You may eat the cake and you may eat ice-cream. (Presupposed: FC)
 c. $\rightsquigarrow$ You may not eat other food. (Asserted: Exclusion)
- (186) a. [Keoi hoji sik go daangou waakze go syutgou] **zaa4?**
 s/he may eat CL cake or CL ice.cream SFP.only.Q
 'Is it the case that s/he can only eat the cake or the ice cream?'
 b. $\rightsquigarrow$ S/he may eat the cake and you may eat ice-cream. (Presupposed: FC)
 c. $\rightsquigarrow$ Can s/he eat other food? (Questioned: Exclusion)

presuppositions and assertions are computed and strengthened separately (Gajewski and Sharvit 2012).

2.6.2.2 Examining strong exhaustiveness in questions and NPI-licensing

Second, I will show that although Cantonese shows the same NPI-licensing patterns regarding weak/strong exhaustiveness, the licensing operator, presumably EXH, is not the same as the one that licenses *zaa3* (namely, EXCL).

First, Cantonese exhibits the same weak/strong distinction in exhaustiveness, which also correlates with NPI licensing. That is, “wants to know” may license an NPI like *jamho* ‘any’ in the embedded question in (187a), whereas “surprise” cannot in (187b). At first glance, it seems attractive to posit a null ‘only’ operator in Cantonese *wh*-questions, which only occur in (187a) and license the NPI.

(187) Difference in NPI licensing with weak/strong-exhaustiveness in Cantonese

- a. *Strong exhaustiveness, selected by “wants to know” (like “wonder”)*

Aaming soeng zi [bingo hoksaang jau [jamho jatbun NPI] ge syu].
Ming want know which student have any one NPI MOD book
‘Ming wants to know which student has any books on Negative Polarity Items (NPI).’

- b. *Weak exhaustiveness, selected by “surprise”*

*Aaming hou gingngaa [bingo hoksaang jau [jamho jatbun NPI] ge syu].
Ming very surprise which student have any one NPI MOD book
Int.: ‘It surprised Ming which student has any books on Negative Polarity Items (NPI).’

Second, however, there is *no* parallel between overt *zinghai* ‘only’ and the postulated covert ‘only’ in questions in NPI licensing. As shown in (188), *jamho* ‘any’ is not licensed.

(188) Overt *zinghai* ‘only’ cannot license an NPI in Cantonese

***Zinghai** Aaming maai-zo jamho ce.
only Ming buy-PFV any car
Int.: ‘Only Ming bought any car.’

To the best of my knowledge, the difference between Cantonese *jamho* ‘any’ and English *any* is that Cantonese *jamho* ‘any’ cannot be licensed in adversatives and superlatives (but it can be licensed in conditional antecedents), two of the four environments where von Stechow (1999) identifies as Strawson downward entailing. An example of adversatives is given below:

(189) a. Sandy is **sorry/regrets** that Robin bought **any** car.

b. *Ngo hou **waiham** [keoi maai-zo **jamho** ce].

I very sorry 3SG buy-PFV any car

Int.: 'I am sorry that s/he bought any car.'

While the notion of Strawson entailment could potentially explain the Cantonese-English contrast in NPI-licensing by *only*, this seems to cast doubt on attributing the NPI-licensing in questions with strong exhaustiveness to a covert 'only' (i.e., EXH), which should create the same Strawson downward entailing as the overt *zinghai* 'only'. One would need to say EXH and *zinghai* have different semantics and differ in NPI-licensing behavior.

Note that not just *jamho* 'any', but *wh*-NPI also cannot be licensed under *zinghai*'s scope, which can be otherwise licensed in a downward entailing environment such as negation.

(190) a. Aaming mou maai **matje** ce.

Ming not.PFV buy what car

'Ming didn't buy any car.'

b. ***Zinghai** Aaming maai-zo **matje** ce.

only Ming buy-PFV what car

Int.: 'Only Ming bought any car.'

Cantonese is not the only language that disallows NPI-licensing by 'only': NPIs in Mandarin Chinese (both *shenme* 'what' and *renhe* 'any') and Greek also cannot be licensed in 'only's scope (Cheng and Giannakidou 2013; Lin and Giannakidou 2015).

In short, I conclude that what is licensing the NPI in the question with strong exhaustiveness in (187a), presumably EXH, should not be the covert counterpart of *zinghai* 'only' (=EXCL) in Cantonese.

We now turn to comparing strong exhaustiveness and exclusive doubling. Recall that in singleton *zaa3* cases, I posit a null EXCL, the covert counterpart of *zinghai* 'only', to account for the at-issue exclusiveness, and *zaa3* does not denote an exclusive operator (but rather not-at-issue contextual salience/scalarity). For a sentence like (191), hence, the LF contains EXCL.

(191) a. Aaming maai-zo joengjuk_F bei Aafan **zaa3** (Singleton *zaa3* cases)

Ming buy-PFV lamb to Fan SFP.only

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

b. [_{CP} zaa3 [_{TP} **EXCL** [_{VP} Ming [_{V'} bought [_{DP} lamb_F]]]]]

However, EXH in questions (if it exists in Cantonese) does not license *zaa3*. It is because *zaa3* simply cannot occur alone in *wh*-questions with an intended association with the *wh*-words, as shown below in (192). Here, a D-linked *wh*-word is used to satisfy *zaa3*’s contextual salience requirement. Still, the sentence is ungrammatical.

(192) *Zaa3* cannot occur in *wh*-questions with *wh* as the intended association

*/?? Aaming sik-zo mat/bin joeng_F **zaa3**?

Ming eat-PFV what/which CL SFP.only

Int.: ‘What/which one is the x such that Ming only ate x?’

Note that association with *wh* is improved with doubling, indicating that *zaa3* in principle is compatible with *wh*-questions.

(193) Association with *wh* in doubling

Aaming **zinghai** sik-zo ?mat/^{OK}bin joeng_F **zaa3**?

Ming only eat-PFV what/which CL SFP.only

‘What/which one is the x such that Ming only ate x?’

What the two sentences together show is that whatever is responsible for the exclusivity in singleton *zaa3* cases, it cannot occur in *wh*-questions, such as the covert EXCL. And the postulated covert ‘only’ (EXH) for strong exhaustiveness is not sufficient to license *zaa3*.

To make the case stronger, embedding the questions under a predicate that selects for strong exhaustiveness (e.g. “wonder” or “know”) does not help. With *seong zidou* ‘want to know/wonder’, *zaa3* may either attach to the matrix and takes wide scope over it, or be embedded by it and takes narrow scope under it. In (194a), however, *zaa3* only has the matrix wide scope. This indicates that the null EXCL/‘only’ cannot occur there to license *zaa3*. In contrast, the doubling case in (194b) allows *zaa3* to take embedded scope.

- (194) a. Aaming soeng zi [bingo hoksaang jau NPI ge syu] **zaa3**.
 Ming want know which student have NPI MOD book SFP.only
 only > wonder 'Ming only wants to know which student has books on NPI.'
 *wonder > only: 'Ming wants to know only which student has books on NPI.'
- b. Aaming soeng zi [zinghai bingo hoksaang jau NPI ge syu **zaa3**].
 Ming want know only which student have NPI MOD book SFP.only
 wonder > only: 'Ming wants to know only which student has books on NPI.'

The above contrast in scopal readings can be made explicit by fronting the embedded question along with *zaa3*. The lack of embedded scope of *zaa3* is indicated by the failure of fronting in (195a).

- (195) a. *[bingo hoksaang jau NPI ge syu **zaa3**], Aaming soeng zi.
 which student have NPI MOD book SFP.only Ming want know
 *wonder > only: 'Ming wants to know only which student has books on NPI.'
- b. [zinghai bingo hoksaang jau NPI ge syu **zaa3**], Aaming soeng zi.
 only which student have NPI MOD book SFP.only Ming want know
 wonder > only: 'Ming wants to know only which student has books on NPI.'

While I do not have an explanation on why the covert EXCL cannot occur in *wh*-questions but can occur in declaratives like singleton *zaa3* cases in (191), what is clear from the above is that the postulated covert 'only' (EXH) for strong exhaustiveness, if exists at all, cannot be the source of the exclusivity in singleton *zaa3* cases. Alternatively, one may also interpret it as supporting a view that the failure of having a null EXCL in *wh*-questions with *zaa3* support a view that strong exhaustiveness in questions is *not* sourced from a covert 'only' operator - otherwise we would expect them to behave the same in both interrogatives and declaratives in providing the exclusivity for *zaa3*.

2.6.2.3 EXCL as a last resort to license *zaa3*

Unlike EXH whose primary function is to strengthen meaning with SI triggers, EXCL's sole function is to satisfy *zaa3*'s requirement that an exclusive operator must be within its scope.

- (196) Restrictions on EXCL: EXCL can only be applied when an overt exclusive operator (e.g., *zinghai*) is not present to license *zaa3* in the same clause.

Also unlike EXH, EXCL cannot be applied once there is already an exclusive operator in the clause. This can be appreciated from the multiple focus association case.

- (197) a. AAMING_{*F1} **zinghai** tai zungmansyu_{F2} (, Aafan dou hai.)
 Ming only read Chinese.book Fan also be
 ‘Ming only reads *Chinese books*. (Fan as well.)’
- b. **Zinghai** AAMING_{F1} tai zungmansyu_{*F2} (, #Aafan dou hai.)
 Ming only read Chinese.book Fan also be
 ‘Only *Ming* reads Chinese books. (# Fan as well.)’

In (a), there lacks a parsing where EXCL merges above the subject, in addition to the presence of *zinghai*. I suggest that this parsing is impossible since *zinghai* is already present.

- (198) *[*zaa3* [EXCL Subj_F [*zinghai* [V Obj_F]]]]

However, as we have discussed above in FC effects, EXCL can apply despite the presence of EXH (assuming that EXH is really the one driving the FC effects):³⁴

- (199) a. EXH[*zinghai* $\Diamond(p \vee q)$] $\rightsquigarrow$ presupposition of the FC
 b. EXH[*zaa3*[EXCL $\Diamond(p \vee q)$]] $\rightsquigarrow$ presupposition of the FC

Unlike *zinghai*, the application of EXH does not block the application of EXCL. This shows that EXCL and EXH are two distinct creatures. In other words, we need two types of covert ‘only’ operators: EXCL, which presupposes the prejacent and asserts the exclusivity; and EXH, which asserts both. They are regulated by different constraints. While EXH is motivated by a need to strengthen meaning, EXCL is motivated as a last resort for *zaa3*’s (or other similar scalar particles that participate in exclusive doubling) requirement of exclusiveness within its scope, which is derived from its semantics. Hence, EXCL is more restricted than EXH.

2.7 Varieties of scalarity in exclusives

The section discusses a variety of scalar readings in exclusives, building on the typology developed by Coppock and Beaver (2014) and Hole (2015). Recall that there are two kinds of ordering: one based on

34. Note that EXH alters the truth conditions so it must be placed higher than *zaa3* to avoid intervention (see Chapter 3.)

entailment, and the other based on non-logical strength (Horn 1984 *et seq.*). Coppock and Beaver (2014) call exclusion based on the former “complement-exclusion readings”, as in (200a), and exclusion based on the latter “rank-order readings”, as in (200b).³⁵ *Only* is compatible with both, unlike Cantonese *zinghai* which we have seen in §2.4. The former case is usually called quantificational *only* and the latter is usually called scalar *only* in the literature (Klinedinst 2004, 2005; Winterstein 2012; Alxatib 2020). To avoid confusion, I refer to the latter case as “rank order exclusion” in this section, but I will use the terms “quantificational *only*” and “complement exclusion” interchangeably.

- (200) a. Mary only invited John and Mike. (complement exclusion)
 b. John is only a graduate student. (rank order exclusion)
 (both from Coppock and Beaver 2014:381)

Notably, some adverbs like *exclusively* only perform complement exclusion, whereas some adverbs like *merely* only perform rank order exclusion. (See Ronai and Fagen 2025 for an experimental confirmation of the scalar distinction between *only*, *just*, and *merely*.)

- (201) a. #I merely like Apple computers. (No complement exclusion)
 (adpated from Coppock and Beaver 2014:424)
 b. John is merely a graduate student. (rank order exclusion)
- (202) a. Mary exclusively invited John and Mike. (complement exclusion)
 b. #She’s exclusively an assistant professor. (No rank order exclusion)
 (Coppock and Beaver 2014:423)

Hole (2015) extends Coppock and Beaver (2014)’s typology to exclusive doubling in German and Dutch, and suggests further differentiation between two kinds of evaluative scales: $\text{EVAL}_{\text{LITTLE}}$, which presupposes that the focused value is “considered little” on some scale, and EVAL_{BAD} , which presupposes that the focused value is “considered bad” on some scale. I take the EVAL_{BAD} to be speaker-oriented. As we will see, Cantonese makes a distinction of whether the focused value is compared to a contextual norm or a speaker-oriented value. I summarize their typology below:

35. In cases where a Horn scale is not apparent (e.g., *Mary only invited John*, as opposed to *Mary only invited some people*), Coppock and Beaver (2014) propose that a mereological scale is involved with a partial order: $\langle \text{!}M \text{ invited } J = M \text{ invited } B\text{!}, M \text{ invited } J+B \rangle$. Note also that they further distinguishes the rank-order readings as involving either an evaluative scale or a “power”-based scale, in the sense that a higher ranked answer has more power to affect people.

(203) Three types of scalarity in exclusives

a. *Entailment-based scales*

The higher members asymmetrically entail the lower members (e.g., <some, most, all>)

b. *Rank order scales (non-logical)*

No entailment relationship between members; ordering is based on non-logical strength in accord to the contextual norm (e.g., <freshman, sophomore, junior, senior>)

c. *Speaker-oriented evaluative scales (non-logical)*

Ordering of a scale according to the speaker's evaluation (see discussion below)

In this chapter, we have established that scalarity can be separated from exclusion: Cantonese *zinghai* only performs complement exclusion (on the AI level) without reference to non-logical scales, whereas *zaa3* makes such reference (on the NAI level) without any exclusion. The questions this section asks are then whether Cantonese allows exclusion to be based on different scales, and whether there are scalar particles like *zaa3* that depend on an exclusive but are sensitive to different kinds of scales.

In §2.7.1, I first demonstrate that Cantonese has exclusive adverbs that perform exclusion based on non-entailment-based/non-logical scales. I then show salience is also a type of scales that only some exclusives are sensitive to. Finally, I clarify on the nature of speaker-oriented evaluative scales.

I also discuss another exclusive SFP, *ze1*, that has a downplaying meaning, different from the salience requirement of *zaa3*. I suggest that *ze1* is also a scalar particle that depends on an exclusive operator. Taking the patterns together, I propose an enriched taxonomy of scalarity with contextual salience and downplaying incorporated. In §2.7.2, I zoom out to other languages including English and Hindi and discuss variation in the encoding of scalarity of exclusives.

2.7.1 Variation in exclusives in Cantonese

I discuss three exclusive adverbs, *zinghai* 'only', *zihai* 'only, just', and *zibatgwo* 'just', and two exclusive SFPs, *zaa3* 'only' and *ze1* 'just'.^{36,37}

36. Other exclusive particles not discussed here: adverb *zaai1*, *zing6* and *zi2* only'; adfocal particle *dak1* only'; verbal suffix *dak1* only'; SFP *zek1* 'just' and *zi1maa3* 'just'. See P. P.-I. Lee 2019 and references therein for thorough discussion.

37. Mandarin counterparts: adverbs *zhi*, *zhishi*, *zhibuguo*, respectively; and SFPs *eryi* and *bale* (whose functions overlap with *zaa3* and *ze1*).

2.7.1.1 The basis of exclusion: logical vs. non-logical scales

The three adverbs are illustrated below. I argue that all three adverbs carry exclusive semantics, but they perform exclusion based on different scales. In particular, while *zinghai* only performs exclusion on entailment-based scales (i.e., complement exclusion/ quantificational), both *zihai* and *zibatgwo* performs exclusion on non-logical scales (which are rank orders and evaluative scales, to be discussed later). The distinction between *zinghai* and *zihai* is relatively well-documented in the literature (C.-l. C. Wong 2010; Y.-N. Li 2014; P. P.-l. Lee 2019; Lau 2021, among others), but *zibatgwo* is not often discussed.

(204) Three exclusive adverbs in Cantonese

- a. Adverb *zinghai* ‘only, (lit.) pure+be’ (complement exclusion)
Aaming **zinghai** jam-zo bezauf.
Ming only drink-PFV beer
‘Ming only drank *beer*.’ (but not other alcohol)
- b. Adverb *zihai* ‘only, just, (lit.) only+be’ (rank order exclusion)
Aaming **zihai** jam-zo bezauf.
Ming only drink-PFV beer
‘Ming only/just drank *beer*.’ (but not other stronger alcohol)
- c. Adverb *zibatgwo* ‘just, (lit.) only+but’ (evaluative exclusion)
Aaming **zibatgwo** jam-zo bezauf.
Ming just drink-PFV beer
‘Ming just/merely drank *beer*.’ (beer was nothing)

First, *zihai* cannot be doubled with *zinghai* with the same focus association. While *zibatgwo* may co-occur with *zinghai*, it associates with the whole clause (which should include the subject that is topicalized) rather than the object. With an explicit question that enforces an object focus, *zibatgwo* cannot be doubled with *zinghai*.

- (205) a. *Aaming **zihai zinghai** jam-zo bezauf.
Ming only only drink-PFV beer
Int.: ‘Ming only drank *beer*.’ (but not other (stronger) alcohol)

b. Q: What happened?

A: Aaming_i **zibatgwo**₂ [*t_i* **zinghai**₁ jam-zo bezauf_{F1}]_{F2}.

Ming just only drink-PFV beer

'It is just the case that Ming only drank *beer*.' (nothing special happened)

c. Q: What did Ming drink?

A: ??Aaming **zibatgwo** **zinghai** jam-zo bezauf.

Ming just only drink-PFV beer

Int.: 'Ming just drank *beer*.'

Similarly, *zihai* cannot be doubled with *zibatgwo* with the same object focus association.

(206) a. Q: What did Ming drink?

A: ??Aaming **zibatgwo** **zihai** jam-zo bezauf.

Ming just only drink-PFV beer

Int.: 'Ming just drank *beer*.'

Second, let us consider their truth conditional differences. Recall that exclusion based on non-logical scales only excludes alternatives that are rhetorically stronger (cf. Horn 1989, 2009), while lower-ranked alternatives, although not entailed by the prejacent, are not necessarily excluded (Klinedinst 2004, 2005; Beaver and Clark 2008; Horn 2009; Coppock and Beaver 2014; Alxatib 2020; Greenberg 2022). In this respect, *zihai*, unlike *zinghai*, does not exclude non-prejacent members that are ranked lower, as evidenced by the felicity of (207). Its exclusion in these contexts is therefore rank-based: <bronze, silver, gold>. *Zibatgwo* behaves the same as *zihai*, indicating that its exclusion is also based on a non-logical scale that gold is considered better than silver and bronze in game performance.

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

a. Gongdeoi {??**zinghai**/ **zihai**/ **zibatgwo**} ling-zo jat-go aagwan_F (zaa3).

HK.team only only just get-PFV one-CL 1st-runner-up sfp.only.

'Hong Kong Team only/just got a silver. (What a loser.)'

b. <bronze, **silver**, gold>_{medal/performance} (foc, salient alt)

I further suggest that there is a null counterpart of *zihai*, EXCL_{SCALAR}, which can also license *zaa3*. It

differs from *zinghai* and EXCL in performing exclusion based on non-logical scales. Thus, when *zaa3* occurs alone, it is compatible with a rank order scale. Importantly, *zihai* can be doubled in all these cases. See Greenberg (2025) for similar claims for a special use of *(an)other* as in *it's any other day*, where a covert JUST is proposed (which may license NPIs).

(208) Rank order with compatible alternatives

Scenario: [Taiwan ("Chinese Taipei"): 1 gold | Hong Kong: 1 silver 1 bronze]

Gongdeoi (**zihai**) ling-zo jat-go aagwan_F **zaa3**.

HK.team only get-PFV one-CL 1st-runner-up SFP.only.

'Hong Kong Team just got a silver. (What a loser.)'

Second, *Zaa3* doubled with *zihai* or EXCL_{SCALAR} can be used with rank orders and mutually incompatible alternatives.

(209) Rank order with compatible alternatives (vacuity)

Nei-ci caakjim Aaming (**zihai**) paai dai-ji ming **zaa3**.

this-CL test Ming only rank second place SFP.only

'Ming only/just ranked the second (highest score) on this test.'

Third, scalar *only*'s prejacent does not survive negation, so as *zaa3* doubled with *zihai* or EXCL_{SCALAR}.

(210) Aaming m-hai (**zihai**) jat-go Grad Student lai **zaa3** (, keoi hai Professor aa3).

Ming not only one graduate student SFP SFP.only 3SG be professor SFP

Int.: 'Ming is not just a graduate—he is (actually) a professor!'

2.7.1.2 Sensitivity to contextual salience

Mere contextual salience is sufficient to license *zihai*. In such cases, *zaa3* is preferred, though not obligatory. However, if (211) is uttered out of the blue without a salient alternative or an established scale, *zihai* becomes infelicitous.³⁸

38. Another curious difference concerns the so-called sufficiency modal constructions (von Stechow and Iatridou 2007; Alonso-Ovalle and Hirsch 2022). Only *zihai* may be used, but not *zaa3*. (See also Peng, Wimmer, and Hole 2026 for minimal sufficiency constructions in Chinese.)

(i) a. Soeng jau hou zisi, nei **zihai** seoiiju heoi NE_F (zau dak).
want have good cheese, 2SG only need go NE then okay
'To get good cheese, you only have to go to the North End.' $\rightsquigarrow \Diamond\phi_{NE}$

- (211) *You are a cashier in a meat market in the US. You just served a customer, and your colleague asks whether they bought beef. You answer in a neutral tone:*

M-hai. Go haak **zihai** maai-zo joengjuk_F ?(zaa3).

no CL customer only buy-PFV lamb SFP.only

‘No. The customer only bought lamb.’ (#S/he also bought pork.)

It appears that what *zaa3* is sensitive to is not only scalar ordering, but also a **contextual standard** in the sense of Greenberg (2022). This can be seen in (212), which adapts Greenberg (2022)’s English example to Cantonese.

- (212) *The average height for men in Hong Kong is 1.75m. John is tall. He is 16 years old and already 1.85m tall.*

- a. *His 14 years old brother Bill is a bit shorter – he is only 1.83m tall.*

AaBill **zihai** jat-mai-baatsaam (#zaa3).

Bill only 1-meter-83 SFP.only

‘Bill is only 1.83m tall.’ (But he is of course still very tall!)

- b. <1.5m, 1.6m, ..., 1.75m, ... **1.83m**, 1.85m, ... >_{height} (norm, **foc**, salient alt)

- c. *His 14 years old brother Bill is way shorter – he is only 1.6m tall.*

AaBill **zihai** jatmai-luk (zaa3).

Bill only 1-meter-6 SFP.only

‘Bill is only 1.6m tall.’ (He is quite short!)

- d. <1.5m, **1.6m**, ..., 1.75m, ... 1.83m, 1.85m, ... >_{height}

From these diagnostics, *zihai* encodes at-issue rank-based exclusion, and thereby also introduces a scalar comparison, while *zaa3* encodes a not-at-issue scalar comparison with respect to a contextual standard, as in (213).³⁹

b. #Soeng jau hou zisi, nei seoiiju heoi NE_F (*zau dak) **zaa3**.
want have good cheese, 2SG need go NE then okay SFP.only
Int.: ‘To get good cheese, you only have to go to the North End.’

39. This is a highly simplified way to capture the contextual standard. Another option is to adopt Greenberg (2022)’s gradability-based presuppositions of *only* modified as below. I leave the exact formulation of *zaa3*’s contribution with contextual standard to future work.

(i) *Only* is defined iff: $\forall w1, w2 [w1Rw \wedge w2Rw \wedge w2 \in p \wedge w1 \in [q \wedge \neg p]] \rightarrow [the.max(\lambda d2.G(d2)(x)(w2)) < the.max(\lambda d1.G(d1)(x)(w1)) \wedge the.max(\lambda d2.G(d2)(x)(w2)) <_{standard_G}]$

(213) Three inferences in a $[[zihai\ p]\ zaa3]$ sentence with a rank order

- a. $\forall q \in ALT_p[q(w) \rightarrow p \geq_r q]$ (cf. Beaver and Clark 2008's MAX) (from *zihai*)
- b. $\exists q \in ALT_p[q(w) \wedge p \leq_r q]$ (cf. Coppock and Beaver 2014's MIN) (from *zihai*)
- c. $MOST\ q \in ALT_p[p \not\leq_r q \wedge p <_s q]$ (cf. Grosz 2012's LOWNESS) (from *zaa3*)

2.7.1.3 Evaluative scales and downplaying readings

We now turn to the adverb *zibatgwo* and the sentence-final particle *ze1*.

(214) Adverb *zibatgwo* ‘just, (lit.) only+but’

Aaming **zibatgwo** jam-zo bezauf.

Ming just drink-PFV beer

‘Ming just/merely drank *beer*.’ (beer was nothing)

(215) SFP **ze1** just’

Aaming **zinghai/ zihai/ zibatgwo** jam-zo bezauf **ze1**.

Ming only only just drink-PFV beer SFP.just

Ming only/just drank *beer*.’ (not a big deal)

Unlike *zihai* and *zaa3*, these particles display a strong evaluative flavor, corresponding to Hole (2015)’s notion of LITTLE, particularly in concessive contexts. The traditional characterization of *ze1*’s downplaying function describes it as conveying meanings such as “not too much” or “not too excessive” (Kwok 1984; Fung 2000; Wakefield 2010). Following Y.-N. Li (2014) and P. P.-I. Lee (2019), I propose that *ze1* involves a **three-point comparison** along a scale. Crucially, this comparison requires that a speaker-oriented value be invoked in the context which is ranked higher than both the norm and the focused value. Consider the example below where *zibatgwo* and *ze1* convey such “not-too-excessive” readings:

(216) *Ming wants to buy a watch that is \$100. He complains about it all day to you that it is too expensive.*

You calm him down and say:

- a. Gwai hai gwai, daan dou m-dou 200, {#zinghai/ zihai/ zibatgwo} 100
expensive be expensive but still not-reach 200 only only just 100
ze1.

SFP.just

'Yeah it is expensive, but it is still not as expensive as 200, just 100 bucks.' (not a big number)

- b. Gwai hai gwai, daan dou m-dou 200, {zihai/ zibatgwo} 100 (#zaa3).
expensive be expensive but still not-reach 200 only just 100 SFP.just

'Yeah it is expensive, but it is still not as expensive as 200, just 100 bucks.' (not a big number)

- c. <average (e.g., \$50), **\$100**, \$200>price of a watch

This downplaying use is systematically blocked by *zaa3*. The particle *zaa3* instead requires a context in which \$100 counts as cheap in general, in line with the contextual standard discussed above. While *zihai* is compatible with the present context, it lacks the strong downplaying flavor contributed by *ze1*.

The particle *ze1* is further notable in that it can appear to reverse the numerical ordering by imposing an inverted scale. This kind of downplaying reading cannot be expressed by *zihai* or *zibatgwo*,⁴⁰ nor can it be straightforwardly paraphrased by English *just*. At best, it can be only remotely approximated by concessive *at least*.

(217) *Ming is a graduate student getting only \$20K/yr for stipend in the US. Ming thinks it is already very low as compared to an average of \$30K/yr, but I tell Ming that I'm getting just \$10K/yr.*

- a. Ming: Ngo dak 20K **zaa3**.

I only.have 20K SFP.only

Ming: 'I only got 20K'. → <10K, 20K, ..., 30K, ...>stipend amount (norm, foc, salient alt)

- b. I: Nei {#zihai/ ??zibatgwo} 20K **ze1**.

you only just 20K SFP.just

I: 'Yours is at least (lit.: just) 20K. (not too bad)'. → <..., 30K, ..., 20K, 10K>miserableness/poverty

40. One needs to add "the worst" in this case, as in "even the worst for you is just like that (not a big deal / not too bad)".

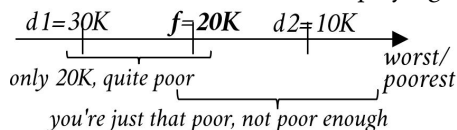
c. I: Ngo 10K **zaa3!**

I 10K SFP.only

'Mine is only 10K!'. → <10K, 20K, ..., 30K, ...> stipend amount

Although the focused value (20K) is worse than the average (30K), the speaker-oriented value (10K) is even worse than the focused one. This configuration gives rise to the interpretation that “you are only/just that poor, which is not too bad”.

(218) *Ze1*'s “not too excessive” downplaying function



It should further be noted that *zibatgwo* differs from *ze1* with respect to whether a concessive context is obligatorily required. Specifically, *zibatgwo* can be used with a rank order that carries a strong evaluative flavor, corresponding to LITTLE or BAD, whereas *ze1* cannot.

(219) a. Scenario: [Taiwan: 1 gold | Hong Kong: 1 silver 1 bronze]

Ming and you are discussing which team performed the best in the last Olympic game. You said: Taiwan was definitely better, because ...

Gongdeoi **zibatgwo** ling-zo jat-go aagwan_F {**zaa3/** **#ze1**}.

HK.team just get-PFV one-CL 1st-runner-up SFP.only SFP.just

'Hong Kong Team only/just got a silver. (What a loser.)'

b. <bronze, **silver**, gold> medal/performance

Ze1 itself is not exclusive but it relies on an adverb like *zibatgwo* for exclusion (even though it is based on an evaluative scale). This is evident by the dependent focus association in (219c). When *zibatgwo* is below the subject (and associates with the object), *ze1* cannot target the subject although it could otherwise associate with it, showing that the association is determined by *zibatgwo*.

(219) c. [Jau saam-go hoksaang]_[*F1] **zibatgwo** lo-zo [seisap fan]_[F2] **ze1**.

have three student just get-PFV 40 score SFP.just

ONLY: 'There are three students just got 40 scores, not a big deal.'

NOT: 'There are just *three* students just got 40 scores, not a big deal.'

2.7.2 An enriched taxonomy of scalarity in exclusives

I present the enriched taxonomy of scalarity in exclusives in Table 2.4. The upshot is that Cantonese exhibits an **enriched taxonomy of scalarity** that is lexicalized across different exclusive particles. This taxonomy builds on Hole (2015)’s trichotomy of German exclusive particles, which distinguishes between informational scalarity (i.e., entailment-based scalarity), rank-order scalarity, and evaluative scalarity, with the notions of LITTLE and BAD. Cantonese *zaa3* shows that a scale can be salience-based, and also sensitive to contextual standards. Downplaying, as a subtype of evaluative scalarity, involves a three-point comparison, rather than a simple binary contrast.

Particles	Category	Scalar contribution			
		None (entailment-based)	scalar salience	rank-order	downplaying
<i>Zinghai</i>	Adv	✓	✗	✗	✗
<i>Zaa3</i>	SFP	✗	✓	✓ _{norm}	✗
<i>Zihai</i>	Adv	✗	✓(?)	✓	✗
<i>Zibatgwo</i>	Adv	✗	✗	✓	✓
<i>Ze1</i>	SFP	✗	✗	✗	✓ _{OK_inverted}

Table 2.4: Summary of the types of scalarity in Cantonese exclusive doubling

2.7.2.1 Scalar particles without obligatory dependencies with exclusives

We have seen that among scalar particles, *zaa3* and *ze1* differ in the scales they operate on, but they share in common a dependency with exclusive operators (which can perform exclusion based on various scales). This raises a question as to whether it is possible to have a scalar particle without such dependency, so it may but does not always double with exclusives. As I will show, the focus adverb *sin* is scalar in nature but nevertheless does not always depend on an exclusive operator.

Cantonese has a peculiar focus adverb that permits association in either leftward or rightward fashion, *sin* ‘only then, (lit.) first’, with *zi* ‘only then, (lit.) arrive, reach’ and *sin-zi* ‘only then, (lit.) first-reach’ as variants. It has many uses, including an eventive adverbial use that retains its literal meaning ‘first’. I only discuss cases with focus association (see C.-l. C. Wong 2010; P. P.-l. Lee 2019; C.-h. Wong 2019; Lau 2021; Ng 2026 and references therein for more discussion).⁴¹ I discuss the rightward association

41. Many of *sin*’s (but not all) uses are similar to *cai* in Mandarin (H.-L. Lai 1999; Hole 2004, 2017, 2023; P. P.-l. Lee 2019; Sun 2021; Wimmer 2022, among others) and *mới* in Vietnamese (Hole 2017; Tran and Zimmermann 2021).

use first, and then turn to the peculiar leftward association.

Sin may associate with a focus rightward (C.-I. C. Wong 2010; P. P.-I. Lee 2019; Ng 2026). This use prefers doubling with *zinghai* or *zaa3*.⁴² Importantly, the focus must contain a numeral. This suggests that rightward-associating *sin* requires a numerical scale.

(220) The numerical scalar use of rightward-associating *sin*

- a. Aaming **sin** ??(**zinghai**) tai-zo [jat-bun syu]_F ??(**zaa3**).

Ming SIN only read-PFV one-CL book SFP.only

‘Ming only read one book.’

- b. *Aaming **sin zinghai** tai-zo [ni-bun syu]_F **zaa3**.

Ming SIN only read-PFV this-CL book SFP.only

Int.: ‘Ming only read this book.’

Such doubling is puzzling if *sin* carries exclusive semantics, because we have seen that exclusive adverbs cannot co-occur with each other with the same focus association.

Turning to leftward-associating *sin*, it has a restrictive focus use that allows doubling with *zinghai* (Lau 2021).

(221) The restrictive focus use of leftward associating adverb *sin*

- (**Zinghai**) Aa-John_F **sin** jau zigaak.

only John SIN have qualification

‘Only JOHN is qualified. (other people are not)’ (adapted from Lau 2021:130)

I observe that this use requires contextual salience of the excluded alternatives. For example, it is not possible to utter (221) out of the blue—it is best used when John is contrasted with other individuals in the context, such as “Mary” (see discussion below for the role of contrastive focus):

- (222) a. Q: Is there anyone who is qualified?

A: #(221)

- b. Q: Is Mary qualified?

A: No, (221)

42. Or with the exclusive focus suffix *-dak* (cf. Tang 2002). See Appendix A for more description of *-dak*, and Yip (2024a) for an account of exclusive doubling with *-dak*.

Hence, different from rightward associating *sin*, leftward associating *sin* can be licensed by a scale of salience. The requirement of salience receives support from the resistance of *sin* to a listing scenario, where all the alternatives are equally salient.

(223) *Context: I'm reporting who in the department speaks what language to the chair. It happens to be the case that for all the Asian languages, each of them is spoken by only one person.*

Zinghai Aaming_F (**#sin**) gong gwongdongwaa, zinghai Aafan_F (**#sin**) gong jyutnamwaa,
 only Ming SIN speak Cantonese only Fan SIN speak Vietnamese
 zinghai Aalok_F (**#sin**) gong taiman, ...
 only Lok SIN speak Thai

'Only Ming speaks Cantonese, only Fan speaks Vietnamese, only Lok speaks Thai, ...'

A case with a numerical scale is also illustrated in (224). It requires the number ranked *lower* than the prejacent (six people) not to hold for the proposition, i.e., five people cannot lift up this piano. At first glance, this seems to differ from the exclusion by *zihai* 'only' which requires the number ranked *higher* than the prejacent not to hold for the proposition. *Sin* gives a sense that "six people" is considered a lot for the minimal requirement for lifting the piano. This is evidenced by the ban on "as few as".

(224) The numerical scalar use of leftward associating *sin*

a. [Luk-go jan]_F **sin** geoi-dak-hei bou kam.

six-CL person SIN lift-able-up CL piano

'Only with six people can this piano be lifted up.'

(i.e., At least six people are required for the piano to be lifted up)

(Lau 2021:120)

b. [Luk-go jan]_F {**gam-do/ #gam-siu**} sin geoi-dak-hei bou kam.

six-CL person that-many that-few SIN lift-able-up CL piano

'Only with {as many as/ #as few as} six people can this piano be lifted up.'

This use is compatible with *zinghai* 'only'. With *zinghai*, however, the meaning is slightly different, as reported by Lau (2021). *Zinghai* seems to target a specific set of six people. While Lau does not mention it, there is an alternative reading of "exactly six"—not five, and not seven. However, this *sin* is not compatible with *zihai* 'only' or *zibatgwo* 'just'.⁴³

43. This use of *sin* is also compatible with *zi-jau* '(lit.) only-have'. See Wimmer (2022) for extensive discussion on the co-occurrence of *zhi-you* '(lit.) only-have' and *cai* 'only then' in Mandarin and their semantics; also Hole (2017, 2023) and Sun

- (225) a. Zinghai [luk-go jan]_F **sin** geoi-dak-hei bou kam.
 only six-CL person SIN lift-able-up CL piano
 i. ‘Only (a specific group of) six people can lift up this piano.’ (Lau 2021:120)
 ii. ‘Only exactly six (not five or seven) people can lift up this piano.’
- b. # {Zihai/ zibatgwo} [luk-go jan]_F **sin** geoi-dak-hei bou kam.
 only just six-CL person SIN lift-able-up CL piano
 Int.: ‘Only six people can lift up this piano.’

Sin, however, is not always a restrictive focus adverb. Lau (2021) observes that *sin* is licensed either with a contrastive focus or a scale. A contrastive case is illustrated in (226).⁴⁴

(226) The contrastive use of *sin*

- a. Dr Fung go office hai AG502 me1? AG512_F **sin** ngaam aa3!
 Dr Fung CL office at AG502 SFP AG512 SIN right SFP
 ‘Dr. Fung’s office is at AG502? It should be AG512.’ (C.-l. C. Wong 2010 via Lau 2021:104)
- b. #... {zinghai/ zihai/ zibatgwo} AG512_F **sin** ngaam aa3!
 only only just AG512 SIN right SFP
- c. #... {zinghai/ zihai/ zibatgwo} AG512_F ngaam aa3!
 only only just AG512 right SFP

The sentence in (226) contains a contrastive focus use without exclusion, and the intended meaning cannot be conveyed with an exclusive adverb, regardless of whether they are doubled with *sin* or not. It shows that *sin* does not require the occurrence of exclusive operators, although it is compatible with it as in (221) above. See Lau (2021, 108ff) for the lack of exhaustivity of *sin*.

A case with a temporal scale is given in (227). *Sin* presupposes that the time denoted by the preceding temporal adjunct is later than expected, as opposed to *zau* ‘then’ which presupposes that the time is earlier than expected.

(2021) for the syntax.

44. She dubs the contrastive focus use as “non-scalar”. In our terms, this use still involves a scale of salience.

(227) The temporal use of leftward associating adverb *sin*

- a. *Context: Yesterday, Ming needed to work until 9 pm, and it took 1 hour for him to go home.*

Keoi camjat sap-dim **sin** faan-dou ukkei.

3SG yesterday 10-o'clock SIN back home

'He was back home (as late as) 10 pm yesterday.'

- b. *Context: Ming is not a party person. He left early at a party last night.*

Keoi camjat sap-dim **zau** faan-dou ukkei.

3SG yesterday 10-o'clock then back home

'He was back home (as early as) 10 pm yesterday.'

Again, no exclusion is involved here. Adding *zinghai* in (228a) is odd because of the ban on vacuous quantification: by world knowledge, Ming only had one time point when he was back home yesterday. *Zihai* and *zibatgwo* are simply banned with *sin* in (228b): they require the focused time (10 pm) to be ranked earlier but not later than excepted, which is expressed by *zau* in (228c).

- (228) a. ??Keoi camjat **zinghai** sap-dim (**sin**) faan-dou ukkei.

3SG yesterday only 10-o'clock SIN back home

'The only time that he was back home was (as late as) 10 pm yesterday.'

- b. #Keoi camjat **zihai/ zibatgwo** sap-dim **sin** faan-dou ukkei.

3SG yesterday only just 10-o'clock SIN back home

'He was back home (as late as) just 10 pm yesterday.'

- c. Keoi camjat **zihai/ zibatgwo** sap-dim **zau** faan-dou ukkei.

3SG yesterday only just 10-o'clock SIN back home

'He was back home (as early as) just 10 pm yesterday.'

I suggest that *sin* is a scalar operator rather than an exclusive operator semantically. As for rightward-associating *sin*, it is like *zaa3* in ordering the focus lower than other relevant alternatives (see Ng 2026 for a semantic analysis implementing my scalar focus approach first published in Yip 2024b). Yet, it imposes a stricter restriction on the types of scales: they must be numerical scales (i.e. entailment-based) but not salience or non-logical scales.

As for leftward-associating *sin*, I propose that it is like *zaa3* that it may operate on either salience or

rank order scales (as opposed to *ze1* which requires evaluative scales). However, unlike *zaa3*, it does not require the presence of an exclusive operator. Moreover, it requires the focus to be ranked higher, but not lower, than other relevant alternatives. The cases where leftward-associating *sin* are compatible with an exclusive adverb all disallow the focus to be ranked lower, and only the quantificational *zing-hai* can be used. There is this interesting asymmetry between the two *sin*'s, which I tentatively assume to be homophonous morphemes. Importantly, the presence of such scalar particles is not surprising under the current scalar focus approach: scalar particles may rank focus and alternatives in both directions, and whether there is a dependency with an exclusive operator is lexically determined (see the subsection below and §4.6 for more discussion on variation).

2.7.2.2 A snapshot on cross-linguistic variation

I end this section by discussing a curious point of variation. Despite the differences in the nature of the scales, Cantonese scalar exclusives always involve a lower ordering of the prejacent *p* against the alternatives *q*. Is it possible for a language to have a reverse ordering in scalar particles that are associated with exclusives?

- (229) a. Cantonese: $p <_s q$
 b. Reverse ordering: $q <_s p$

Deo (2023) reports that Hindi adfocal *-hii* 'only, just' (see Bajaj 2016; Dayal 2025b for doubling of *-hii* with other exclusive particles) and Marathi adfocal *=ts* 'only, just' have a requirement on the salience of the prejacent.⁴⁵ Rather than ranking the prejacent low, it requires the prejacent to be salient to both interlocutors. This is shown by the contrast in the following contexts.

- (230) a. ✓ *Context 1: Anu has never met Bilal's sister and wants to be introduced to her at a party.*
 A: Bilal, where/which woman is your sister?
 B: Do you see that tall woman in the sky-blue dress?

45. These particles have a lot of uses, including exclusives 'only/just', anaphoric 'indeed/that very', intensifiers 'really/totally', precisifiers 'right/exactly/absolutely', and scalar additive 'even'.

- b. ✗ Context 2: Anu has never met Bilal's sister and wants to be introduced to her at a party.

A: Bilal, is your sister the one wearing the green sari?

B: [Looks at where she is pointing] No, do you see that tall woman in the skyblue dress?

- c. $\bar{t}\bar{i}=ts$ $ma\check{d}^h\bar{i}$ $b\bar{a}h\bar{i}\eta$ $ah-e$ (Marathi)

she=c my sister be-PRES.3.SG

'It is that woman that is my sister.'

- d. $[v\bar{a}=hii$ $meri$ $b\bar{e}h\bar{e}n$ $h\bar{e}]$ (Hindi)

(Deo 2023:71–72)

Deo proposes that *-hii* and *=ts* state that the prejacent is a “schelling point” (focal point) for the interlocutors to coordinate on. It requires the speaker and the addressee to uniquely attend to *p* among the alternatives.

Bajaj (2016) also observes a difference in speaker expectations in Hindi: the “regular” exclusive *sirf* ‘only’ only allows the under-expectation reading (similar to *only* in English), but *-hii* allows for the same-as-expectation readings, unlike Cantonese *zaa3*. See Dayal (2025b) for more discussion on *-hii*.

- (231) a. $maiN-ne$ $socaa$ $thaa$ ki $caar$ $aayeNge$ $lekin$ ***sirf*** $do-hii$ $aaye$.
I-ERG thought PAST that four come.3.M.PL.FUT but only two-only come-PRF.3.PL
'I thought that four would come but only two came.' (Under-expectation)

- b. * $maiN-ne$ $socaa$ $thaa$ ki $caar$ $aayeNge$ aur ***sirf*** $caar-hii$ $aaye$.
I-ERG thought PAST that four come.3.M.PL.FUT and only four-only come-PRF.3.PL
'I thought that four would come and only four came.' (Same-as-expectation)

- c. $maiN-ne$ $socaa$ $thaa$ ki $caar$ $aayeNge$ aur $caar-hii$ $aaye$.
I-ERG thought PAST that four come.3.M.PL.FUT and four-only come-PRF.3.PL
'I thought that four would come and four (did) come.' (Same-as-expectation)

(Bajaj 2016:87)

Taking together, Hindi *-hii* seems to be the mirror image of Cantonese *zaa3*: while *zaa3* requires a salient alternative, *-hii* (and *=ts*) require the prejacent to be salient (more so than the alternatives). This illustrates the range of variations possible in the semantic encoding of scalarity, which invites more cross-linguistic research in the future.

Chapter 3

Intervention effects in exclusive doubling

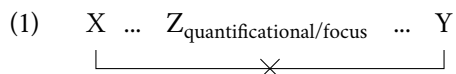
This chapter examines intervention effects (henceforth IEs) in exclusive doubling. Empirically, it will be shown that the interveners in exclusive doubling are non-uniform in two senses: (i) only certain quantificational elements trigger IEs, but not focus elements and some other quantificational elements; (ii) the set of interveners is different from canonical interveners reported for *wh*-dependencies. I argue that it is semantic notions that divide the set of interveners from non-interveners, which in turn provides crucial arguments for the semantic nature of the dependencies in exclusive doubling. More importantly, I demonstrate that the IEs are the natural consequences of the proposal for exclusive *zinghai* and scalar *zaa3* in Chapter 2, lending further support to the idea that exclusive doubling involves two focus operators accessing the same alternatives. I will also show that similar IEs are found cross-linguistically in Mandarin and Vietnamese exclusive doubling. The theoretical implications are two-fold. First, the findings corroborate the following ideas which have gained recent increasing attention in the literature: that (i) at least some IEs are semantic in nature, that (ii) they may arise from illicit scopal configurations, and that (iii) IEs in general are non-uniform across both interveners and dependencies—therefore, IEs should be understood as a descriptive label of a set of heterogeneous phenomena in syntax and semantics. Second, the proposed account capitalizes a semantic dependency and a semantic mechanism that are different from the ones discussed in the literature. This predicts a novel paradigm of IEs: namely, quantifier-only IEs without focus-induced IEs, which is attested in

exclusive doubling.

This chapter is organized as follows. §3.1 gives an overview of IEs and explicates their theoretical issues at the syntax-semantics interface. §3.2 shows that the interveners in Cantonese exclusive doubling are not uniform. §3.3 proposes that IEs arise from a scope constraint in exclusive doubling that is derived from the semantics of the two particles and their dependency. §3.4 zooms out to the general theoretical picture of IEs and discusses the implications of the findings for the syntax-semantics interface. §3.5 lays out the cross-linguistic patterns of IEs in Mandarin and Vietnamese exclusive doubling, suggesting that the proposal and implications are general to other languages. I also discuss where in grammar we attribute the (non-)variations of IEs to.

3.1 Introduction

The term “intervention effects” has been used to describe cases where a quantificational/focus element disrupts a syntactic/semantic dependency between two elements, in a schema like (1). The disruption may lead to unnaturalness or unavailability of a certain interpretation of the sentence.



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

As an illustration, (2) shows IEs in *wh*-questions in Korean, a classic case discussed by Beck (2006, *i.a.*). The exclusive focus subject cannot be placed before the in-situ *wh*-object. The *wh*-object must scramble over the subject for a grammatical and interpretable sentence.

(2) IEs in *wh*-questions in Korean

- a. ***Minsu-man** nuku-lûl po-ss-ni?
 Minsu-only who-Acc see-Past-Q
 Int.: ‘Who did only Minsu see?’

- b. nuku-lûl **Minsu-man** po-ss-ni?
 who-Acc Minsu-only see-Past-Q
 ‘Who did only Minsu see?’

(Beck 2006:3)

It is usually hypothesized that the in-situ *wh*-word establishes a dependency, either syntactic or seman-

tic in nature, with a question operator high up in the periphery (e.g., SpecCP), as in (3). The dependency is disrupted by a quantificational element or a focus element. Exclusive focus qualifies as both: it quantifies over focus alternative sets on the truth-conditional level.

- (3) a. $*[Q \dots [Z_{\text{quantificational/focus}} \dots [wh \dots$ (✓ IEs)
└───────────┘ ×
- b. $[Q \dots [wh \dots [Z_{\text{quantificational/focus}} \dots$ (✗ IEs)
└───┘

Empirically, IEs cover a range of heterogeneous phenomena that differ in (i) the type of dependencies and (ii) the set of interveners, (iii) cross-linguistically. It is important to stress the role of variations: even for a given dependency and a given set of interveners, the patterns may not be the same across languages. For example, while negative quantifiers trigger IEs for *in-situ wh*-words in Korean/Japanese (Beck and Kim 1997; Beck 2006), such IEs do not arise in Chinese (for *wh*-nominals, see Soh 2005; Yang 2012).

- (4) a. The type of dependencies (e.g., *wh*-movement vs. *wh*-in-situ)
b. The set of interveners (e.g., quantificational elements vs. focus operators)
c. The languages (e.g., *wh*-in-situ in Chinese vs. *wh*-in-situ in Korean/Japanese)

In the following, I give an overview of different approaches to IEs, with a special focus on how they handle variations.

3.1.1 Syntactic approach to IEs: minimality

3.1.1.1 Rizzi (2001, 2004)

One major way to approach intervention effects is to resort to syntactic features, formulated as Relativized Minimality (RM) (Rizzi 1990, 2001, 2004, see also Starke 2001; Rizzi 2011, 2013; Haegeman and Lohndal 2010; Yang 2012, *i.a.*). Each intervener is classified to a syntactic class with a superfeature, as in (5). Each superfeature contains subfeatures that form a particular dependency: for example, although negation does not undergo *wh*-movement, it is classified into the same class as *wh*-words and may trigger IEs for *wh*-movement. In other words, the set of interveners is a superset of elements that can establish a dependency, as in (6).

(5) Superfeatures in Italian/French

- | | | |
|----|--|------------------|
| a. | [A]: person, number, gender, case | Argumental |
| b. | [Qu]: Wh, Neg, measure, focus ... | Quantificational |
| c. | [Mod]: evaluative, epistemic, Neg, frequentative, celerative, measure, manner, ... | Modifier |
| d. | [Top] | Topic |

(6) a. Dependency: Overt *wh*-movement (of non-D-linked *wh*-phrases)

- b. Set of interveners: *wh*-words, sentential negation, adverb of quantification (e.g., ‘often’), contrastive focus

Historically, interveners have been thought to follow the A/A'-distinction, which led to a positional account of RM (i.e., A-positions, A'-positions, and heads, Rizzi 1990), but both empirical and theoretical advances in the Minimalist Program have led to the shift to a featural account pioneered by Rizzi (2001). In the feature-based Relativized Minimality (fRM), a dependency with a certain superfeature can only be formed if there are no other elements with the same superfeature that intervene in a minimal configuration, as in (7).

(7) Feature-based Relativized Minimality (fRM) (Rizzi 2001, 2004)

- a.
- | | | | | |
|--|-----|------|-----|------|
| X | ... | Z | ... | Y |
| [Qu] | ... | [Qu] | ... | [Qu] |
| <div style="text-align: center;"> </div> | | | | |

- b. X and Y is in a minimal configuration iff there is no Z such that Z carries the same feature with X and Y, and that Z c-commands Y and is c-commanded by X (i.e. intervenes between X & Y). Minimality/intervention effects arise if X and Y are not in a minimal configuration.

For example, a case of intervention by negation in *wh*-movement in French can be analyzed as follows:¹

1. As compared to the case without negation:

- (i) a. **Combien** sais-tu résoudre [_ de problèmes]?
 how.many know-2sg solve of problems

Lit.: ‘How many can you solve of problems?’ = ‘How many problems can you solve?’

(Rizzi 2001:96)

Note that if it is the whole object *Combien de problèmes* ‘How many of (the) problems’ that is extracted, negation does not trigger IEs (i.e., displaying the famous argument-adjunct asymmetry, C.-T.J. Huang 1982a). One may assume with Starke (2001) that an extra feature such as a discourse feature [δ] related to D-linking (Pesetsky 1987) is involved, and the interveners with a single [Qu:Neg] feature cannot intervene a dependency with two features [Qu:wh, δ].

- (8) a. ***Combien** ne sais-tu pas résoudre [de problèmes]?
 how.many NEG know-2SG NEG solve of problems
 Lit.: ‘How many can’t you solve of problems?’
 Int.: ‘How many problems can’t you solve?’ (Rizzi 2001:99)
- b. [CP **Combien**_[QU:WH] ... [NegP ne...pas_[QU:NEG] ... [_[QU:WH] ...]]]?


The syntactic approach, nevertheless, has several conceptual and empirical inadequacies. First, superfeatures are syntactic classes, but not semantic classes. Not all semantically quantificational elements trigger intervention effects. For example, quantificational DPs ‘everyone’ and ‘someone’ (Rizzi 2001:109-110) and intensional verbs like ‘think’ do not trigger intervention effects for *wh*-movement. Note however that it begs the question what elements carry [Qu], apart from the fact that they trigger IEs for *wh*-movement.

Second, fRM is very powerful. When extended to in-situ *wh*-dependencies (e.g., Yang 2012), it may conflate negative island effects in *wh*-movement (with [Neg], a subfeature of [Qu]) in *wh*-movement with focus/quantifier intervention effects (supposedly also with [Qu]) in *wh*-in-situ cases, the so-called “Beck effects”. Negative islands, however, have shown to be different from focus/quantifier intervention in displaying modal obviation effects (Mayr 2021). Adding a modal in focus/quantifier intervention cases does not improve the degradedness in judgment. Indeed, modals may even trigger intervention effects such as in the case of Chinese *wh*-adverbial and A-not-A questions (Tsai and Yang 2015, 2026).²

It does not mean that the syntactic approach cannot handle variation in interveners across languages. One may imagine the superfeature classes can be further split (e.g., in T. T.-M. Lee 2022, 2024,

2. Consider the contrasts with and without modals in negative islands in *wh*-movement:

- (i) a. **How many cars** did John fix ? (Mayr 2021:9)
 b. ***How many cars** didn’t John fix ? (Mayr 2021:9)
 c. **How much food** is the company not allowed to give its workers ?
 (Fox and Pesetsky 2006, ex.28a via Mayr 2021:13)

Such modal obviation effects do not exist in German negative quantifier intervention (concerning the in-situ *wo* ‘where’).

- (ii) a. *Wen ist niemandem erlaubt worden **wo** zu treffen? [German]
 who is nobody allowed become where to meet
 b. Wen ist **wo** niemandem erlaubt worden zu treffen?
 who is where nobody allowed become to meet
 ‘Which person x and place y are such that no one was allowed to meet x at y?’ (Mayr 2021:26)

to be discussed later in §3.4). Indeed, the class [Top] is argued to be conflated with [Qu] in English by Rizzi (2001, 2004), so as to handle the fact that topicalization intervenes with *wh*-movement in English but not in Italian. In the same vein, one can also posit that the features involved in *wh*-in-situ dependencies are different from those in *wh*-movement. While it requires further additional justification, the point here is that the syntactic approach is equipped with a certain degree of flexibility that will be relevant to our discussion on exclusive doubling.

3.1.1.2 Other variants

There are several variants of the syntactic approach. One is Chomsky (1995, 2000, 2001)’s Attract Closest or the Minimal Link Condition. This account reduces IEs wholly to locality: for a dependency to be formed, an element searches for closest element with the matching feature. The set of interveners, however, is predicted to be the same as the set of elements that can form the dependency. Essentially, elements like negation should not trigger IEs for *wh*-movement, contrary to fact.

Another variant is LF movement of *wh*-features (Pesetsky 2000; Soh 2005; see also Beck 1996), which is claimed to be illicit when crossing a scope-taking element. Again, what counts as “scope-taking” in their account is a non-trivial question considering that intensional verbs do carry semantic scope but do not trigger IEs.

Since fRM has a wider empirical coverage and a stronger explanatory power, I will choose it as the representative as the syntactic approach in this chapter. However, the challenges to be raised to the syntactic approach by exclusive doubling applies equally to other variants.

3.1.2 Semantic approach to IEs: focus intervention

In the *semantics* literature, on the other hand, various lines of explanations have been pursued. The most influential one is focus intervention, where the locus of IEs is identified as the failure to compute alternative set values (Kim and Sag 2002; Beck 2006; Beck and Kim 2006; Dong 2009; Cable 2010; Truckenbrodt 2013; Kotek 2014, 2019; Li and Law 2016; Erlewine 2025, *i.a.*). It resorts to the nature of *wh*-phrases being alternative-triggering, which interacts with interveners that are focus-sensitive.

One representative is Beck (2006)’s alternative resetting account. She studies interrogative *wh*-in-situ in Korean and multiple-*wh*-questions in German; as well as similar dependencies cross-linguistically. Following Rooth (1992), she assumes two-dimensional semantic values: ordinary (notated as $\llbracket \cdot \rrbracket^o$ here)

vs. focus/alternative (notated as $\llbracket \cdot \rrbracket^{alt}$ here).³ She proposes that *wh*-words have no defined ordinary semantic value, and denote alternative sets as their focus semantic value. A regular focused expression has both values.

- (9) a. $\llbracket wh \rrbracket^o = \text{undefined}$
 $\llbracket wh \rrbracket^{alt} = \{a, b, c, \dots\}$
 b. $\llbracket \alpha_F \rrbracket^o = a$
 $\llbracket \alpha_F \rrbracket^{alt} = \{a, b, c, \dots\}$

The focus semantic value is taken up by a Q operator to yield interrogative meaning. There is a focus resetting operator squiggle $\sim$, as in (10). Focus operators, as well as some quantifiers (e.g., ‘no one’ in Korean), require the presence of $\sim$. Focus intervention effects arise as a result of $\sim$ resetting the focus semantic value of *wh*-words before the Q operator (formulated in (11)) takes it up. The general schema is illustrated in (12).

(10) The semantic contribution of resetting $\sim$

(Rooth 1992; Beck 2006, formulation from Erlewine 2025:536)

- a. $\llbracket \sim C \alpha \rrbracket^o = \llbracket \alpha \rrbracket^o$, with presupposition: $C \subseteq \llbracket \alpha \rrbracket^{alt}$
 b. $\llbracket \sim C \alpha \rrbracket^{alt} = \{\llbracket \alpha \rrbracket^o\}$

(11) The semantic contribution of question operator Q

(Beck 2006, formulation from Erlewine 2025:538)

- a. $\llbracket Q \alpha \rrbracket^o = \llbracket \alpha \rrbracket^{alt}$
 b. $\llbracket Q \alpha \rrbracket^{alt} = \{\llbracket \sim C \alpha \rrbracket^o\} = \{\llbracket \alpha \rrbracket^{alt}\}$

(12) General Minimality Effect (Q=Op₁, wh=XP₁, $\sim$ C = required by focus operators)

The evaluation of alternatives introduced by an XP cannot skip an intervening $\sim$ operator.

$$*[Op_1 \dots [\sim C [\Phi \dots XP_1 \dots]]]$$

For example, the Korean intervention case in (2), reproduced below in (13), can be analyzed as follows (assuming that adfocal *-man* ‘only’ triggers a null exclusive operator, Y. Lee 2005). The step goes wrong when applying $\sim$, which requires access to the ordinary value. It returns an undefined

3. Her original notations are $\llbracket \cdot \rrbracket^g$ for the ordinary value where g is the regular assignment function, and $\llbracket \cdot \rrbracket^{g,h}$ for the focus value where h is the focus assignment function (Kratzer 1991a).

ordinary value since its input contains a *wh*-word that is undefined for its ordinary value. Accordingly, the alternative value, which is reset to be a set of the ordinary value, is also undefined ($\llbracket \sim C \alpha \rrbracket^{alt} = \{\llbracket \alpha \rrbracket^o\} = \text{undefined}$). This is crucial since it renders the question operator *Q* losing access to the *wh*-alternatives (i.e., $\llbracket Q \alpha \rrbracket^o = \llbracket \alpha \rrbracket^{alt} = \text{undefined}$). In other words, the intervening resetting $\sim$ disrupts alternative computation.

(13) a. $*_{[CP \ Q \ [IP_3 \ EXCL(C_i) \ [IP_2 \ \sim \ C_i \ [IP_1 \ \text{Minsu}_F\text{-man} \ [\text{nuku-l\ddot{u}l} \ po\text{-ss-ni]]]]]}$?

Minsu-only who-Acc see-Past-Q

Int.: ‘Who did only Minsu see?’

- b. $\llbracket IP_1 \rrbracket^o = \text{undefined}$; $\llbracket IP_1 \rrbracket^{alt} = \{\wedge \text{Minsu saw a}, \wedge \text{Minsu saw b}, \wedge \text{a saw a}, \wedge \text{a saw b}, \dots\}$
 $\llbracket IP_2 \rrbracket^o = \text{undefined}$; $\llbracket IP_2 \rrbracket^{alt} = \text{undefined}$
 $\llbracket IP_3 \rrbracket^o = \text{undefined}$; $\llbracket IP_3 \rrbracket^{alt} = \text{undefined}$
 $\llbracket CP \rrbracket^o = \text{undefined}$; $\llbracket CP \rrbracket^{alt} = \text{undefined}$

Again, there can be room for variations. While this account predicts that the interveners must at least include focus operators (‘only’, ‘even’, and ‘also’), quantifiers, which are not inherently focus-sensitive (Beaver and Clark 2003), may exhibit variations. Quantifiers like ‘no one’ and ‘everyone’ trigger IEs in Korean but not in Chinese (Yang 2012). Beck’s account would need to incorporate the difference lexically, namely, whether quantifiers require $\sim$. In principle, this should be able to be tested with the obligatory/optional focus sensitivity of the quantifiers, which however has not yet been explored. In addition, variations may even be possible for focus operators if one assumes a variant of non-resetting $\sim$ (Fox 2007; Crnić 2013; Bade and Sachs 2019; Erlewine 2025), as discussed in Chapter 2. Crucially, however, such variations are predicted to have semantic consequences which may be attested in the actual meaning differences, as opposed to a purely syntactic approach. This will be an important consideration when we attempt to apply this account to exclusive doubling.

3.1.3 Semantic approach to IEs: quantifier intervention

Another line of semantic approaches is resorting to the illicit scopal configurations of quantification, with reference to different types of quantifiers with respect to monotonicity, additivity, witnessability, etc. (Swart 1992; Kiss 1993; Szabolcsi and Zwarts 1993; Mayr 2014; Jin 2020, *i.a.*).

3.1.3.1 Mayr (2014)

A representative is Mayr (2014)'s account on additivity and existential presupposition in *wh*-questions. He focuses on multiple-*wh*-questions in German. The crucial observation is that not all quantifiers trigger IEs. **Upward**-entailing *indefinites* do not trigger intervention (with collective predicates), unlike **downward**-entailing indefinites.

(14) The set of interveners in multiple-*wh*-questions in German

- a. *Intervention*: Non-additive quantifiers (i.e., universal & negative)
- b. *No intervention*: Additive quantifiers (i.e., existential)

The IEs of downward-entailing indefinites are given in (15)-(16):

(15) a. ?Wen haben mehr als drei Studenten **wann** eingeladen?

who have more than three students when invited

'Who did more than three students invite when?'

b. *Wen haben weniger als drei Studenten **wann** eingeladen?

who have fewer than three students when invited

'Who did fewer than three students invite when?'

(Mayr 2014, ex.21)

(16) a. ?Wen haben einige Regisseure in **welchem** Film gesehen?

who have a.few directors in which film seen

'Who did a few directors see in which film?'

b. *Wen haben wenige Regisseure in **welchem** Film gesehen?

who have few directors in which film seen

'Who did few directors see in which film?'

(Mayr 2014, ex.22)

The absence of IEs with upward-entailing *indefinites* is shown in (17)-(18):

(17) Wo haben mehr als drei Maler **wann** vorgetragen?

where have more than three painters when presented

'Where did more than three painters give a talk when?'

(Mayr 2014, ex.33)

- (18) Wo haben sich mehr als drei Maler **wann** versammelt?
 where have self more than three painters when gathered
 ‘Where did more than three painters gather when?’ (Mayr 2014, ex.34)

Mayr (2014)’s proposal is that upward-entailing indefinites are additive, but downward-entailing indefinites are not. He assumes that the disjunction of question alternatives (giving rise to an existential presupposition) must match the existential presupposition that stems from the *wh*-existential quantifier (using Karttunen 1977’s view). Intervention effects arise when non-additive quantifiers create a mismatch between the two existential presuppositions.

- (19) f of type $\langle \sigma, t \rangle$ is additive if for any g, h of type σ , $f(g \vee h) = f(g) \vee f(h)$.

- (20) Intervention effects generalization (IEG)

An operator is a problematic intervener iff it is non-additive.

- (21) Formal condition on *wh*-questions

An intervention effect arises in a *wh*-question if $\vee \{ \llbracket CP \rrbracket^{g,h} | h \in H \} \neq \llbracket CP \rrbracket^g$.

The empirical coverage of this approach is narrow in the sense that it predicts that IEs only arise in *wh*-questions (or cases that involve existential presupposition). It is also not clear how cross-linguistic variations in IEs may be handled, as acknowledged by Mayr himself too.

Nevertheless, this approach is insightful in the sense that it generalizes the set of interveners by their semantic properties, and attributes IEs to an illicit interaction with the semantic contribution of the dependency itself.

3.1.3.2 Jin (2020)

Another account, proposed by Jin (2020), draws on the notions of witnessability and topicality of quantifiers. As will be shown in §3.2, witnessability plays an important role in determining the set of interveners in Cantonese exclusive doubling.

Jin (2020) studies *weishenme* ‘why’ questions in Mandarin. Like Mayr, he observes that there are different sets of quantifiers varying in their IEs:

(22) The set of interveners in *weishenme* ‘why’ questions in Mandarin

- a. *Intervention: **Monotone decreasing*** quantificational DP/adverbs as well as focus operators
E.g., ‘no NP’, ‘few NP’, ‘at most 3 NP’ & adverbs ‘never’, ‘seldom’
- b. *Mild intervention: **Monotone increasing*** modified numerals & ***non-monotonic*** bare numerals/adverbs
E.g., ‘at least 3 NP’, ‘more than 3 NP’, ‘3 NP’, ‘a few NP’, ‘several NP’ & adverbs ‘at least twice’
- c. *No intervention: **Monotone increasing*** quantificational DP/adverbs
E.g., ‘all/every NP’, ‘most NP’ & ‘most of the time’

The interveners are given in (23):

- (23) # Meiyou ren/ henshao ren/ zuiduo liang-ge ren **weishenme** yao cizhi?
no person few person at.most two-CL person why want.to resign
Int.: ‘Why do {nobody / few people / at most two people} want to resign?’ (Jin 2020, ex.4)

The “mild” interveners are given in (24). In addition, (25) shows how the IEs are obviated in embedded questions under responsive predicates, as contrast in rogative predicates in (26):

- (24) ? Zhishao san-ge ren/ chaoguo san-ge ren/ san-ge ren/ ji-ge ren
at.least three-CL person more.than three-CL person three-CL person a.few-CL person
weishenme yao cizhi?
why want.to resign
‘Why do {at least three people / more than three people / three people / a few people} want to resign?’ (Jin 2020, ex.6)

- (25) Xiao Li (yijing) zhidao-le san-ge ren/ zhishao san-ge ren/ ji-ge ren
little Li (already) know-PFV three-CL person at.least three-CL person a.few-CL person
weishenme cizhi.
why resign
‘Little Li (already) knew why {three / at least three / a few} people resigned.’ (Jin 2020, ex.8)

- (26) ?Wo xiangzhidao san-ge ren **weishenme** cizhi.
 I wonder three-CL person why resign
 ‘I wonder why three people resigned.’ (Jin 2020, ex.i in fn.7)

The non-interveners are given in (27):

- (27) a. Daduoshu ren **weishenme** yao cizhi?
 most person why want.to resign
 ‘Why do most people want to resign?’
 b. Suoyou-de ren/ mei-(yi)-ge ren **weishenme** dou yao cizhi?
 all person every-(one)-CL person why DOU want.to resign
 ‘Why does everyone want to resign?’ (Jin 2020, ex.5)

Jin (2020) assumes an idiosyncrasy of *weishenme* ‘why’, which must be merged to SpecCP directly. He also assumes a rigid scope isomorphism in Mandarin Chinese, where the scope and linear order must match each other (C.-T. J. Huang 1982a). Hence, the pre-‘why’ position is always a topic, which is the only element that can outscope question speech acts. He proposes that monotone decreasing quantified DPs only have a Generalized Quantifier reading, whereas monotone increasing quantified DPs, being *witnessable*, may have a *plural indefinite* reading, defined below (cf. §3.3 for discussion).

- (28) A quantifier is witnessable iff it entails the existence of a minimal witness set. (after Jin 2020)
 (29) A set W is a witness set of G iff $W \in G$ and W is a subset of the smallest live-on set of G .
 Accordingly, a minimal witness set M is a set that is smallest among the witness sets of G , i.e.,
 M is a witness set of $G \wedge \neg \exists M' [M' \in G \wedge M' \subset M]$. (after Jin 2020)

Witnessable quantifiers may denote a choice-functionally selected plurality. The choice function receives its value from the context.

- (30) $\llbracket \text{most people} \rrbracket^g$
 $= \llbracket [f_1[\text{most people}]] \rrbracket^g = \llbracket [g(1)[\text{most people}]] \rrbracket^g$
 $= g(1)(\lambda x_e [\text{people}(x) \wedge |\text{Atom}(x)| > 1/2 |\{y : \text{Atom}(y) \wedge \text{person}(y)\}|])$

Topics must be referential (type e). He proposes that the non-interveners are indeed topics that outscope *weishenme* ‘why’, hence triggering no IEs. Following Krifka (2001), topics scope out of speech

acts and form a conjoined speech act with a question/assertion.

$$(31) \quad \text{ASSERT}(\langle \Phi_{\text{topic}}, \Psi_{\text{comment}} \rangle) \rightarrow \text{REF}_X(\Phi_{\text{topic}}) \& \text{ASSERT}(\Psi_{\text{comment}}(X))$$

$$(32) \quad \text{REQUEST}(\langle \Phi_{\text{topic}}, \Psi_{\text{comment}} \rangle) \rightarrow \text{REF}_X(\Phi_{\text{topic}}) \& \text{REQUEST}(\Psi_{\text{comment}}(X))$$

The three classes of (non-)interveners are derived as follows. In matrix questions, the topic is a frame-setting topic, which allows for monotone increasing DPs ('all/most NP'). In embedded questions under responsive predicate, taken to be the true answer, the topic is a contrastive topic, which also allows monotone non-decreasing DPs. Other elements, like monotone decreasing DPs and 'only/even' focus, do not denote type e and cannot be a topic. Therefore, there is no "real intervention": the ban on monotone decreasing quantifiers preceding 'why' is a combination of (i) their GQ-denotation (i.e., the lack of type e plural indefinite reading), and (ii) the rigid scope isomorphism in Chinese.

This account predicts that there are no intervention effects for *wh*-words that are low in the structure (e.g., manner 'how', *wh*-arguments), because the quantifiers before them do not need to be interpreted as topics (unlike before *weishenme* 'why') and hence can have a generalized quantifier type. This is borne out with *wh*-arguments/nominals (*cf.* W.-T. D. Tsai 1994, 1999), but only for quantifiers. Focus operators still trigger IEs, and hence some version of focus intervention still needs to be adopted. Moreover, manner 'how' also has quantifier intervention effects (e.g., Yang 2012), although they should be merged low to ν P/VP.

Setting the empirical problems aside, this account is very insightful because it reduces IEs to the semantic properties of quantifiers, which share the same syntactic category (e.g., QP). The non-uniformity of interveners is predicted. This strongly suggests IEs, at least of this sort, should be semantic rather than syntactic.

As a final note, there are also approaches that resort to information structure (e.g., anti-topicality) and pragmatics (Tomioka 2007; Eilam 2011; see also Jin 2020). However, they do not bear high relevance to the IEs to be discussed, and thus are not reviewed in detail here.

3.1.4 Issues at the syntax-semantics interface

The focus of this chapter is IEs in exclusive doubling with SFP *zaa3* and adverb *zinghai* in Cantonese, with extension to Mandarin *zhi...eryi* doubling and Vietnamese *chi...thôi* doubling. I ask the following questions:

(33) Major questions for IEs in exclusive doubling

- a. *Empirical*: Is exclusive doubling subject to IEs? If yes, what are the interveners, and do they align with the interveners in other dependencies in Cantonese?
- b. *Analytic*: How can the IEs be captured? Should the IEs receive a syntactic treatment or a semantic treatment?
- c. *Theoretical*: How do IEs inform us about the computation of focus alternative sets in general?

First, I show that while most of the quantificational elements trigger IEs in exclusive doubling, focus operators surprisingly do not. Moreover, some subject quantifiers do not induce IEs as well. This suggests that IEs are not uniform across different dependencies.

Second, I argue for a semantic account of IEs, specifically along the second line concerning quantification. I propose that the IEs can be described by an immediate scope constraint in exclusive doubling, which arises as an interaction between *zaa3*'s evaluation of excluded alternatives and its access to alternative sets. Specifically, *zaa3* accesses the same alternative set quantified by *zinghai* via co-indexing a contextual variable, rather than by direct compositionality. Conflicts arise when quantificational elements that are not involved in the alternative computation take wide scope over *zinghai*. The account captures that the non-interveners form two semantic natural classes: (i) elements without truth conditional effects (such as focus operators), and (ii) witnessable quantifiers that allow for a referential type *e* reading.

Third, the data pattern raises challenges to a syntactic account with resort to minimality, as well as a semantic account that attributes IEs to alternative resetting.

(34) Alternative accounts of IEs (to be rejected)

- a. Relativized Minimality (e.g., Rizzi 1990, 2004)
- b. Focus intervention (e.g., Beck 2006; Beck and Kim 2006; Li and Law 2016)

3.2 Varieties of interveners in exclusive doubling

Before proceeding to the data in exclusive doubling, it is useful to note that, generally, whether an intervener triggers IEs depends on two factors:

(35) a. The syntactic position of interveners (i.e., whether they truly intervene)

b. The type of interveners (i.e., whether they are quantificational/focus elements)

Concerning the syntactic position, only interveners c-commanded by *zaa3* and c-commanding *zinghai* count. Recall that *zaa3* is higher than CP, and *zinghai* has flexible adjunction sites within CP:

(36) The syntactic position of the doubling particles

[_{SAP/CoAP} ... [_{F(ocus)P} ***zaa3*** [_{CP} (*zinghai*) [_{TP} (*zinghai*) [_{VP} (*zinghai*) [_{VP} (*zinghai*) [_{V'} V Obj ...

That is, interveners that are lower than CP (and higher than *zinghai*) would qualify as interveners. The position of each intervener will be examined as we proceed.

Concerning the type of interveners, five types of quantificational/focus elements have been reported to trigger IEs in Cantonese A-not-A and ‘why’-questions (or Mandarin Chinese, whose pattern is largely replicable in Cantonese), as in (37). Since exclusive doubling is related to both quantification and focus, these five types of interveners will be tested. Note that *wh*-nominals like ‘who’ are not subject to IEs, neither do they trigger IEs for other quantificational dependencies, unlike English *wh*-elements (C.-T. J. Huang 1982b).⁴

(37) Interveners to A-not-A and *why* dependencies in Chinese (Cantonese and Mandarin)

a. Negation (Soh 2005)

b. Modals, e.g. ‘must’ (Tsai and Yang 2015, 2026)

c. Adverbs of quantification, e.g. ‘often’ (A. Law 2001; Soh 2005)

d. Subject quantifiers, e.g. ‘no one’ (Wu 1997; A. Law 2001)

e. Focus operators, e.g. ‘only’ (Soh 2005)

However, it has been noted that subject quantifiers and quantificational adverbs do not uniformly trigger IEs for ‘why’-questions, as also mentioned above (Jin 2020). A discussion and comparison will

4. I list previous work on similar quantificational/focus IEs in other dependencies in Cantonese below:

(i) a. Universal concord in Cantonese (Yip 2022b)

b. Adverbial clauses in Cantonese and Mandarin (Yip 2019, 2024c; Yip and Chen 2022)

c. NPI licensing in rhetorical questions in Cantonese (with *sai2* ‘need’, Choi 2022; with *gwai2* ‘not, lit.: ghost’, Choi 2024b; with negative-*wh* constructions, Choi 2023a)

d. Licensing of NPI/existential *wh*-indefinites in Cantonese and Mandarin (Choi 2023b, 2024a)

e. Verb doubling constructions in Cantonese (T. T.-M. Lee 2022, 2023)

be given in §3.4.

3.2.1 Interveners

In the following, I discuss four types of interveners that give rise to IEs in exclusive doubling: negation (§3.2.1.1), modals (§3.2.1.2), quantificational adverbs (§3.2.1.3), and certain subject quantifiers (§3.2.1.4). I illustrate the patterns using object focus associates where *zinghai* will be in a preverbal, post-subject position, but the patterns extend to other focus associates as long as the intervener is located in-between *zinghai* and *zaa3* syntactically.

3.2.1.1 Negation

Let us begin with negation. There are five forms of negation in Cantonese, as in (38):⁵

(38) Negation in Cantonese

- a. Plain/irrealis negation *m-* ‘not’ (flexible position)
- b. Aspectual negation *mou* ‘not.PFV, didn’t’ (AspP, i.e., below TP)
- c. Aspectual negation *mei* ‘not yet’ (AspP, i.e., below TP)
- d. Sentential negation *m-hai* ‘not-be’ (Above CP)
- e. Prohibitive negation *mai* ‘don’t’ (TP in imperatives/jussives)

The aspectual negation *mou* and sentential negation *m-hai* will be recruited below to test the IEs. I assume that the aspectual negation *mou* occurs in a TP internal position, namely, AspP, and that the sentential negation *m-hai* occurs at a position higher than CP, tentatively labeled as SNegP (see also Zanuttini 1997 for four positions of negation on the clausal spine).

(39) [_{SNegP} *m-hai* [_{CP} ... [_{TP} Subj ... [_{AspP} *mou* [_{VP} ...

5. The syntactic positions of negation are supported by the diagnostics below (Yip 2019, 2024c; Tang 2022b; see also W.-T. D. Tsai 2010, 2015 for Mandarin, among others):

- (i) a. Relative order with epistemic, deontic, and dynamic modals
- b. Relative order with subjects
- c. Interpretation of subjects preceding the negation (i.e., whether they are topics)
- d. Embeddability (e.g., complement clauses of nouns)

One piece of evidence for the structure above comes from the relative order with subjects. Consider the contrasts in (40). Only *m-hai*, but not *mou*, may precede a subject. Hence, *m-hai* must be higher than TP and *mou* is lower than TP. Note that the subject before *m-hai* receives a topic reading and should be regarded as in SpecTopP (above CP) instead of SpecTP.⁶

(40) Relative order with subjects

- a. {a. ***Mou**} Aaming {b. **mou**} maai joeng-juk.

NEG.PFV Ming NEG.PFV buy lamb

‘Ming did not buy lamb.’

- b. {a. **M-hai**} Aaming {b. **m-hai**} maai-zo joeng-juk.

NEG-COP Ming NEG-COP buy-PFV lamb

‘It is not the case that Ming bought lamb.’

Another piece of evidence comes from embeddability. Only *mou*, but not *m-hai*, may be embedded under a CP like complement clauses of nouns, as in (41). That *m-hai* cannot be embedded suggests that it occupies a position higher than CP.⁷

(41) Embeddability in complement clauses of nouns

- a. Keoidei tengdou [_{DP} go-go [_{CP} Aaming **mou** maai joeng-juk] ge siusik].

3PL heard that-CL Ming NEG.PFV buy lamb GE news

‘They heard the news that Ming didn’t buy lamb.’

- b. *Keoidei tengdou [_{DP} go-go [_{CP} Aaming **m-hai** maai-zo joeng-juk] ge siusik].

3PL heard that-CL Ming NEG-COP buy-PFV lamb GE news

Int.: ‘They heard the news that it is not the case that Ming bought lamb.’

With the syntactic position diagnosed, we can test whether negation triggers IEs in exclusive doubling. Consider the aspectual negation *mou* first. *Zinghai*, as an adverb, has flexible adjunction sites,

6. For example, if the subject is a quantifier that resists topicalization like *houdojan* ‘many people’ (see Lee and Yip 2024), it cannot occur before *m-hai*.

7. The same contrast carries over to subject clauses. Other clause-embedding contexts, such as complement clauses of verbs and peripheral adverbial clause, should not be adopted here since they have a larger clause size and may accommodate main clause phenomena (e.g., Wei and Li 2018; Dayal 2025a). Also note that relative clauses and central adverbial clauses are derived by operator movement (as proposed by Haegeman 2010a, 2010b, see Yip and Chen 2022; Yip 2024c for Cantonese and Mandarin), and may be disrupted by negation. Hence, these two subordinate clauses cannot be used to test the embeddability of sentential negation.

above or below *mou*. Doubling with *zaa3* is allowed when *zinghai* adjoins higher than *mou* and takes wide scope, as in (42a). Crucially, however, when *zinghai* takes narrow scope below *mou*, doubling with *zaa3* is blocked. For (42b) to be grammatical, *zaa3* must not be present.

(42) Intervention effects of negation in doubling

- a. *Scenario: Fan said Ming didn't buy beef for tonight's dinner. You know that Ming bought beef and pork but not lamb, so you say: "no, ..."*

... Aaming **zinghai** mou maai [joengjuk]_F (**zaa3**). (only > ¬)

Ming only NEG.PFV buy lamb SFP.only

'Ming only fails to (lit.: only didn't) buy lamb.' (but not beef - Ming did buy beef)

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

... Aaming mou **zinghai** maai [joengjuk]_F (***zaa3**). (¬ > only)

Ming NEG.PFV only buy lamb SFP.only

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

Note that the same effects are found in singleton *zaa3* cases. In (43), 'only' must take wide scope over the negation. Assuming that the covert exclusive operator EXCL is present in singleton *zaa3* cases, (43) shows that negation cannot intervene between EXCL and *zaa3*.

(43) Intervention effects of negation in singleton *zaa3* cases

... Aaming mou maai [joengjuk]_F **zaa3**. (only > ¬, *¬ > only)

Ming NEG.PFV buy lamb SFP.only

ONLY: 'Ming only fails to buy lamb.' (e.g., OK in Scenario in 42a)

BUT NOT: 'Ming didn't only buy lamb.' (e.g., # in Scenario in 42b)

The IEs by *mou* are schematized in (44), with linear order ignored.

(44) a. [**zaa3** [_{CP} ... [**zinghai**/EXCL ... [_{AspP} mou 'NEG.PFV' ...
└──────────────────┘

b. *[[**zaa3** [_{CP} ... [_{AspP} mou 'NEG.PFV' ... [**zinghai**/EXCL ...
└──────────────────┘

On the other hand, the sentential negation *m-hai*, being syntactically higher, does not trigger IEs. This is shown in (45) where *zinghai* takes narrow scope:

(45) Lack of IEs with sentential negation

Scenario: same as (42b)

... Aaming m-hai **zinghai** maai-zo [joengjuk]_F (**zaa3**). (¬ > only)

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

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

Note that *zinghai* cannot adjoin higher than *m-hai* to obtain the wide scope (=46). *Zinghai* targeting the subject/topic before *m-hai* is similarly degraded, again confirming that *m-hai* is syntactically higher.

(46) a. *Aaming **zinghai** m-hai maai-zo [joengjuk]_F (**zaa3**). (*only > ¬)

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

Int.: ‘It is only not the case that Ming bought lamb.’

b. ??**Zinghai** [Aaming]_F m-hai maai-zo joengjuk (**zaa3**). (*only > ¬)

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

Int.: ‘Only Ming is such that he did not buy lamb.’

The lack of IEs by *m-hai* follows if we assume that *m-hai* is higher than *zaa3*, and does not intervene between *zaa3* and *zinghai*. In other words, it is too high to intervene.⁸

(47) [_{SNegP} *m-hai* ‘NEG-COP’ [_{zaa3} [_{CP} ... [_{TP} ... **zinghai** ...

3.2.1.2 Modals

The second type of potential interveners is modals. As argued by W.-T. D. Tsai (2010, 2015), Chinese modals are heads/adverbs located in functional projections rather than verbs projecting VPs (see also Grano 2012, 2015; Pan and Paul 2014, *contra*. Lin and Tang 1995; T.-H. J. Lin 2011, 2012). There are (at least) three categories of modals with different syntactic positions: (i) epistemic; (ii) deontic/priority,

8. While this assumption is reasonable given the contrast between *m-hai* and *mou*, it is hard to find independent syntactic evidence that *m-hai* is higher than *zaa3*. An indirect and suggestive piece of evidence comes from rhetorical questions formed with *m-hai* (cf. outer negation in Ladd 1981) and the SFP *me1* that encodes strong negative bias (Hara 2014; Tang 2022a). As shown by the linear order in (i), *me1* follows *zaa3*, indicating that *zaa3* is syntactically lower than *me1*. Since *zaa3* is within the scope of the rhetorical questions, it is reasonable to assume it is also under the scope of *m-hai* that contributes to the rhetorical reading.

(i) Aaming m-hai **zinghai** maai-zo joengjuk_F **zaa3** me1?!
Ming NEG-COP only buy-PFV lamb SFP.only SFP.Q
‘Didn’t Ming only buy lamb? Of course we’ll have lamb stew again!’

and (iii) dynamic (e.g., ability/volition) (see Portner 2009 for semantic distinctions, where “deontic” is labeled as “priority”):⁹

(48) Modals in Cantonese

- a. Epistemic modals, e.g., *honang* ‘possibly’, *jinggoi* ‘should/probably’ (CP-level)
- b. Deontic modals, e.g., *hoji* ‘may’, *jinggoi* ‘should’ (TP-level)
- c. Dynamic modals, e.g., *-dou2* ‘able’, *gam* ‘dare’, *hang* ‘be willing’ (vP-level)

(49) $[_{\text{ModP}}^{\text{Epi}} \text{Mod}^{\text{Epi}} [_{\text{TP}} \text{Subj} \dots [_{\text{ModP}}^{\text{Deo}} \text{Mod}^{\text{Deo}} [_{\text{vP}} \dots [_{\text{ModP}}^{\text{Dyn}} \text{Mod}^{\text{Dyn}} [_{\text{VP}} \dots$

To facilitate the discussion, I focus on two modals first: weak necessity *jinggoi* ‘should/probably’ (epistemic), which is higher than CP, and permission modal *hoji* ‘may’ (deontic), which is lower than TP. As shown in (50), only *jinggoi*^{Epi}, but not *hoji*, may precede a subject (but see Yip and Lee 2022 for cases where deontic modals move across focused subjects). As shown by Hu and Chen (2022) for Mandarin, the subjects preceding epistemic modals occupy a topic position, which applies to Cantonese as well.

(50) Relative order with subjects

- a. {i. ***Hoji**} Aaming {ii. **hoji**} duk Dakman.
may Ming may take German
‘Ming may take German.’
- b. {i. **Jinggoi**^{Epi}} Aaming {ii. **jinggoi**^{Epi}} duk-gwo Dakman.
probably Ming probably take-EXP German
‘Ming probably took German before.’

Moreover, *jinggoi*^{Epi} resists embedding, as opposed to *hoji*, as in (51). This shows that *jinggoi*^{Epi} is higher than CP.

(51) Embeddability in complement clauses of nouns

- a. Keoidei tengdou $[_{\text{DP}} \text{go-go} [_{\text{CP}} \text{Aaming } \mathbf{hoji} \text{ duk Dakman}] \text{ ge siusik}]$.
3PL heard that-CL Ming may take German GE news
‘They heard the news that Ming may take French.’

9. For other semantic classifications, see Brennan (1993) and Hacquard (2006). For syntactic positions, see Butler (2003) for a phase-theoretic approach (CP vs. vP) and Cinque (1999) for an articulated hierarchy supported by robust cross-linguistic data.

- b. *Keoidei tengdou [_{DP} go-go [_{CP} Aaming **jinggoi**^{Epi} duk-gwo Dakman] ge siusik].
 3PL heard that-CL Ming probably take-EXP German GE news
 Int.: ‘They heard the news that Ming probably took German before.’

Last but not least, *jinggoi*^{Epi} is higher than sentential negation *m-hai* and *zaa3*: it cannot be included as part of the question (T.-H. J. Lin 2011), whereas the latter two can. As shown in (52), *jinggoi*^{Epi} is incompatible with the yes-no question particle *aa4*, which occupies the highest SAP position.¹⁰ This contrasts with *zaa3*, which may take scope under *aa4* to form *zaa4*.

(52) Narrow scope under yes-no question SFP *aa4*

- a. *Aaming **jinggoi**^{Epi} duk-gwo Dakman *aa4*?
 Ming probably take-EXP German SFP
 Int.: ‘It is probable that Ming took French before?’
 (Lit.: Did Ming probably take German before?)
- b. Aaming duk-gwo Dakman_F **zaa4**?
 Ming take-EXP German SFP.only
 ‘Did Ming only take German?’

Now consider IEs. When *zinghai* takes narrow scope under deontic modal *hoji* ‘may’, IEs are triggered in doubling with *zaa3* (=53b). No such effects arise with wide-scope *zinghai* over *hoji* (=53a).

(53) Intervention effects of deontic modals in doubling

- a. *Scenario: Each student must take either French or German to fulfill the language requirement.*
Since Ming is from France, he is not allowed to take French.
 Aaming **zinghai** hoji duk [Dakman]_F (**zaa3**). (only > ◇^{Deo})
 Ming only may take German SFP.only
 ‘Ming can only take German.’ (Ming cannot take French)

10. For example, *aa4* cannot be quasi-subordinated under ‘wonder’ (in Dayal 2025a’s sense), as discussed by Yip (2025b).

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

Aaming hoji **zinghai** duk [Dakman]_F (***zaa3**). ($\diamond^{\text{Deo}}$ > only)

Ming may only take German SFP.only

'It's okay for Ming to only take German.' (though Ming can also take French)

Similar effects are attested in singleton *zaa3* cases: only the wide-scope ‘only’ reading is available in (54). That is, denotic modals also trigger IEs for doubling of covert EXCL with *zaa3*. The schema of IEs is given in (55).

- (54) Intervention effects of deontic modals in singleton *zaa3* cases

Aaming hoji duk [Dakman]_F **zaa3**. (only > $\diamond^{\text{Deo}}$, * $\diamond^{\text{Deo}}$ > only)

Ming may take German sfp.only

ONLY: 'Ming can only take German.' (Ming cannot take French)

BUT NOT: 'It's okay for Ming to only take German.' (though Ming can also take French)

- (55) a. [*zaa3* [_{CP} ... [*zinghai*/EXCL ... [_{ModP^{Deo}} *hoji* 'may' ...

- b. * [**zaa3** [_{CP} ... [_{ModP^{Deo}} hoji ‘may’ ... [**zinghai**/EXCL ...
- └──────────┴──────────┘
- X

The pattern is uniform among deontic modals with different forces. As shown in (56), strong necessity *bitseoi/jatding jiu* ‘must’ and weak necessity *jinggoi*^{Deo} ‘should’, when taking narrow scope under *zinghai*, also trigger IEs.

- (56) a. Aafan bitseoi/ jatding jiu **zinghai** [singkeijat]_F lai **(??zaa3)**. ($\square^{\text{Deo}} > \text{only}$)

Fan must/ must need only Sunday come SFP.only

'It is obligated that Fan only comes on Sunday.' (Fan cannot come on Monday)

- b. Aafan jinggoi **zinghai** [singkeijət]_F lai (??zaa3). ($\square^{\text{Deo-weak}} > \text{only}$)

Fan should only Sunday come sfp.only

'Fan should only come on Sunday.' (Fan should not come on Monday.)

The pattern extends to dynamic modals, which are also syntactically lower than *zaa3*. As illustrated in (57), doubling with *zaa3* is not allowed when *zinghai* takes narrow scope under dynamic modals.

(57) Intervention effects of dynamic modals in doubling

- a. Go hoksaang gam **zinghai** gaau [bun-fan gungfo]_F (***zaa3**). (dare > only)
 CL student dare only submit half-CL homework SFP.only
 ‘The student dares only submit half of the assignment.’
- b. Gingcaat gan **zinghai** sau [jatbun fatfun]_F (***zaa3**). (be.willing > only)
 police be.willing only charge half fine SFP.only
 ‘The police is willing to only charge half of the fine.’

Epistemic modals like *jinggoi*^{Epi}, on the other hand, allow *zaa3* to be doubled with the narrow-scope *zinghai*. The lack of IEs is shown in (58).

(58) Lack of IEs with epistemic modals

- Aaming jinggoi^{Epi} **zinghai** duk-gwo [Dakman]_F (**zaa3**). ($\Box^{\text{Epi-weak}}$ > only)
 Ming probably only take-EXP German SFP.only
 ‘Ming probably only took *German*.’

Note that *zinghai* cannot adjoin higher than *jinggoi*^{Epi} to acquire wide scope (=59). Neither does EXCL, as shown by the lack of wide scope ‘only’ reading in (=60).

- (59) *Aaming **zinghai** jinggoi^{Epi} duk-gwo [Dakman]_F (**zaa3**). (*only > $\Box^{\text{Epi-weak}}$)
 Ming only probably take-EXP German SFP.only
 Int.: ‘It is only probable that Ming took *German*.’
- (60) Aaming jinggoi^{Epi} duk-gwo [Dakman]_F (**zaa3**). ($\Box^{\text{Epi-weak}}$ > only, *only > $\Box^{\text{Epi-weak}}$)
 Ming probably take-EXP German SFP.only
 ONLY: ‘Ming probably only took *German*.’
 BUT NOT: ‘It is only probable that Ming took *German*.’

The lack of IEs here follows from the earlier discussion on the position of *jinggoi*^{Epi}. Since it is higher than *zaa3*, it is expected that no IEs are induced to doubling. Note that this Mod^{Epi} should be understood as subjective epistemic modality that is higher than *zaa3* (see discussion in Chapter 2, §2.2).

- (61) [_{ModP}^{Epi} *jinggoi*^{Epi} ‘probably’] [**zaa3** [_{CP} ... [_{TP} ... **zinghai**/EXCL ...

The pattern carries over to other epistemic modals like strong necessity *jatding* ‘must’ and possibility *honang* ‘possible, perhaps’ (in their subjective epistemic readings):¹¹

- (62) a. Aaming jatding **zinghai** zungji [Aafan]_F (**zaa3**). ($\Box^{\text{Epi}} > \text{only}$)
 Ming must only like Fan SFP.only
 ‘It must be the case that Ming likes *Fan* only.’
- b. Aaming honang **zinghai** zungji [Aafan]_F (**zaa3**). ($\Diamond^{\text{Epi}} > \text{only}$)
 Ming perhaps only like Fan SFP.only
 ‘Perhaps Ming likes *Fan* only.’

Note that while *zinghai*/EXCL in general cannot take scope over epistemic *honang* ‘possible’, such cases may be possible when *honang* has an alethic possibility ($\approx$ objective epistemic) reading (cf. Cinque 1999, where alethic possibility is lower than (subjective) epistemic modals), as in (63).¹²

- (63) *Scenario: Someone said that it’s possible for pigs to have five legs. You say: “no, ...”*
 Zyu **zinghai** honang jau [sei-zek goek]_F (**zaa3**). (only $> \Diamond^{\text{alethic}}$)
 pig only be.possible have four-CL leg SFP.only
 ‘It is only possible that pigs have *four* legs (but not five).’

3.2.1.3 Quantificational adverbs

Quantificational adverbs also trigger IEs for doubling with *zaa3*, like universal quantifier *sengjat* (*dou*).

- (64) Intervention effects of quantificational adverbs in doubling
- a. *Scenario: You and Fan are discussing Ming being a picky eater. Fan wonders whether Ming does not eat tomato. You say:*
 Aaming sengjat dou **zinghai** sik-zing hunglobaak_F (***zaa3**).
 Ming always DOU only eat-leave carrot SFP.only
 ‘Ming always only left carrot uneaten.’ (But not tomato.)
- b. $*[\text{zaa3}]_{\text{CP}} \dots [\text{TP} \dots \text{sengjat dou ‘always’} \dots [\text{zinghai} \dots]]$
 ×

11. *Jatding* (*wui*) ‘must (will)’ and *honang* ‘possible’ are syntactically lower than *jinggoi*^{Epi} ‘probably’ and may take scope under questions (cf. T.-H. J. Lin 2012). Nevertheless, they are still in the CP layer and the preceding subjects are in a high topic position (Hu and Chen 2022).

12. A more natural expression is adverb *zi-honang* ‘only-possible’ with the bound morpheme *zi* ‘only’.

(65) Intervention effects of quantificational adverbs in singleton *zaa3* cases

*Aaming sengjat dou sik-zing hunglobaak_F **zaa3**.

Ming always DOU eat-leave carrot SFP.only

Int.: 'Ming always only left *carrot* uneaten.' (But not tomato.)

The quantificational force does not make a difference. Both upward entailing *zaubatsi* 'occasionally' and downward entailing *housiu* 'seldom' trigger IEs (see Swart 1992 for the tests of monotonicity of quantificational adverbs).¹³

(66) a. Aaming zaubatsi **zinghai** sik-zing hunglobaak_F (**??zaa3**).

Ming occasionally only eat-leave carrot SFP.only

'Ming occasionally only left *carrot* uneaten.' (But not tomato.)

b. Aaming housiu **zinghai** sik-zing hunglobaak_F (***zaa3**).

Ming seldom only eat-leave carrot SFP.only

'Ming seldom only left *carrot* uneaten.' (But not tomato.)

However, quantificational adverbials with existential *jau* 'have' do not induce IEs.

(67) Aaming jausi/ jau saam-ci /jau ciugwo saam-ci **zinghai** sik-zing hunglobaak_F

Ming sometimes/ have three-times have over three-times only eat-leave carrot

(zaa3).

SFP.only

'Sometimes/there were three times/ there were over three times Ming only left *carrot* uneaten.'

(But not tomato.)

Note the crucial difference between the adverbials with and without *jau*: only the former may precede a subject.

13. For example, *housiu* 'seldom' licenses NPI *jamho* 'any' but *zaubatsi* 'occasionally' does not.

- (68) a. {Jausi/ jau saam-ci /jau ciugwo saam-ci} Aaming **zinghai** sik-zing
 sometimes/ have three-times have over three-times Ming only eat-leave
 hunglobaak_F.
 carrot
 ‘Sometimes/there were three times/ there were over three times Ming only left *carrot* un-
 eaten.’ (But not tomato.)
- b. {*sengjat dou/ ??zaubatsi /*houxiu} Aaming **zinghai** sik-zing hunglobaak_F.
 always _{DOU}/ occasionally seldom Ming only eat-leave carrot
 Int.: ‘Ming always/ occasionally/ seldom only left *carrot* uneaten.’ (But not tomato.)

Crucially, quantifiers that resist topicalization cannot be followed by *jau* adverbials:

- (69) a. ***Housiu jan** {jausi/ jau saam-ci /jau ciugwo saam-ci} heoi leoihang.
 few person sometimes/ have three-times have over three-times go travel
 Int.: ‘Few people sometimes/for three times/for over three times go traveling.’
- b. **Housiu jan** {sengjat dou/ ?zaubatsi /houxiu} heoi leoihang.
 few person always _{DOU}/ occasionally seldom go travel
 ‘Few people always/ occasionally/ seldom go traveling.’

The contrasts suggest those so-called subjects before *jau* adverbials are topics, and *jau* adverbials indeed occupy a higher position. I suggest that they always involve topicalization:

- (70) [_{TopP} [jau Q-adv]] [**zaa3** [_{CP} ... [_{TP} Q-adv ... [**zinghai** ... [_{VP} ...

3.2.1.4 Certain subject quantifiers

The final type is subject quantifiers. While subject quantifiers like negative quantifiers are generally in SpecTP (e.g., Soh 2005), some are able to topicalize and occupy SpecTopP like universal quantifiers ‘everyone’ (Jin 2020).^{14,15} I also assume that *dou*, which associates with universal quantifiers, is an adverb

14. Some quantifiers may even be lower in the inner subject positions, such as the non-specific reading of *jau* NP ‘have/some NP’ (Diesing 1992; W.-T. D. Tsai 2015). Since *zaa3* is higher than CP, whether the quantifier is in SpecTP or SpecvP does not make a difference in IEs. In the following discussion, I assume that even non-specific *jau* NP ‘have/some NP’ occupies SpecTP.

15. Some quantifiers like *mou* NP ‘no NP’ and *jau* NP ‘have NP’ have been argued to have a verbal structure instead of a nominal structure (Paul 2021). As far as I am aware of, the IEs do not bear on the specific internal structure of quantifiers. For simplicity, I set aside this issue and assume that all the quantifiers discussed here occupy SpecTP. I leave exploration of

that adjoins below TP (L. L.-S. Cheng 1995). For example, *dou* cannot precede the subject, as in (71). The above assumptions are schematized in (72).

- (71) Mui-bun syu {**dou*} Aaming {*dou*} zungji ____.
 every-CL book DOU Ming DOU like
 ‘Ming likes every book.’

- (72) [TopP quantifiers [CP ... [TP quantifiers ... [*dou* ... [vP ...

To give a preview, only some quantifiers induce IEs, as in (73). The quantifiers that do not trigger IEs will be discussed in §3.2.2.1.

- (73) Quantifiers that induce IEs¹⁶

- a. Negative quantifier *mou NP* ‘no NP’
- b. *Housiu NP* ‘few NP’
- c. Existential quantifier *jau NP* ‘some NP’ (non-referential reading)

#a: Negative quantifiers First, negative quantifiers like *mou NP* ‘no NP’ resist topicalization, as opposed to definite descriptions with formed by bare classifier constructions (CL-NP).

- (74) {a. **Mou hoksaang*/ b. *Go hoksaang*} ne, tingjat wui lai.
 no student CL student TOP tomorrow will come
 ‘As for {**no one*/ the student}, s/he will come.’

Mou NP ‘no NP’ trigger IEs in both doubling and singleton *zaa3* cases.

- (75) Intervention effects of negative quantifier subjects in doubling

- a. *Scenario: You and Fan are debating whether they should submit only one abstract to a conference if the host allows two submissions. Fan thinks that they should submit only one, and you say:*
Moujan zinghai gaau jat_F bin zaakjiu (**zaa3*).
 No.one only submit one CL abstract SFP.only
 ‘No one submits one abstract.’ (We always submit two when it is allowed.)
- b. **[zaa3 [CP ... [TP ‘no one’ ... [zinghai ...*

└──────────┴───┐
 └──────────┴───┘

this issue to future work.

16. I set *zeido N-go jan* ‘at most n people’ aside for now since speakers find these judgments difficult.

(76) Intervention effects of negative quantifier subjects in singleton *zaa3* cases

*Moujan gaau jat_F bin zaakjiu (**zaa3**).

No.one submit one CL abstract SFP.only

Int: 'No one submits only one abstract.' (We always submit two when it is allowed.)

Other quantifiers with a negation, such as *mou-geigo jan* 'not several (few) people', also induce IEs.

(77) *Mou-geigo jan gaau jat_F bin zaakjiu **zaa3**.

not-several person submit one CL abstract SFP.only

Int: 'Few (lit.: not several) people submit one abstract.' (Most people submit two.)

#b: 'Few', 'many', and proportional quantifiers Second, other quantifiers, such as *housiu* 'few', also induce IEs for *zaa3*. Note that the intended focus associate of *zaa3* is the object 'one assignment', instead of the subject 'few student'.

(78) Housiu hoksaang **zinghai** gaau-zo jat-fan_F gungfo (***zaa3**).

few student only submit-PFV one-CL homework SFP.only

'Few students only submitted one assignment.'

Unlike *housiu NP* 'few NP', the upward entailing counterpart *houdo NP* 'many NP', does not trigger IEs for doubling.

(79) Houdo hoksaang **zinghai** gaau-zo jat-fan_F gungfo (**zaa3**).

many student only submit one-CL homework SFP.only

'Many students only submitted one assignment.'

#c: Existential quantifier Now we turn to *jau NP* 'some NP, (lit.) have NP'. We only discuss its quantificational (non-referential) reading, and leave the referential reading (either specific or non-specific) to §3.2.2.1. As can be seen below, the quantificational reading trigger IEs.

(80) *Context: After receiving all the abstracts, a professor asks a student who wasn't involved in the organization of the conference:*

Q. Nei gokdak jau-mou jan gaau loeng-fan abstract lai?
 2sg think have-not.have people submit two-CL abstract come
 'Do you think there are people who submit(ted) two abstracts?'

A. Ngo gokdak [jaujan **zinghai** gaau jat-fan_F abstract lai (***zaa3**)].
 1sg think have.person only submit one-CL abstract come SFP.only
 'I think there are people who submit only one abstract.'

To give one more example:

(81) *Context: Tommy says to you: 'Some people hate everyone.' You reply: 'There are all kinds of people in the world. Some hate only a couple of people.'*

Jaujan **zinghai** zang jatloeng-go_F jan (***zaa3**).
 someone only hate one.to.two-CL person SFP.only
 'There are some people who hate only a couple of people.'

3.2.2 Non-interveners

In this subsection, I focus on the non-interveners. I discuss certain subject quantifiers that do not trigger IEs for exclusive doubling in §3.2.2.1 first, and then I discuss focus operators in §3.2.2.2. Note that I use the term *non-interveners* in a particular sense: they syntactically intervene between *zinghai* and *zaa3* (unlike, for example, sentential negation *m-hai* 'not' or epistemic modals), but they do not trigger IEs and hence exclusive doubling remains grammatical.

3.2.2.1 Certain subject quantifiers

The set of quantifiers that do not induce IEs is previewed in (82).

(82) Quantifiers that do not induce IEs

- a. Universal quantifier *mui-go NP (dou)* ‘every NP’, *cyunbou NP* ‘all NP’
- b. Proportional *daaiboufan NP* ‘most NP’, *siuboufan NP* ‘few NP’, and *houdo NP* ‘many NP’
- c. Existential quantifier *jau NP* ‘some NP’ (specific reading)
- d. Modified numeral *zeoisiu saam-go NP* ‘at least 3 NP’, *ciugwo saam-go NP* ‘over 3 NP’
- e. Numeral *saam-go NP* ‘n NP’, *jau saam-go NP* ‘(have) 3 NP’

As we will see, the present/absence of IEs of the quantifiers correlates with their **topicalization potential**, instead of whether topicalization is actually taken place. All the quantifiers that induce IEs listed in (73) cannot be topicalized, whereas all the quantifiers in (82) *can* be topicalized under a certain reading. As long as the quantifier is interpreted under that certain reading, there are no IEs, even if the quantifier stays in SpecTP syntactically. The set here (with the exception of *dou*) also partially aligns with the interveners to ‘why’ questions in Mandarin discussed by Jin (2020).

#a: Universal quantifier First, universal quantifiers do not trigger IEs. It is not surprising given that universal quantifiers may be topicalized (Jin 2020).

- (83) Tungsoeng mui-go jan/ cyunbou jan **zinghai** gaau jat_F bin zaakjiu (gaa3) **zaa3**.
 Usually every person all person only submit one CL abstract SFP SFP.only
 ‘Usually everyone/all (the) people only submit(s) one abstract.’

Crucially, however, with the presence of *dou*, the pattern remains the same. Since *dou* is an adverb that attaches to the TP level, *dou* intervenes between *zaa3* and *zinghai*. Yet, no IEs are triggered.

- (84) [Mui-go jan/ cyunbou jan dou] [**zinghai** gaau-zo jat_F bin zaakjiu] (**zaa3**).
 every person all person DOU only submit-PFV one CL abstract SFP.only
 ‘Everyone/all (the) people only submitted one abstract.’

#b: Proportional quantifiers We have seen that downward entailing quantifiers like ‘no NP’ and ‘few NP’ trigger IEs. If we only contrast them with universal quantifiers, which are upward entailing, one might generalize that downward monotonicity correlates with IEs. However, proportional quanti-

fiers, including *both* upward monotonic *daaiboufan NP* ‘most NP’ and downward monotonic *siuboufan NP* ‘few NP’, do not induce IEs. This is striking since both *houxiu NP* ‘few NP’ and *siuboufan NP* ‘few NP’ are downward entailing, and yet only the former triggers IEs.

- (85) Siuboufan jan/ daaiboufan jan **zinghai** gaau-zo jat-fan_F abstract (**zaa3**).
 few.part person big.part person only submit-PFV one-CL abstract SFP.only
 ‘Few/most people only submitted one abstract.’

The difference between *houxiu NP* and *siuboufan NP* ‘few NP’ lies in their ability to topicalize. Only *siuboufan NP* may be topicalized, but not *houxiu NP*. After topicalization, the *siuboufan NP* expresses a partitive reading instead of a quantificational reading.

- (86) a. [**siuboufan hoksaang**] ne, ngo gokdak __ m-wui lai gaa3 laa3.
 few.part student TOP 1SG think not-will come SFP SFP
 ‘A certain small proportion of the students, I think will not come.’
 b. *[**houxiu hoksaang**] ne, ngo gokdak __ m-wui lai gaa3 laa3.
 few student TOP 1SG think not-will come SFP SFP

However, it is important to note that it is the **topicalization potential**, rather than topicalization itself, correlates with the absence of IEs. When these quantifiers are taken by a preposition, they still do not trigger IEs.

- (87) Ngo [tung houdo hoksaang] [?](dou) **zinghai** gong-zo jat-geoi_F je (**zaa3**).
 1SG with many student DOU only say-PFV one-CL thing SFP.only
 ‘I said only one sentence to many of those students.’

PPs headed by *tung* ‘to/with’ independently do not undergo topicalization:

- (88) ??[Tung houdo hoksaang] ne, ngo (dou) **zinghai** gong-zo jat-geoi_F je (**zaa3**).
 with many student TOP 1SG DOU only say-PFV one-CL thing SFP.only
 ‘To many students, I only said one sentence.’

Hence, while subject quantifiers like ‘many NP’ or ‘most NP’ may topicalize, they may remain in SpecTP *without* inducing the IEs.

- (89) [_{TopP} [**zaa3** [_{CP} ... [_{TP} quantifiers ... [dou ... [**zinghai** [_{VP} ...

#c: Existential quantifier (specific reading) Another reason not to associate IEs directly with downward monotonicity is that existential quantifiers, in their quantificational reading, also trigger IEs, yet existential quantifiers are upward entailing. Importantly, under a referential reading (either specific or non-specific), no IEs arise.

- (90) Jaujan/ jan mau-go jan **zinghai** gaau-zo jat_F bin zaakjiu **zaa3**.
 someone have certain-CL person only submit-PFV one CL abstract SFP.only
 ‘Someone/ a certain person only submitted one abstract.’

For convenience, I reproduce the quantificational reading below, which contrasts with the referential reading in IEs.

- (91) *Context: After receiving all the abstracts, a professor asks a student who wasn’t involved in the organization of the conference:*

Q. Nei gokdak jau-mou jan gaau loeng-fan abstract lai?
 2sg think have-not.have people submit one-CL abstract come
 ‘Do you think there are people who submit(ted) two abstracts?’

A. Ngo gokdak [jaujan **zinghai** gaau jat-fan_F abstract lai (***zaa3**)].
 1sg think have.person only submit one-CL abstract come SFP.only
 ‘I think there are people who submit only one abstract.’

#d: Modified numerals Modified numerals do not trigger IEs with the presence of *jau* ‘have’. Without *jau*, the sentence is slightly degraded.

- (92) Tengman ²(jau) zeoisu saam-go jan/ ciugwo saam-go jan **zinghai** gaau-zo jat_F bin
 hear.say have at.least three-CL person over three-CL person only submit-PFV one CL
 zaakjiu **zaa3**.
 abstract SFP.only
 ‘I heard that at least three people/ over three people only submitted one abstract.’

The intervention pattern seems to correlate with the topicalization potential. To topicalize modified numerals, *jau* ‘have’ is preferred. As compared to the *in-situ* baseline without *jau*, *jau* seems to facilitate a specific reading (i.e., a certain group with at least/over 3 people).

- (93) a. Ngo gokdak **zeoisiu saam-go jan/ ciugwo saam-go jan** m-wui lai.
 1SG think at.least three-CL person over three-CL person not-will come
 ‘I think at least/over three people will not come.’
- b. [?](Jau) **zeoisiu saam-go jan/ ciugwo saam-go jan** ne, ngo gokdak __ m-wui lai.
 have at.least three-CL person over three-CL person TOP 1SG think not-will come
 ‘There are at least/over three (specific) people that I think will not come.’

#e: Numerals Last but not least, numerals with *jau* ‘have’ do not trigger IEs as well. As a general fact in Chinese, bare numerals without *jau* in a subject position are degraded when the statement is episodic.

- (94) Tengman ^{??}(jau) saam-go jan/ gei-go jan **zinghai** gaau-zo jat_F bin zaakjiu
 hear.say have three-CL person several-CL person only submit-PFV one CL abstract
zaa3.
 SFP.only
 ‘I heard that three people/ several people only submitted one abstract.’

Again, with *jau* ‘have’, numerals may be topicalized with a specific reading:

- (95) ^{??}(Jau) **saam-go jan/ gei-go jan** ne, ngo gokdak __ m-wui lai.
 have three-CL person several-CL person TOP 1SG think not-will come
 ‘There are at three/several (specific) people that I think will not come.’

There is an occasion where bare numerals are licensed: in a modalized environment that concerns capacity. The bare numerals receive a quantity reading (Y.-H. A. Li 1998’s NumP), instead of a (referential) indefinite reading. No IEs to exclusive doubling are triggered.

- (96) a. Saam-go jan **zinghai** geoi-dak-hei bun-doi mai.
 three-CL person only lift-able-up half-CL rice
 ‘Three people can only lift a half bag of rice (not even a whole bag).’ (‘3 ppl’ non-referential)

- b. Tengman saam-go jan **zinghai** geoi-dak-hei bun-doi_F mai **zaa3**.
 hear.say three-CL person only lift-able-up half-CL rice SFP.only
 ‘I heard that three people can only lift a half bag of rice (not even a whole bag).’ (‘3 ppl’ non-referential)

However, note that bare numerals cannot serve as aboutness topics:

- (97) ??**Saam-go jan** ne, ngo tengman __ geoi-dak-hei bun-doi mai.
 three-CL person TOP 1SG hear lift-able-up half-CL rice
 Int.: ‘As for three people, I heard can lift a half bag of rice.’

Nevertheless, contrastive topics seem to be possible. Thus, the generalization about topicalization potential and IEs still holds.

- (98) **Saam-go jan** ne, __ geoi-dak-hei bun-doi mai; **luk-go jan** ne, zau __ geoi-dak-hei
 three-CL person TOP lift-able-up half-CL rice six-CL person TOP then lift-can-up
 seng-doi mai.
 whole-CL rice
 Lit.: ‘Three people, can lift a half bag of rice; six people, can lift a whole bag of rice.’

3.2.2.2 Focus operators

I examine three types of focus operators. Note that the additive focus operator *dou* ‘also’ in Cantonese corresponds to Mandarin *ye* ‘also’, instead of the universal use *dou* ‘all, each’.

- (99) Focus operators in Cantonese

- a. Additive focus *dou* ‘also’
- b. ‘Even’ focus *lin ... dou* ‘even ... also’
- c. Cleft focus *hai* ‘be’

Following N. Huang (2018)’s suggestion that Mandarin *ye* ‘also’ is on the TP level, I assume that Cantonese additive *dou* ‘also’ also stays at the TP layer. Evidence comes from relative order with subjects: *dou* ‘also’ cannot precede subjects. On the other hand, cleft focus *hai* ‘be’ generally resists CP embedding as shown below, and is thus higher than CP. (See also Erlewine 2022 for relevant contrasts

between *zhi* ‘only’ and cleft focus *shi* in Mandarin.) Note that *lin* ‘even’ has flexible positions: it may be above the subject or below the subject (see C. C.-H. Cheung 2015 for Cantonese, also Badan and Del Gobbo 2015 for Mandarin *lian* ‘even’).

(100) a. Ngo teng-dou go-go [CP keoi (***hai**) tingjat_F dou] ge siusik.
 1SG heard that 3SG be tomorrow arrive GE news
 ‘I heard that news that it is tomorrow that he will arrive.’

b. Keoi (**hai**) tingjat_F dou.
 3SG be tomorrow arrive
 ‘It is tomorrow that he will arrive.’

(101) [*hai* ... [CP {*lin*} ... [TP Subj [{*lin*} ... [*dou* [_{VP} ...

Turning to IEs, additive focus operator *dou* ‘also’ is compatible with doubling with *zaa3*. No IEs arise.

(102) Additive focus *dou* ‘also’ associating with subjects (=outside *zinghai*’s scope)

Aaming zinghai gaau-zo jat-fan abstract (zaa3). Aafan_{F1} dou₁ [**zinghai**₂ gaau-zo
 Ming only submit-PFV one-CL abstract SFP.only Fan also only submit-PFV
 jat-fan_{F2} abstract] **zaa3**.
 one-CL abstract SFP.only
 ‘Ming only submitted one abstract. Fan also only submitted one abstract.’

(103) Additive focus *dou* ‘also’ associating with verbs/VPs (=inside *zinghai*’s scope)

Aaming zinghai gaau-zo jat-fan abstract (zaa3). Keoi dou₁ [**zinghai**₂ review-zo_{F1}
 Ming only submit-PFV one-CL abstract SFP.only 3SG also only review-PFV
 jat-fan_{F2} abstract] **zaa3**.
 one-CL abstract SFP.only
 ‘Ming only submitted one abstract. He also only reviewed one abstract.’

‘Even’ focus also does not trigger IEs.

(104) ‘Even’ focus *lin ... dou* associating with subjects

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

Lin₁ Aaming_{F1} dou₁ [**zinghai**₂ tai-zo jat-pin_{F2} man] **zaa3**.

even Ming also only read-PFV one-CL paper SFP.only

‘Even Ming only read one paper.’

It is even possible for ‘even’ to associate with the same focus that *zinghai* associates with, such as the object in (105). Again, no IEs are triggered in doubling cases with *zaa3*. Note that a sentential adverb *samzi* ‘even’ is used here, since the adfocal *lin* ‘even’ requires movement of the focus and yet *zinghai* cannot associate “backward” with a focus moved out of its scope. This is a general property of exclusive operators and will be discussed in Chapter 4 (Erlewine 2014; see also Yip 2025a for Cantonese facts).¹⁷

(105) ‘Even’ focus *samzi* associating with objects (=inside *zinghai*’s scope)

Context: At yesterday’s party, people stayed with their first choice of drink. Bill only drank wine. Sue cannot drink much so she only drank beer. And ...

(Context modified from Krifka 1991:131 via Erlewine 2025:529)

Aaming samzi₁ [**zinghai**₂ jam-zo sei_{F1=F2}] **zaa3**.

Ming even only drink-PFV water SFP.only

‘Ming even only drank *water*. (He’s so weak/ he’s quite impolite since everyone is supposed to drink at a party.)’

Cleft focus with copula *hai* ‘be’ also does not trigger IEs.

(106) Cleft focus *hai* ‘be’ associating with objects (=inside *zinghai*’s scope)

Context: someone said Ming read two papers.

Guihai! Aaming hai₁ [**zinghai**₂ tai-zo jat-pin_{F1=F2} man] **zaa3**!

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

‘No! Ming only read *one paper*!’ (i.e., It’s only one paper that Ming read!)

17. I shall also note that this scenario is different from the listing scenario for testing *zaa3*’s scalar contribution in Chapter 2, since there is a clear scale of ABV. Using *zaa3* here is felicitous and triggers a scalar reading, as reflected in the translation.

When *hai* associates with a focus outside *zinghai*'s scope, the sentence is slightly degraded, but still acceptable.

(107) Cleft focus *hai* 'be' associating with subjects (=outside *zinghai*'s scope)

a. *Context: someone said Fan only read one paper.*

?Guihai! Hai₁ Aaming_{F1} [**zinghai**₂ tai-zo jat-pin_{F2} man] **zaa3**!
 no be Ming only read-PFV one-CL paper SFP.only
 'No! It's Ming who only read *one paper*!'

b. *Context: someone said Fan only read one paper.*

Guihai! Hai₁ Aaming_{F1} [**zinghai**₂ tai-zo jat-pin_{F2} man] lo1!
 no be Ming only read-PFV one-CL paper SFP
 'No! It is Ming who only read one paper!'

3.2.3 Interim summary

Summarizing, not all quantificational/focus elements trigger IEs for exclusive doubling. Table 3.1 gives the a summary of the results.

Intervening elements	Sub-types	Syntactic position	IEs?
Negation	Aspectual <i>mou/mei</i>	AspP	✓
	Sentential <i>m-hai</i>	CP or above	✗
Modals	Dynamic	<i>v</i> P	✓
	Deontic	TP	✓
	Epistemic	CP or above	✗
Subject quantifiers	Negative (no NP, few NP)	SpecTP	✓
	Existential (non-ref.)	SpecTP	✓
	Universal	SpecTP/TopP	✗
	Proportional	SpecTP/TopP	✗
	Existential (ref.)	SpecTP/TopP	✗
	Modified numeral	SpecTP/TopP	✗
	Numeral <i>dou</i>	SpecTP/TopP below TP	✗ ✗
Quantificational adv.	without <i>jau</i> 'have'	TP	✓
	with <i>jau</i> 'have'	SpecTopP	✗
Focus operators	'also'	TP	✗
	'even'	TP	✗
	cleft 'be'	CP or above	✗

Table 3.1: Intervention effects in exclusive doubling (object focus) in Cantonese

Among the elements that do not trigger IEs, some are simply syntactically higher than *zaa3*, and thus are not relevant to our discussion:

(108) Elements that are syntactically too high to intervene

- a. Sentential negation
- b. Epistemic modals
- c. Quantificational adverbials with *jau*
- d. Topicalized quantifiers

Among the other elements that syntactically intervene between *zaa3* and *zinghai*, there are three types of (non-)interveners:

(109) Generalization on (non-)interveners of exclusive doubling

- a. Type I: ✓ IEs
Negation, modals, quantificational adverbs, and *non-topicalizable* quantifiers
- b. Type II: ✗ IEs
Topicalizable (but not topicalized) quantifiers
- c. Type III: ✗ IEs
Focus operators, universal *dou*

3.3 Towards a semantic account

This section proposes a semantic account for the non-uniform pattern of IEs. I first generalize a scope constraint in §3.3.1 and show how it is derived naturally from the semantics of *zinghai* and *zaa3*, capturing IEs. In §3.3.2 and §3.3.3, I show how the non-intervention of focus operators and certain subject quantifiers falls out from the current analysis.

3.3.1 The radical immediate scope constraint

3.3.1.1 The generalization

First, as a descriptive generalization, only quantifiers with truth-conditional effects trigger IEs, including negation, modals, quantificational adverbs, and subject quantifiers. This captures Type I interveners. Note that this is a one-way correlation: some subject quantifiers, though with truth-conditional effects, do not trigger IEs, such as universal quantifiers. Interestingly enough, only quantifiers of individuals constitute exceptions. Recall that for negation, modals, and quantificational adverbs, only those that are syntactically higher than *zaa3* do not trigger IEs. These are not counted as real non-interveners since they do not feed into LF a configuration that would have triggered IEs.

Second, only topicalizable quantifiers may be non-interveners (Type II). For the ease of comparison, the two sets of subject quantifiers are reproduced below in (110–111).

(110) Quantifiers that induce IEs

- a. Negative quantifier *mou NP* ‘no NP’
- b. *Housiu NP* ‘few NP’
- c. Existential quantifier *jau NP* ‘some NP’ (non-referential reading)

(111) Quantifiers that do not induce IEs

- a. Universal quantifier *mui-go NP (dou)* ‘every NP’, *cyunbou NP* ‘all NP’
- b. Proportional *daaiboufan NP* ‘most NP’, *siuboufan NP* ‘few NP’, and *houdo NP* ‘many NP’
- c. Existential quantifier *jau NP* ‘some NP’ (specific reading)
- d. Modified numeral *zeoisiu saam-go NP* ‘at least 3 NP’, *ciugwo saam-go NP* ‘over 3 NP’
- e. Numeral *saam-go NP* ‘n NP’, *jau saam-go NP* ‘(have) 3 NP’

As discussed above, the two sets of quantifiers vary in their topicalization potential, rather than whether they have been topicalized syntactically (if so, they are less relevant to our discussion). One may notice that the distinction is quite similar to different interveners in *weishenme* ‘why’ questions reported by Jin (2020). Jin (2020) claims that these are all **witnessable quantifiers**. The definition of witnessability is reproduced below. We will revisit this notion in greater detail in §3.3.3.

(112) A quantifier is witnessable iff it entails the existence of a minimal witness set. (after Jin 2020)

(113) A set W is a witness set of G iff $W \in G$ and W is a subset of the smallest live-on set of G .

Accordingly, a minimal witness set M is a set that is smallest among the witness sets of G , i.e.,

M is a witness set of $G \wedge \neg \exists M' [M' \in G \wedge M' \subset M]$. (after Jin 2020)

Third, elements without truth-conditional effects all do not trigger IEs, such as focus operators. This is Type III interveners. Notice that exclusive focus operators are the only type of focus operators that have truth-conditional effects, unlike additive operators, ‘even’ operators, and cleft operators.¹⁸

We can now give the generalization on the set of (*non*-)intervenors in exclusive doubling:

(114) Generalization on quantificational/focus (*non*-)intervenors in exclusive doubling

- a. **Truth-conditional:** Only intervenors that denote quantification in the at-issue level (i.e., with truth conditional effects) trigger IEs.
→ focus operators without truth conditional effects do not trigger IEs
- b. **Quantificational domain:** Among quantifiers with truth conditional effects, only those quantifying over *individuals* do not trigger IEs.
- c. **Witnessability:** Among quantifiers over *individuals*, only witnessable quantifiers do not trigger IEs.

Table 3.2 re-organizes the set of intervenors according to their semantic properties:

Type	Intervenors	Truth-cond. effects	Q-domain	Witnessability	IEs?
I	Negation	✓	Proposition	—	✓
	Modals	✓	World	—	✓
	Q-adverbs	✓	Time/situation	—	✓
	Subj-quantifiers _{‘no, few, etc.’}	✓	Individual	✗	✓
II	Subj-quantifiers _{‘every, many, etc.’}	✓	Individual	✓	✗
III	Additive ‘also’	✗	Proposition	—	✗
	‘even’	✗	Proposition	—	✗
	Cleft focus markers	✗	Proposition	—	✗

Table 3.2: The semantic properties of (*non*-)intervenors in Cantonese exclusive doubling

Anticipating an analysis of Type II elements that they are witnessable quantifiers with special scopal

18. Cantonese cleft operators do not have truth-conditional effects, as will be discussed in §3.3.2. See also Horn (1981) for arguments against the exhaustivity inference in English clefts as entailment and Velleman et al. (2012) for a (fairly) recent discussion.

properties (Constant 2014; Jin 2020, see §3.3.3), I focus on Type I elements, which alter truth conditions and trigger IEs, and Type III elements, which do not alter truth conditions and do not trigger IEs. We arrive at an intuition that there can be no elements between *zaa3* and *zinghai* that change the truth conditions. This is formulated as the radical immediate scope constraint in (115). Effectively, no elements with truth conditional effects may scopally intervene between *zaa3* and *zinghai* in the LF. Only elements denoting an identity function (i.e., having no effects on the truth conditions) can intervene.¹⁹

(115) The radical immediate scope constraint

- a. Let the exclusive proposition (EXCL p) be r , alternative propositions excluded by *zinghai* be q (i.e., $[\text{EXCL } p] \models \neg q$), and the prejacent of *zaa3* be r' .
- b. In the LF, no elements α may intervene between *zinghai* and *zaa3* (i.e., α takes r & returns r'), such that:
 - (i) r does not entail r' ($r \not\subseteq r'$) and
 - (ii) there is no q incompatible with r' ($\neg \exists q [q \cap r' = \emptyset]$)

(116) $[\text{FocusP } \mathbf{zaa3}(C_i) [\text{CP}=\mathbf{r'} \dots \underbrace{(\text{Non-})\text{interveners}}_{\text{}} [\text{TP}=\mathbf{r} \mathbf{zinghai}(C_i) [\sim C_i [\text{VP } p]]]]$

3.3.1.2 Deriving the IEs

The radical immediate scope constraint is derivable from the semantics of *zaa3* and the way it computes the alternative sets quantified by *zinghai*. The crucial ingredients are the co-indexation of Roothian C 's variable, and the semantics of *zaa3*, both of which are independently motivated by the derivation of scalar readings in exclusive doubling in Chapter 2.

(117) Components of the semantic analysis of IEs

- a. **Dependency:** *Zinghai* and *zaa3* access the same alternative set C_i by co-indexation.
- b. **Semantics of *zaa3*:** It requires an alternative in C_i , which is excluded by its own prejacent.

I reproduce the semantics of *zaa3* in (118) with the relevant part to account for IEs underlined.²⁰

19. This scope constraint is reminiscent of the constraint on NPI-licensing proposed by Linebarger (1987), which states that an NPI must be in the “immediate scope” of a negation such that there no “logical” element that intervenes between them. See Guerzoni (2006), however, for counterexamples and a critical review.

20. The entry here is abstracted away for the specification of the type of scales. See §2.7 for discussion.

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

b. **NAI:**

- (i) there is a proposition q in C_i such that q is **not compatible** with r' (q is **excluded** by r);
- (ii) there is a proposition p in C_i such that p is compatible with r' (p is not excluded by r');
- (iii) q is ranked higher than or equal to p on some scale s .

The idea is that an intervener between *zinghai* and *zaa3* weakens the exclusive proposition. Therefore, *zaa3*'s prejacent no longer excludes the propositions in the alternative set C_i , shared with *zinghai*. All the propositions in C_i are compatible with *zaa3*'s prejacent, rendering the underlined part in (118) (i.e., $\exists q \in C_i [\underline{r' \cap q = \emptyset}]$) unsatisfied.

I derive four cases of IEs below. The first three cases illustrate the above idea. The last case with subject quantifiers requires a different explanation that also follows from the dependency of co-indexation.

- (119) a. Aspectual negation *mou* 'didn't'
 b. Deontic modal of permission *hoji* 'may'
 c. Deontic modal of necessity *bitseoi* 'must'
 d. Non-witnessable subject quantifier *housiu NP* 'few NP'

Consider the first case where negation intervenes between *zaa3* and *zinghai*:

- (120) Intervention effects by aspectual negation (=42b)

Scenario: *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**). ($\neg > \text{only}$)

Ming NEG.PFV only buy lamb SFP.only

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

The LF structure and the composition are given below. I abstract away the aspectual semantics and assume *mou* to be a propositional operator that takes a proposition and returns its logical negation.

- (121) The LF structure of (120)

$[_{FP} \text{zaa3}(C_i) [_{AspP} \text{mou} [_{VP2} \text{zinghai}(C_i) [_{VP1} \text{Ming} [_{VP} \text{bought} [_{DP} \text{lamb}_F]]]] \sim C_i]]$

$$(122) \quad \llbracket \text{mou} \rrbracket = \lambda p \lambda w. \neg p(w)$$

(123) The semantic composition of (121)

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

As we can see, the derivation crashes since the intervening negation “loosens” the truth condition of *zaa3*’s prejacent, from excluding all the not-entailed-by-*p* alternatives, to being compatible with all the alternatives *q*. *Zaa3* thus fails to see which alternatives are being excluded by *zinghai*, resulting in an undefined semantic value.

The second case is a permission modal with a deontic favor.

(124) Intervention effects by permission modals (=53b)

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

Aaming hoji **zinghai** duk [Dakman]_F (***zaa3**). ($\Diamond^{\text{Deo}} > \text{only}$)

Ming may only take German SFP.only

‘It’s okay for Ming to only take German.’ (though Ming can also take French)

The LF is provided in (125). The modal *hoji* ‘may’ is an existential quantifier over possible worlds, with a deontic modal base of rules. For current purposes, the entry is simplified and given in (126) (von Stechow and Heim 2020, cf. Kratzer 1991b).

(125) The LF structure of (124)

$$[\text{FP } \text{zaa3}(C_i) [\text{ModP}^{\text{Deo}} \text{hoji} [\text{vP2 } \text{zinghai}(C_i) [\text{vP1 } \text{Ming} [\text{v' take } [\text{DP German}_F]]] \sim C_i]]]$$

$$(126) \quad \llbracket \text{hoji} \rrbracket = \lambda p \lambda w. \exists w' \text{ compatible with the rules in } w [p(w')] \quad (\text{after von Fintel and Heim 2020:32})$$

$$= \Diamond^{\text{Deo}} p$$

The composition is given in (127).

(127) The semantic composition of (125)

- a. $\llbracket \nu P1 \rrbracket = \wedge \text{Ming take German} = \phi_g$
- b. $C_i = \{\phi_g, \phi_f, \phi_e, \dots\}$
- c. $\llbracket \nu P2 \rrbracket = \lambda w. \forall q [(q \in C_i \wedge q(w)) \rightarrow \phi_g \subseteq q]$
 $= \neg \phi_f \wedge \neg \phi_e \wedge \dots$ **EXCL $\rightsquigarrow$ conjunction of negated propositions**
- d. $\llbracket \text{ModP}^{\text{Deo}} \rrbracket = \lambda w. \Diamond^{\text{Deo}} \forall q [(q \in C_i \wedge q(w)) \rightarrow \phi_g \subseteq q]$
 $= \Diamond^{\text{Deo}} (\neg \phi_f \wedge \neg \phi_e \wedge \dots)$
 $\rightarrow (\neg \phi_f \wedge \neg \phi_e \wedge \dots)$ **modalizing EXCL $\rightsquigarrow$ weakening**
- e. $\llbracket \text{FP} \rrbracket = \textbf{undefined}$, as there is **no** proposition in C_i that is excluded by $\llbracket \text{ModP} \rrbracket$, i.e.,
 $\neg \exists q [(q \in C_i \wedge \underline{r \cap q = \emptyset})]$

Same as before, *zinghai* first yields a exclusive proposition, which is then modalized. The modalized proposition is, however, weaker than the original one. The proposition “Ming is allowed to only take German” does not exclude the possibility for Ming to take French. Therefore, no alternative propositions are excluded, and *zaa3*’s requirement is not satisfied.²¹

Let us move on to necessity modals such as *bitseoi* ‘must, have to’.

(128) Intervention effects by necessity modals (cf. 56)

Aaming *bitseoi* **zinghai** duk Dukman_F (**??zaa3**). ($\Box^{\text{Deo}} > \text{only}$)

Ming must only take German _{SFP.only}

‘It is obligated that Ming only takes German.’ (He cannot take other languages like French)

I assume *bitseoi* ‘must’ to be the universal counterpart of *hoji* ‘may’, i.e., a universal quantifier over possible modals with a deontic modal base. Its entry and the LF of (128) are given below.

(129) The LF structure of (128)

$$[\text{FP } \text{zaa3}(C_i) [\text{ModP}^{\text{Deo}} \text{bitseoi} [\nu P2 \text{zinghai}(C_i) [\nu P1 \text{Ming } [\nu' \text{take } [\text{DP German}_F]]]] \sim C_i]]$$

21. This is a simplification of the effects of modals. Modalizing the proposition actually shifts the evaluation world, as will be discussed below for necessity modals.

$$\begin{aligned}
 (130) \quad \llbracket \text{bitseoi} \rrbracket &= \lambda p \lambda w. \forall w' \text{ compatible with the rules in } w [p(w')] \\
 &= \Box^{\text{Deo}} p \quad \text{(after von Fintel and Heim 2020:32)}
 \end{aligned}$$

The composition is given in (131).

(131) The semantic composition of (129), part 1

- a. $\llbracket \nu P1 \rrbracket = \lambda w. \text{Ming take German in } w = \phi_g^w$
- b. $C_i = \{\phi_g, \phi_f, \phi_e, \dots\}$
- c. $\llbracket \nu P2 \rrbracket = \lambda w. \forall q [(q \in C_i \wedge q(w)) \rightarrow \phi_g \subseteq q]$
 $= \neg \phi_f \wedge \neg \phi_e \wedge \dots$ **EXCL $\rightsquigarrow$ conjunction of negated propositions**
- d. $\llbracket \text{ModP}^{\text{Deo}} \rrbracket = \lambda w. \Box^{\text{Deo}} \forall q [(q \in C_i \wedge q(w)) \rightarrow \phi_g \subseteq q]$
 $= \Box^{\text{Deo}} (\neg \phi_f \wedge \neg \phi_e \wedge \dots)$

Modalizing the exclusive proposition yields a universal quantification over all the deontic worlds in which the exclusive proposition (i.e., conjunction of negated alternatives) must hold. At first glance, it is different from the above permission modal case—here, the possibility of Ming taking French is banned, so one cannot continue the sentence with “Ming may (also) take French”.

Nevertheless, the modalized proposition does not exclude the non-modalized alternative propositions taken by *zaa3*. Let us consider the two propositions below. The worlds in which the proposition “Ming take French” is evaluated are different in the two cases. (132b) does not exclude (132a)—it is possible in a world w where Ming takes French, despite the ban on this by the rules in w . In other words, their conjunction in (132c) is not a contradiction and the proposition is not an empty set.

- $$\begin{aligned}
 (132) \quad \text{a. } \phi_f &= \lambda w. \text{Ming take French in } w \\
 \text{b. } \Box^{\text{Deo}} (\neg \phi_f) &= \lambda w. \forall w' \text{ compatible with the rules in } w [\text{Ming not take French in } w'] \\
 \text{c. } (\phi_f \wedge \Box^{\text{Deo}} (\neg \phi_f)) &\not\rightarrow \perp \\
 &(\lambda w. \text{Ming take Fr. in } w \wedge \forall w' \text{ compatible with the rules in } w [\text{Ming not take Fr. in } w']) \neq \emptyset
 \end{aligned}$$

Therefore, introducing a modal necessarily bleeds the exclusion of alternative propositions, leading to the violation of *zaa3*'s requirement.

(133) The semantic composition of (129), part 2

- d. $\llbracket \text{ModP}^{\text{Deo}} \rrbracket = \lambda w. \Box^{\text{Deo}} \forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_g \subseteq q]$
 $= \Box^{\text{Deo}} (\neg \phi_f \wedge \neg \phi_e \wedge \dots)$
 $\leftrightarrow (\neg \phi_f \wedge \neg \phi_e \wedge \dots)$ **modalizing EXCL $\rightsquigarrow$ shifting world of evaluation**
- e. $\llbracket \text{FP} \rrbracket = \textbf{undefined}$, as there is **no** proposition in C_i that is excluded by $\llbracket \text{ModP} \rrbracket$, i.e.,
 $\neg \exists q[(q \in C_i \wedge r \cap q = \emptyset)]$

The above derivations show that negation and modals trigger IEs because they weaken the exclusive proposition. The prejacent of *zaa3* must always exclude at least one alternative that is being excluded by *zinghai*, but these intervening elements lead to a change of truth conditions, bleeding the use of *zaa3*.

For non-witnessable quantifiers, on the other hand, the IEs arise for a slightly different reason. Let us consider the last case with the proportional quantifier *housiu NP* ‘few NP’.

(134) Intervention effects by subject quantifiers ‘few NP’ (cf. 78)

Housiu hoksaang zinghai hok Jatman_F (**zaa3*).

few student only study Japanese SFP.only

‘Few students only study Japanese.’ (i.e., Most students also study Korean and Cantonese.)

The LF structure is given in (135). The subject quantifier moves from Spec_vP to SpecTP. I assume that *housiu hoksaang* ‘few students’ denotes a generalized quantifier type $\langle et, t \rangle$ (Barwise and Cooper 1981; Partee 1989), as given in (136).²² It is interpreted in SpecTP, rather than being reconstructed to Spec_vP, unlike definite DPs that denote type e . It leaves a type e trace at the Spec_vP, which later undergoes lambda abstraction when combining with the subject quantifier.

(135) The LF structure of (134)

$[_{\text{FP}} \text{zaa3}(C_i) [_{\text{TP2}} \text{housiu hoksaang} [_{\text{TP1}} \lambda 1 [_{\text{vP2}} \text{zinghai}(C_i) [_{\text{vP1}} t_1 \text{study Japanese}_F] \sim C_i]]]]$

- (136) a. $\llbracket \text{housiu} \rrbracket = \lambda P_{et} \lambda Q_{est}. |P \cap Q| < (1/2 \times |P|)$ (adpated from Partee 1989)
- b. $\llbracket \text{hoksaang} \rrbracket = \lambda x_e. \text{student}(x) = \{x | x \text{ is a student}\}$
- c. $\llbracket \text{housiu hoksaang} \rrbracket = \lambda Q_{est}. |\{x | x \text{ is a student}\} \cap Q| < (1/2 \times |\{x | x \text{ is a student}\}|)$

The composition is given below.

22. Partee (1989) proposes a context-dependent fraction k of P . For simplicity, I take it to be the half of P . The choice here does not affect the non-witnessability of *housiu NP* ‘few NP’, since what it requires is the intersection of P and Q to be smaller than the half of P , which does not entail the existence of P .

(137) The semantic composition of (135), part 1

- a. $\llbracket \nu P1 \rrbracket^g = \wedge x_1 \text{ study Japanese} = \phi_j$
- b. $C_i = \{\phi_j, \phi_k, \phi_c, \dots\}$
- c. $\llbracket \nu P2 \rrbracket^g = \lambda w. \forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_j \subseteq q]$
 $= \wedge x_1 \text{ only study Japanese}$
- d. $\llbracket TP1 \rrbracket^g = \lambda x_1. \lambda w. \forall q[(q \in C_i \wedge q(w)) \rightarrow \phi_j \subseteq q]$
 $= \{x_1 | \wedge x_1 \text{ only study Japanese}\}$
- e. $\llbracket TP2 \rrbracket^g = |\{x | x \text{ is a student}\} \cap \{x | x \text{ only study Japanese}\}| < (1/2 \times |\{x | x \text{ is a student}\}|)$

The subject trace is interpreted as an unbound variable x_1 in $\nu P1$, which is contained in the set of alternative propositions and C_i (since $C_i \subseteq \llbracket \nu P1 \rrbracket$): $\{\wedge x_1 \text{ study Japanese}, \wedge x_1 \text{ study Korean}, \wedge x_1 \text{ study Cantonese}, \dots\}$. A question arises is how an unbound variable can be interpreted. The answer is x_1 is bound by the lambda operator in TP1 right below the subject quantifier, and thus the proposition with *zinghai* is interpretable (as evidenced by the acceptability in (134) without *zaa3*): There are few students x such that x only study Japanese. (There is also a conceptual question of how a contextual variable C may contain a unbound variable, an issue that I set aside for now; but see Charlow 2019:32ff for $\sim$ being dynamic, allowing the value of pronouns in the alternative sets to vary.)

However, when TP2 combines with *zaa3* as below, a problem arises:

(138) The semantic composition of (135), part 2

- f. $\llbracket FP \rrbracket^g = \textbf{undefined}$, as C_i contain an **unbound variable** x_1 :
 $\{\wedge x_1 \text{ study Japanese}, \wedge x_1 \text{ study Korean}, \wedge x_1 \text{ study Cantonese}, \dots\}$

The alternative propositions shared by *zinghai* and *zaa3* contain x_1 . It needs to be bound by an lambda operator, but it is lower than *zaa3*. The derivation crashes because x_1 is not bound—there is simply no way to interpret x_1 , assuming that the assignment function in the model does not map it onto any individual (e.g., $g = \{z \rightarrow m\}$). Even if it does, say, x_1 is mapped onto Ming ($g' = \{x_1 \rightarrow m\}$), the denotation of *zaa3*'s prejacent (TP2) does not exclude the alternative propositions “Ming study Korean”, “Ming study Cantonese”, etc. What TP2 denotes is simply that the cardinality of students who only study Japanese is less than half of the students.

Therefore, the IEs in non-witnessable quantifier cases stem from an illicit scopal configuration

formed with the co-indexation approach: when C_i is operated by *zaa3*, it is too high in the LF for the variable inside to be bound by the lambda operator (triggered by movement of the subject quantifier) above *zinghai*.²³ The problem in these cases is more severe than the cases of negation and modal. In the latter cases, C_i does not contain unbound variable, and *zaa3* is able to check whether any alternative propositions are excluded by its own prejacent—but no such propositions are found due to the weakening effects of negation and modals. In the former cases, *zaa3* simply cannot check the alternative propositions, because they are uninterpretable. Despite the difference, these two types of cases share in common that the co-indexation of *zinghai*'s and *zaa3*'s alternative sets is crucial in deriving IEs.

The above discussion illustrates how IEs in exclusive doubling arise semantically, which may be extended to cases involving quantificational adverbs, under the assumptions that they are also truth-condition-altering quantifiers (e.g., they quantify over situations or times). I leave a detailed derivation of the other cases to future work. Next, we proceed to the focus operators that do not amount to IEs.

3.3.2 Non-intervention of focus operators

The radical immediate scope constraint only restricts elements with truth conditional contribution. For elements with only not-at-issue meaning, they are predicted to be freely intervene between *zaa3* and *zinghai*. This is indeed the case for additive focus operators *dou* 'also' and *lin* 'even'.

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

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

Lin₁ Aaming_{F1} dou₁ [**zinghai**₂ tai-zo jat-pin_{F2} man] **zaa3**.

even Ming also only read-PFV one-CL paper SFP.only

'Even Ming only read one paper.'

For simplicity, I do not decompose *lin...dou* and assume that they jointly convey an EVEN operator:

23. One may imagine an alternative where the proposition-taking *zinghai* ($\langle st, st \rangle$) is replaced with a property-taking *zinghai* ($\langle est, est \rangle$), so *zinghai* applies to the VP and the subject can be interpreted in SpecvP without movement. In this way, no unbound variable is present in C_i , which is constrained to be a set of properties by $\sim$ attached to the VP. This alternative, however, is untenable, because *zaa3* is higher than the subject and takes a proposition. There will be a type mismatch between *zaa3*'s prejacent (type $\langle s, t \rangle$) and the alternatives in C_i (type $\langle e, st \rangle$).

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

$$\llbracket \text{lin ... dou} \rrbracket(C_j) = \lambda r \lambda w. \text{ AI: } r(w)$$

$$\text{NAI: } \forall q[(q \in C_j \wedge r \not\subseteq q) \rightarrow r \leq_{\text{likely}} q]$$

Since *EVEN* is a partial identity function on the at-issue level, it does not alter the truth condition of the exclusive proposition with *zinghai*. *Zaa3*'s prejacent excludes the non-*p* alternatives in C_i . Hence, no IEs arise.

Another welcome result is that there are no focus IEs. *Zaa3* accesses the alternative set via the co-indexing of C_i . Even if other focus operators like *lin...dou* “reset” the alternative value, *zaa3* still operates on the same C_i .

$$(141) \quad [\text{FP } \text{zaa3}(C_i) [\text{lin}(C_j) [\sim C_j [\text{TP } \text{Ming}_{\text{F1}} \dots \\ \dots [\text{VP}_2 \text{ zinghai}(C_i) [\sim C_i [\text{VP}_1 t \text{ read one paper}_{\text{F2}}]]]]]]]]$$

The analysis extends to other focus operators such as the cleft focus marker *hai* ‘be’, which carries an existential presupposition that is similar to the English cleft constructions. This is evidenced by the pairs below.

- | | |
|--|--|
| <p>(142) a. It is John who will come.
 $\rightsquigarrow$ Someone (John) will come.</p> | <p>b. It is not John who will come.
 $\rightsquigarrow$ (i) John will not come.
 $\rightsquigarrow$ (ii) Someone (else) will come.</p> |
| <p>(143) a. Hai Aaming wui lai.
 cop Ming will come
 ‘It is Ming who will come.’
 $\rightsquigarrow$ Someone (Ming) will come.</p> | <p>b. M-hai Aaming wui lai. (Hai Aafan!)
 not-cop Ming will come cop Fan
 ‘It is not Ming who will come.’ (but Fan!)
 $\rightsquigarrow$ (i) Ming will not come.
 $\rightsquigarrow$ (ii) Someone (else) will come.</p> |

In Cantonese, the exhaustive inference in clefts can easily be canceled, as shown in (144). I therefore suggest that the exhaustive inference is a conversational implicature, in lines with Horn (1981)’s proposal for clefts in English.²⁴

24. As reported by Velleman et al. (2012), English differs in this regard:

(144) *Context: A classmate said to you that Lok will come. You said: No!*

... **Hai** Aaming_F wui lai, zung-jau Aafan_F tim1.

... COP Ming will come, also-have Fan SFP

‘(No!) It is Ming who will come, and Fan as well.’

I assume the following entry for the Cantonese cleft focus marker *hai* ‘be’:

(145) The semantics of cleft operator *hai* in Cantonese

$\llbracket \text{hai}_{\text{LEFT}} \rrbracket(C_j) = \lambda r \lambda w. \mathbf{AI}: r(w)$

$\mathbf{NAI}: \exists q \in C_j[q(w)]$

It is a focus operator with a presupposition that some alternative proposition is true. It is still felicitous if two propositions in the alternative set are true, and no exhaustivity is encoded. Importantly, on the AI level, *hai* merely passes up the prejacent, which can be negated as shown above. Hence, in exclusive doubling, it does not change the truth conditions of the exclusive proposition and does not trigger IEs.

Next, we turn to another type of non-interveners: subject quantifiers that do not trigger IEs.

3.3.3 Non-intervention of witnessable subject quantifiers

I argue that the subject quantifiers that do not trigger IEs are all witnessable. Witnessable quantifiers, in their referential reading, denote a choice-functionally selected plurality. The choice function receives its value from the context (following Kratzer 1998, 2003; see Reinhart 1997; Winter 1997 for existential binding). For example, ‘most’ NPs can be analyzed as the following:

(i) #It was JOHN who laughed, and so did MARY. (Velleman et al. 2012:444)

Erlewine (2022) presents the following example for the exhaustivity inference in Mandarin, which is analyzed as a NAI content encoded in *shi* (which historically comes from the copula *shi* ‘be’):

(ii) #Ta shi zai Beijing_F xue-guo zhongwen, dan ye (shi) zai Shanghai_F xue-guo (zhongwen).

3SG SHI at Beijing study-EXP Chinese but also SHI at Shanghai study-EXP Chinese

‘It’s in *Beijing* that she studied Chinese, but {she also studied (Chinese) in *Shanghai* / it’s (also) in *Shanghai* that she studied (Chinese)}.’ (Erlewine 2022:326)

I remain agnostic to the reason of the variation, but I note that Cantonese lacks the counterpart of *shi...de* cleft (see Tang 2011; Tse 2019 for discussion):

(iii) *Keoi **hai** camjat_F cung-ge loeng.

(Cantonese)

Ta **shi** zuotian_F xi-de zao.

(Mandarin)

3SG COP yesterday take-GE/DE shower

‘It was yesterday that s/he took a shower.’

$$\begin{aligned}
(146) \quad & \llbracket \text{most people} \rrbracket^g \\
&= \llbracket [f_I[\text{most people}]] \rrbracket^g = \llbracket [g(1)[\text{most people}]] \rrbracket \\
&= g(1)(\lambda x_e [\text{people}(x) \wedge |\text{Atom}(x)| > 1/2 |\{y : \text{Atom}(y) \wedge \text{person}(y)\}|])
\end{aligned}$$

For downward entailing quantifiers like ‘no NP’, the minimal witness set is an empty set (Szabolcsi 1997). Hence, they are not witnessable.

The idea that some quantifiers may denote a type e meaning can be found in Reinhart (1997), to account for exceptional scopal behavior of indefinites. She entertained the notion of witnessability (Szabolcsi 1997) but did not adopt it, since quantifiers like *most* are witnessable but do not allow exceptional scopal behavior. There is, however, independent evidence that even these quantifiers can denote a type e meaning, as argued by Rooth (2005) and Constant (2012, 2014). First, as pointed by Rooth (2005), some quantifiers can have a contrastive topic (CT) intonation (L+H* on the nominal), as in (147). The alternatives, however, should not have a $\langle e, et \rangle$ type, because the contrast is not between “some of them” and “all of them”. The contrast is between certain students and other students. Interestingly, non-witnessable quantifiers cannot have the CT intonation in the same context (unless the context intends to contrast the choice of the quantifying determiners), as in (148).

- (147) a. A: Where do the grads live?
b. B: [Some]_{CT} of them ... live [in Amherst]_F. And [Some]_{CT} of them ... live [in Northampton]_F.
(Constant 2014:170)

- (148) a. A: Where do the grads live?
b. B: #[Few]_{CT} of them ... live [in Amherst]_F.
(Constant 2014:170)

Second, Constant (2012, 2014) observes that equatives, in the shape of (149), is also sensitive to witnessability. He demonstrates that only a type e meaning is compatible in this slot, but not a GQ $\langle e, et \rangle$ meaning.

- (149) The equative test
[Those people standing over there are Δ of my best students].
 $\Delta = \{\text{some, many, most, all, ...} / \text{*few, *none, ...}\}$
(Constant 2014:178)

Third, Constant (2012, 2014) also observes that the availability of supplements correlates with witnessability (note that *all* is not acceptable due to independent reasons, see Constant’s discussion). Here, the supplement must be anchored to a (plural) individual.

(150) The supplement test

[Δ of my students, (namely) the ones who wanted to pass, came on time].

$\Delta = \{\text{some, many, most, ...} / *all, ??few, * none, \dots\}$

(Constant 2014:189)

Constant (2012, 2014) proposes a modified version of witnessability, Existence Entailing, which has the advantage of including quantifiers like *exactly three* whose meaning requires checking more than one minimal witness set. I still refer to it as witnessability for the consistency of terminology.

(151) A determiner *Det* is Existence Entailing iff $Det(P)(Q) \rightarrow \exists x : P(x) \wedge Q(x)$

(Constant 2014:175)

Turning to IEs in exclusive doubling, I suggest that IEs do not arise only when the witnessable quantifiers are interpreted with a referential reading. Whether a quantifier is witnessable correlates with whether it is topicalizable (cf. Jin 2020). However, different from what he claimed, these quantifiers do not need to be actually topicalized in the syntax to trigger no IEs in exclusive doubling. As we have seen in §3.2.2.1, they can, at least in surface syntax, remain in SpecTP. Moreover, the universal *dou*, although on the TP level, also does not trigger IEs.

I propose that witnessable quantifiers, when denoting a type *e*, can take a wider scope in the LF by covert movement. Their movement triggers lambda abstraction.

(152) [Qu-Subj_e $\lambda 3$ [... *t*₃

The surface syntax and LF of exclusive doubling with *daaiboufan jan* ‘most people’ are given below. I assume that each step of quantifier subject movement triggers lambda abstraction at the landing site. The subject in SpecTP has no effect on truth conditions, since it is ultimately lambda abstracted away. Importantly, there is an lambda operator higher than *zaa3*’s *C_i*, which can bind the variables inside. There is thus no unbound variable in cases with witnessable quantifiers, unlike the cases with non-witnessable quantifiers which cannot be covertly moved higher.

(153) a. Syntax

$$[_{CP} \text{ zaa3 } [_{TP} [\text{Daiboufan jan}]_k [_{vP2} \text{ zinghai } [_{vP1} t_k [_{v'} \text{ submit } [_{DP} \text{ one}_F \text{ abstract }]]]]]]]$$

b. LF

$$[[\text{Daiboufan jan}]_k \lambda 3 [_{CP} \text{ zaa3}(C_i) [_{TP} t_3 \lambda 3 [_{vP2} \text{ zinghai}(C_i) [_{vP1} t_3 [_{v'} \text{ bought } [_{DP} \text{ lamb}_F]]]]]] \sim C_i]]$$

Therefore, the fact that these quantifiers do not trigger LFs is because they have an alternative scope-taking mechanism that avoids a scopal configuration where they intervene between *zinghai* and *zaa3*. The account preserves Jin (2020)'s core spirit that these interveners are scopally high, without stipulating syntactically unmotivated topicalization.²⁵

(154)
$$[\underbrace{\text{Witnessable Q-subjs } [_{FP} \text{ zaa3}(C_i) [_{TP=r'} \dots t [_{TP=r} \text{ zinghai}(C_i) [\sim C_i [_{vP} p]]]]]}_{\text{Witnessable Q-subjs } [_{FP} \text{ zaa3}(C_i) [_{TP=r'} \dots t [_{TP=r} \text{ zinghai}(C_i) [\sim C_i [_{vP} p]]]]]}$$

As for why universal *dou* does not trigger IEs, I follow M. Liu (2021) that *dou* triggers a presuppositional requirement rather being a true distributor (i.e., it does not carry quantificational force on its own).²⁶ As given in (155), *dou* presupposes that its prejacent is the strongest among its alternatives.

(155) The semantics of (universal) *dou* (M. Liu 2021, ex.52)

$\llbracket \text{dou}_C \rrbracket$ is defined only if $\forall q \in \{ \llbracket S' \rrbracket \mid S' \in ALT(S) \} \cap C[\llbracket S \rrbracket \neq q \rightarrow \llbracket S \rrbracket \prec q]$.

If defined, $\llbracket \text{dou}_C \rrbracket = \llbracket S \rrbracket$.

In previous Mandarin literature (e.g., J.-W. Lin 1998, *et seq.*), *mei* 'every' has been analyzed as a sum operator that forms plural definites, which always requires *dou* as a distributor with the universal force. That is, *dou* is quantificational. M. Liu (2021) provides compelling arguments in favor of the presuppositional account of *dou* over the quantificational account. In particular, he shows that (i) *mei*-NPs do not always occur with *dou*, and that (ii) they have quantificational force in cases both with and without *dou*.²⁷

25. The proposed account relies on covert movement. A possible alternative is to posit that type *e* subjects can always be reconstructed back to the SpecvP position, "undoing" the subject movement to SpecTP (i.e., total reconstruction, Sauerland and Elbourne 2002). No covert movement is involved, then. This may predict different scopal interactions with other elements (e.g., whether the lower type *e* subjects can be distributed by a higher operator). I leave exploration of the different predictions to future work.

26. I tentatively assume that the universal *dou* and the additive *dou* in Cantonese are different morphemes. I leave a unified analysis to future work. See M. Liu (2017, 2018) for a promising line of research that relates universal *dou* with *wh* in Mandarin to focus (e.g., *dou* in *lian...dou*).

27. This set of arguments is compatible with the view that *mei*-NPs are witnessable quantifiers, which are ambiguous between type $\langle e, et \rangle$ and type *e*.

(156) The arguments for the quantificational force of *mei*-NPs (adapted from M. Liu 2021:293)

Mei-NPs may behave like English *every*-NPs and/or differ from plural definites in:

- a. Lacking homogeneity and non-maximality, even without *dou*;
- b. Being compatible with Q(quantifier)-sensitive expressions such as *jihu* ‘almost’, even without *dou*;
- c. Being incompatible with partitive constructions, even with *dou*;
- d. Determining the scope of the underlying $\forall$, even with *dou*;
- e. Licensing sentence-internal singular *different* and other quantifier-internal anaphora.

The presuppositional account of *dou* is motivated on the ground to avoid the “double quantification” problem (or vacuous quantification). M. Liu (2021) also demonstrates how (155) captures the usual obligatory co-occurrence of pre-verbal *mei*-NPs with *dou* and the exceptions by Maximize Presupposition.

I replicate two of M. Liu (2021)’s arguments for Cantonese *mui*-NPs ‘every NPs’ to show that his account is viable not only in Mandarin but also in Cantonese. First, *mui*-NPs are non-homogeneous: it retains its universal quantificational force under negation, unlike plural definites which are interpreted like a narrow scope existential. Note that *dou* is absent (and in fact cannot occur) here.

- (157) a. Ngo mou gong ni-gin si bei [**mui**-jat-go hoksaang] teng.
 1SG NEG.PFV tell this matter to every student hear
 ‘I didn’t tell this to every student.’ ($\neg > \forall$)
 $\leadsto$ I told this to some of the students.
- b. Ngo mou gong ni-gin si bei [**ni-di** hoksaang] teng.
 1SG NEG.PFV tell this matter to these student hear
 ‘I didn’t tell this to these students.’ ($\neg > \exists$)
 $\leadsto$ I didn’t tell this to any of these students.

(cf. M. Liu 2021:286 for Mandarin)

Second, *mui*-NPs with *dou* are not compatible with partitives, which is possible for plural definites with *dou*. This is like the contrast in English between *the*-NPs and *every*-NPs.

(158) a. *Many of every box were stolen. (M. Liu 2021:286)

b. Many of the boxes were stolen.

(159) a. *[**Mui-go** hoksaang] houdo **dou** zungji Aaming.

every students many DOU like Ming

‘*Many of every student likes Ming.’

b. [**Ni-di** hoksaang] houdo **dou** zungji Aaming.

these students many DOU like Ming

‘Many of these students like Ming.’

(cf. M. Liu 2021:286 for Mandarin)

Therefore, *mui*-NPs, with or without *dou*, have quantificational force in Cantonese, rather than the co-occurring *dou*. Interested readers are referred to M. Liu (2021) for the data in Mandarin and the details of his analysis. The point here is that with the presuppositional entry in (155), *dou* patterns with focus operators in lacking a truth conditional import. We then expect that it triggers no IEs in exclusive doubling, which is indeed the case.

3.4 The non-uniformity of intervention effects

The most significant pattern of IEs in exclusive doubling is that it is **quantifier-only**. It is not rare to have both quantificational IEs (QIEs) and focus IEs (FIEs), such as *wh*-dependencies in Korean (Beck 2006), *wh*-adverb questions (e.g., *weishenme* ‘why’)²⁸ and A-not-A questions in Mandarin (Wu 1997; A. Law 2001; Soh 2005; Tsai and Yang 2015, 2026), as illustrated in (160). Note that I regard focus operators as quantificational elements, and alternative-triggering focus (including the associates of focus operators) as focus elements. Some accounts regard focus operators as both or simply conflate these two classes, as will be discussed below.

28. Note that manner adverb *zenme* ‘how’ is subject to the similar intervention effects (Yang 2012, *contra*. Murphy 2017).

(i) *{Meiyouren/ henshao ren/ zuiduo liang-ge ren} zenme dun niurou? (manner ‘how’)
nobody few person at most two-CL person how_{adv} stew beef
Int.: ‘How does nobody/few people/at most two people stew beef?’ (Yang 2012:47)

(160) Intervention effects by quantificational elements to A-not-A/‘why’ questions in Mandarin

a. *Focus particle ‘only’*

Ta {*zhi} **neng-bu-neng** {zhi} qu Meiguo_F? (A-not-A)

he only can-not-can only go U.S.

‘Can he only go to the U.S.?’ (adapted from Soh 2005:146)

b. *Negative quantifier ‘no one’*

*{Meiyouren/ henshao ren/ zuiduo liang-ge ren} **weishenme** shuo ni cizhi? (‘why’)

nobody few person at most two-CL person why say you resign

‘What is the reason x such that for x nobody/few people/at most two people said you resigned?’ (Soh 2005:146)

It is also not rare to have only FIEs without QIEs, such as *wh*-nominal questions in Mandarin (Yang 2012). The contrast between *wh*-adverbs and *wh*-nominals is extensively discussed by W.-T. D. Tsai (1994, 1999) too. Examples showing the FIE-only pattern with *wh*-nominals are provided below.²⁹

(161) Intervention effects by focused elements to *wh*-nominal questions in Mandarin

a. *Focus associates of ‘only’*

*Zhiyou Zhangsan_F chi-le **shenme**?

only Zhangsan eat-PFV what

Int.: ‘What did only Zhangsan eat?’ (Yang 2012:47)

b. *Focus associates of ‘even’*

*Lian Zhangsan_F dou chi-le **shenme**?

even Zhangsan all eat-PFV what

Int.: ‘What did even John eat?’ (Yang 2012:47)

29. While *zhi*/*zhiyou* ‘only’ and cleft operator *shi* ‘be’ may associate with *wh*-nominals as discussed by Li and Law (2016) (and see references therein), *lian* ‘even’ does not seem to be able to do that, which is not noted by them.

(i) *Lian **shenme**_F Zhangsan dou chi-le?

even what Zhangsan all eat-PFV

Int.: ‘What is the x such that Zhangsan even eats x?’

(ii) Zhiyou **shei**_F chuxi-le wanyan?

only who attend-PFV dinner

Int.: ‘Who was the person x such that only x attended the dinner?’ (Li and Law 2016:206)

(162) No intervention effects by quantificational elements to *wh*-nominal questions

Negative quantifier ‘no one’

{Meiyouren/ henshao ren/ zuiduo liang-ge ren} gan gen **shei** dajia?

nobody few person at most two-CL person dare with who fight

‘Who is the person x such that nobody/few people/at most two people dare(s) to fight with x?’

(Soh 2005:147)

However, it is rare to have QIEs only (but see Yip 2022b for universal concord). The issue is more pressing given that the dependency in exclusive is focus by nature, which involves accessing the same alternatives. Nevertheless, focus operators do not trigger IEs.

I will show below how this QIE-only pattern raises challenges to other major syntactic (§3.4.1) and semantic (§3.4.2) accounts. Thus, we need a scopal account of IEs, following the spirit of Mayr (2014) and Jin (2020), as proposed above. The conclusion is that IEs are non-uniform and they are at best descriptive labels for complex interactions between syntax and semantics concerning specific dependencies.

3.4.1 Against a syntactic minimality account

3.4.1.1 The inventory of superfeatures in Cantonese

As discussed in the introduction of this chapter, one major way to approach IEs is to resort to the feature-based Relativized Minimality (fRM) with superfeatures. Empirically, Cantonese has the following inventory of superfeatures, as motivated by IEs in A-movement like hyperraising (Lee and Yip 2024), in A-not-A questions (A. Law 2001), in quantificational dependencies like universal concord (Yip 2022b) and in focus dependencies like focused verb doubling (T. T.-M. Lee 2022, 2024).

(163) Superfeatures in Cantonese

- a. [A]: case?
- b. [Qu]: *Wh*-adverbs, Neg, measure, focus operators, modals, quantified DPs
- c. [Foc]: *Wh*-nominals, focus associates, doubled verbs
- d. [Mod]: evaluative, epistemic, Neg, frequentative, celerative, measure, manner, ...
- e. [Top]

One may notice that the inventory is different from Rizzi’s proposal for Italian and French. It is because focused elements behave differently from quantificational elements, which include the focus operators (i.e., quantifiers that operate on alternative sets, but do not trigger alternative sets by themselves).

Verb doubling in Cantonese, as exemplified in (164–165), involves syntactic movement, as evidenced by tests of lexical identity effects, island sensitivity, idiom preservation, etc. (see T. T.-M. Lee 2022 for examples and discussions).

(164) Verb doubling in Cantonese (Contrastive verbal topics)

Maai keoi hai soeng **maai** ni-bun syu, batgwo ...

buy s/he COP want buy this-CL book but

‘S/he wants to BUY this book (but s/he won’t have time to READ it).’ (T. T.-M. Lee 2023, ex.3)

(165) Verb doubling in Cantonese (Additive verbal focus)

Lin-**tai** keoi dou m gam **tai** ni-bun syu.

even-read s/he also not dare read this-CL book

‘S/he doesn’t even dare to READ this book (let alone to REVIEW it).’ (T. T.-M. Lee 2023, ex.3)

Crucially, verb doubling is only sensitive to focused elements, but not quantificational operators, including focus-sensitive operators (T. T.-M. Lee 2022, 2023), as shown below.

(166) Intervention effects by focused elements between the doubled verbs

a. *Focus associates of ‘only’/cleft operators*

*Lin-**tai** hai/dak keoi_F dou m gam **tai** ni-bun syu. (additive)

even-read cop/only s/he also not dare read this-CL book

Int.: ‘Only s/he is such that s/he doesn’t even dare to READ this book.’

(T. T.-M. Lee 2023, ex.7)

b. *Wh-nominals*

***Maai** bingo hai soeng **maai** ni-bun syu? (contrastive)

buy who COP want buy that-CL book

Int.: ‘Who wants to BUY this book?’

(T. T.-M. Lee 2023, ex.10)

(167) No intervention effects by quantificational elements between the doubled verbs

a. *Focus particle ‘only’*

Lin-**tai** keoi dou zinghai **tai** dak jat-ci_F. (additive)

even-read s/he also only read only one-CL

Int.: ‘Even for reading, s/he READ only once.’ (T. T.-M. Lee 2023, ex.9)

b. *Negative quantifier ‘no one’³⁰*

Hai **maai** mou jan gam **maai** ni-gaan uk ze1. (exhaustive)

cop buy not.have person dare buy this-CL house SFP

Int.: ‘No one dare BUY this house only.’ (T. T.-M. Lee 2022:96)

In contrast, universal concord in Cantonese displays a mirroring behavior. Universal concord here refers to the relation between a universal quantifier (e.g., ‘every time’) and the verbal suffix *-can* in Cantonese, which always appears in the restrictor of universal quantification (over individuals, event, times, worlds, etc.) (Yip 2022b). It is argued to be a syntactic Agree relation, with evidence from phase-locality effects (as well as minimality effects). An example is given below:

(168) Universal concord in Cantonese

[**Mui-ci** hai deitit-dou king(-can) dinwaa] dou bei jan naau.

every-time at subway-LOC talk-CAN telephone DOU get person scold

‘Every time (I) have a call on the subway, I get scolded.’

Importantly, the IEs to universal concord only concern quantificational elements but not focused elements, as illustrated below.

(169) No intervention effects by focused elements to universal concord

a. *Contrastive focus (stressed)*

[**Muici** AAMING zou(-can) ni-joeng je] lousi zau wui faatnau.

every.time Ming do-CAN this thing teacher then will be.mad

‘Every time *Ming* (but not someone else) does this, the teacher gets mad.’

30. This example uses a copula focus construction, which triggers an exhaustive instead of a contrastive reading on the verb.

b. *Wh-nominals*

[**Zijiu** bingo fan(-can) gaau] lousi zau wui naau?
 only.if who sleep-CAN nap teacher then will scold
 ‘Who is the person that teacher will scold at him whenever he sleeps?’

(170) Intervention effects by quantificational elements to universal concord

a. *Focus particle ‘only’*

[**Mui-ci** keoi zinghai jung_i(*-can) [_{VP} *v-t_i* ni gaan fong_F] go-zan] gaan
 every-time 3SG only use-CAN this CL room that-moment CL
 fong dou hou zing.
 room DOU very quiet

‘Every time that he was using only this room, the room was quiet.’

b. *Negative quantifier ‘no one’*

[**Zijiu** mou hoksaang lai man(*-can) je] keoi zau wui fan-zoek.
 only.if no student come ask-CAN stuff 3SG then will fall.asleep
 Int.: ‘Whenever no one asks him for something, he will fall asleep.’

We obtain the following empirical picture in Cantonese in Table 3.3, syntactic dependencies concerned.

Dependencies	[Foc] intervention	[Qu] intervention
A-not-A/‘why’	YES	YES
Verb doubling	YES	NO
Universal concord	NO	YES

Table 3.3: Intervention effects to different syntactic dependencies in Cantonese

3.4.1.2 An attempt of fRM account to exclusive doubling

A possibility to model IEs is to adopt fRM. Applying to Cantonese, one may propose that *zinghai* and *zaa3* need to agree with an exclusive feature, a sub-feature of [Qu].

(171) The syntactic account to exclusive doubling: feature-based Relativized Minimality

- a. ... [_{FocP} **zaa3**_[uQU:EXCL] ... [**zinghai**/EXCL ...
 └──────────────────┘
- b. *_{[FocP} **zaa3**_[uQU:EXCL] ... [XP_[Qu] ... [**zinghai**/EXCL ...
 └──────────────────┘
 ×

However, there are two problems. First, focus operators ‘also’ and ‘even’, bearing [Qu] features, do not trigger IEs in exclusive doubling. They should bear [Qu] features instead of [Foc] features since they are quantifiers over alternative sets, although their quantification is presuppositional or not-at-issue. Even if one argues that only truth-conditional elements bear [Qu] such that *zinghai* ‘only’ but not ‘also’ and ‘even’ bear [Qu], the problem remains. It is because ‘also’ and ‘even’ do trigger IEs in universal concord, a dependency that only bears [Qu] (i.e., [V]) but not [Foc]:

(172) *[**Zijiu** lin Aaming dou lai-can] keoi zau wui hou hoisam.

only.if even Ming also come-CAN 3SG then will very happy

Int.: ‘Whenever even Ming comes, he will be very happy.’

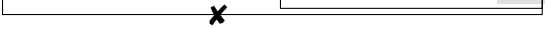
Second, there is no way to deny that the universal *dou* should be an universal element bearing [Qu], but it triggers no IEs in exclusive doubling. M. Liu (2021)’s proposal only separates the quantificational force from *dou*, but *dou* is still dependent on *mei*, which is a universal element with [Qu]. Note that *dou* also triggers IEs to universal concord (Yip 2022b) and to ‘why’ questions (unlike universal quantifiers alone, Jin 2020). I thereby conclude that a syntactic account is not sufficient to explain the IEs in exclusive doubling in a non-stipulative way.

3.4.2 Against a semantic alternative-based account

Another potential approach is the semantic account of focus intervention (e.g., Beck 2006), where IEs arise from resetting operators. However, this approach in fact makes a prediction that is the opposite of what is empirically observed above. Under this view, focus operators in general are expected to give rise to intervention effects, since they manipulate alternative sets in a way that disrupts the computation of *wh*-dependencies. Borrowing the same logic to exclusive doubling, it would be focus operators like ‘even’ and ‘also’ but not quantifiers like ‘no one’ which did not display inherent focus sensitivity that triggered intervention effects, contrary to facts.

Moreover, if one adopts a pure Beck-style approach without co-indexation of the alternative sets, the higher focus operator *zaa3* simply cannot access the lower alternatives. In other words, *zinghai* itself is predicted to be an intervener, as in (173).

$$(173) \quad [Zaa3(C_j) \sim_{\text{reset}} C_j [\dots [zinghai(C_i) \sim_{\text{reset}} C_i \dots [XP_F \dots]]]]$$



One then needs to resort to the so-called non-resetting operators (Erlewine 2025), which, as discussed in Chapter 2, does not derive the desirable scalar readings in exclusive doubling. Moreover, while it may explain the absence of IEs by non-truth-conditional operators (e.g., ‘also’), it fails to explain why truth-conditional quantifiers (setting the witnessable ones aside) trigger IEs, such as in the case with necessity deontic modals ‘must’. There, *zaa3*’s prejacent would be $\text{MUST}(\text{EXCL}(p))$, incompatible with the alternatives *zaa3* can see after $\sim_{\text{pass}}$ passes it up like $\text{MUST}(\text{EXCL}(q))$. *Zaa3*’s requirement is satisfied but IEs still arise empirically, falsifying the non-resetting approach.

By contrast, only the current semantic account where *zinghai* and *zaa3* share the same alternative set can derive the quantifier-only IEs. On this analysis, intervention arises specifically when the alternative set affects truth-conditional computation at the level relevant for *zaa3*. Crucially, this restriction follows naturally from the semantics: only quantifiers and the focus particle *only* alter truth conditions in a way that creates intervention, whereas other focus-sensitive operators, despite resetting alternatives, do not trigger intervention effects.

3.4.3 Intervention effects are non-uniform

We have seen that IEs are not uniform, and they must be classified along multiple dimensions. First, they vary by the **type of dependency** involved. Different dependencies exhibit distinct sensitivities to intervention, including exclusive doubling, contrasts between *wh*-nominal and *wh*-adverb dependencies, and verb doubling constructions, among others. These differences suggest that IEs cannot be treated as a single, homogeneous phenomenon tied to a single dependency type.

Second, IEs also vary by the nature of the intervener. In particular, it is crucial to distinguish quantifiers from focus operators. This distinction is best captured in semantic terms rather than purely syntactic ones. Relevant semantic properties include whether an expression introduces alternatives (as in Beck-type effects), whether it contributes truth-conditional or merely presuppositional content (as observed in exclusive doubling), and whether it is witnessable or non-witnessable in different scopal configurations. These properties systematically determine when and how intervention arises.

Taken together, these observations suggest that the term “intervention effects” should be under-

stood as a descriptive umbrella term rather than a unified theoretical primitive. What appear on the surface as similar intervention phenomena may in fact reflect distinct underlying syntactic or semantic mechanisms, depending on the dependency involved and the semantic properties of the intervener.

3.5 (In)variant intervention effects in other languages

In this section, I show that the IEs in exclusive doubling are not limited to Cantonese, but are more general and can be found in Mandarin and Vietnamese. The current scalar focus approach can be extended to the two languages in a straightforward way, indicating the cross-linguistic validity of the proposal. I also discuss variations in IEs in Mandarin and Vietnamese as compared to Cantonese. I demonstrate that the differences are tied to syntactic positions of the particles, whereas the semantic dependency between particles is invariant across languages. For both languages, I will first diagnose the structural positions of the adverbs and SFPs, then examine the IEs, and finally provide the analysis.

3.5.1 Exclusive doubling in Mandarin Chinese

Mandarin allows the doubling of adverbial *zhi* ‘only’ and SFP *eryi* ‘only, just’ (Erlewine 2011; P. P.-I. Lee 2019), as in (174). All (a–c) convey the same truth conditions with at-issue exclusiveness. Note that unlike Cantonese *zaa3*, Mandarin *eryi* has a stronger sense of scalarity, a point we will return to later.

(174) Adv-SFP exclusive doubling in Mandarin Chinese

- a. Zhangsan **zhi** mai-le niurou_F.
Zhangsan only buy-PFV beef
‘Zhangsan only bought *beef*.’
- b. Zhangsan mai-le niurou_F **eryi**.
Zhangsan buy-PFV beef SFP.only
‘Zhangsan only/just bought *beef*.’
- c. Zhangsan **zhi** mai-le niurou_F **eryi**.
Zhangsan only buy-PFV beef SFP.only
‘Zhangsan only/just bought *beef*.’

Below, the Mandarin data without cited sources are constructed by me and confirmed with three native speakers for judgment.

3.5.1.1 Structural positions

I discuss the following properties of adverbial *zhi* and SFP *eryi* to diagnose their structural positions. This will be relevant for testing IEs in their doubling configuration.

- (175) a. Focus association
b. Embedding
c. Relative order to other adverbs/SFPs

Adverbial exclusive particle *zhi* ‘only’ Consider focus association first. *Zhi* is an adverb that can associate with the focus at a distance as in (176a). The focus possibilities can be disambiguated by a stress on the relevant focus (V, DO, or IO). Unlike *zinghai* ‘only’ in Cantonese, however, it cannot be placed before subjects, as in (176b). Only adfocal *zhi-you* ‘lit. only-have’ can be used (e.g., Erlewine 2015; Sun 2021; P. Law 2023, among others).

(176) Focus association of adverbial *zhi* ‘only’ in Mandarin

- a. Zhangsan **zhi** [VP jie-le]_{i, F} [zhe-ben shu]_{ii, F} [gei Lisi]_{iii, F}]_{iv, F}.
Zhangsan only lend-PFV this-CL book to Lisi
i. ‘Zhangsan only *lent* (but not gave for free) this book to Lisi.’ (V focus)
ii. ‘Zhangsan only lent *this book* (but not a drawing) to Lisi.’ (DO focus)
iii. ‘Zhangsan only lent this book to *Lisi* (but not Wangwu).’ (IO focus)
iv. ‘Zhangsan only *lent this book to Lisi* (but not gave a drawing to Wangwu).’ (VP focus)
- b. {***Zhi/ zhiyou**} Zhangsan_F jie-le zhe-ben shu gei Lisi.
only only.have Zhangsan lend-PFV this-CL book to Lisi
‘Only *Zhangsan* (but not Wangwu) lent this book to Lisi.’ (Subj. focus)

Zhi can be as low as in *vP* as shown in (177a) with *vP*-embedding *changshi* ‘try’ (N. Huang 2018; C.-T.J. Huang 2022; Liu and Yip 2026), but not in *VP* after the verbs as in (177b), like Cantonese *zinghai*.

(177) Embedding adverbial *zhi* ‘only’ in Mandarin

- a. Zhangsan changshi [_{VP} **zhi** kan [zhe-ben shu]_F].
 Zhangsan try only read this-CL book
 ‘Zhangsan try to only read *this book*.’
- b. *Zhangsan [_{VP} jie-le (**zhi**) [zhe-ben shu] (**zhi**) [gei (**zhi**) Lisi] (**zhi**)].
 Zhangsan lend-PFV only this-CL book only to only Lisi only

It might be tempting to treat *zhi* as a TP-internal adverb given the ban on pre-subject positions. However, *zhi* can occur before both epistemic and root modals, the former of which is argued to be higher than TP (W.-T. D. Tsai 2015), as illustrated in (178). Of course, *zhi* can also occur below them. The possibility of pre-(epistemic-)modal *zhi* seems to be at odds with the ban on pre-subject *zhi*.

(178) The ordering of *zhi* with modals

- a. Zhangsan **zhi** {kenang/ yinggai} kan [zhe-ben shu]_F.
 Zhangsan only possibly should read this-CL book
 ‘It is only possible for Zhangsan to read *this book*.’ / ‘Zhangsan should only read *this book*.’
- b. Zhangsan {kenang/ yinggai} **zhi** kan [zhe-ben shu]_F.
 Zhangsan possibly should only read this-CL book
 ‘It is possible for Zhangsan to only read *this book*.’ / ‘Zhangsan should only read *this book*.’

Nonetheless, the ban on pre-subject *zhi* might be due to an independent restriction that *zhi* cannot be followed by any nominals (see Erlewine 2015:17ff for similar observations and contrasts with adfocal *zhiyou*). Object fronting may target TP-internal positions (see, e.g., Chen 2023, 2025a; Chen and Yip 2025; also Qu 1994; Shyu 1995; Paul 2002, among others). A fronted object can follow a TP-internal adverb like *changchang* ‘often’ (see, e.g., Tsai and Yang 2015, 2026 for justification of its position), but not *zhi*, as in (179). *Zhiyou* must be used here (Erlewine 2015).³¹

31. This may be a matter of syllabicity. The monosyllabic *chang* ‘often’ cannot precede a nominal as well, as in (i), unlike disyllabic *changchang* ‘often’.

(i) *[(**Chang**) Zhangsan (**chang**) [zhe-ben shu]_F bu hao hao kan ____].
 often Zhangsan often this-CL book not well read
 Int.: ‘Zhangsan often doesn’t read this book carefully.’

On the other hand, the disyllabic *zhi-shi* ‘only, just; lit. only-be’ can precede a nominal, like *changchang* ‘often’, as in (ii).

- (179) a. Zhangsan {***zhi/ zhiyou**} [zhe-ben shu]_F bu haohao kan __.
 Zhangsan only only.have this-CL book not well read
 ‘Zhangsan only doesn’t read *this book* carefully.’
- b. Zhangsan **changchang** [zhe-ben shu]_F bu haohao kan __.
 Zhangsan often this-CL book not well read
 ‘Zhangsan often doesn’t read this book carefully.’

To further strengthen this point, consider *vP*-level adverbs like *guyi* ‘intentionally’. *Zhi* may occur before or after it in (180a). (180b) shows a naturalistic example from the Internet.

- (180) a. Zhangsan (**zhi**) guyi (**zhi**) bu haohao kan [zhe-ben shu]_F.
 Zhangsan only intentionally only not well read this-CL book
 ‘Zhangsan (only) intentionally (only) does not read this book carefully.’
- b. **Zhi** guyi mei zuohao liang-jian shiqing
 only intentionally not.PFV do-good two-CL matter
 Lit.: ‘(They) only intentionally didn’t do well two things.’
 i.e., ‘(They) intentionally messed up two things.’ (Internet, 2024-3-30)

Importantly, object fronting is compatible with *guyi* in (181) with the object moved below it. Thus, the landing site of object fronting can be lower than *zhi*, and the ungrammaticality of (179a) above should be attributed to an independent ban on *zhi*-NP combination.

- (181) Zhangsan **guyi** [zhe-ben shu]_F bu haohao kan __.
 Zhangsan intentionally this-CL book not well read
 ‘Zhangsan intentionally does not read this book carefully.’

I therefore conclude that *zhi*, like Cantonese *zinghai*, has flexible syntactic positions ranging from CP to VP, as schematized in (182).

-
- (ii) (**Zhishi**) Zhangsan (**zhishi**) [zhe-ben shu]_F bu haohao kan __ (eryi).
 only Zhangsan only this-CL book not well read SFP.only
 Pre-subject *zhishi*: ‘Only Zhangsan doesn’t read this book carefully.’
 Post-subject *zhishi*: ‘Zhangsan only doesn’t read *this book* carefully.’

(182) The syntactic position of adverbial *zhi* ‘only’

[_{CP} Δ [_{TP} Δ [_{VP} Δ [_{VP} Δ [_{V'} V *Δ Obj *Δ ...

Flexible adjunction sites of *zhi*

Sentence-final particle *eryi* ‘only’ The SFP *eryi* may also associate at a distance with materials below the subject, as shown in (183).³²

(183) Focus association of SFP *eryi* ‘only’ in Mandarin

Zhangsan [_{VP} jie-le_{i, F} [zhe-ben shu]_{ii, F} [gei Lisi]_{iii, F}]_{iv, F} **eryi**.

Zhangsan lend-PFV this-CL book to Lisi SFP.only

i. ‘Zhangsan only *lent* (but not gave for free) this book to Lisi.’ (V focus)

ii. ‘Zhangsan only lent *this book* (but not a drawing) to Lisi.’ (DO focus)

iii. ‘Zhangsan only lent this book to *Lisi* (but not Wangwu).’ (IO focus)

iv. ‘Zhangsan only *lent this book to Lisi* (but not gave a drawing to Wangwu).’ (VP focus)

It is however controversial whether *eryi* ‘only’ can associate with subjects. Erlewine (2017a) argues that *eryi* cannot, as illustrated in (184).

(184) The lack of subject focus association of *eryi*

*[Wo (yi-ge gen)]_F hui nian Yingwen **eryi**.

1SG only-CL person can read English SFP.only

Int.: ‘Only [I (one person)]_F can read English.’ ↔ No one else can.

(Erlewine 2017a:59)

Nevertheless, an addition of adfocal *zhiyou* ‘only’ before the subject renders the subject focus possible such as in (185a), as also noted by Erlewine (2017a, pp.58-59n13) as well as Pan (2018) and P. Law (2023). Unnoticed is that adding a cleft focus marker *shi* ‘be’ achieves the same effect, as in (185b). It

32. It should be noted that *eryi* has a strong scalar reading and requires an appropriate context to elicit the relevant association. A stress should be placed on the relevant focus too. The contexts are provided below.

(i) The contexts for the readings in (183)

- i. A said Zhangsan gave this book to Lisi for free. You said: No! ... (183).
- ii. A said Zhangsan lent both this book and that book to Lisi. You said: No! ... (183).
- iii. A said Zhangsan lent this book to Lisi and Wangwu. You said: No! ... (183).
- iv. A said Zhangsan was generous and gave drawings to a lot of people. You said: No! ... (183).

is also possible to use another scalar exclusive particle *jinyin* ‘only, merely’ (can be either adjectival or adverbial) to facilitate the subject focus association, as in (185c).³³

(185) Subject focus association of *eryi* with other particles

- a. **Zhiyou** [wo (yi-ge gen)]_F hui nian Yingwen **eryi**.

only 1SG only-CL person can read English SFP.only

‘Only [I (one person)]_F can read English.’ ⇔ No one else can.

(Erlewine 2017a:58n13, translation adapted)

- b. **Shi** [wo (yi-ge gen)]_F hui nian Yingwen **eryi**.

be 1SG only-CL person can read English SFP.only

‘Only [I (one person)]_F can read English.’ ⇔ No one else can.

- c. **Jinyin** [wo (yi-ge gen)]_F hui nian Yingwen **eryi**.

merely 1SG only-CL person can read English SFP.only

‘Merely [I (one person)]_F can read English.’ ⇔ No one else can.

Importantly, *eryi* may even scope over the whole clause containing the subjects (Pan 2018), as shown in (186).

- (186) [_{TP} Zhangsan diu-le qianbao]_F **eryi**, keshi Lisi que diu-le huzhao.

Zhangsan lost-PFV purse SFP.only but Lisi however lost-PFV passport

‘It is only the case that Zhangsan lost his purse. However, Lisi lost his passport.’

(Pan 2018:121)

Cases like these are treated as “utterance *eryi*” by Erlewine (2017a), paraphrased as “It’s just that ...”. I do not assume different lexical entries of *eryi*, and take (186) to be support for the high position of *eryi* above TP.

Turning to embedding, Pan (2019) reports that *eryi* can be embedded in noun complement clauses

33. Erlewine (2017a, pp.58-59n13) assumes that *zhiyou* is an exclusive operator and *eryi* is an instance of “utterance” *eryi*, rather than a focus-sensitive operator. I agree with him that *zhiyou* carries exclusive semantics (pace Sun 2021), as I will discuss in Chapter 4. In the context of exclusive doubling, however, *eryi*’s semantic contribution is still tied to the subject. As will be argued, *eryi* is not an exclusive operator, but similar to Cantonese *zaa3* in being a scalar operator. For example, *eryi* in (i) adds a scalar reading that “three” is a small number, rather than an “utterance” use conveying that “the matter is just that”.

- (i) **Zhiyou** [san-ge ren]_F kao-le chaoguo bashifen **eryi**.

Only three-CL person get-PFV over 80.point SFP.only

‘Only three people got over 80 points.’ (The test was freaking hard!)

and adverbial conditional clauses, which are CPs. Pan's examples are given in (187). Recall that Cantonese *zaa3* cannot be embedded in these two contexts.

(187) Eryi can be embedded under CP-sized clauses (Pan 2019:95)

- a. [[Ta qi che zhi hui zuo zhuan **eryi**] de chuanwen] kending shi zhende.
 he ride bike only can left turn SFP.only DE rumor certainly be true
 'The rumor that he can only turn left when riding a bicycle is certainly true.'
- b. Ta [ruguo qi che zhi hui zuo zhuan **eryi** dehua] jiu kending bu gan
 he if ride bike only can left turn SFP.only in.case then certainly not dare
 shang jie.
 go.to street
 'If he can only turn left when riding a bicycle, then he certainly dare not ride on the street.'

Embedded contexts with smaller sizes, however, resist embedding *eryi*. C.-T.J. Huang (2022)'s Type II and Type III predicates, which take TP and *v*P respectively (see also Liu and Yip 2026), resist *eryi* as in (188). The embedded clauses are fronted to avoid a structural ambiguity that *eryi* is attached to the matrix clauses. An additional SFP can be placed at the end of the sentences to avoid a right dislocation parsing (see, e.g., L. Y.-L. Cheung 2009; T. T.-M. Lee 2017; Yip 2025a).³⁴

(188) Eryi cannot be embedded under TP/*v*P-sized complement clauses of verbs

- a. *[_{TP} (Zhi) kan [zhe-ben shu]_F **eryi**], Zhangsan bipo Lisi __ (a).
 only read this-CL book SFP.only Zhangsan force Lisi SFP
 Int.: 'Zhangsan forces Lisi to only read this book.'
- b. *[_{vP} (Zhi) kan [zhe-ben shu]_F **eryi**], Zhangsan changshi __ (a).
 only read this-CL book SFP.only Zhangsan try SFP
 Int.: 'Zhangsan tries to only read this book.'

34. Erlewine (2017a) suggests that *eryi* can be embedded in disjuncts of alternative questions below the subject as in (i). As argued by Pan (2018), those disjuncts involve a larger clause size (TP) with a null subject *pro*, and *ni* 'you' is a topic co-referential with the *pro* inside.

(i) Ni (shi) [yao yi wan fan **eryi**] haishi [yao liang wan fan] (ne) ?
 2SG be want one bowl rice SFP.only or want two bowl rice SFP
 'Do you want only one bowl of rice or two bowls of rice?'

(Erlewine 2017a:60)

Moreover, some noun complement clauses are argued to be (nonfinite-)TP-sized by C.-T. J. Huang (2022) (e.g., they resist temporal SFPs, future modal *hui*, and evaluative adverbs). They cannot embed *eryi* either, as in (189).³⁵

(189) *Eryi* cannot be embedded under TP-sized complement clauses of nouns

- a. *[[_{TP} Zhangsan (zhi) tan gangqin_F **eryi**] de shenyin] hen haoting.
 Zhangsan only play piano SFP.only DE sound very nice
 Int.: ‘The sound of Zhangsan’s playing only the piano is nice.’
- b. *[[_{TP} Zhangsan (zhi) xuan zhe-men ke_F **eryi**] de jue ding] hen bu heli.
 Zhangsan only elect this-CL class SFP.only DE decision very not reasonable
 ‘Zhangsan’s decision of taking only this class is very unreasonable.’

Having seen *eryi*’s embedding behavior, let us turn to its ordering with other SFPs. I assume with Tang (1998) that the sentential perfect *le* (indicating change of state) and the recent past marker *laizhe* are T heads. They project finite TPs and cannot occur in nonfinite clauses (Zhang 2019). *Eryi* can only follow them in (190), suggesting that it projects higher than TP.

(190) *Eryi* follow temporal SFPs

- a. Ta bu xihuan ni le **eryi**.
 3SG not like 2SG SFP SFP.only
 Int.: ‘It’s just that s/he doesn’t like you anymore.’ (Internet, 2022-11-30)
- b. *Ta bu xihuan ni **eryi** le.
 3SG not like 2SG SFP.only SFP
- c. Meiguo shi zuo shiyan laizhe **eryi**.
 US be do experiment SFP SFP.only
 ‘The US just simply did an experiment.’ (Internet, 2022-2-21)
- d. *Meiguo shi zuo shiyan **eryi** laizhe.
 US be do experiment SFP.only SFP

35. See C.-T. J. Huang (2016) for arguments that they are noun complement clauses instead of “gapless” relatives. See also Whitman (2026) for recent arguments, and Y.-H. A. Li (2026) for a similar stance but with more nuances. Whether they are complement or relative clauses is not important here though, since it is the size that matters.

On the other hand, polar question SFPs like *ma* project higher than CPs and only allow “quasi-subordination” in Dayal (2025a)’s sense. That is, *ma* projects higher than CP but lower than the highest root projection (SAP in Dayal 2025a; CoAP in Tang 2020) such that it can be embedded in certain environments like under rogative predicates. See Bhatt and Dayal (2020), Y. Liu (2025), and Liu and Luo (2025) for recent proposals that Mandarin *ma* projects a PerspectiveP above CP. Interestingly, *eryi* can precede *ma*, as in (191). As shown in (192), the same is impossible for Cantonese *zaa3* and polar question SFP *maa3*, which also exhibits quasi-subordination behavior (Yip 2025b).

(191) *Eryi* precede polar question SFP *ma*

- a. Ni zhende zhishi bu kaixin **eryi** ma?

2SG really only not happy SFP.only SFP

‘Are you really just unhappy?’

(Internet, 2021-02-03)

- b. *Ni zhende zhishi bu kaixin ma **eryi**?

2SG really only not happy SFP SFP.only

(192) *Zaa3* cannot precede or follow polar question SFP *maa3* in Cantonese

- a. *Nei zanhai zihai m-hoisam **zaa3** maa3?

2SG really only not-happy SFP.only SFP

Int.: ‘Are you really just unhappy?’

- b. *Nei zanhai zihai m-hoisam maa3 **zaa3**?

2SG really only not-happy SFP SFP.only

Int.: ‘Are you really just unhappy?’

I conclude that *eryi* is projected within CP but above TP in Mandarin. Therefore, it can be embedded, and can also associate with the whole clause (i.e., TP) as well as the subject (in SpecTP). It is slightly lower than Cantonese *zaa3*, which projects above CP.

(193) The syntactic position of SFP *eryi* ‘only’

[CoAP=SAP [DegreeP=PerspP *ma* [CP C [FocusP **eryi** [TP Subj [_{VP} ... [_{VP} V Obj ...

As for why subject association is unavailable without other particles, a possibility is that subjects are usually topics in Mandarin (C. Li 1976; Tsao 1977; L. Xu 2000), and thus they require extra marking

to be interpreted as focus. The asymmetry between subjects and the VP domain in focus marking is not rare. In West African languages, explicit focus marking is also usually required for subjects but not objects, the latter being in the default focus VP domain (Zimmermann 2006; Fiedler et al. 2010). According to Zimmermann (2006), subjects may receive default topichood and thus require explicit marking when focused.³⁶

3.5.1.2 Intervention effects

Now we turn to IEs in Mandarin *zhi-eryi* doubling. First, negation triggers IEs. While *zhi* can take narrow scope under aspectual negation *mei/meiyou* ‘didn’t’ independently, *eryi* cannot be doubled with it. Using *eryi* alone also does not yield the intended narrow scope reading. Example (194b) with singleton *eryi* is only grammatical under a wide scope [only > ¬] reading.³⁷

(194) IEs of negation in Mandarin

- a. [Zhangsan mei(you) **zhi** kan [zhongwen shu]_F]
 Zhangsan NEG.PFV only read Chinese book
 ‘Zhangsan didn’t only read Chinese books.’ (¬ > only)
 (He read Chinese books and other books)
- b. *[Zhangsan mei(you) (**zhi**) kan [zhongwen shu]_F] **eryi**
 Zhangsan NEG.PFV only read Chinese book SFP.only
 Int.: ‘Zhangsan didn’t only read Chinese books.’ (*¬ > only)
 (He read Chinese books and other books)

In contrast, when *zhi* takes wide scope over negation, no IEs are induced in exclusive doubling.

36. I have no satisfying answer as to why such subject association is easier for SFP *zaa3* in Cantonese as long as the context is clear. One possibility is that the null counterpart of *zhi* (EXCL) in Mandarin, which is present in singleton *eryi* cases for exclusivity, shares the same restriction of *zhi* and cannot occur before a nominal. Cantonese null EXCL behaves like *zinghai* and can occur before subjects. This explanation is quite implausible given that *eryi* can associate with the whole TP, which also requires a pre-subject (=pre-TP) EXCL. *Eryi* can also associate with a moved object, again requiring a pre-nominal EXCL. Moreover, *zhi*’s ban before nominals seems to be related to its monosyllabicity (see footnote 31), and it is hard to imagine how a null operator is subject to prosodic restriction.

37. *Meiyou* has a verum focus use which can exceptionally take a stative predicate (vs. using the stative negation *bu*), as in (i) below. This use is more popular in Taiwan Mandarin, where *you* ‘have’ can indicate a verum focus in positive polarity. This is not the regular perfective *meiyou* intended in (194).

(i) Ta **meiyou** xihuan ni. (verum focus *meiyou*)
 3SG NEG like you
 ‘It is not the case that s/he likes you.’

This is because the negation is simply lower than both particles and does not qualify as an intervener syntactically.

- (195) [Zhangsan **zhi** mei(you) kan [zhongwen shu]_F] **eryi**
 Zhangsan only NEG.PFV read Chinese book SFP.only
 ‘Zhangsan only didn’t read Chinese books.’ (only > ¬)
 (He read all the non-Chinese books.)

Sentential negation *bu-shi* ‘lit. not-be’ also does not qualify as a syntactic intervener, but it is because *bushi* is higher than *eryi*. It does not trigger IEs in doubling cases, as in (196).

- (196) Zhangsan bushi [**zhi** kan [zhongwen shu]_F] **eryi**
 Zhangsan NEG only read Chinese book SFP.only
 ‘It is not the case that Zhangsan only reads Chinese books.’ (¬ > only)
 (He reads Chinese books and other books.)

Next, consider modals. Permission modals like *keyi* ‘may’ project lower than TP (W.-T. D. Tsai 2015), and usually need to occur below subjects (see Yip and Lee 2022 for focus-licensing conditions of pre-subject root modals). *Keyi* triggers IEs in exclusive doubling, as shown below in (197).³⁸

- (197) IEs of modals in Mandarin
- a. [Zhangsan keyi **zhi** kan [zhongwen shu]_F].
 Zhangsan can only read Chinese book
 Int.: ‘It is allowed that Zhangsan only reads *Chinese books*.’ (◇ > only)
 (i.e., Zhangsan may also read English books)
- b. *[Zhangsan keyi (**zhi**) kan [zhongwen shu]_F] **eryi**.
 Zhangsan can only read Chinese book SFP.only
 Int.: ‘It is allowed that Zhangsan only reads *Chinese books*.’ (◇ > only)
 (i.e., Zhangsan may also read English books)

Again, (197) contrasts with cases of wide exclusive scope over the modal, which is simply syntactically too low to intervene.

38. When *zhi* is absent in (197b), the sentence is unacceptable under the intended narrow scope reading (◇ > only), but only acceptable under the wide scope reading (only > ◇), which is irrelevant here. In the wide scope construal, the null counterpart of *zhi* (EXCL) is higher than the modal, where the modal is simply syntactically too low to intervene between *eryi* and EXCL. The same goes for the minimal pairs below.

(198) [Zhangsan **zhi** keyi kan [zhongwen shu]_F] **eryi**.

Zhangsan can only read Chinese book SFP.only

‘Zhangsan can only read *Chinese books*.’ (*only > ◇)

(i.e., Zhangsan cannot read English books)

Third, quantificational adverbs like *henshao* ‘seldom’ also trigger IEs in doubling.

(199) IEs of quantificational adverbs in Mandarin

a. Shiba ge yue da de yinger henshao **zhi** yifu [yi-ge ren]_F le

eighteen CL month big DE infant very-rarely only attach one-CL person SFP

‘Eighteen-month-old infants rarely attach to only one person anymore.’ (seldom > only)

(Internet, 2000-12)

b. *[Shiba ge yue da de yinger henshao (**zhi**) yifu yi-ge ren] **eryi**.

eighteen CL month big DE infant very-rarely only attach one-CL person SFP.only

Int.: ‘Eighteen-month-old infants rarely attach to only one person anymore.’

(*seldom > only)

Fourth, just like Cantonese, Mandarin also shows a contrast between witnessable and non-witnessable quantifiers. Downward entailing quantifiers like *henshao ren* ‘few people’ trigger IEs as in (200).³⁹

(200) IEs by non-witnessable quantifiers

a. Henshao ren **zhi** chi FAN_F (er bu chi cai).

very.few person only eat rice and not eat dish

‘Few people only eat (plain) *rice* (without dish).’

b. *[Henshao ren (**zhi**) chi FAN_F] **eryi**.

very.few person only eat rice SFP.only

Int.: ‘Few people only eat (plain) *rice* (without dish).’

On the other hand, witnessable quantifiers like *mei-ge ren* ‘everyone’, with the universal *dou*, do not trigger IEs in doubling, as in (201).

39. Without the stress on the object *fan* ‘rice’, *eryi* may associate with the subject, yielding an irrelevant reading “Only *few* people eat rice”.

(201) No IEs by witnessable quantifiers

[Mei-ge ren dou **zhi** chi FAN_F] **eryi**.

everyone DOU only eat rice SFP.only

‘Everyone only eat (plain) *rice* (without dish).’

Last but not least, focus operators like *lian ... dou/ye* ‘even ... also’ do not trigger IEs in exclusive doubling. Below shows ‘even’ associating with a subject focus outside *zhi*’s scope.

(202) No IEs by ‘even’ focus *lian ... dou* associating with subjects

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

[Lian₁ Zhangsan_{F1} dou₁ [**zhi**₂ du-le yi-pian_{F2} wenzhang]] **eryi**.

even Zhangsan also only read-PFV one-CL paper SFP.only

‘Even Zhangsan only read one paper.’

Mandarin has more than one ‘even’ focus particle. *Lian* ‘even’ is an adfocal particle and must be used with the adverb *dou* or *ye* ‘also’. Another particle is the adverb *shenzhi* ‘even’ which can be used alone without *dou/ye*. It also does not trigger IEs, as given in (203). *Shenzhi* associates with the same focus with *zhi*. As for the independent difference between these two ‘even’ particles, see Liao and Jheng (2025) and references therein.

(203) No IEs by ‘even’ focus *samzi* associating with objects

Context: At yesterday’s party, people stayed with their first choice of drink. Bill only drank wine.

Sue cannot drink much so she only drank beer. And ...

(Context modified from Krifka 1991:131 via Erlewine 2025:529)

[Zhangsan shenzhi₁ [**zhi**₂ he-le shui_{F1=F2}]] **eryi**.

Zhangsan even only drink-PFV water SFP.only

‘Zhangsan even only drank *water*. (He’s so weak/ he’s quite impolite since everyone is supposed to drink at a party.)’

Summarizing, Mandarin *zhi-eryi* doubling has a similar intervention profile as Cantonese *zinghai-zaa3* doubling. Only truth-condition-altering quantificational elements trigger IEs, whereas witness-

able subject quantifiers and non-truth-condition-altering focus operators do not trigger IEs.

Given that Mandarin *eryi* is lower than Cantonese *zaa3*, one may ask whether there is an intervener that projects right between them, such that it only triggers IEs to *zaa3* doubling but not *eryi* doubling, as configured below.

- (204) a. [... [CP (**Interveners**) [FocP *eryi* [TP ... [*zhi* ... (Mandarin)
 b. [FocP *zaa3* [CP (***Interveners**) [TP ... [*zinghai* ... (Cantonese)

There are indeed some curious differences in IEs between the two languages. I discuss two cases below. First, since the middle projection between *zaa3* and *eryi* is CP, we can consider C heads that contribute quantificational force. A candidate is unconditional *wulun* ‘no matter’, which can license *wh*-words with a universal reading (J.-W. Lin 1996). J.-W. Lin (1996) proposes it forms a generalized union, i.e., it has truth-conditional effects.

- (205) a. [(**Wulun**) shei] dou keyi lai.
 no-matter who all may come
 ‘Anybody may come.’ (J.-W. Lin 2014:192)
 b. [(**Wulun**) ni zuo shenme] dou gen wo wuguan.
 No-matter you do what all to me no-relation
 ‘No matter what you do, it has no relation to me.’ (J.-W. Lin 2014:192)

Wulun does not induce IEs for Mandarin exclusive doubling, as in (206). Note that *wulun* requires a set of alternatives, and the trigger should be placed higher than *zhi*, otherwise *zhi* would reset the alternatives, causing genuine focus intervention effects.

(206) No IEs by unconditional C heads in Mandarin

- a. (?) [Wulun ta shi-bu-shi **zhi** xihuan yi-ge ren **eryi**], ni dou buyong
 no.matter 3sg be-not-be only like one-CL person sfp.only 2sg all not.need
 zaiyi.
 care
 ‘No matter whether s/he only likes one person or not, you don’t need to care.’

- b. [Wulun ta shi liang-ge ren dou xihuan haishi **zhi** xihuan ni yi-ge
no.matter 3SG be two-CL person DOU like or only like 2SG one-CL
ren **eryi**], ni dou buyong zaiyi.
person SFP.only 2SG all not.need care

‘No matter whether s/he likes two people, or only likes you, you don’t need to care.’

Interestingly enough, the Cantonese counterpart *mouleon* ‘no matter’ triggers IEs to exclusive doubling. *Zaa3* cannot be placed in unconditional clauses with *mouleon*. Since *zaa3*’s contribution is not-at-issue, it will not interrupt the dependency between *mouleon* and *dou* in the main clause. I suggest that the ungrammaticality comes from the intervention of *mouleon* between *zaa3* and *zinghai*.

(207) IEs by unconditional C heads in Cantonese

- a. [Mouleon keoi hai-mai **zinghai** zungji jat-go jan (***zaa3**)], nei dou m-sai
no.matter 3SG be-not.be only like one-CL person SFP.only 2SG all not-need
zoiyi.
care
‘No matter whether he only likes one person or not, you don’t need to care.’
- b. [Mouleon keoi hai loeng-go jan dou zungji dinghai zinghai zungji nei jat-go
no.matter 3SG be two-CL person DOU like or only like 2SG one-CL
jan (***zaa3**)], nei dou m-sai zoiyi.
person SFP.only 2SG all not.need care
‘No matter whether he likes two people, or only likes you, you don’t need to care.’

The contrast between the two languages is schematized below.

- (208) a. [... [CP C-**wulun** ‘no matter’] [FocP *eryi* [TP ... [*zhi* ... (Mandarin)
- b. *[FocP *zaa3* [CP C-**mouleon** ‘no matter’] [TP ... [*zinghai* ... (Cantonese)

Second, consider Mandarin evaluative adverbs of frequency *zongshi* ‘all the time; lit. sum-be’ and *laoshi* ‘all the time, lit. old-be’. They are sentential adverbs and can occur before subjects as well as epistemic modals, as in (209). They indicate “speaker’s subjective estimate of the occurrence probability of the event” (Shi 2023). They are syntactically higher than *changchang* ‘often’, as in (210).

- (209) a. **Zongshi/laoshi** ZHANGSAN lai.
all.the.time Zhangsan come
‘It is always the case that *Zhangsan* comes.’
- b. Shiqing de zouxiang **zongshi/laoshi** keneng chaohu ni de yiliao
matter DE direction all.the.time possible exceed you DE expectation
‘The course of events can always go beyond your expectations.’ (Internet, 2020-4-9)
- (210) a. Ta **zhongshi/laoshi** changchang ma wo.
3SG all.the.time often scold 1SG
‘It is always the case that s/he often scolds at me.’
- b. *Ta changchang **zhongshi/laoshi** ma wo.
3SG often all.the.time scold 1SG

Zongshi and *laoshi* do not trigger IEs for *zhi-eryi* doubling as shown below.

- (211) No IEs by evaluative adverbs of frequency in Mandarin
- a. danshi ta sihu zongshi **zhi** xiang wanwan **eryi**
but 3SG seem all.the.time only want play.play SFP.only
‘But s/he seems to always just want to mess around, nothing more.’ (Internet, 2016-7-5)
- b. laoshi **zhi** kan biaoti **eryi**
all.the.time only look title SFP.only
‘(I) always just looks at the title (but not the main text).’ (Internet, 2015-3-21)

The Cantonese closest counterpart is *ngaanghai* ‘all the time, lit. hard-be’.⁴⁰ Interestingly, it triggers IEs to *zinghai-zaa3* doubling.

40. *Zunghai* ‘all the time; lit. sum-be’ exists in Cantonese but sounds very “formal/written” and I suspect that it is borrowed from Mandarin. Indeed, from an Internet search, *zunghai* is usually used in mixed Cantonese-Mandarin (written Chinese) sentences, although *hai* ‘be’ is a Cantonese native morpheme. A direct translation of Mandarin examples with *zongshi* into *zunghai* does not sound natural, such as (210) above:

(i) Keoi {**ngaanghai**/ ??**zunghai**} sengjat naau ngo. [Cantonese]
3SG all.the.time all.the.time always scold 1SG
‘It is always the case that s/he always scolds at me.’

Potential support for this borrowing claim is that Mandarin also has the monosyllabic version *zong* ‘always, lit. sum’, which is non-existent in Cantonese—*zung* can only mean ‘sum’ but not ‘always’, and it is a bound morpheme. As for *laoshi* ‘lit. old-be’, there is no **louhai* ‘lit. old-be’ in Cantonese.

(212) IEs by evaluative adverbs of frequency in Cantonese

- a. Ngaanghai **zinghai** tai-zyu mui-ge singkei ge maksyu ge fansou
all.the.time only see-DUR every week GE dictation GE score
'(They) always focus only on the dictation scores each week.' (Internet, 2014-12-3)
- b. *Ngaanghai **zinghai** tai-zyu mui-ge singkei ge maksyu ge fansou **zaa3**
all.the.time only see-DUR every week GE dictation GE score SFP.only
Int.: '(They) always focus only on the dictation scores each week.'

I suggest that these evaluative adverbs attach right in the CP layers, below *zaa3* but above *eryi*. This explains the contrast in IEs.

- (213) a. [... [CP **zongshi/laoshi** [FocP *eryi* [TP ... [*zhi* ... (Mandarin)
- b. * [FocP *zaa3* [CP **ngaanghai** [TP ... [*zinghai* ... (Cantonese)

3.5.1.3 Analysis

In the following, I extend the analysis for *zinghai-zaa3* doubling in Cantonese to Mandarin *zhi-eryi* doubling. First, I propose that *zhi* and *eryi* have an Agree dependency which co-indexes their Roothian *C* variable of alternatives, as in (214).

(214) The dependency in Adv-SFP exclusive doubling in Mandarin

$$[_{CP} \dots [_{FocP} \text{eryi}(C_i) [_{TP} \dots \text{(Non-)interveners} [_{vP} \text{zhi}(C_i) [\sim C_i [_{vP} p]]]]]]$$

Second, I propose that *zhi* is a propositional exclusive operator, and *eryi* is a scalar operator that ranks the excluded alternatives to be higher than *zhi*'s prejacent. To account for exclusivity in singleton *eryi* cases, I propose a null variant of *zhi*, EXCL.

(215) The semantics of adverbial *zhi*

$$\llbracket \text{zhi/EXCL} \rrbracket(C_i) = \lambda p_{st} \lambda w_s. \text{ AI: } \forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$$

$$\text{ NAI: } p(w)$$

(216) The semantics of SFP *eryi*

$\llbracket \text{eryi} \rrbracket(C_i) = \lambda r' \lambda w. \text{AI: } r'(w)$

NAI: $\exists p, q \in C_i[(r' \cap q = \emptyset \wedge r' \cap p \neq \emptyset) \rightarrow p <_s q]$

The scalarity of *eryi* is corroborated by the infelicity of *eryi* in a listing scenario:

(217) *Eryi* cannot be used in listing scenario suppressing contextual scales

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

A **zhi** mai-le pijiu (#**eryi**), B **zhi** mai-le hongjiu (#**eryi**), C **zhi** mai-le futejia

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

(#**eryi**), ...

SFP.only

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

All the alternatives are equally salient, and the scale of ABV is suppressed by the reporting and listing context. *Eryi* is not licensed. On the other hand, *zhi* contributes to the non-scalar exclusive reading that is felicitous here.

Moreover, *eryi* cannot be used when the focus associate is on the upper bound of a scale in (218a). In contrast, *eryi* can be used when the focus associate is on the lower bound of a scale in (218b). This suggests that *eryi* is sensitive to the ordering of preadjacent proposition of *zhi* and the excluded alternatives.

(218) *Eryi* is only compatible with superlatives targeting the lower bound of a scale

This school has a policy of issuing multiple problem sets for each assignment due and students only need to submit one.

- a. *You ask a teacher who is the best student. The teacher answers: Zhangsan is the best student, because ...*

Ta (zongshi) **zhi** zuo [zui nan]_F de timu (#**eryi**). (Upper)

3sg all.the.time only do most hard DE question SFP.only

'He only does *the hardest* problem (set).'

- b. *You ask a teacher who is the worst student. The teacher answers: Zhangsan is the worst student, because ...*

Ta (zongshi) **zhi** zuo [zui jiandan]_F de timu (**eryi**). (Lower)

3SG all.the.time only do most easy DE question SFP.only

‘He only does *the easiest* problem (set).’

Interestingly, *eryi* carries a stronger scalar meaning than Cantonese *zaa3*. Even in a context with contextual salience, which would be enough to license *zaa3*, the use of *eryi* still implies a contextual, non-logical scale, as shown in (219).

- (219) *You are a cashier in a meat market in the US. You just served a customer, and your colleague asked whether s/he bought beef. You say:*

Ta (**zhi**) mai-le yangrou_F **eryi**.

3SG only buy-PFV lamb SFP.only

‘S/he just bought lamb.’ (Nothing special./ Lamb is cheapest./ S/he didn’t buy enough.)

Moreover, *eryi* has the downplaying use in (220). Cantonese can only use *ze1* but not *zaa3* in (221).

- (220) *Zhangsan wants to buy a watch that is \$100. He complains about it all day to you that it is too expensive. You calm him down and say:*

Gui shi gui-le yidian, dan hai bu-dao 200, 100 **eryi**. [Mandarin]

expensive be expensive a.bit but still not-reach 200 100 SFP.just

‘Yeah it is expensive, but it is still not as expensive as 200, just 100 bucks.’ (not a big number)

- (221) *Ming wants to buy a watch that is \$100. He complains about it all day to you that it is too expensive. You calm him down and say:*

Gwai hai gwai, daan dou m-dou 200, 100 {**ze1**/ **#zaa3**}. [Cantonese]

expensive be expensive but still not-reach 200 100 SFP.just SFP.only

‘Yeah it is expensive, but it is still not as expensive as 200, just 100 bucks.’ (not a big number)

In short, the exclusive doubling with *zhi* and *eryi* in Mandarin forms a scalar focus structure, where exclusivity is encoded by *zhi* and scalarity is encoded by *eryi*.

- (222) Adv-SFP exclusive doubling realizes scalar focus structures in Mandarin

[**eryi**_[Scalarity] ... [**zhi**_[Exclusivity] ... XP_F ...]]
└──────────────────┘

With the components in place, we can derive the radical immediate scope constraint in a similar fashion to account for the patterns of IEs in *zhi-eryi* doubling, which are very similar to Cantonese (*modulo* syntactic differences). The derivations in §3.3.1 can in principle be extended to Mandarin, and I do not replicate them here.

(223) The radical immediate scope constraint in Mandarin

- a. Let the exclusive proposition (EXCL p) be r , alternative propositions excluded by *zhi* be q (i.e., $[\text{EXCL } p] \models \neg q$), and the prejacent of *eryi* be r' .
- b. In the LF, no elements α may intervene between *zhi* & *eryi* (i.e., α takes r and returns r'), such that:
 - (i) r does not entail r' ($r \not\subseteq r'$) and
 - (ii) there is no q incompatible with r' ($\neg \exists q [q \cap r' = \emptyset]$)
- c. $[\text{CP} \dots [\text{FocP } \mathbf{eryi}(C_i) [\text{TP} \dots (\text{Non-})\text{interveners} [\text{vP } \mathbf{zhi}(C_i) [\sim C_i [\text{vP } p]]]]]]]$

$\underbrace{\hspace{15em}}_{r'}$
 $\underbrace{\hspace{10em}}_r$

3.5.2 Exclusive doubling in Vietnamese

We now discuss Vietnamese. It allows for the doubling of adverbial *chỉ* and SFP *thôi*, as illustrated in (224) (Hole 2013; see also Chapter 4 and citations therein for adverbial-adfocal doubling with *chỉ* and *mỗi*).

(224) Adv-SFP exclusive doubling in Vietnamese

- a. Nam **chỉ** ăn [thịt bò]_F.
 Nam only eat beef
 ‘Nam only eats *beef*.’
- b. Nam ăn [thịt bò]_F **thôi**.
 Nam eat beef SFP.only
 ‘Nam only eats *beef*.’
- c. Nam **chỉ** ăn [thịt bò]_F **thôi**.
 Nam only eat beef SFP.only
 ‘Nam only eats *beef*.’

Before proceeding, there is a note on the data. All data in this section without sources cited were collected from elicitation sessions with native speakers (n=4) and during two field trips to Vietnam (n=33, see §1.3.4 for details). Unless with further specification, all the data based on the storyboards in this section were elicited from 24 consultants. The number of consultants confirmed for other sentences will be provided when appropriate (e.g., with variation or to show the number base of the acceptable scores).

3.5.2.1 Structural positions

Similar to the discussion on Mandarin, I will describe the following properties of adverbial *chỉ* and SFP *thôi* to diagnose their structural positions.

- (225)
- a. Focus association
 - b. Embedding
 - c. Relative order to other adverbs/SFPs

Adverbial exclusive particle *chỉ* ‘only’ Consider focus association first. *Chỉ* may associate at a distance with different foci in the VP domain. When appearing in the pre-subject position, it only associates with the subject (see also Erlewine 2017b). The following data in (226) are elicited from a storyboard “Christmas party” (see Appendix B). An example of verbal focus is cited from Erlewine (2017b) in (227).

(226) Association with focus of *chỉ*

- a. Christmas party-7

Nam **chỉ** tặng [TÚI XÁCH]_F cho cô ấy. (DO focus)

Nam only give handbag to her

‘Nam only gave a *handbag* (but not flowers) to her.’
- b. Christmas party-6

Nam **chỉ** tặng hoa cho [CÔ ẤY]_F. (IO focus)

Nam only give flowers to her

‘Nam only gave a handbag to *her* (but not other girls).’

c. Christmas party-10

Nam nghĩ mình nên **chỉ** [tặng hoa cho Linh]_F. (VP focus)

Nam think self should only give flowers to Linh

‘Nam thinks that he should only given flowers to Linh (and should not give handbags to other girls).

d. Christmas party-5

Chỉ Linh_F nói đồng ý. (Subject focus)

only Linh say agree

‘Only *Linh* (but not other people) said yes.’

(227) Nam **chỉ** MUA_F cuốn sách. (V focus)

Nam only buy CL book

‘Nam only *bought* the book.’

i.e., Nam didn’t do anything else with the book (e.g. read it). (Erlewine 2017b:326)

Chi can even associate with moved objects above the subjects, though it is marked for some speakers. Thus, *chi* can attach to a position higher than TP, e.g., CP.

(228) **Chỉ** (có) [cuốn sách này]_F Nam đọc __ thôi. (Moved object focus)

only have CL book this Nam read SFP.only

‘Only this book, Nam read.’ (mean=5.08/7, n=12)

Second, consider embedding. *Chi* generally cannot occur within a VP in a postverbal position.⁴¹

(229) a. *Hôm qua Nam [_{VP} đọc **chỉ** một quyển sách].

yesterday Nam read only one CL book

‘Nam only read one book yesterday.’

b. Hôm qua Nam **chỉ** [_{VP} đọc một quyển sách].

yesterday Nam only read one CL book

‘Nam only read one book yesterday.’

While postverbal *chi* is reported by Erlewine (2017b) such as in (230a) (where the pipe “|” indicates a

41. There is some speaker variation regarding whether (229a) is acceptable. While most speakers judged it as 1 (on the scale from 1-7), a few speakers found it completely natural and judged it as 7/7. There was no in-between judgment. It is possible that those speakers allow a biclausal parsing more easily, as discussed below.

pause), he argues that such cases involve a biclausal structure where *chi* is still in a preverbal position, as evidenced by the possibility of *có* ‘have’ (which cannot be added after a preverbal *chi*). He provides the biclausal source in (230b). I follow him and maintain that *chi* is an adverb that must occur preverbally.

- (230) a. Tôi đọc *(l) **chỉ** (có) cuốn sách [này]_F.
 I read only have CL book this
 ‘I only read *this* book.’ (Erlewine 2017b:332)
- b. [Tôi đọc nó]. [**Chỉ** (có) cuốn sách [này]_F].
 I read it only have CL book this
 ‘I read it. Only *this* book.’ (Erlewine 2017b:333)

Chi can be regularly embedded in CPs such as the adverbial clause in (231), as well as (nonfinite) TPs under *bắt* ‘force’ as in (232).

- (231) *Chi* can be embedded in CP
 [_{CP} Nếu con **chỉ** ăn thịt bò_F], thì mẹ sẽ đánh con.
 if 2SG only eat beef then mom will hit 2SG
 ‘If you only eat *beef*, mum will beat you up.’

- (232) *Chi* can be embedded in TP
 Thầy giáo bắt Nam [_{TP} **chỉ** học tiếng Pháp_F]. (Không được học tiếng Anh.)
 teacher force Nam only study French not may study English
 ‘The teacher forces Nam to only study *French*. (He cannot study English)’

Chi may also be embedded under nonfinite clauses taken by *bắt đầu* ‘begin’ as in (233a), which is natural for around half of the speakers (6-7/7) and slightly degraded for the others (4-5/7). (233b) shows another case of *chi* under the *vP*-embedding verb *thử* ‘try’.⁴²

- (233) *Chi* can be embedded in *vP*
 a. (?) Tôi bắt đầu [_{vP} **chỉ** đọc sách [tiếng Anh]_F].
 1SG begin only read book English
 ‘I begin to only read *English* books (but not books in other languages).’ (mean=6/7, n=22)

42. Example (233b) was provided by a consultant and was not included in the stimuli list.

b. Nam thử [_{VP} **chỉ** đọc sách [tiếng Anh]_F].

Nam try only read book English

‘Nam tries to only read *English* books (but not books in other languages).’

Following Wurmbrand and Lohninger (2023), I assume that verbs like ‘begin’ take an “event” complement and project a *VP*. Support comes from the ban on tense and aspect markers in the complement clause, including past tense *đã*, future *sẽ* and durative/progressive *đang*, as in (234).

(234) *Tôi bắt đầu [_{VP} {**đã**/ **sẽ**/ **đang**} đọc sách tiếng Anh].

1SG begin PAST FUT DUR read book English

Int.: ‘I begin to {be about to read/ have read/ be reading} English books.’

When we consider the ordering of *chỉ* with other elements, interestingly, *chỉ* can only follow the past tense marker *đã* and/or future marker *sẽ*, but not before them, as in (235). It may precede the durative aspect marker *đang*.⁴³

(235) *Chi* cannot precede tense markers

a. Nam {***chỉ**} đã {**chỉ**} mua sách.

Nam only PAST only buy book

‘Nam only bought (the) book(s).’

b. *Tôi **chỉ** {đã/ sẽ} mua sách.

1SG only PAST FUT buy book

‘I only bought books.’/‘I will only buy books’

(Do 2025, ex.33a)

43. Do (2025) also reported that *chỉ* cannot follow *đã/sẽ*, unlike what we see in (235a) (which was confirmed by two speakers). I do not have an explanation for this point of variation, but I note that *chỉ* below negation can follow *đã/sẽ* for her (Linda Do p.c.).

(i) *Tôi {đã/ sẽ} **chỉ** mua sách.

1SG PAST FUT only buy book

‘I only bought books.’/‘I will only buy books.’

(Do 2025, ex.33b)

(ii) Nam {đã/ sẽ} không **chỉ** đọc cuốn sách này.

Nam PAST FUT not only read CL book this

‘Nam did not/ will not only read this book.’

(Linda Do, p.c.)

(236) Chỉ can precede aspect markers

Nam **chỉ** đang đọc cuốn sách thôi

Nam only DUR read CL book SFP.only

‘Nam is only reading the book.’

These markers are usually argued to occupy a T head or an Asp head moved to T (for *đã*), such as by Duffield (2017) and Trang Phan (2023). They cannot follow the negation *không* as in (237) (Duffield 2017; Trang Phan 2023), as opposed to *chỉ* as in (238) (from two storyboards).

(237) đã and sẽ cannot follow a negation

a. Tôi (**sẽ**) không (***sẽ**) làm việc đó.

1SG FUT not FUT do job that

‘I will not do that.’

(Duffield 2017:356)

b. Tôi (**đã**) không (***đã**) làm việc đó.

1SG PAST read PAST do job that

‘I didn’t do that.’

(Duffield 2017:356)

(238) Chỉ can follow a negation

a. Christmas party-8

Nam không **chỉ** tặng túi xách cho CÔ ÂY_F.

Nam not only give handbag to her

‘Nam did not only gave a handbag to *her* (but also other people).’

b. Karaoke-12

Bạn không **chỉ** hát [ba bài]_F!

you not only sing three CL

‘You didn’t only sing three (songs).’

From the above, it seems that *chỉ* cannot attach higher than TP. However, recall that *chỉ* can occur above subjects (see (226) above). Subjects in Vietnamese occupy SpecTP, as evidenced by the ban on pre-subject *đã* and *sẽ* in (239).⁴⁴

44. It also shows that one cannot analyze pre-subject *chỉ* as a preverbal *chỉ* with a covert verb like *có* ‘have’ (i.e., a biclausal analysis of pre-subject *chỉ*, cf. similar claims for pre-subject *dak* ‘only.have’ in Cantonese, Tang 2003), otherwise we would have expected such a covert verb to be available with pre-subject *đã* and *sẽ*.

(239) a. **Đã* Nam đọc cuốn sách này.

PAST Nam read CL book this

Int.: ‘Nam read this book.’

b. **Sẽ* Nam đọc cuốn sách này.

FUT Nam read CL book this

Int.: ‘Nam will read this book.’

Importantly, pre-subject *chỉ* can co-occur with *đã* and *sẽ*, as in (240):

(240) a. **Chỉ** Nam đã đọc cuốn sách này.

only Nam PAST read CL book this

‘Only Nam read this book.’

b. **Chỉ** Nam sẽ đọc cuốn sách này

only Nam FUT read CL book this

‘Only Nam will read this book.’

Hence, I conclude that *chỉ* can attach to positions above TPs. I speculate that the ban on *chỉ đã/sẽ* strings is due to a constraint of attaching *chỉ* as soon as focus association is possible, follow Erlewine (2017b)’s Adjoin As Soon As Possible. In the case of (235), the focus is within the VP domain. Assuming that tense contributes presuppositions (Abusch 1997; Kratzer 1998; cf. Partee 1973), attaching *chỉ* above T does not yield a meaning difference. Thus, *chỉ* must attach to the VP, rather than in the TP layer below subjects.

Summarizing, adverbial *chỉ* in Vietnamese, like Cantonese *zinghai* and Mandarin *zhi*, has flexible syntactic positions ranging from CP to VP, as schematized in (241).

(241) The syntactic position of adverbial *chỉ* ‘only’

[CP Δ [TP Δ [_{VP} Δ [VP Δ [_V V *Δ Obj *Δ ...

Flexible adjunction sites of *chỉ*

Sentence-final particle *thôi* ‘only’ We now turn to the SFP *thôi*. Before the discussion, it is important to distinguish the *thôi* under discussion from other non-(scalar-)exclusive focus uses, such as

marking imperatives and agreement with concession as in (242).

(242) Non-(scalar-)exclusive focus *thôi*

- a. Đi **thôi!** (imperative)
 go SFP
 ‘Let’s go!’
- b. Làm thế cũng tốt **thôi!** (concessive agreement)
 do like.that also good SFP
 ‘I guess it’s also fine to do it this way.’ (Tran 2015:176)

We begin with the focus association of the exclusive *thôi*. It may associate at a distance with different foci in the VP domain, including the VP itself, as in (243).

(243) Association with focus of *thôi*

- a. Christmas party-7
 Nam tặng [TÚI XÁCH]_F cho cô ấy **thôi.** (DO focus)
 Nam give handbag to her SFP.only
 ‘Nam only gave a *handbag* (but not flowers) to her.’
- b. Christmas party-6
 Nam tặng hoa cho [CÔ ẤY]_F **thôi.** (IO focus)
 Nam give flowers to her SFP.only
 ‘Nam only gave a handbag to *her* (but not other people).’
- c. Christmas party-10
 Nam nghĩ mình nên [tặng hoa cho Linh]_F **thôi.** (VP focus)
 Nam think self should give flowers to Linh SFP.only
 ‘Nam thinks that he should only given flowers to Linh (and should not give handbags to other girls).’

However, without other particles, *thôi* generally cannot associate with a subject focus. Speakers reported that (244a) only has a VP or an object focus reading, even in the context of the storyboard. To achieve subject focus association, adverbial *chỉ*, *có* ‘have’, and/or adfocal *mỗi* (which can also co-occur with *chỉ* and/or *có*) are strongly preferred, as in (244b).

(244) a. Christmas party-5

*Linh_F nói đồng ý **thôi**.

(Subject focus)

Linh say agree SFP.only

Int.: 'Only *Linh* (but not other people) said yes.'

b. Christmas party-5

{**Chỉ, có, mỗi**} Linh_F nói đồng ý **thôi**.

(Subject focus)

only have only Linh say agree SFP.only

'Only *Linh* (but not other people) said yes.'

For some speakers, however, the subject focus is improved when the subject has a numeral, which facilitates a scalar reading. (245a) is natural for a few speakers (6-7/7, n=8), degraded for some others (4-5/7, n=8), and unacceptable for the rest (1-3/7, n=5). With *có* 'have', the sentence is perfect for all of them.

(245) *Context: You invited 5 friends to party. However, only Nam responded. You say: Only one person comes. We should cancel the party!*

a. %[Một người]_F đến **thôi**.

one person come SFP.only

'Only one person comes.'

(mean=4.76/7, SD=1.92, n=21)

b. **Có** [một người]_F đến **thôi**.

have one person come SFP.only

'Only one person comes.'

Similar variations exist in answers to a subject *wh*-question, which forces a subject focus reading. Again, some speakers found it natural (6-7/7, n=8), but the others either found it degraded (4-5/7, n=7) or unacceptable (1-3/7, n=5), as compared to the completely natural version with *có*.

(246) [Q: *Ai đến?* 'Who comes?']

A1. %Nam_F đến **thôi**.

Nam come SFP.only

'Only Nam comes.'

(mean=4.85/7, SD=1.7, n=20)

- A2. **Có** Nam_F đến **thôi**.
 have Nam come SFP.only
 ‘Only Nam comes.’

For most speakers, *thôi* can also associate with a moved object in the presence of *chỉ* (as we have seen in (228)). With only *có*, however, such association is severely degraded and most speakers reported that only subject focus is available.

- (247) a. **Chỉ** (có) [cuốn sách này]_F Nam đọc __ **thôi**
 only have CL book this Nam read SFP.only
 ‘Only this book, Nam read.’ (mean=5.08/7, n=12)
- b. ??[***Có**] [cuốn sách này]_F Nam đọc __ **thôi**
 have CL book this Nam read SFP.only
 ‘Only this book, Nam read.’ (mean=3.42/7, n=12)

Whether *thôi* can be embedded under CP depends on whether there is doubling with *chỉ*. With *chỉ*, it is natural to embed *thôi* in relative clauses, subject clauses (also noun complement clauses in the examples below), and adverbial clauses. Without *chỉ*, it is at least judged as degraded, and even unacceptable for some speakers. The examples are given in (248–250).

(248) Embedding *thôi* in relative clauses

- [Học sinh mà ??(**chỉ**) đọc sách tiếng Anh **thôi**] (thì) không thích giáo viên đó.
 student REL only read book English SFP.only TOP NEG like teacher that
 ‘The student who only reads English books doesn’t like that teacher.’
- a. *thôi*: mean=4.6/7, SD=1.39, n=20
 b. *chỉ...thôi*: mean=6.45/7, SD=0.89, n=20

(249) Embedding *thôi* in subject clauses

- [Việc (mà) Nam ??(**chỉ**) đọc một cuốn sách **thôi**] làm tôi ngạc nhiên.
 fact REL Nam only read one CL book SFP.only make 1SG surprised
 ‘The fact that Nam read only one book surprised me.’
- a. *thôi*: mean=5.1/7, SD=1.21, n=20
 b. *chỉ...thôi*: mean=6.7/7, SD=0.73, n=20

(250) Embedding *thôi* in adverbial clauses

[Nếu con ??(**chỉ**) ăn thịt bò **thôi**], thì mẹ sẽ đánh con.

if 2SG only eat beef SFP.only TOP mother FUT hit 2SG

‘If you only eat beef, your mum will beat you up.’

a. *thôi*: mean=5.1/7, SD=1.59, n=20

b. *chỉ...thôi*: mean=6.8/7, SD=0.83, n=20

Now we examine *thôi*’s co-occurrence with other functional heads, including SFPs and preverbal heads. Let us first consider lower elements like sentence-final modal *được* ‘can’, which has a root modal flavor (circumstantial/abilitative) and occurs lower in the structure (e.g., within TP, see Duffield 1999; Simpson 2001; Simpson and Pham 2026; Trang Phan 2023).⁴⁵ *Thôi* follows it, as shown in (251).

(251) *Thôi* follows sentence-final modal *được*

a. Ông Quang mua một cái điện thoại được **thôi**.

Mr. Quang buy one CL phone can SFP.only

‘Quang could only buy one mobile phone.’

b. *Ông Quang mua một cái điện thoại **thôi** được.

Mr. Quang buy one CL phone SFP.only can

When we move to higher elements such as T, interestingly, *thôi* cannot occur with *đã*:

(252) *Thôi* cannot co-occur with past tense *đã*

*Nam đã mua sách **thôi**.

Nam PAST buy book SFP.only

Int.: ‘Nam only bought (the) book(s).’

Similarly, *thôi* cannot co-occur with the sentence-final perfect marker *rồi* ‘already’ (for *rồi*, see, e.g., Le 2014; Trang Phan 2023), which often co-occurs with *đã*. This is different from Cantonese *zaa3* and Mandarin *eryi*, which follow temporal SFPs *laa3* and *le* respectively.

45. *Được* has variable positions in Vietnamese, including preverbal, postverbal (suffixal), and sentence-final positions, which yield different modal flavors. See the citations above.

(253) Thôi cannot co-occur with aspectual SFP rồi

- a. *Nam mua sách rồi **thôi**
 Nam buy book already SFP.only
 Int.: 'Nam only already bought (the) book(s).'
- b. *Nam mua sách **thôi** rồi
 Nam buy book already SFP.only
 Int.: 'Nam already only bought (the) book(s).'

With regard to other SFPs above CP, surprisingly, *thôi* displays a flexibility in preceding or following them. It is necessary to bring out some background on the cartography of SFPs in Vietnamese first. Le (2014) proposes the following cartographic structure of SFPs in Vietnamese (cf. Trần Phan 2024):

(254) The cartography of SFPs in Vietnamese (Le 2014)

DiscourseP > MoodP > DeikP (for demonstrative SFPs) > ForceP (=CP) > TP

Demonstrative SFPs, such as *đấy*, comes from the demonstrative *đấy* 'that'. As an SFP, it emphatically asserts the proposition and brings out a sense of "persuading" the addressee (Nguyen 2021a, 2021b). *Thôi* may precede *đấy* and take narrow scope under it. However, it can also follow *đấy*. The examples are given in (255), which are naturalistic examples collected by Vo (2012).

(255) Thôi may precede or follow SFP đấy

- a. Đến tôi đây quần quật suốt ngày, đã ốm cà xác mà cũng chỉ được có
 even I here toil whole day, PAST sick exhausted MA also only get have
 ba lưng **thôi** đấy ...
 three back SFP.only SFP
 'Even if I worked hard for a whole day and ruined my body, I still only got three bowls.'

(Vo 2012:129)

- b. Ấy tôi chỉ được có bốn sóc cua hai xu với một mẹt tôm riu
 INTERJ I only get have four basket crab two cent with one tray shrimp small
 năm xu là bảy **đây** thôi.
 five cent COP seven SFP SFP.only
 ‘I only earned two cents for four crabs, five cents for a bunch of shrimps, and in total just seven cents.’

(Vo 2012:129)

Consider another SFP higher in the MoodP, *mà* (Le 2014, see also Trần Phan 2024). It usually reconfirms a fact that is previously known but it is not clear whether addressee believes it, as illustrated below.

- (256) Anh ấy biết e-mail của chị **mà**.
 he know e-mail of yours SFP.
 ‘(As you know), he knows your email.’ (Felicitous in a context where the listener believes that a third person does not know their email)
 (Le 2014:78)

Again, *thôi* may either precede or follow *mà*.⁴⁶

- (257) *Thôi* may precede or follow SFP *mà*

- a. Tôi làm trong chớp mắt là xong **thôi** mà.
 1SG do in blink eye COP finish SFP.only SFP
 ‘I finished it just in the blink of an eye.’
 (Vo 2012:130)
- b. Trước kia cha thương mẹ chín, mười thì bây giờ chỉ còn bốn năm
 before time father love mother nine ten TOP now only remain four five
mà **thôi**.
 SFP SFP.only
 ‘In the past, father loved mother nine or ten out of ten; now it’s only four or five.’
 (Vo 2012:101)

46. Trần Phan (p.c.) pointed out to me that in *mà thôi*, the meaning of *mà* changes when *thôi* is dropped. It is possible that *mà thôi* has become a compound SFP (which is also attested in Cantonese, C.-I. C. Wong 2014; Tang 2015b). Yet, *đấy thôi* remains compositional and is an SFP cluster. I thank Trần Phan for the insightful observations.

Note that the word order between *đấy mà* is fixed: *đấy* must precede *mà* (Le 2014, Trần Phan p.c.), so we know that it is *thôi* that has flexible word order, but not the other two SFPs.

As for the outermost elements like tag question marker *phải không* ‘right?’, *thôi* can only precede it:

(258) *Thôi* precedes question tag *phải không*

- a. Bạn có hai quyển sách **thôi** phải không?
 2SG have two CL book SFP.only right not
 ‘You have two books, right?’
- b. *Bạn có hai quyển sách phải không **thôi**?
 2SG have two CL book right not SFP.only

Summarizing, there appears to be conflicting evidence for *thôi*’s syntactic position. Some patterns suggest that it should be low in the structure, such as within TP; whereas other data suggest that it should be higher than CP. The evidence for its low position is as follows:

(259) Indicators of *thôi*’s low position

- a. *Focus association*: cannot associate with subject focus in singleton *thôi* cases. → within TP
- b. *Embedding*: can be embedded under relative, subject, and adverbial clauses when doubled with *chỉ* → within CP
- c. *Co-occurrence with other functional elements*
 - (i) May precede demonstrative SFPs and Mood SFPs → lower than DeikP, e.g., on CP
 - (ii) Incompatible with tense markers and SFPs → at T or below

The evidence of its high position is as follows:

(260) Indicators of *thôi*’s high position

- a. *Focus association*: can associate with subject focus and even moved object focus (for some speakers) with other particles → above TP or CP
- b. *Embedding*: cannot be readily embedded under relative, subject, and adverbial clauses in singleton *thôi* cases → above CP
- c. *Co-occurrence with other functional elements*: May follow demonstrative SFPs and Mood SFPs → higher than MoodP

To resolve the conflicting patterns, I propose that *thôi* is projected in two positions: the outer one is higher than CP, and the inner one is lower than TP, as in (261).

(261) The syntactic position of adverbial *thôi* ‘only’

[DiscourseP ... [**FocusP-outer** *thôi* [MoodP ... [DeikP ... [ForceP/CP ... [TP ... [**FocusP-inner** *thôi* [AspP ...

The inner *thôi* cannot associate with subjects, and may be embedded. It is located in-between Asp and T, blocking head movement of *đã* from Asp to T, and hence the ban on the co-occurrence. The outer *thôi*, on the other hand, can associate with the subjects and cannot be embedded. It also follows SFPs that are high up in the periphery, such as demonstrative and mood SFPs.

That *thôi* has two positions is reminiscent of Tang (2006b, 2012)’s proposal of Cantonese SFP *sin 1* ‘lit. first’, which has an inner use of expressing event order (in the *v*P domain) and an outer use of modifying speech acts (above CP, e.g., in interrogatives with a sense of “you tell me the answer first”). They can even co-occur, as in (262). See also Tang (2013) for similar proposals for Cantonese SFP *laa 1/3* and Mandarin SFP *le*.

(262) The inner and outer SFPs *sin 1* in Cantonese

[[Keoi sik **sin1**] mei6 **sin1**]?

3SG eat SFP SFP SFP

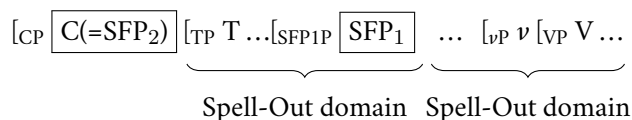
‘(Answer me first:) has s/he eaten first?’

(Tang 2006a:230)

It is also not rare to have focus in clause-external and clause-internal positions, such as focus in the low periphery and “high” periphery in Italian (Rizzi 1997; Belletti 2001, 2004), ‘even’-focus in Cantonese and Mandarin (Badan and Del Gobbo 2015; C. C.-H. Cheung 2015), object focalization in Mandarin (Chen 2023, 2025b and references therein), etc.

From a Minimalist perspective, the two positions may reflect two phase edges in the clausal domain: the CP phase edge and the *v*P phase edge. A famous theoretical problem posed by SFPs in robustly head-initial languages like Chinese (as well as Vietnamese) is that they violate the Final-over-Final Constraint (FOFC, Holmberg 2000), a universal constraint stating that head-final projections cannot dominate head-initial projections. As argued by Erlewine (2017a), if SFPs are phase heads, and if FOFC holds only in the Spell-Out domains of phases (i.e., their complements), then SFPs, even if they are analyzed head-finally, are not subject to FOFC. Of course, there can be more than two SFPs in a sentence. See Pan (2022) for a suggestion that all the SFPs project phases.

(263) Spell-Out domains of the Mandarin clausal spine (boxed=phase heads) (Erlewine 2017a:67)



Having clarified the syntax of the two particles, I discuss intervention effects in their doubling cases in the following subsection.

3.5.2.2 Intervention effects

IEs are found in Vietnamese exclusive doubling with adverbial *chỉ* and SFP *thôi*. Negation like *không* induces IEs, such shown in (264) from a storyboard.

(264) IEs of negation in Vietnamese

a. Christmas party-8 (mean=7/7, SD=0, n=20)

Nam [không **chỉ** tặng túi xách cho [CÔ ÂY]_F].

Nam not only give handbag to her

‘Nam did not only give a handbag to *her* (but he also gave one to another girl, Giang).’

b. Christmas party-8 (mean=1.7/7, SD=1.38, n=20)

*Nam [không tặng túi xách cho [CÔ ÂY]_F] **thôi**.

Nam not give handbag to her SFP.only

Int.: ‘Nam did not only give a handbag to *her* (but he also gave one to another girl, Giang).’

c. Christmas party-8 (mean=3.15/7, SD=2.56, n=20)

*Nam [không **chỉ** tặng túi xách cho [CÔ ÂY]_F] **thôi**.

Nam not only give handbag to her SFP.only

Int.: ‘Nam did not only give a handbag to *her* (but he also gave one to another girl, Giang).’

I give one more set of examples of IEs by negation from another storyboard below in (265).⁴⁷

47. Some speakers prefer using *đâu* ‘lit. where’ which can be a negator preverbally or sentence-finally (see Phan and Tsai 2025) instead of *không* here, since the context requires a strong tone.

(265) IEs of negation in Vietnamese

- a. Karaoke-12 (mean=6.16/7, SD=1.57, n=19)
Bạn [không **chỉ** hát [ba bài]_F] (mà)!
2SG not only sing three CL SFP
'You didn't only sing three (songs)!'
- b. Karaoke-12 (mean=2.06/7, SD=1.65, n=16)
*Bạn [không hát [ba bài]_F] **thôi** (mà)!
2SG not sing three CL SFP.only SFP
Int.: 'You didn't only sing three (songs)!'
- c. Karaoke-12 (mean=2.41/7, SD=2.24, n=17)
*Bạn [không **chỉ** hát [ba bài]_F] **thôi** (mà)!
2SG not only sing three CL SFP.only SFP
Int.: 'You didn't only sing three (songs)!'

Now consider modals. Permission modals like *có thể* 'may' also induce IEs, as shown in (266).

(266) IEs of modals in Vietnamese

- a. Nam [có thể **chỉ** học [tiếng Pháp]_F].
Nam may only learn French
Int.: 'It is allowed that Nam only learns *French*.' (i.e., Nam may also learn German)
- b. *Nam [có thể (**chỉ**) học [tiếng Pháp]_F] **thôi**.
Nam may only learn French SFP.only
Int.: 'It is allowed that Nam only learns *French*.'

This contrasts with cases where the modals appear lower than *chỉ*, as in (267).

- (267) Nam [**chỉ** có thể học [tiếng Pháp]_F] (**thôi**).
Nam only may learn French SFP.only
'Nam can only learn *French*.' (i.e., Nam cannot learn German)

Turning to quantificational adverbs like *thường* 'usually', unlike Cantonese and Mandarin, no IEs are observed.

(268) No IEs by quantificational adverbs

- a. Nó bình thường **chỉ** ăn thịt.
 3SG usually only eat meat
 ‘S/he usually only eats meat.’
- b. Nó bình thường ^{%(chỉ)} ăn thịt **thôi**.
 3SG usually only eat meat SFP.only
 ‘S/he usually only eats meat.’

While this seems surprising at first glance, if we assume that *bình thường* ‘usually’ must attach high enough in the TP layer to quantify over time, the lack of IEs can be explained by its higher position than the inner *thôi* below TP. In other words, the syntactic structure should be as the one in (269), where no interveners are present between *thôi* and *chỉ*. Notice also that one speaker reported that without *chỉ*, *thôi* cannot give the narrow scope reading in (268b). I assume that an outer *thôi* is parsed in that case, which is higher than *bình thường*.

(269) [_{TP} ... bình thường ‘usually’ [_{FocP-inner} *thôi* ... [*chỉ* ... VP ...

Non-witnessable quantifier subjects like *không có ai* ‘no one, lit.: not have who’ and *rất ít người* ‘few people’ also do not trigger IEs, which is again different from Cantonese and Mandarin.

(270) No IEs by negative quantifier ‘no one’

- a. Không có ai **chỉ** nộp một bản tóm tắt (mỗi người đều nộp 2 bản).
 NEG have who only submit one CL summary every person DEU submit two CL
 ‘No one only submits one abstract—everyone submits two.’
- b. Không có ai [^{*(chỉ)} nộp một bản tóm tắt **thôi**].
 NEG have who only submit one CL summary SFP.only
 ‘No one only submits one abstract.’

(271) No IEs by proportional quantifier ‘few NP’

- a. Rất ít người đi quán bar **chỉ** uống nước (không uống rượu).
 very few person go bar bar only drink water not drink alcohol
 ‘Few people goes to bar and only drinks water (without drinking alcohol).’

- b. Rất ít người [đi quán bar **chỉ** uống nước **thôi**].
 very few person go bar bar only drink water SFP.only
 ‘Few people goes to bar and only drinks water.’

Again, we may explain the lack of IEs by analyzing the occurrence of *thôi* as at an inner position, which is lower than SpecTP, where the quantifier subjects stay.

(272) [TP Q-subject [T [FocP-inner **thôi** ... [**chỉ** ... VP ...

We now turn to non-truth-conditional focus operators like additive focus. *Cũng* ‘also’ must occur below subjects and attach to the *v*P layer. Like English *also* (and *even*), it may associate with the subject “backward” as in (273b), which can be analyzed as a case of association with the lower copy of the subject in Spec*v*P (see Erlewine 2014, 2018 for English).

- (273) a. ***Cũng** Nam_F đến.
 also Nam come
 ‘Nam also came.’
 b. Nam_F **cũng** [_vP <Nam_F> đến].
 Nam also come
 ‘Nam also came.’

Now consider the co-occurrence of *cũng* with *chỉ*, as given in (274) from a storyboard. Example (274a) is the preceding sentence and Example (274b) is the target sentence. Here, *cũng* associates with the subject (F1) whereas *chỉ* associates with the object (F2). Importantly, doubling with *thôi* is attested.

(274) The lack of IEs of additive subject focus with *cũng*

- a. Karaoke-9
 Minh, bạn **chỉ** {có thể/ được} hát [ba bài]_F **thôi**.
 Minh 2SG only can may sing three CL SFP.only
 ‘Minh, you can only sing three songs.’

b. Karaoke-10

Châu, em_{F1} [cũng₁ **ch**₂ {có thể/ được} hát [ba bài]_{F2}] **thôi**.

Chau 2sg also only can may sing three CL SFP.only

'Châu, you also can only sing three songs.'

Cũng may also associate with a focus within *chi*'s scope (c-command) domain even in doubling cases with *thôi*, as in (275) with a verbal focus.

(275) The lack of IEs of additive focus *cūng*

Minh chỉ nộp một bản tóm tắt thôi. Anh ấy [cũng₁ **chỉ**₂ phản biện_{F1}] [một

Minh only submit one CL summary sfp.only 3sg also only review one

bản tóm tắt]_{F2}] **thôi.**

CL summary SFP.only

'Minh only submitted one abstract. He also only reviewed one abstract.'

3.5.2.3 Analysis

I suggest that the analysis for *zinghai-zaa3* doubling in Cantonese can be extended to Vietnamese *chì-thôi* in a straightforward way, with a minimal change of *thôi*'s positions. I focus on inner *thôi* here, which I have argued to project between TP and AspP above. I propose that in doubling cases, *thôi* is higher than *chì* and establishes an Agree dependency with it, with the effect of transmitting the index of their quantificational domain (i.e., Roothian *C* variable of alternatives).

(276) The dependency in Adv-SFP exclusive doubling in Vietnamese

$$[_{TP} \dots [_{FocP\text{-}inner} \textit{th\^o}i(C_i) [_{AspP} \dots \underline{(\text{Non-})interveners} [_{vP} \textit{ch\^i}(C_i) [\sim C_i [_{vP} p]]]]]]]]$$

The semantics of *chi* and *thôi* are proposed below, with a null counterpart of *chi*, EXCL. The semantics are the same as Cantonese *zinghai* and *zaa3*, as is the derivation of the radical immediate scope constraint and the IEs, which will be discussed later.

(277) The semantics of adverbial *chỉ*

$$\llbracket \text{chỉ/EXCL} \rrbracket(C_i) = \lambda p_{st} \lambda w_s. \mathbf{AI:} \forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$$

$$\mathbf{NAI:} p(w)$$

(278) The semantics of SFP *thôi*

$$\llbracket \text{thôi} \rrbracket(C_i) = \lambda r' \lambda w. \mathbf{AI:} r'(w)$$

$$\mathbf{NAI:} \exists p, q \in C_i[(r' \cap q = \emptyset \wedge r' \cap p \neq \emptyset) \rightarrow p <_s q]$$

There is empirical support for *thôi*'s scalarity. I give two tests below: the listing test and the superlative test. Consider a listing scenario in (279), where the alternatives are equally salient and no contextual scale is invoked. The sentence is intended to be completely neutral without any personal judgment. *Thôi* is less preferred, as compared to *chỉ*.

(279) A listing scenario in Vietnamese

There will be a party soon. You're reporting, in a neutral tone, the dietary restrictions of each person to the organizer:

a. Nam **chỉ** ăn thịt bò, Minh **chỉ** ăn thịt cừu, Lan **chỉ** ăn thịt heo, ...

Nam only eat beef Minh only eat lamb Lan only eat pork

'Nam only eats beef, Minh only eats lamb, Lan only eats pork ...'

(mean=6.93/7, SD=0.26, n=15)

b. #Nam **chỉ** ăn thịt bò **thôi**, Minh **chỉ** ăn thịt cừu **thôi**, Lan **chỉ** ăn

Nam only eat beef SFP.only Minh only eat lamb SFP.only Lan only eat

thịt heo **thôi**, ...

pork SFP.only

'Nam only eats beef, Minh only eats lamb, Lan only eats pork ...'

(mean=5.4/7, SD=1.12, n=15)

The superlative test is given below. We can see that *chỉ* again is more preferred than *thôi*.

(280) A superlative test with the upper bound in Vietnamese

You ask a teacher who is the best student. The teacher answers: Nam is the best student, because ...

a. Em ấy **chỉ** làm bài tập khó nhất

3sg only do assignment difficult most

‘He only does the hardest assignment.’

(mean=7/7, SD=0, n=13)

b. #Em ấy làm bài tập khó nhất **thôi**

3sg do assignment difficult most SFP.only

‘He only does the hardest assignment.’

(mean=5.77/7, SD=1.48, n=13)

In contrast, when the superlative targets the lower bound, *thôi* becomes more natural.

(281) A superlative test with the lower bound in Vietnamese

You ask a teacher who is the worst student. The teacher answers: Nam is the worst student, because ...

a. Em ấy **chỉ** làm bài tập dễ nhất

3sg only do assignment easy most

‘He only does the easiest assignment.’

(mean=7/7, SD=0, n=13)

b. Em ấy làm bài tập dễ nhất **thôi**

3sg do assignment easy most SFP.only

‘He only does the easiest assignment.’

(mean=6.77/7, SD=0.6, n=13)

Therefore, the exclusive doubling *chỉ* and *thôi* also instantiate a scalar focus structure, where exclusivity is encoded by *chỉ* and scalarity is encoded by *thôi*.

(282) Adv-SFP exclusive doubling realizes scalar focus structures in Vietnamese

[*thôi*_[Scalarity] ... [*chỉ*_[Exclusivity] ... XP_F ...]]
└──────────┘

They are also subject to the radical immediate scope constraint, as in (283).

(283) The radical immediate scope constraint

- a. Let the exclusive proposition (EXCL p) be r , alternative propositions excluded by *chi* be q (i.e., $[\text{EXCL } p] \models \neg q$), and the prejacent of *thôi* be r' .
- b. In the LF, no elements α may intervene between *chi* & *thôi* (i.e., α takes r and returns r'), such that:
 - (i) r does not entail r' ($r \not\subseteq r'$) and
 - (ii) there is no q incompatible with r' ($\neg \exists q [q \cap r' = \emptyset]$)
- c.
$$\left[\text{TP} \dots \left[\text{FocP-inner } \mathbf{thôi}(C_i) \left[\text{AspP} \dots \underbrace{\left(\text{(Non-)interveners} \left[\text{vP } \mathbf{chi}(C_i) \left[\sim C_i \left[\text{vP } p \right] \right] \right] \right]}_{r'} \right] \right] \right] \right]$$

Admittedly, a few speakers did not find a strong contrast between *chi* and *thôi*, especially when we consider adfocal *môi* ‘only’ which carries a much stronger scalar meaning (see Chapter 4). For example, 3 (out of 15) speakers judged both (279a) and (279b) as 7/7, and 6 (out of 13) speakers judged both (280a) and (280b) as 7/7. However, to the extent that there are IEs between *chi* and *thôi* that are regulated by the radical immediate scope constraint, we should posit that *thôi* operates on the alternatives contributed by *chi*, instead of being completely vacuous in meaning.

There are some possibilities as for why some speakers did not find a contrast. First, it could be that the contrast was too subtle to be reflected on a 1-7 likert scale, since they were also required to judge other sentences with genuine ungrammaticality instead of only infelicity in the same sessions. Second, it could be *thôi* encodes a different scalar component that are not detected by the tests developed in Chapter 2, which is not impossible given the variety in scalarity we have witnessed as Chapter 2 (§2.7). Third, it could be that *thôi* imposes some relation between the excluded alternatives and the prejacent which is always satisfied as long as there is an exclusive under its scope. Such a relation, for example, could be a non-entailment relation, as in (284). What it requires is that the excluded alternative is not entailed by the prejacent. In other words, it requires the alternative to be at least as strong as the prejacent in logical strength. This is always the case when an exclusive operator is below *thôi*’s scope: *chi* excludes alternatives that are not entailed by the prejacent.

- (284) $\forall q [(q \in C_i \wedge r \cap q = \emptyset) \rightarrow \exists p [p \in C_i \wedge r \cap p \neq \emptyset \wedge p \not\subseteq q]]$ (r = exclusive proposition)
 $\rightsquigarrow p$ is ranked lower than or equal to q in logical strength ($p \leq_{\text{logical strength}} q$)

Which possibility is more plausible requires more work in the future. The point here is that even for speakers who did not find a clear scalar contrast between *chi* and *thôi*, doubling of the two particles still displays IEs for them. This justifies a semantic dependency between the two particles in Vietnamese based on coindexation of focus alternatives.

3.5.3 Interim summary

I have extended the current scalar focus approach for Cantonese to adverbial-SFP exclusive doubling in Mandarin and Vietnamese. I showed that their doubling, with adverbial *zhi* and SFP *eryi* in Mandarin and with adverbial *chi* and SFP *thôi* in Vietnamese, also displays the same patterns of IEs: only by quantificational elements (*modulo* witnessability), but not by focus operators that do not have truth conditional effects. I proposed a unified scalar focus structure for exclusive doubling in these three languages, with a minimal difference in the syntactic positions of the SFPs: above CP for Cantonese *zaa3*, below CP but above TP for Mandarin *eryi*, and below TP for Vietnamese inner *thôi*. This also captures variations in IEs due to syntactic height differences of the SFPs. Shared by the three languages is that these SFPs all operate on the same alternatives quantified by the adverbial exclusives, deriving the IEs.

(285) Scalar focus structure of Adv-SFP exclusive doubling and IEs

(where Δ_Q = quantificational elements)

a. *Cantonese*

[FocP ***zaa3***_[Scalarity] [CP ($*\Delta_Q$) [TP ($*\Delta_Q$) [AspP/ModP ($*\Delta_Q$) [_vP ***zinghai***_[Exclusivity] ... XP_F ...

b. *Mandarin*

[CP (Δ_Q) [FocP ***eryi***_[Scalarity] [TP ($*\Delta_Q$) [AspP/ModP ($*\Delta_Q$) [_vP ***zhi***_[Exclusivity] ... XP_F ...

c. *Vietnamese*

[CP ... [TP (Δ_Q) [FocP ***thôi***_[Scalarity] [AspP/ModP ($*\Delta_Q$) [_vP ***chi***_[Exclusivity] ... XP_F ...

Chapter 4

On the typology of exclusives

This chapter explores another type of exclusive doubling, adverbial-adfocal doubling. This type is significant in three senses: (i) it is the most widely studied type of exclusive doubling; (ii) the exclusive adverbial particle is higher than the adfocal particles, which constitutes a different scopal configuration from adverbial-SFP doubling where the adverbial particle is lower; (iii) most importantly, it touches on a long-standing topic in syntax and semantics concerning the locus of quantification: whether it is in the nominal domains, as D(eterminer)-quantifiers, or in the clausal domains, as A(verbial)-quantifiers.

To investigate this topic, I contrast Vietnamese and Yorùbá, where adverbial and adfocal particles have distinct forms and can be doubled. I show that there are interesting similarities and differences. Syntactically, doubling in both languages involves (c)overt movement. Semantically, however, the locus of both quantification and scalarity are subject to cross-linguistic variation. The semantic exclusion is performed by adverbial particles in Vietnamese (A-quantification) whereas it is performed by adfocal particles in Yorùbá (D-quantification). On the other hand, the encoding of scalarity shows a mirroring pattern: adfocal particles in Vietnamese carry scalarity, whereas adverbial particles in Yorùbá signal scalarity. Methodologically, I provide a battery of tests to show the differences in the carrier of exclusive semantics, as well as the locus of scalarity. These tests can be extended to other languages.

I argue that the co-indexation developed for adverbial-SFP doubling can account for adverbial-adfocal doubling. It not only derives doubling compositionally, but also has desirable predictions that capture the locality of the (c)overt movement in doubling. It showcases how apparently syntactic locality requirements can be reduced to a semantic dependency between particles, without unwarranted syntactic stipulations.

I also extend the scope to other languages such as Kasem (Gur language; spoken in Ghana and Burkina Faso) and Mandarin, and discuss a four-way parametric typology where the exclusive semantics may be encoded by (a) the adverbial particles, (b) the adfocal particles, (c) neither of them, and (d) both of them. I discuss the implications of the typology to the view of quantification in other empirical domains and the clausal-nominal parallelism.

This chapter is organized as follows. §4.1 gives an overview of quantification and the recent move to reduce D-quantification to A-quantification. §4.2 describes the basic properties of exclusive doubling in Vietnamese and Yorùbá. §4.3 shows the similar syntactic dependency involved in exclusive doubling in both languages. §4.4 contrasts the association and scopal behavior of exclusives in the two languages, demonstrating the variations in the exclusive import (i.e., the carrier of exclusivity). I also show that there is a mirroring variation in the locus of scalarity. §4.5 offers a parametric analysis of the variations and develops the scalar focus accounts for both languages with alternative co-indexation. §4.6 extends the parametric view to form a four-way typology and discusses the logical possibilities of the parametric space.

4.1 Introduction

Quantification, as an important part of natural language meaning, has (at least) two basic apparatuses: **D-quantification** (e.g., determiner *every*) and **A-quantification** (e.g., adverb *always*) (e.g., Partee 1991; Chierchia 2021). Exclusive focus particles like *only* are remarkable in seemingly allowing for both modes: the adfocal use resembles D-quantification and the adverbial use resembles A-quantification (Horn 1969; Jackendoff 1972; Taglicht 1984; Rooth 1985; Büring and Hartmann 2001, *i.a.*):¹

- (1) a. John gave **only**_{adfoc} MARY a book (adfocal only)
 b. John **only**_{adv} gave MARY a book (adverbial only)

There are two views on the semantic type of these uses of *only* focusing on this adverbial and adfocal distinction. Under the type-ambiguity view (Rooth 1985, 1992; Coppock and Beaver 2014; cf.

1. There is also an adjectival use of *only*, though less discussed (cf. Coppock and Beaver 2014).

(i) a. The **only**_{Adj} thought of food makes me hungry.

b. She better be glad that falsifying student records is the **only**_{Adj} thing she is being investigated for!

c. My son is an **only**_{Adj} child—an **only**_{Adj} cousin, even—so I couldn't let him hunt alone!

(Coppock and Beaver 2014:375,391,411)

Horn 1969), the adfocal use is assumed to be a D-quantifier ($\langle e, \langle et, t \rangle \rangle$), whereas the adverbial use is assumed to be an A-quantifier, either as a VP operator (Rooth 1992) or a sentential propositional operator ($\langle st, t \rangle$; cf. Alonso-Ovalle and Hirsch 2022). Two sample entries are given below:

- (2) Adfocal *only* as two-place operator (D-quantifier)

$$\llbracket \text{only}_{\text{Adfoc}} \rrbracket = \lambda x. \lambda P. \forall y [P(y) \rightarrow y = x] \quad (\text{formulation simplified})$$

- (3) Adverbial *only* as one-place propositional operator

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

Coppock and Beaver (2014) comprehensively study different exclusive morphemes in English and propose the type parameter, consisting of four semantic types. The entries are type-shifted from Beaver and Clark (2008)’s propositional (scalar) entry (4d), given in (5) ($p = \langle s, t \rangle$ below).

- (4) a. P-ONLY: property ($\langle e, p \rangle$) modifiers ($\text{only}_{\text{Adfoc}} + N, \text{only}_{\text{Adv}}, \text{only}_{\text{Adj}}$)

- b. Q-ONLY: quantifier ($\langle \langle e, p \rangle, p \rangle$) modifiers ($\text{only}_{\text{Adfoc}} + GQ$)

- c. R-ONLY: relation ($\langle e, \langle e, p \rangle \rangle$) modifiers ($\text{only}_{\text{Adj}} + \text{relational nouns like } child$)

- d. ONLY: propositional (p) modifiers

- (5) $\llbracket \text{only} \rrbracket = \lambda p. \lambda w : \text{MIN}_S(p)(w). \text{MAX}_S(p)$ (CQ = current question under discussion)

a. $\text{MIN}_S(p) = \lambda w. \exists p' \in \text{CQS}[p'(w) \wedge p' \geq_S p]$

b. $\text{MAX}_S(p) = \lambda w. \forall p' \in \text{CQS}[p'(w) \rightarrow p \geq_S p']$

There is, however, a recent line of research that tries to reduce D-quantification to A-quantification (Carlson 1983, 2006; Kratzer and Shimoyama 2002; Kratzer 2005; Szabolcsi 2015, 2017, 2018, 2024). The rationale behind is that the surface position of the D-quantifiers does not match with the expected scope position. In some cases, the (apparent) D-quantifiers may even be “doubled” with the A-quantifiers, but the meaning is interpreted as if there is only one quantificational element. We have discussed them in Chapter 1. Cases include negative concord (Labov 1972; Laka 1990; Zanuttini 1991; Haegeman and Zanuttini 1991, 1996; Giannakidou 2000; Zeijlstra 2004, 2022, and reference therein), universal concord (Dong 2009; C.-y. E. Tsai 2015; Yip 2022b), distributive concord (Oh 2006; Henderson 2014; Kuhn 2017; Kuhn and Aristodemo 2017; Rushiti 2019; J. H.-K. Law 2019, cf. Cable 2014), existential concord (Kratzer and Shimoyama 2002; Kratzer 2005), among many others.

For exclusive particles, it has been argued forcefully that the adfocal particles are not D-quantifiers,

but a concord particle that signals an exclusive operator, including in Dutch, English, German, Kasem, Korean, Mandarin, Vietnamese, etc. (Bayer 1996; Y. Lee 2005; Quek and Hirsch 2017; Bassi, Hirsch, and Trinh 2022; Hirsch 2022; Sun 2021; Branan and Erlewine 2023; Aremu 2026, *i.a.*). These various authors have argued for a propositional entry of exclusive focus particles.

- (6) Argued to be the only entry in languages like English and Vietnamese

$$\llbracket \text{only}/OP_{EXCL} \rrbracket(ALT) = \lambda p \lambda w : p(w). \forall q [(q \in ALT \wedge q(w)) \rightarrow p \subseteq q]$$

- (7) Argued to be non-existent in languages like English and Vietnamese

$$*\llbracket \text{only} \rrbracket = \lambda x. \lambda P. \forall y [P(y) \rightarrow y = x] \quad (\text{formulation simplified})$$

- (8) $\boxed{OP_{EXCL}}$ [VP ... Prt-XP_F] (Vietnamese; English)

(box indicates where the semantic import of exclusives is from)

In this chapter, I argue that the propositional-operator-only view is too strong and **cannot** be universal. I argue that both D-quantification and A-quantification strategies are available in the semantic domain of exclusives, but the choice is **parameterized** by individual languages. Concretely, some languages may have a propositional operator entry manifested as the adverbial particles, some other languages may have a (D-)quantifier entry manifested as the adfocal particles.

- (9) A parametric view on exclusive focus particles (adverbial-adfocal doubling)

- a. *Type I: doubling, adverbial particle* = OP_{EXCL}

$$\boxed{OP_{EXCL}} [\text{VP} \dots \text{Prt-XP}_F] \quad (\text{Vietnamese, English})$$

- b. *Type II: doubling, adfocal particle* = Qu_{EXCL}

$$\text{Prt} [\text{VP} \dots \boxed{Qu_{EXCL}} \text{-XP}_F] \quad (\text{Yorùbá})$$

- c. *Type III: doubling, $OP_{EXCL} = \text{null}$*

$$\boxed{OP_{EXCL} - \emptyset} \dots \text{Prt} [\text{VP} \dots \text{Prt-XP}_F] \quad (\text{Kasem})$$

- d. *Type IV: no doubling, with OP_{EXCL} & Qu_{EXCL}*

$$\boxed{OP_{EXCL}} [\text{VP} \dots \boxed{Qu_{EXCL}} \text{-XP}_F] \quad (\text{Mandarin})$$

I further suggest that the two strategies should in principle be available for other semantic domains, such as negation. As will be briefly addressed in Chapter 5, the view is supported by a parallelism with the typology of negative concord.

4.2 Exclusive doubling in Vietnamese and Yorùbá

Throughout the chapter, the Vietnamese data were collected from elicitation sessions with native speakers (n=4) and during two field trips to Vietnam (n=33, see §1.3.4 for details). Unless with further specification, all the data based on the storyboards in this section were elicited from 19 to 24 consultants. The Yorùbá data were obtained through elicitation sessions with 4-6 native speakers (cf. §1.3.4).

4.2.1 Basic paradigm in Vietnamese

In Vietnamese, the adverbial particle *chỉ* ‘only’ and adfocal particle *mỗi* ‘only’ may be used alone to express exclusivity as in (10a)-(10b).² Note that *mỗi*, like English *only*_{adfoc}, precedes the focused element.³ The two particles may also be doubled with a single focus association (indirect object *cô ấy* ‘her’), as in (10). Such a doubling pattern has been discussed by Hole (2013, 2017), Erlewine (2017b), Quek and Hirsch (2017), Park (2020), and Sun (2020, 2021).

(10) Adverbial-adfocal exclusive doubling in Vietnamese (VN)

- | | | |
|----|--|-------------|
| a. | Nam chỉ tặng hoa cho [cô ấy] _F . | (Adverbial) |
| | Nam only give flower to her | |
| | ‘Nam only gave flowers to <i>her</i> .’ | |
| b. | Nam tặng hoa cho mỗi [cô ấy] _F . | (Adfocal) |
| | Nam give flower to only her | |
| | ‘Nam gave flowers only to <i>her</i> .’ | |
| c. | Nam chỉ tặng hoa cho mỗi [cô ấy] _F . | (Doubling) |
| | Nam only give flower to only her | |
| | ‘Nam only gave flowers to <i>her</i> .’ (Lit.: ‘Nam only gave flowers only to <i>her</i> .’) | |

2. Some speakers find using *mỗi* alone to be less natural (but still acceptable). They prefer to use it in doubling as in (10c), or with an exclusive sentence-final particle (SFP) *thôi* ‘only’.

3. *Only*_{adfoc} may sometimes follow the focused constituent, as in (ib) below. Note that these subject focus cases quite restricted and seem to be idiomatized, and the stress does not seem to fall on the focus *God* (Michael Yoshitaka Erlewine p.c.) (cf. ic).

- | | | | |
|--------|---------------------------------|----|----------------------|
| (i) a. | [Only GOD _F] knows. | c. | ??[JOHN only] knows. |
| b. | [God _F only] knows. | | |

*Only*_{adfoc} may also attach to constituents in verbless imperatives as in (iia) (cf. Donovan 2022) and in clause-final position as in (iib). It is again restricted; such post-focal attachment is very marked (if not impossible) in non-clause-final positions.

- | | | | |
|--------|--|----|--|
| (i) a. | Customer only. | c. | ??John gave [FLOWERS _F only] to Mary. |
| b. | John gave flowers [to MARY _F only]. | | |

There is a lot of discussion on the properties of *chỉ* and *mỗi* in the literature (Hole 2013, 2017; Erlewine 2017b; Sun 2021, among others). In Chapter 3 (§3.5.2), I have provided a detailed description of *chỉ* and argued that it has flexible adjunction sites between CP and VP, as in (11). I do not reproduce the data for *chỉ* here.

(11) The syntactic position of adverbial *chỉ* ‘only’

[CP Δ [TP Δ [vP Δ [VP Δ [V V *Δ Obj *Δ ...

Flexible adjunction sites of *chỉ*

Below, I provide a brief description of *mỗi*’s syntactic distribution and focus association. First, it is an adfocal particle and attaches to the left of the focus. It can associate with DP focus, but not with VP focus, as shown in the set of sentences elicited from a storyboard (see Appendix B) below.

(12) Association with focus of *mỗi*

a. Christmas party-5

Mỗi Linh_F nói đồng ý. (Subject focus)

only Linh say agree

‘Only *Linh* (but not other people) said yes.’

b. Christmas party-7

Nam tặng **mỗi** [túi xách]_F cho cô ấy. (DO focus)

Nam give only handbag to her

‘Nam only gave a *handbag* (but not flowers) to her.’

c. Christmas party-6

Nam tặng hoa cho **mỗi** [cô ấy]_F. (IO focus)

Nam give flowers to only her

‘Nam gave a handbag to *her* (but not other girls).’

d. Christmas party-10

*Nam nghĩ mình nên **mỗi** [tặng hoa cho Linh]_F. (VP focus)

Nam think self should only give flowers to Linh

Int.: ‘N. thinks he should *only given flowers to L.*’ (should not give handbags to other girls)

Second, *mỗi* only occurs at the outermost shell of a DP. It cannot occur within a DP. Although the intended focus in (13b) can be understood as the NP ‘magazine’, *mỗi* still cannot occur right next to it.

- (13) a. Nam (chỉ) đọc **mỗi** [tạp chí]_F, không đọc sách.
 Nam only read only magazine, not read book
 ‘Nam only read *magazines* and did not read books.’
- b. Nam (chỉ) đọc **mỗi** [mấy quyển tạp chí]_F này], không đọc những quyển sách này.
 Nam only read only several CL mag. this, not read PL CL book this
 ‘Nam only read these several *magazines* and did not read these books.’
- c. Nam (chỉ) đọc [mấy (***mỗi**) quyển (***mỗi**) tạp chí_F (***mỗi**) này], không đọc những
 Nam only read several only CL only mag. only this, not read PL
 quyển sách này.
 CL book this
 ‘Nam read (only) these several (only) *magazines* and did not read these books.’

Interestingly, *mỗi* cannot occur with the plural marker *những* (see Phan and Chierchia 2022; Cao 2025 for Vietnamese plurals), as in (13d). This seems to suggest that *mỗi* and *những* compete for the highest projection on the nominal domain. Relatedly, I observe that *những* used with a numeral triggers a surprise/“higher than expectation” reading, as in (13e). A semantic explanation could be that *những* conflicts with *mỗi*’s “lower than expectation” reading (see §4.4.5).

- (13) d. *Nam chỉ đọc **mỗi** [những quyển tạp chí]_F này].
 Nam only read only PL CL magazine this
 Int.: ‘Nam only read these *magazines* (and did not read these books).’
- e. *I thought Nam would only read one or even no magazines, but he read several/three.*
 Nam đọc [những ba/mấy quyển tạp chí]!
 Nam read PL three/several CL magazine
 ‘Nam read three/several magazines! (more than what I expected!)’

For the dative-preposition-like *cho* ‘to/give’, *mỗi* must occur after it, adjacent to the DP.

- (14) Dative *cho* ‘to’ PP
 Lan (chỉ) đưa [một cuốn sách] {a. ***mỗi**} [PP cho {b. **mỗi**} Nam]_F
 Lan only give one CL book only to only Nam
 ‘Lan gave a book to only *Nam*.’

Interestingly, there seems to be some flexibility around other PPs, resembling English adfocal *only* which can occur before or after the preposition (see Bouma, Hendricks, and Hoeksema 2007 for a corpus study). Nevertheless, adjacency to the DP is still preferred.⁴

(15) Locative ở ‘at’ PP

- a. Hôm qua Lan (chỉ) làm bài tập **mỗi** [PP ở thư viện]_F
 yesterday Lan only do homework only at library
 ‘Yesterday, Lan did homework only *at the library*.’
- b. Hôm qua Lan (chỉ) làm bài tập [PP ở **mỗi** thư viện]_F (preferred)
 yesterday Lan only do homework at only library
 ‘Yesterday, Lan did homework at only *the library*.’

(16) Locative trong ‘in’ PP

- a. Hôm qua Lan (chỉ) làm bài tập **mỗi** [PP trong thư viện]_F
 yesterday Lan only do homework only in library
 ‘Yesterday, Lan did homework only *in the library*.’
- b. Hôm qua Lan (chỉ) làm bài tập [PP trong **mỗi** thư viện]_F (preferred)
 yesterday Lan only do homework in only library
 ‘Yesterday, Lan did homework in only *the library*.’

(17) Temporal trong ‘in’ PP

- a. Lan (chỉ) làm bài tập **mỗi** [PP trong tuần này]_F
 Lan only do homework only in week this
 ‘Lan does homework only *on this week*.’
- b. Lan (chỉ) làm bài tập [PP trong **mỗi** tuần này]_F (preferred)
 Lan only do homework in only week this
 ‘Lan does homework on only *this week*.’

4. However, for the preposition *lúc* ‘at’, *mỗi* can only occur outside the whole PP:

(i) Temporal lúc ‘at’ PP

*Hôm qua Lan (chỉ) làm bài tập {a. **mỗi**} [PP lúc {b. ***mỗi**} 9 giờ sáng]_F
 yesterday Lan only do homework only at only 9 o’clock morning
 Int.: ‘Yesterday, Lan did homework at only *9 am (morning)*.’

Third, *mỗi* can associate with *wh*-nominals, which behaves like adverbial *chỉ* (see also Li and Law 2016; Erlewine 2025 for association with *wh*-words of *zhi* ‘only’ in Mandarin).⁵

(18) Association with *wh*-nominals

- a. Nó **chỉ** ăn [cái gì]_F?
3sg only eat what
Lit.: ‘S/he only ate *what*?’ i.e., ‘What is x such that s/he only ate x?’
- b. Nó ăn **mỗi** [cái gì]_F?
3sg eat only what
Lit.: ‘S/he ate only *what*?’ i.e., ‘What is x such that s/he ate only x?’
- c. Nó **chỉ** ăn **mỗi** [cái gì]_F?
3sg only eat only what
Lit.: ‘S/he only ate only *what*?’ i.e., ‘What is x such that s/he only ate x?’

I suggest that *mỗi* attaches to a DP with focus (F-marking), labeled as QP as in (19). It is the highest projection on the nominal domain.

(19) The syntax of adfocal *mỗi* ‘only’

[_{QP} ***mỗi*** DP_F]

Before proceeding, two notes are in order. The first one is on homophones. *Mỗi* can also mean ‘each’, similar to *mọi* ‘every’ (see Cao 2025 for a detailed study for their differences). This use should be distinguished from the adfocal exclusive particle *mỗi* ‘only’. I assume that they are different morphemes.

- (20) **Mỗi** người có một cuốn sách.
each person have one CL book
‘Each person has one book.’

The second one is on dialectal variation. Adfocal *mỗi* ‘only’ is mainly used by Northern Vietnamese speakers such as those from Hanoi. While my consultants from the South (e.g., from Ho Chi Minh City and from Dalat) were also able to judge the meaning and acceptability of sentences with adfocal *mỗi*, they uniformly reported to me that this use kind of *mỗi* sounds *Miền Bắc* ‘Northern’ to them.

5. SFP *thôi* ‘only’ is usually degraded when associating with *wh*-words. Similar degradation is found with Cantonese SFP *zaa3* and Mandarin SFP *eryi*.

4.2.2 Basic paradigm in Yorùbá

A similar paradigm of exclusive doubling is found in Yorùbá. The adverbial particle *kàn* ‘only’ and the adfocal particle *nìkan* ‘only’ give rise to exclusive readings when used alone in (21a-b), but they may also be doubled and share the same focus associate (indirect object *Adé*) in (21c). *Nìkan*, unlike Vietnamese *mỗi* and English *only*_{adfoc}, follows the focused constituent instead. The two particles are noted in passing by Bisang and Sonaiya (2000, 190).

(21) Adverbial-adfocal exclusive doubling in Yorùbá (YO)

- a. Ayò **kàn** fún [Adé]_F ní iwé (Adverbial)
 Ayo only give Ade SEC book
 ‘Ayo only gave Ade a book.’
- b. Ayò fún [Adé]_F **nìkan** ní iwé (Adfocal)
 Ayo give Ade only SEC book
 ‘Ayo only gave Ade a book.’
- c. Ayò **kàn** fún [Adé]_F **nìkan** ní iwé (Doubling)
 Ayo only give Ade only SEC book
 ‘Ayo only gave Ade a book.’

Unlike Vietnamese, Yorùbá has been largely understudied with respect to exclusive focus particles (with the rare exception of my joint work, Yip and Adedeji 2024, and a recent study, Aremu 2026). It is thus useful to give some basic properties of both particles. Before proceeding, I note that Yorùbá has two more adfocal exclusive particles. One is *lásán* ‘only, just’ (reported in my earlier work, Yip 2021; Yip and Adedeji 2024; see also Aremu 2026), which performs a scalar exclusion (exclusion based on non-logical scales) rather than an entailment-based exclusion.

- (22) Ìdà ọ̀gọ̀rín_F **lásán** ní John (kàn) gbà nínú ẹ̀kọ̀ Faranse.
 present eighty just FOC John only get inside course French
 ‘John only got 80 points for French.’ (while Mary got 90 points!) (Yip and Adedeji 2024, ex.5)

Another one is *péré*, which is recently discussed by Aremu (2026). It also expresses a scalar reading, implying “little” or “insufficient”.

- (23) *Tolu promised his wife to buy five fish on his way home. So, his wife was expecting five fish. However, he only got two fish.*

Tolú (kàn) rà ẹja méjì_F **péré**.

Tolu only buy fish two only

‘Tolu bought only *two* fish.’ $\rightsquigarrow$ Meaning: That Tolu bought *two* fish is little/insufficient (not bad), contrary to expectation.’

(Aremu 2026:141)

I will focus on *nikan* and *kàn* throughout this chapter, with some discussion of *lásán* in §4.4.5.

4.2.2.1 Adfocal *nikan*

Let us discuss association with focus of the adfocal particle *nikan* first. Its syntactic position depends on the position of the focus associate. *Nikan* attaches to the right of an in-situ focus, as shown in (24).⁶ Association at a distance is not possible. *Nikan* may attach to any argument in a clause, or even a VP, but not to a verb. When *nikan* is at the clause-final position, focus association is ambiguous between the VP and the last argument (i.e., the direct object in (24d))—but it cannot be the direct object at a distance.

- (24) a. Ayò_F **nikan** fún Ade ní ìwé (Subj focus)
 Ayo only give Ade SEC book
 ‘Only Ayo (but not Akin) gave Ade a book.’
- b. *Ayò fún_F **nikan** Ade ní ìwé (*V focus)
 Ayo give only Ade SEC book
 Int.: ‘Ayo only *gave* Ade a book (but not selling).’
- c. Ayò fún Ade_F **nikan** ní ìwé (IO focus)
 Ayo give Ade only SEC book
 ‘Ayo gave only Ade (but not Olu) a book.’

6. This is different from English adfocal *only* which attaches to the left of the focus. We do not discuss the difference further, but see Carstens and Zeller (2020) for a discussion on phrase-final exclusive particles.

d. Ayò f[ún Ade_{*F} ní iwé_{F}]_{F} **nìkan** (DO focus/VP focus/*IO focus)

Ayo give Ade SEC book only

i. 'Ayo gave only *a book* (but not a drawing).'

ii. 'Ayo only *gave Ade a book* (but not selling Olu a drawing).'

Moreover, *nìkan* may associate with a DP-internal focus, as in (25), where (i)-(ii) represent association with the head noun *iwé* 'book' and the modifier *Faransé* 'French' respectively. Reading (i) is an exceptional case where *nìkan* is not adjacent to the focus, which I take to be a last resort strategy since *nìkan* cannot appear within a DP, as in (26).

(25) Adé fẹ̀ràn [iwé_{i, F} Faransé_{iii, F}]_{iii, F} **nìkan**.

Ade like book French only

Lit.: 'Ade likes only French books.'

i. (Q: Does Ade like French drawings? A: No, ...) 'Ade only likes French *books*.' (He actually likes books of any language.)

ii. (Q: Does Ade like drawings and books? A: Ade likes drawings, but ...) 'Ade only like *French* books.' (He doesn't like non-French books.)

iii. (Q: What does Ade like? A: ...) 'Ade likes *French books*.' (He likes nothing else.)

(26) *Adé fẹ̀ràn [iwé **nìkan** Faransé].

Ade like book only French

Int.: 'Ade likes only French *books*.'

When the focus is ex-situ, *nìkan* moves along to the clause initial position, followed by the focus marker *ni* (Awóbùlúyì 1978; Bisang and Sonaiya 2000; Aremu 2024), as in (27).

(27) a. Akín şe German_F **nìkan** (*ni) lẹ̀ẹ̀mejì

Akin do German only FOC twice

'Akin only took *German* twice.'

b. German_F **nìkan** ni Akín şe __ lẹ̀ẹ̀mejì

German only FOC Akin do twice

'It is only *German* that Akin took twice.'

While *nikan* cannot follow a verb for verbal focus, it can attach to a verb that undergoes focus movement. Focus movement of verbs requires nominalization (as indicated by the prefix *Ci-*, where *C* is the onset of the verb), and leads to verb doubling.

(28) Ex-situ verb focus

- a. *Adé mú_F **nikan** German.
 Ade take only German
 Int.: ‘Ade only *took* German. (and didn’t speak it fluently)’
- b. Mí-mú_F **nikan** ni Adé mú German.
 NMLZ-take only FOC Ade take German
 ‘Ade only *took* German. (and didn’t speak it fluently)’

Note that *nikan* may also associate with clauses with focus movement, including the complement clause in (29a) and the adjunct/adverbial clause in (29b).⁷ For simplicity, I focus on the nominal cases throughout the chapter.

(29) Clausal focus

- a. [pé ó fèràn Adé]_F **nikan** ni John sọ
 that 3SG love Ade only FOC John say
 ‘The only thing John said is *that he loves Ade*.’
- b. [Tí John bá jẹ ògèdè]_F **nikan** ni ikùn máa dùn ún
 when John if eat banana only FOC stomach will pain 3SG
 ‘Only *when John eats a banana*, his tummy will feel bad.’

I also briefly discuss the interaction of adjuncts and focus movement below. As observed by Carstens (1987), extraction of adjuncts requires spelling out *ti*, *fi*, or *se* in the preverbal field, as illustrated in (30) with locative PP adjuncts.⁸ The same patterns are observed for manner and reason adjuncts (but not for time adjuncts).

7. (29a) has an alternative reading: ‘John said that the only one John loves is Ade’, where the associate is the embedded object ‘Ade’ and the whole CP is pied-piped with the focus.

8. Carstens (1987) treats these three morphemes as expletives serving to “identify the head of the chain containing the adjunct trace” (p.69), as a surrogate strategy of antecedent government. As we will see in (33b), *ti* expresses perfective aspect. Independently, *fi* means ‘use’ and *se* mean ‘do’ (which can also be a light verb).

- (30) a. Àlàkẹ́ (**ti**) şéré ní ìta. (in-situ)
 Alake PFV play at outside
 ‘Alake played outside’
- b. Níbo ni Àlàkẹ́ ***(ti)** şéré __. (wh-movement)
 where FOC Alake PFV play
 ‘Where did Alake play?’
 (Adapted from Carstens 1987:62-63, progressive *ní* removed)

Turning to *nikan*, it may associate with nominals within a PP adjunct, as in (31). Interestingly, *ti* is required once the adjunct undergoes focus movement. Note that the preposition *ní* is absent after movement: it cannot be pied-piped, nor can it be stranded.

- (31) Locative adjunct focus
- a. Àlàkẹ́ (**ti**) şéré ní ìta_F **nikan**. (in-situ)
 Alake PFV play at outside only
 ‘Alake only played *outside*.’
- b. Ìta_F **nikan** ni Àlàkẹ́ ***(ti)** şéré __. (focus movement)
 outside only FOC Alake PFV play
 ‘It was only *outside* that Alake played.’

4.2.2.2 Preverbal *kàn*

Now we turn to the preverbal particle *kàn*. First, it has a fixed syntactic position. As shown in (32), it may only occur between the subject and verb.

- (32) a. (***kàn**) Ayọ́ (**kàn**) fún (***kàn**) Adé (***kàn**) ní ìwé (***kàn**)
 only Ayo only give only Ade only SEC book only
 ‘Ayo only gave Ade a book.’

(33a) gives the general clausal schema in Yorùbá, where only particles may occur between the subject and the verb. Adjuncts can only occur in clause-initial or clause-final positions. In the preverbal field, the particles also have a fixed word order, as summarized in (33b).

(33) a. The general clausal schema in Yorùbá

Adjunct — Topic/Focus — COMP — S — **Particles** — V — O — Adjunct

b. The preverbal field in Yorùbá

S — NEG — Q/ONLY — MUST — HAB/PFV — MAY/PROG — V

S — *kò/kìí* — *ha/kàn* — *gbọdọ* — *máa/ti* — *lè/ń* — V

The examples in (34) show that *kàn* occurs after the negation, but before other particles including modal and aspectual particles. It occupies the same slot as the question particle *ha* and cannot co-occur with it.⁹

(34) a. Adé {*kò/kìí*} **kàn** {**kò/*kìí*} jẹ ìrẹ̀sìf. (NEG > *kàn*, **kàn* > NEG)

Ade NEG/NEG.HAB only NEG/NEG.HAB eat rice

‘Ade didn’t only eat *rice* / Ade doesn’t only eat *rice*.’

b. *Sẹ Adé {*ha*} **kàn** {*ha*} ka ìwé kan_F nìkan? (*Q > *kàn*, **kàn* > Q)

Q Ade Q only Q read book one only

Int.: ‘Does Ade only read *one* book?’

c. Adé {**gbọdọ*} **kàn** {*gbọdọ*} jẹ ìrẹ̀sìf. (*MUST > *kàn*, *kàn* > MUST)

Ade must only must eat rice

‘Ade only must eat *rice*.’ (only *rice* is compulsory; meat is optional)

NOT: ‘Ade must only eat *rice*.’ (meat is prohibited)

d. Adé {**tí*} **kàn** {*tí*} ka ìwé kan_F. (*PFV > *kàn*, *kàn* > PFV)

Ade PFV only PFV read book one

‘Ade has only read *one* book.’

9. Aremu (2026, 198n47) reported that the order *lè kàn* is grammatical. His example in (i-b) below is outright ungrammatical for all of my Yorùbá consultants, based on the Standard Yorùbá variety. My consultants only accept *kàn lè*. I am not aware of any ordering flexibility of *kàn* with respect to other preverbal particles. Indeed, these particles are usually rigid in order. Only particles below modal *lè* ‘may’ and progressive *ń*, like *tún* ‘again, also’ and *dá* ‘alone’, have some flexibility in linear ordering. I leave the issue of dialectal/individual variation to future work.

(i) a. Tolú **kàn lè** jẹ ị̀sù_F nìkan.

Tolu only can eat yam only

‘Tolu can eat only *yam*.’

b. *Tolú *lè kàn* jẹ ị̀sù_F nìkan.

Tolu can only eat yam only

(judged grammatical by Aremu 2026:198n47)

- e. Adé {*ń} **kàn** {ń} ka ìwé_F. (*PROG > *kàn*, *kàn* > PROG)

Ade PROG only PROG read book

‘Ade is only reading *books*.’

Unlike *nikan*, the focus association of *kàn* may be at a distance. As shown in (35), it may associate with any element under its c-command domain, such as the verb, direct and indirect objects, and VP, but not the subject which is outside its c-command domain. The initial pattern is similar to English adverbial *only*.

- (35) a. Ayò **kàn** [fún_{i, F} Adé_{iii, F} [ní ìwé]_{iii, F}]_{iv, F} (V/IO/DO/VP focus)

Ayo only give Ade SEC book

i. ‘Ayo only gave Ade a book.’

ii. ‘Ayo only gave Ade a book.’

iii. ‘Ayo only gave Ade a book.’

iv. ‘Ayo only gave Ade a book.’

Before proceeding, there is a brief note on the morphology of *nikan*. The two syllables in *nikan*, *nì* (low tone) and *kan* (mid-tone), seem to be related to the focus marker *nì* (mid-tone) and the preverbal exclusive particle *kàn* (low tone), although the tones are different. If one also considers the morpheme *kan* (mid-tone) ‘one’ and how English *only* is developed from Old English *anlic*, consisting of *an* ‘one’ and *lic* ‘like’ (later developed to *-ly*) (Onions 1966), it is tempting to claim that *kan* ‘one’ developed into both *kàn* and *nikan* with an extra low tone docking to the first syllable. Unfortunately, there are no sufficient historical resources of early Yorùbá for me to track the etymology of both focus particles.

4.3 Similarity: syntactic dependency

As I will show below, exclusive doubling in Vietnamese and Yorùbá share in common a syntactic dependency between the adverbial particle and the adfocal particle. Specifically, *covert movement* of the adfocal particles is involved, as schematized in (36) (abstracting away from the landing site and movement triggers, see §4.5 for greater details).

(36) Covert movement in exclusive doubling

- a. [... **chỉ** [_{VP} [_{VP} ... **mỗi**-DP_F ...]]] [Vietnamese]

- b. [... **kàn** [_{VP} [_{VP} ... DP_F-**nìkàn** ...]]] [Yorùbá]


4.3.1 Wide scope readings

First, the adfocal particles in both languages, when embedded in a complement clause taken by a matrix verb, are ambiguous between a narrow scope reading and a wide scope reading. For expository purposes, I illustrate the scopal ambiguity in English first. In (37), adfocal *only* is embedded in the complement clause taken by the attitude verb *know*, and may either take narrow scope under it (=a) or wide scope over it (=b) (see Taglicht 1984; Rooth 1985, *i.a.*).

(37) I knew [(that) he had learnt **only** SPANISH_F]. (Taglicht 1984:150)

- a. I knew that he had only learnt *Spanish*, i.e., hadn't learnt any other language
 (Narrow scope: know > only)
- b. I only knew that he had learnt *Spanish*, i.e., didn't know about any other language
 (Wide scope: only > know)

4.3.1.1 Vietnamese

In Vietnamese, adfocal *mỗi* also allows for both narrow and wide scope readings, as in (38) with *mỗi* embedded in a non-finite clause. To disambiguate, adverbial *chỉ* may be added to corresponding scope positions.

(38) Exclusive doubling across nonfinite TP boundaries in Vietnamese

- a. Thầy giáo bắt Nam [(**chỉ**) học **mỗi** [tiếng Pháp]_F]. (Không được học tiếng Anh.)
 teacher force Nam only study only French not may study English
 'The teacher forces John to only take *French*. (Cannot study English)'
 (Narrow scope: force > only)

- b. Thầy giáo (**chỉ**) bắt Nam [học **mỗi** [tiếng Pháp]_F]. (Không bắt Nam học
teacher only force Nam study only French not force Nam study
tiếng Anh).

English

‘The teacher only forces John to take *French*.’ (Doesn’t force Nam to study English)

(Wide scope: only > know)

Exclusive doubling is possible across finite CP boundaries as well, as shown in (39b), as compared to (39a) where the doubling is local.

(39) Exclusive doubling across finite CP boundaries in Vietnamese

- a. Thầy giáo biết [_{CP} là Nam (**chỉ**) học **mỗi** [tiếng Pháp]_F] (và biết Nam
teacher know COMP Nam only study only French and know Nam
không học tiếng Anh).
not study English

‘The teacher knows that Nam only took *French* (, and knows that Nam didn’t take English).’

(Narrow scope: know > only)

- b. Thầy giáo (**chỉ**) biết [_{CP} là Nam học **mỗi** [tiếng Pháp]_F] (không biết Nam
teacher only know COMP Nam study only French not know Nam
có học tiếng Anh).
have study English

‘The teacher only knows that Nam took *French* (, and doesn’t know that Nam took English).’

(Wide scope: only > know)

4.3.1.2 Yorùbá

Similarly, *nìkan* in Yorùbá also allows for the scopal ambiguity, as illustrated in (40) with a nonfinite clause taken by an object control verb. *Nìkan* may either take narrow scope under the embedding verb ‘allow/permit’ or wide scope above it, giving rise to different truth conditions, as signaled by the continuations in translations.

(40) Scopal ambiguity across object control clause boundaries in Yorùbá

Olùkò náà gba John láàyè [láti ɕe German_F **nìkan**].

teacher the permit John give.chance to do German only

i. 'The teacher allows John to only take *German*.' (John can take French if he likes) (permit > only)

ii. 'The teacher only allows John to take *German*.' (John cannot take French) (only > permit)

I give one more example with subject control clauses, taken by *kò* 'refuse' ($\neq$ negation *kò*). Similarly, *nìkan* shows scopal ambiguities in (41).

(41) Scopal ambiguity across subject control clause boundaries in Yorùbá

Ade *kò* [láti gbe omi_F **nìkan** wá].

Ade refuse to bring water only come

i. 'Ade refused to only bring *water*.' $\rightsquigarrow$ Ade wants to bring both wine and water. (refuse > only)

ii. 'Ade only refused to bring *water*.' $\rightsquigarrow$ Ade wants to bring wine but not water. (only > refuse)

Such an ambiguity is also found with finite clauses as in (42). Disambiguation can be achieved by placing *kàn* in the corresponding scope position. We thus see a case where the two particles are doubled across a finite CP boundary in (42c).

(42) Exclusive doubling across finite CP boundaries in Yorùbá

a. Olùkò mò [pé John ɕe [German]_F **nìkan**].

teacher know COMP John do German only

i. 'The teacher knows that John only took *German*. (And the teacher knows that John didn't take French).'

(Narrow scope: know > only)

ii. 'The teacher only knows that John took *German*. (And the teacher doesn't know whether John took French or not).'

(Wide scope: only > know)

b. Olùkò mò [pé John **kàn** ɕe [German]_F **nìkan**]. (Olùkò mò pé John *kò*

teacher know COMP John only do German only teacher know COMP John NEG

ɕe Faransé.)

do French

'The teacher knows that John only took *German*. (And the teacher knows that John didn't take French).'

(Narrow scope: know > only)

- c. Olùkó **kàn** mò [pé John ɕe [German]_F **nìkan**]. (Olùkó kò mò bóyá teacher only know COMP John do German only teacher NEG know whether John ɕe Faransé.)
 John do French
 ‘The teacher only knows that John took *German*. (And the teacher doesn’t know whether John took French or not.)’ (Wide scope: only > know)

Some may ask whether *nìkan* is really attached to the embedded object or it is in the matrix level, given possible structural ambiguities. This can be clarified by the example below, where *nìkan* is followed by the frequency phrase *lẹ̀ẹ̀meji* ‘twice’ that is interpreted in the embedded clause. *Nìkan* is still able to take wide scope.

- (43) Olùkó mò [pé John ɕe German_F **nìkan** lẹ̀ẹ̀meji].
 teacher know COMP John do German only twice
 i. ‘The teacher knows that John only took *German* twice.’ (and knows that John took French once) (know > only)
 ii. ‘The teacher only knows that John took *German* twice.’ (but doesn’t know that John took French twice as well).’ (only > know)

I further provide an example of wide scope with subject focus in (44). Note that either *kàn* or *nìkan* can be omitted (but not both if an exclusive focus is intended).¹⁰

10. As discussed by Bayer (1996), pre-subject *only* in English cannot take wide scope across a finite clause boundary, as in (i-a), except for exceptional case marking (ECM) constructions, as in (i-b). Bayer attributes this to Empty Category Principle (ECP) effects.

- (i) a. They hope [(that) only JOHN would come].
 ONLY: ‘The hope: if anyone would come then it is John.’ (hope > only)
 NOT: ‘For anybody they hope would come: it is John.’ (*only > hope)
 b. They find/believe [only JOHN to be stupid].
 ONLY: ‘For anybody they find/believe (to be) stupid: it is John.’ (only > find/believe)
 NOT: ‘They find/believe: if anyone is stupid then it is John.’ (*find/believe > only)
 (adapted from Bayer 1996:60)

This is different from Yoruba where subject-*nìkan* may take wide scope across a finite clause boundary. I have no explanation for this cross-linguistic difference. The Yorùbá pattern of wide scope subject focus is robust, but there is still an asymmetry with object focus, as given below.

- (ii) Matrix materials over which exclusive focus can take wide scope in Yorùbá
 a. Over matrix verbs *gbagbọ* ‘think, believe’, *mọ* ‘know’, *gbọ* ‘heard’, *fura* ‘suspect’: Both subj. and obj. focus
 b. Over matrix modals (e.g., *lẹ̀ fura* ‘may/be allowed to suspect’): Both subj. and obj. focus
 c. Over matrix verb *sọ* ‘say’: only obj. focus
 d. Over matrix negation (e.g., *kò mò* ‘doesn’t know’): only obj. focus

(44) Wide scope across CPs (subject focus)

There are five students in the class. The teacher asked other students to report whether they took French. Only Ade reported to the teacher. So, ...

- a. Olùkó mò [pé Adé_F **nìkan** şe Faransé]. (... (d))
 teacher know COMP Ade only do French
 ‘The teacher only know that *Ade* took French.’ (only > know)
- b. Olùkó **kàn** mò [pé Adé_F şe Faransé]. (... (d))
 teacher only know COMP Ade do French
 ‘The teacher only know that *Ade* took French.’ (only > know)
- c. Olùkó **kàn** mò [pé Adé_F **nìkan** şe Faransé]. (... (d))
 teacher only know COMP Ade only do French
 ‘The teacher only know that *Ade* took French.’ (only > know)
- d. ... Olùkó kò mò bóyá àwọn akèkòyò yòókù şe Faransé.
 teacher NEG know whether PL student other take French
 ‘The teacher doesn’t know whether other students took French.’

4.3.2 Island sensitivity

4.3.2.1 Vietnamese

The wide scope reading of *mỗi* is blocked across a *syntactic island*. In (45), adfocal *mỗi* is embedded in a complex NP island (CNPI) of a noun complement clause. Now, the wide scope reading of *mỗi* is unavailable in (45a)—it must be interpreted in the islands, as indicated by the infelicitous continuation which is only compatible with a wide scope reading. If adverbial *chỉ* is added to the matrix clause as in (45b), a multiple-‘only’ reading is obtained instead. That is, exclusive doubling across syntactic islands is blocked.

(45) Exclusive doubling is banned across complex NP islands in Vietnamese

- a. Thầy giáo biết [DP tin [CP Nam học **mỗi** [tiếng Pháp]_F]]. (# không biết Nam
teacher know news Nam study only French not know Nam
có học tiếng Anh)
have study English

‘The teacher knows the news that Nam only took *French* (#but doesn’t know whether Nam took English).’ (Narrow scope: know > only)

- b. Thầy giáo **chỉ** biết [DP tin [CP Nam học **mỗi** [tiếng Pháp]_F]]. (# không biết
teacher only know news Nam study only French not know
Nam có học tiếng Anh)
Nam have study English

ONLY: ‘The teacher only knows the news that Nam only took *French* (#but doesn’t know whether Nam took English).’ (Multi-‘only’: only>know > only)

BUT NOT: ‘The teacher only knows the news that Nam took French (but doesn’t know whether Nam took English).’ (Wide scope: only>know)

Moreover, a coordination structure also blocks the doubling, as in (46).

(46) Doubling banned across coordinated DP

*Nam **chỉ** ăn [[DP sushi] và [DP **mỗi** pizza_F]]

Nam only eat sushi and only pizza

Int.: ‘Nam only eat *sushi* (among Japanese food) and *pizza* (among Italian food).’

4.3.2.2 Yorùbá

Island sensitivity is also found in Yorùbá exclusive doubling. In (47), *nìkan* is embedded in a CNPI of a relative clause. With narrow scope (*punish* > *only*), the teacher only punished Group C, which is not a responsible move since Group A also fed poisonous chocolate to dogs. With wide scope (*only* > *punish*), the teacher is responsible for punishing both Group A and C. The only reading in (47a) is the narrow scope one, where the teacher did not punish Group A. The addition of matrix *kàn* in (47b) does not give rise to the single-‘only’ reading with wide scope, either, but rather a multi-‘only’ reading, showing that

exclusive doubling cannot apply across a CNPI.

(47) Exclusive doubling is banned across complex NP islands in Yorùbá

“Chocolate feeding” Scenario [GpA: dog & rat | GpB: rat | GpC: dog]

Student group A fed both dogs and rats chocolates, B fed only rats chocolates, and C fed only dogs chocolates. Since dogs cannot eat chocolates whereas rats can, both groups A and C should be punished by the teacher.

- a. # Olùkó náà fi iyà jẹ [DP àwọn akẹ̀kọ̀ọ́ [CP tí wọn fún ajáF **nìkan** ní
teacher the use suffer beat PL student COMP 3PL give dog only SEC
chocolate]].
chocolate

‘The teacher punished students who only gave *dogs* chocolates.’

(i.e., Only Group C is punished)

(punish > only)

- b. # Olùkó náà **kàn** fi iyà jẹ [DP àwọn akẹ̀kọ̀ọ́ [CP tí wọn fún ajáF
teacher the only use suffer beat PL student COMP 3PL give dog
nìkan ní chocolate]].
only SEC chocolate

‘The teacher only punished students who only gave *dogs* chocolates.’

(i.e., Only Group C is punished)

(multi-‘only’: only > punish > only)

Example (48) gives an additional example of the failure of exclusive doubling across an adjunct island formed by a conditional clause. There is no wide scope reading of ‘only’, which would mean ‘The teacher only knows that if John took *German*, the German teacher would be happy; and does not know what will happen if John took French.’ The only reading is a narrow scope one or a multi-‘only’ reading if *kàn* is added before the matrix verb.

(48) Exclusive doubling is banned across adjunct islands in Yorùbá

- a. Olùkọ náà mò [pé [adjunct bí John bá ɕe German_F **nìkan**], inú olùkọ
 teacher the know COMP if John if do German only stomach teacher
 German yóò dùn].
 German will sweet
 ‘The teacher knows that if John only took *German*, the German teacher would be happy.’
 (And knows that J. also took Fr., the German teacher will not be happy) (know > only)
- b. Olùkọ náà **kàn** mò [pé [adjunct bí John bá ɕe German_F **nìkan**], inú
 teacher the only know COMP if John if do German only stomach
 olùkọ German yóò dùn].
 teacher German will sweet
 ‘The teacher only knows that if John only took *German*, the German teacher will be happy.’
 (only > know > only)

Coordination structure is also an island for exclusive doubling:

(49) Exclusive doubling is banned across coordination DPs in Yorùbá

- a. #Ade **kàn** jẹ [sushi] ati [pizza_F **nìkan**]
 Ade only eat sushi and pizza only
 NOT: ‘Ade ate sushi, and only ate *pizza* (among Italian food).’
 ONLY: ‘Ade only ate [*sushi and pizza*] (among all the food).’
- b. #Ade **kàn** jẹ [sushi_F **nìkan**] ati [pizza]
 Ade only eat sushi only and pizza
 NOT: ‘Ade only ate *sushi* (among Japanese food), and ate pizza.’
 ONLY: ‘Ade only ate *sushi* with pizza.’ (i.e., *ati* is no longer a conjunction but a preposition)

Note that complement clauses of nouns in Yorùbá, unlike English and Vietnamese, are not islands.

They do not block focus movement:

- (50) German_F **nìkan** ní Olùkọ náà mo ní [ododo [pé John ɕe __]]
 German only FOC teacher that know for fact COMP John do
 ‘It is only *German* that the teacher knows for a fact that John took (it).’

As expected, then, they also allow wide scope readings out of islands:

- (51) Olùkó náà (**kàn**) mo ní [ododo [pé John ɣe German_F **nikan** lẹ̀ẹ̀mejì]]
 teacher that only know for fact COMP John do German only twice
 Wide: ‘The teacher only knows for a fact that John took *German* twice (But doesn’t know that John took French two times as well).’

4.3.3 Interim summary

Taking stock, exclusive doubling in Vietnamese and Yorùbá may be achieved in a long-distance fashion across CP boundaries, but it is subject to island effects. Since island sensitivity is the signature property of movement, I conclude that covert movement of the adfocal particles is involved in exclusive doubling in both languages.

- (52) [CP ... [**chí**_{adv}/**kàn**_{adv} ... [V_{matrix} [CP [TP-finite ... [**mǒi**_{adfoc}-DP/DP-**nikan**_{adfoc}] ...]

- (53) *[CP ... [**chí**_{adv}/**kàn**_{adv} ... [V_{matrix} [island ... [VP ... [**mǒi**_{adfoc}-DP/DP-**nikan**_{adfoc}] ...]

The patterns are summarized in Table 4.1.

Domain crossed	Vietnamese	Yorùbá
Non-finite clause	✓	✓
Finite CP	✓	✓
CNPI (N complement)	✗	N/A _{non-island}
CNPI (RC)	✗	✗
Adjunct island	✗	✗
Coordination structure	✗	✗

Table 4.1: The locality constraint on exclusive doubling in Vietnamese and Yorùbá

4.4 Differential semantic import

Despite the similarity in the syntactic dependency, I will show that exclusive doubling in Vietnamese and Yorùbá differ in important aspects concerning the particles that contribute to the exclusive semantics (what I call “semantic/exclusive import” here)::

(54) The exclusive import in exclusive doubling

- a. Vietnamese: only **adverbial *chỉ*** carries the exclusive semantics
- b. Yorùbá: only **adfocal *nìkan*** carries the exclusive semantics

In particular, I will show that the focus association and scopal behavior of adverbial and adfocal particles are not the same in Vietnamese and Yorùbá.

I will also demonstrate that they have different locus of scalarity in exclusive doubling:¹¹

(55) The scalar import in exclusive doubling

- a. Vietnamese: **adfocal *mỗi*** carries the scalar component
- b. Yorùbá: **adverbial *kàn*** signals the scalar component

Therefore, the general pattern of exclusive doubling in the two languages neatly mirrors each other.

(56) Differential semantic import in adverbial-adfocal exclusive doubling in Vietnamese

[*chỉ*_[Exclusivity] ... [*mỗi*_[Scalality] XP_F] ...]

(57) Differential semantic import in adverbial-adfocal exclusive doubling in Yorùbá

[*kàn*_[Scalality] ... [XP_F *nìkan*_[Exclusivity]] ...] (simplified)

4.4.1 Backward association with focus

First, it is well-known that adverbial exclusive focus particle ‘only’ must c-command its focus associate, and cannot associate “backward” with a moved focus, nor its trace (Jackendoff 1972; Tancredi 1990; Beaver and Clark 2008; Erlewine 2014; also Yip 2025a for Cantonese). This is the same for A'-movement (such as topicalization), as in (58b), and A-movement (such as subject movement from *v*P to TP), as in (58c). This property will be examined in Vietnamese and Yoruba.

11. While *kàn* is the locus of scalarity on the surface, I will propose that it signals a null scalar operator rather than carrying scalar semantics on its own. See discussion in §4.5.2.

(58) Backward association is not possible in English

- a. John **only** met [Mary]_F at the party.
b. # [Mary]_F, John **only** met __ at the party. (Erlewine 2014:11)
Int.: 'Mary is the only person John met at the party.'
c. # [John]_F will **only** pass the exam. (Erlewine 2014:11)
Int.: 'John is the only person who will pass the exam.'

4.4.1.1 Vietnamese

In Vietnamese, backward association is also not possible with adverbial *chỉ*, as in (59).

(59) No backward association with ex-situ object focus in Vietnamese

- a. Hôm qua Nam **chỉ** ăn [thịt bò]_F.
yesterday Nam only eat beef
'Nam only ate *beef* yesterday.'
b. *Hôm qua [thịt bò]_F Nam **chỉ** ăn t.
yesterday beef Nam only eat
Int.: 'Nam only ate *beef* yesterday.'

Notice that such backward association is also not available with adfocal *mỗi* moved along. The movement of *mỗi*-focus independently requires the presence of a scalar particle *mới* 'just, only then' (Hole 2017). As shown in (60), *chỉ* cannot associate backward with the moved object, even with *mới*.

(60) No backward association with ex-situ object focus in Vietnamese

- a. Hôm qua Nam **chỉ** ăn **mỗi** [thịt bò]_F.
yesterday Nam only eat only beef
'Nam only ate *beef* yesterday.'
b. *Hôm qua **mỗi** [thịt bò]_F Nam mới **chỉ** ăn t.
yesterday only beef Nam just only eat
Int.: 'Nam only ate *beef* yesterday.'

4.4.1.2 Yorùbá

The patterns are different in Yorùbá. Let us have some background on movement in Yorùbá. With identification focus (cf. Kiss 1998), the focused element must be moved and marked by the focus marker *ni* (Bisang and Sonaiya 2000), as shown below.¹²

(61) Bisang & Sonaiya (2000:181), with *mo di* added in (b)

- a. Kí lo dì sówó?
what FOC.2s hold LOC.hand
'What do you have in your hand?'
- b. Owó ni (mo di).
money FOC I hold
'It's money (that I hold).'
- c. #Mo di owó sówó.
I hold money LOC.hand
'I have money in my hand.'

As argued by Awóbùlúyì (1978), Ilọrì (2010), and Aremu (2024), *ni*-focus involves movement to a focus projection (FocP) at the left periphery (see Bisang and Sonaiya 2000; Adesola 2005; Jones 2006 for a biclausal cleft alternative).

(62)
$$\begin{array}{c} \text{[FocP DP}_F \text{ [Foc' Foc-} \textit{ni} \text{ [TP ... [VP V } __ \text{ ...} \\ \uparrow \hspace{10em} \downarrow \end{array}$$

Turning to association with focus, the preverbal *kàn* allows for backward association with an ex-situ object focus, unlike English and Vietnamese.

(63) Backward association with ex-situ object focus in Yorùbá

- a. Akín **kàn** şe German_F. (in-situ, obj focus)
Akin only do German
'Akin only took *German*.'

12. In Bisang and Sonaiya (2000)'s terms (cf. Kiss 1998), *ni* requires a "preconstructed domain" of items, from which the speaker exhaustively select the relevant ones in a given situation, represented as [+preconstruction], [+identification], and [+exhaustiveness].

- b. German_F ni Akín **kàn** şe ____ (movement, obj focus)

German FOC Akin only do

‘It is only *German* that Akin took.’ (truth condition=a/c)

- c. German_F **nìkàn** ni Akín **kàn** şe ____ (movement, obj focus)

German only FOC Akin only do

‘It is only *German* that Akin took.’ (truth condition=a/b)

The subject focus case is even more notable. While *kàn* cannot associate with the in-situ subject, focus association becomes possible once the subject undergoes *ni*-focus movement.¹³ The patterns remain the same with transitive verbs (not shown here).

(64) Backward association with ex-situ subject focus in Yorùbá

- a. Akín_(*F) **kàn** wá_F (in-situ, only V focus)

Akin only come

‘Akin only/just *came* (and did nothing else).’

- b. Akín_F ni ó **kàn** wá (movement, subj focus)

Akin FOC 3SG only come

‘It is only *Akin* that came.’ (truth condition≠a)

- c. Akín_F **nìkàn** ni ó **kàn** wá (movement, subj focus)

Akin only FOC 3SG only come

‘It is only *Akin* that came.’ (truth condition≠a)

Backward association has also been reported in other languages such as in German for *nur* and Dutch for *maar* (Erlewine 2014; Bayer 2018; Hirsch and Wagner 2019, 2025). Three German examples are illustrated below, all involving V2 movement (V-to-C in (65a), XP-to-Spec,CP in (65b-c)).

13. Aremu (2024) argues that subject *ni*-focus is base-generated, since there is a resumptive pronoun in the base position. However, the ex-situ subject focus may be reconstructed for reflexive binding as in (i), supporting a movement approach. I suggest that a subject focus moves directly from Spec_{VP} to SpecFocP without passing SpecTP, and an expletive is inserted in the SpecTP position due to EPP (see, e.g., Adesola 2005, 2010).

(i) [ìwé nípa are **rẹ̀**_i]_j ni Adé_i sọ pé ó_j dára
book about body self FOC Ade say COMP 3SG good
‘It is the book about himself_i that Ade_i said is good.’

(65) Backward association in German

- a. A naturally occurring example from Erlewine (2014, p.189)

Context: I don't deal with this kind of stuff...

das [verwirrt]_F mich **nur** __.

that confuses me only

'That only *confuses* me.'

- b. Bayer (2018, p.250)

[Heute]_F **nur** ist das noch möglich.

Today only is this still possible

'Only *today* is this still possible.'

- c. Hirsch and Wagner (2019, ex.33)

[Jan]_F ist wieder **nur** __ durchgefallen.

Jan is again only failed

'Only *Jan* has failed again.'

Hirsch and Wagner (2019, 2025) argue that backward association is achieved by reconstruction for scope. They observe that when *nur* moves along with the focus, 'only' may still take narrow scope under 'again'. (See Erlewine 2014 for a similar case in English, with reconstruction under modals.)

(66) Scope reconstruction in German

(Hirsch and Wagner 2019, ex.6)

Nur [Jan]_F ist wieder __ durchgefallen.

only Jan is again flunked

'Only *Jan* has flunked again.'

(only > again, again > only)

On the other hand, for other scope-bearing elements like 'second time', 'only' cannot be reconstructed back for the narrow scope. Importantly, backward association is also not possible in this case.

(67) Failure of scope reconstruction in German

(Hirsch and Wagner 2019, ex.12)

Nur [Jan]_F ist zum zweiten Mal __ durchgefallen.

only Jan is for the second time flunked

'Only *Jan* has again flunked.'

(only > second time, *second time > only)

(68) Failure of backward association in German

(Hirsch and Wagner 2019, ex.36)

*[Jan]_F ist zum zeiten Mal **nur** __ durchgefallen.

Jan is for the second time only flunked

Int.: ‘For the second time only *Jan* flunked.’

Such an account, however, does not extend to Yorùbá, as opposed to what Aremu (2026) claims recently.¹⁴ To see why, consider quantifier reconstruction without exclusives. First, Yorùbá allows moved quantifiers to reconstruct for narrow scope.

(69) Reconstruction of existential quantifiers in Yorùbá

a. gbogbo akékòṣọ fẹràn [olùkọ kan].

every student like teacher one

Narrow ($\forall > \exists$): ‘Ade likes the Yorùbá teacher, Bode likes the English teacher, ...’ (surface)

Wide ($\exists > \forall$): ‘A single teacher is liked by every student.’ (inverse)

b. [olùkọ kan] ni gbogbo akékòṣọ fẹràn __.

teacher one FOC every student like

Narrow ($\forall > \exists$): ‘Ade likes the Yorùbá teacher, Bode likes the English teacher, ...’

(reconstructed)

Wide ($\exists > \forall$): ‘A single teacher is liked by every student.’ (surface)

14. See Aremu (2026)’s Chapter 5.6 (pp.192-201), which is a reply to my joint work on Yorùbá (Yip and Adedeji 2024). He has five arguments for the exclusive operator status of *kàn* and the “concord” particle status of *nikan*. Five of them directly respond to the four arguments of exclusive import in this section (i.e., §4.4). I will address the first five in this section, and discuss the last one in §4.5.3.

(i) Aremu (2026)’s counterarguments to Yip and Adedeji (2024)

- a. Backward association by reconstruction (see §4.4.1 for reply)
- b. Against the failure of multiple association (see §4.4.2 for reply)
- c. “Concord” readings with multiple *nikan* (see §4.4.2 for reply)
- d. Against the scopal (non-)interaction with negation (see §4.4.3 for reply)
- e. Against wide scope under ellipsis (see §4.4.4 for reply)
- f. Split scope readings (see §4.5.3 for reply)

(70) Reconstruction of universal quantifiers in Yorùbá

- a. Akẹ̀kọ̀ọ́ kan fẹ̀ràn [gbogbo olùkọ́].
 student one like every teacher
 Narrow ($\exists > \forall$): 'A specific student (e.g., Ade) likes all the teachers' (surface)
 Wide ($\forall > \exists$): 'Ade likes the Yorùbá teacher, Bode likes the English teacher, ...' (inverse)
- b. [Gbogbo olùkọ́] ni akẹ̀kọ̀ọ́ kan fẹ̀ràn ____.
 every teacher FOC student one like
 Narrow ($\exists > \forall$): 'A specific student (e.g., Ade) likes all the teachers' (reconstructed)
 Wide ($\forall > \exists$): 'Ade likes the Yorùbá teacher, Bode likes the English teacher, ...' (surface)

However, such scope reconstruction is blocked by negation.

(71) No reconstruction below negation for quantifier scope in Yorùbá

- a. Mary kò fẹ̀ràn [gbogbo èniyàn].
 Mary NEG like every person
 Narrow: 'Mary only likes some people and dislikes the others.' ($\neg > \forall$)
 Wide: 'Mary is a mean person and likes no one.' ($\forall > \neg$)
- b. [Gbogbo èniyàn] ni Mary kò fẹ̀ràn ____.
 every person FOC Mary NEG like
 NOT Narrow: *'Mary only likes some people and dislikes the others.' ($*\neg > \forall$)
 ONLY Wide: 'Mary is a mean person and likes no one.' ($\forall > \neg$)

Nevertheless, backward association across a negation is possible, as in (72), which will be discussed in §4.4.3 too. More importantly, unlike German, the exclusive scope cannot be reconstructed under negation, as in (72b). The scope is unexpected if backward association were achieved by scope reconstruction. Hence, I conclude that backward association serves as a reliable argument against *kàn* being an exclusive operator.

(72) Backward association with negation in Yorùbá

- a. John kò **kàn** ʃe German **nìkan**.

John NEG only do German_F only

Narrow: ‘It is not only *German* that John takes (but also French).’ ($\neg > \text{only}$)

Wide: ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin) ($\text{only} > \neg$)

- b. German_F (**nìkan**) ni John kò **kàn** ʃe __.

German only FOC John NEG only do

ONLY: ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin) ($\text{only} > \neg$, $*\neg > \text{only}$)

Before proceeding to the next test, I note that backward association is not a quirk of focus movement with *ni*. Movement with the relative marker *tí* also allows backward association.¹⁵

(73) *Context: We’re discussing why John couldn’t graduate.*

German_F (**nìkan**) tí John kò **kàn** ʃe __.

German only REL John NEG only take

ONLY: ‘(The reason why John couldn’t graduate is because) John only didn’t take *German*. (John took others instead.)’ ($\text{only} > \neg$)

NOT: ‘(The reason why John couldn’t graduate is because) John didn’t only take *German*. (John also took French.)’ ($*\neg > \text{only}$)

4.4.2 Multiple focus association

The second case concerns multiple foci. I test whether the adverbial particle may associate with a focused element different from the one attached by the adfocal particle. This is possible in English with

15. However, “regular” relative clauses with *tí* do not seem to allow backward association.

(i) *Context: John read some English and French books.*

- a. Mo rì [[ìwé e gèèsi]_(eF) [tí John **kàn** [ka]_F __]].
1SG see book poss English REL John only read

‘I saw the English books that John only READ.’

NOT: ‘I saw x such that x is English books and John only read ENGLISH BOOKS.’

- b. John **kàn** ka [ìwé e gèèsi]_F.

John only read book poss English

‘John only read ENGLISH books.’

a pre-subject *only* and a pre-verbal *only*, as noted as early as by Horn (1969).

(74) **Only** John_F **only** eats rice_F.

‘John is the only person who only eats rice (other people eat both rice and noodles)’

(Horn 1969:106, interpretation added)

4.4.2.1 Vietnamese

In Vietnamese, when the adfocal particle is moved out with the focus, the adverbial particle may establish another association with elements within its scope, yielding a multiple/stacked ‘only’ reading.

(75) Multiple focus association with *chỉ* and *mỗi* in Vietnamese

a. **Mỗi** Minh_{F1} Nam **chỉ** tặng hoa hồng_{F2} (thôi). (only-IO > only-DO)

only Minh Nam only give rose SFP.only

‘Minh is the only one who Nam only gave roses to.’ (He gave roses and lavenders to others.)

b. [[QP *mỗi*₁ Minh=F1] ... [*chỉ*₂ ... [roses=F2 ...]]]

Note that in Vietnamese, multiple adfocal particles also enforce a multi-‘only’ reading, as in (76). Unlike Korean (Y. Lee 2005), there cannot be a “doubled/concord” reading where one exclusive operator associates with both foci, similar to: “Nam only gave Minh roses, and gave no one else anything” (i.e., ⟨Minh, rose⟩ is the only ordered pair that satisfies the predicate $\lambda x \lambda y. \text{Nam-give-}\langle x, y \rangle$). The only reading possible in (76) is the multi-‘only’ reading.¹⁶

(76) Multiple focus association with two *mỗi* in Vietnamese

a. Nam tặng **mỗi** Minh_{F1} **mỗi** hoa hồng_{F2} (thôi). (only-IO > only-DO)

Nam give only Minh only rose SFP.only

‘Minh is the only one who Nam only gave roses to.’ (He gave roses and lavenders to others.)

b. [... [QP *mỗi*₁ Minh=F1] [[QP *mỗi*₂ roses=F2] ...]]

4.4.2.2 Yorùbá

Such multi-‘only’ readings are not possible in Yorùbá with *kàn* and *nikan* in the same clause, even when *nikan*’s associate (the subject) is structurally higher than *kàn*. To convey the multi-‘only’ readings, two

16. Most consultants found this sentence unnatural, but they reported that if the sentence can ever be used, it must be used in a context that makes the multi-‘only’ reading (‘Minh is only one who Nam only gave roses to’) true, rather than the “doubled/concord” reading (‘Nam only gave Minh roses, and gave no one else anything’).

adfocal particles must be used, as illustrated in (77). Note that with two *nìkan*, the reading can only be a multiple-‘only’ one, rather than a “doubled/concord” reading where one exclusive operator is associated with the pair $\langle \text{John}, \text{English books} \rangle$ (pace Aremu 2026:167), which is available in other languages like Korean and Kasem (see §4.6).

(77) Failure of multiple association in Adv-Adfoc doubling in Yorùbá

- a. *Context: Who only reads English books?*
- b. John_{F1} **nìkan** ni ó máa-ń ka [àwọn ìwé Gẹ̀ẹ̀sì]_{F2} **nìkan**
 John only FOC 3SG HAB-PROG read PL book English only
 ‘John is the only person who only reads *English books*.’ (and other people read both English books and French books) (multi-‘only’ reading)
- c. #John_{F1} **nìkan** ni ó **kàn** máa-ń ka [àwọn ìwé Gẹ̀ẹ̀sì]_(*F2)
 John only FOC 3SG only HAB-PROG read PL book English
 #‘John is the only person who just reads English books (e.g., for fun).’ (#other people read both English books and French books) ~> does not match the context (Subj. focus)
 NOT: ‘John is the only person who only reads *English books*.’ (*multi-‘only’ reading)

The following pair illustrates further that *kàn* in [Subj-*nìkan*...*kàn*] does not target the object although it c-commands it. In the context of (78a), bananas are also eaten by Tolu, showing the lack of object association. In contrast, if both the subject and the object are targeted, a second *nìkan* after the object must be added in (78b).¹⁷

- (78) a. *Everyone loves bananas and has eaten some during lunch. Other people don’t like yams and don’t eat them. Tolu just doesn’t want to waste food. So, he just goes ahead and has eaten yam.*
 Tolú **nìkan** ni ó **kàn** jẹ ịṣu (**#nìkan**) (subject focus only)
 Tolu only FOC 3SG only eat yam only
 ‘It’s just that only Tolu ate yam.’ (i.e., only Tolu ate both)

17. Aremu (2026) argues that *kàn* below still operates on the object as evidenced by the infelicitous continuation, which seems to conflict with the results in (78a).

(i) a. Tolú **nìkan** ni ó **kàn** jẹ ịṣu b. #Ó jẹ ọ̀gèdè pèlú.
 Tolu only FOC 3SG only eat yam 3SG eat banana also
 Lit.: ‘Only tolu only ate yam.’ ‘... and he also ate banana.’ (Aremu 2026:194)

While my consultants agree with Aremu (2026)’s judgment, I note that *kàn* has an extra scalar flavor like *just* (to be discussed in §4.4.5). I suggest that the infelicity of an additive continuation above is due to a conflict between *kàn*’s scalar reading “the matter is just that” and subsequent addition of the information.

- b. *The quantity of yams is small, so everyone should take little yam and support it with banana so that everyone can get some yam. Stubborn Tolu doesn't like banana and takes a lot of yam, finishing them. The teacher asks: "Someone took too much yam. Who?"*

Tolú **nikan** ni ó **kàn** jẹ iṣu #(**nikan**) (multi-‘only’ with both subj. and obj. foci)

Tolu only FOC 3sg only eat yam only

‘Only Tolu ate only yam.’ (other people ate both)

4.4.3 Scopal interaction with other operators

If the adverbial or adfocal particles carry exclusive semantics, we expect that their position relative to other operators like negation or modals indicates semantic scope. This is less clear in English since adverbs usually do not occur before auxiliaries, including modals (except for verbs like *be allowed*).

- (79) a. John can **only** bring wine_F.

‘John is only allowed to bring wine.’ (only > can)

- b. ??John **only** can bring wine_F.

The fact is however very clear in Cantonese. We have already argued that *zinghai* ‘only’ carries exclusive semantics. Its ordering with respect to both negation and modals yields surface scope readings.

(80) Relative scope of *zinghai* ‘only’ with negation in Cantonese

- a. Aaming **zinghai** mou maai [joengjuk]_F. (only > ¬)

Ming only NEG.PFV buy lamb

‘Ming only fails to (lit.: only didn’t) buy *lamb*.’ (but not beef - Ming did buy beef)

- b. Aaming mou **zinghai** maai [joengjuk]_F. (¬ > only)

Ming NEG.PFV only buy lamb

‘Ming didn’t only buy *lamb*.’ (he bought beef in addition to lamb)

(81) Relative scope of *zinghai* ‘only’ with modals in Cantonese

- a. Aaming **zinghai** hoji duk [Dakman]_F. (only > ◇^{Deo})

Ming only may take German

‘Ming can only take *German*.’ (Ming cannot take French)

- b. Aaming hoji **zinghai** duk [Dakman]_F. (◇^{Deo} > only)
 Ming may only take German
 ‘It’s okay for Ming to only take *German*.’ (though Ming can also take French)

4.4.3.1 Vietnamese

In Vietnamese, the scope with negation is determined by the position of adverbial particle *chỉ*.

(82) Adv-Adfoc doubling with negation in Vietnamese

- a. Nam **chỉ** không học **mỗi** [tiếng Pháp]_F. (only > ¬, *¬ > only)
 Nam only not learn only French
 Wide scope ‘only’: ‘Nam only does not learn *French*.’ (i.e., French is not learnt)
- b. Nam không **chỉ** ăn **mỗi** [tiếng Pháp]_F. (*only > ¬, ¬ > only)
 Nam not only learn only French
 Narrow scope ‘only’: ‘Nam does not only learn *French*.’ (i.e., French is learnt, also other languages like German)

The patterns remain the same with modals.

(83) Adv-Adfoc doubling with modals in Vietnamese

(Sun 2020, ex.17-18)

- a. Nam **chỉ** có thể ăn **mỗi** [thịt bò]_F. (only > ◇, *◇ > only)
 Nam only may eat only beef
 Wide scope ‘only’: ‘Nam is only allowed to eat *beef* (no other meat allowed).’
- b. Nam có thể **chỉ** ăn **mỗi** [thịt bò]_F. (*only > ◇, ◇ > only)
 Nam may only eat only beef
 Narrow scope ‘only’: ‘Nam is allowed to only eat *beef* (but he could also eat other meat).’

Interestingly, If a *mỗi*-adjoined phrase moves, its landing position determines its scope, as in (84). It must go hand in hand with the scope of *chỉ*, for the intended doubled reading. In other words, once *mỗi* is moved overtly, the scope is “frozen” and only the surface scope reading is possible. The patterns are the same in doubling cases in (85).

(84) “Scope freezing” effects of movement with *mỗi* in Vietnamese (Sun 2020, ex.24-25)

a. Nam **mỗi** [thịt bò]_F mới có thể ăn _____. (only > ◇, *◇ > only)

Nam only beef just may eat

Wide scope ‘only’: ‘Nam is only allowed to eat *beef* (no other meat allowed).’

b. Nam có thể **mỗi** [thịt bò]_F mới ăn _____. (*only > ◇, ◇ > only)

Nam may only beef just eat

Narrow scope ‘only’: ‘Nam is allowed to only eat *beef* (but he could also eat other meat).’

(85) “Scope freezing” effects of movement in doubling in Vietnamese

a. Nam **chỉ mỗi** [thịt bò]_F mới có thể ăn _____. (only > ◇, *◇ > only)

Nam only only beef just may eat

Wide scope ‘only’: ‘Nam is only allowed to eat *beef* (no other meat allowed).’

b. Nam có thể **chỉ mỗi** [thịt bò]_F mới ăn _____. (*only > ◇, ◇ > only)

Nam may only only beef just eat

Narrow scope ‘only’: ‘Nam is allowed to only eat *beef* (but he could also eat other meat).’

We may then ask whether it is *mỗi*’s position or *chỉ*’s position that contributes to the exclusive semantics and determines the scope. Here, I discuss an additional test using ‘almost’. ‘Almost’ modification is claimed to be a diagnostic test for universal quantifiers (Dahl 1970; Horn 1972; Giannakidou 1998; cf. Carlson 1981; Partee 1986). This claim is probably too strong, as ‘almost’ can also modify a numeral (Partee 1986; see Morzycki 2001; Penka 2006; McKenzie and Newkirk 2020 for proposals). Nevertheless, it is of no doubt that ‘almost’ is sensitive to certain kinds of quantificational force and cannot be followed by a referential element.

(86) Electra was willing to accept **almost** {everything/*something}. (Giannakidou 1998:64)

(87) John’ve read **almost** {three books/*this book}.

In Vietnamese, there are two ways to express the meaning ‘almost’: adverbial *gần như/ hầu như*, and adnominal *gần/ gần hết/ hầu hết*. *Gần như* and *gần (hết)* are the most common forms. *Hầu như/ hầu hết* are only acceptable by some speakers here.¹⁸

18. *Gần như* and *gần (hết)* mean ‘almost’ rather than ‘about’. (88) means 2.5 bowls (‘almost 3’ = not reaching but close to 3) but not 3.5 bowls. The difference is not crucial as long as they are sensitive to quantificational force as discussed below.

- (88) a. Bữa trưa Nam {**gần như**/ %**hầu như**} ăn ba bát cơm.
 lunch Nam almost almost eat three CL rice
 ‘Nam almost ate three bowls of rice.’ (e.g., 2.5 bowls)
- b. Bữa trưa Nam ăn {**gần**/ **gần hết**/ %**hầu hết**} ba bát cơm.
 lunch Nam eat almost almost almost three CL rice
 ‘Nam ate almost three bowls of rice.’ (e.g., 2.5 bowls)

With a universal quantifier with *mọi* ‘every’ or *mỗi* ‘each’, both modification by adverbial *gần như* and adnominal *gần hết* (but not *gần*)/*hầu hết* are possible. With universal quantification, *hầu hết* is usually preferred over *gần hết*.

- (89) a. **Gần như** mọi/mỗi người đều trả lời câu hỏi.
 almost every/each person all answer question
 ‘Almost everyone answers the question.’
- b. {?**Gần hết**/ **hầu hết**/ ***gần**} mọi/mỗi người đều trả lời câu hỏi.
 almost almost almost every/each person all answer question
 ‘Almost everyone answers the question.’

What is important here is that *gần (hết)*/ *hầu hết* cannot modify a non-quantificational element such as a proper name. This serves as the basis for us to test the contribution by *mỗi*.

- (90) *{**Gần hết**/ **hầu hết**/ **gần**} Lan trả lời câu hỏi.
 almost almost almost Lan answer question
 Lit.: ‘Almost Lan answers the question.’

While adverbial *chỉ* can be modified by *gần như* ‘almost’, adfocal *mỗi* cannot be modified by *gần (hết)* ‘almost’, regardless of the scope (55% for [almost > only] and 45% for [only > almost]), as shown below.

- (91) a. Mỗi lần Lan **gần như chỉ** ăn nửa bát cơm.
 every time Lan almost only eat half CL rice
 ‘(To lose weight,) Every time Lan almost only ate *half* bowls of rice.’ (e.g., 55%)

b. *Mỗi lần Lan ăn **gần (hết) mỗi** nửa_F bát cơm.

every time Lan eat almost only half CL rice

Int.: '(To lose weight,) Every time Lan ate almost only *half* bowls of rice.' (e.g., 55%); or;

Int.: '(To lose weight,) Every time Lan only ate almost *half* bowls of rice.' (e.g., 45%)

c. Mỗi lần Lan **chỉ** ăn **gần (hết)** nửa_F bát cơm.

every time Lan only eat almost half CL rice

'(To lose weight,) Every time Lan only ate almost *half* bowls of rice.' (e.g., 45%)

In cases with *mỗi* but not *chỉ*, *gần như* may still be used, but it is less natural (judgment varies among speakers). Note that *gần như* is an adverb and is supposed to modify a sentential operator, such as *chỉ* or potentially its null counterpart.

(92) ?Mỗi lần Lan **gần như** ăn **mỗi** nửa_F bát cơm.

every time Lan almost eat only half CL rice

'(To lose weight,) Every time Lan almost only ate *half* bowls of rice.' (e.g., 55%)

The same is observed with subject focus, as illustrated below.

(93) *Context: Lan is the best student in the class and very active. Most of time, other students are quiet in class. Every time the teacher asks a question, almost only Lan answers the question—except there was one time that she was sick and other students were forced to answer the question.*

a. Mỗi lần giáo viên hỏi câu hỏi, ...

every time teacher ask question

'Every time the teacher asks a question, ...'

b. ... **gần như chỉ** Lan_F trả lời câu hỏi

almost only Lan answer question

'... almost only *Lan* answers the question.' (e.g., 9 out of 10 times)

c. ?... **gần như mỗi** Lan_F trả lời câu hỏi

almost only Lan answer question

'... almost only *Lan* answers the question.' (e.g., 9 out of 10 times)

d. *... **gàṅ (hêt) mǝi** Lan_F trả lời câu hỏi
 almost only Lan answer question

‘... almost only *Lan* answers the question.’ (e.g., 9 out of 10 times)

The above pattern follows if we assume that adfocal *mǝi* is not a quantifier but merely a “concord” particle without its quantificational force on the at-issue level. Under the assumption that ‘almost’ must be followed by a quantificational element, the failure of ‘almost’ modification of *mǝi* falls out.

4.4.3.2 Yorùbá

In Yorùbá, on the other hand, the scope with negation and modals is not determined by the relative position of *kàn*. Before testing the scopal interaction with exclusives, let us first consider negation’s scope with modals. The scope of *kò* and *lè* is rigid, as in (94). *Kò* precedes it and takes wide scope over it.

(94) The scope of negation and modals in Yorùbá

Ade **kò** lè ṣe German.

Ade_{NEG} may do German

ONLY: ‘Ade is not allowed to take German.’ ($\neg > \diamond$)

NOT: ‘Ade is allowed not to take German.’ ($*\diamond > \neg$)

The word order between *kò* and *lè* is also rigid. It is not possible to flip them ($*lè\ kò$). In order to express the narrow scope of negation, the modality must be expressed differently, such as in the example below. Note that an irrealis negation *má* is used here, since *kò* cannot be used in nonfinite clauses (Adebayo 2021).

(95) Aaye gba Ade [láti {**má**/ ***kò**} ṣe German]

space allow Ade to_{NEG.INF} NEG do German

Lit.: ‘There is room for Ade not to take German.’

i.e., ‘Ade is allowed not to take German.’ ($\diamond > \neg$)

From the above we see that *kò*’s and *lè*’s positions determine the scope. Let us now examine *kàn* as well as *nìkan*. First, *nìkan* with in-situ focus has scopal ambiguities with modals, as in (96a). This is reminiscent of embedded and matrix scopal ambiguities we have discussed in §4.3, which indicate

covert movement. Importantly, such scopal ambiguities are retained in doubling with *kàn*, and even with just *kàn*, as in (96b–96c). This is unexpected if *kàn* is the exclusive operator. We would have expected that the narrow scope readings to disappear with *kàn*, since it is ordered before *lè*, contrary to facts. The word order of **lè kàn* is also impossible independently (at least for my consultants, see the discussion in footnote 9).

(96) Relative scope of exclusives with modals in Yorùbá

i. The wide scope context: *Ade studies in a German school, and is only allowed to take German. He cannot take French.*

ii. The narrow scope context: *Ade studies in a bilingual German/French school. Everyone needs to take both languages, but he already speaks advanced French, and gets exempted from taking French.*

a. Ade lè şe German_F **nìkàn**.

Ade can do German only

i. Wide: ‘Ade can only take *German*.’ (French is not allowed). (only > ◇)

ii. Narrow: ‘It is okay for Ade to take just *German*.’ (He can also take French if he wants).
(◇ > only)

b. Ade **kàn** lè şe German_F.

Ade only can do German

i. Wide: ‘Ade can only take *German*.’ (French is not allowed). (only > ◇)

ii. Narrow: ‘It is okay for Ade to take just *German*.’ (He can also take French if he wants).
(◇ > only)

c. Ade **kàn** lè şe German_F **nìkàn**.

Ade only can do German only

i. Wide: ‘Ade can only take *German*.’ (French is not allowed). (only > ◇)

ii. Narrow: ‘It is okay for Ade to take just *German*.’ (He can also take French if he wants).
(◇ > only)

In ex-situ focus with *ni*, the wide scope reading is strongly preferred. The narrow scope reading is very hard to access, if not impossible.¹⁹

19. Aremu (2026, 189) reported a case of narrow scope under *lè* in ex-situ focus. My consultants found the narrow scope reading severely degraded, and strongly preferred to express the reading using in-situ focus.

(97) German_F **nìkan** ni Ade **kàn** lè şe.

German only FOC Ade only may do

Wide: ‘Ade can only take *German*.’ (French is not allowed). (only > ◇)

?? Narrow: ‘It is okay for Ade to take just *German*.’ (He can also take French if he wants).
(?? ◇ > only)

Second, consider exclusives and negation. We have already seen some of their interaction in §4.4.1. In (98) with an in-situ focus, there are scopal ambiguities with *nìkan* alone, *kàn* alone, as well as doubling of them. Again, this is unexpected if *kàn* carries exclusive semantics.

(98) Relative scope of exclusives with negation in Yorùbá

a. John kò şe German_F **nìkan**

John NEG do German only

i. Narrow: ‘It is not only *German* that John takes (but also French).’ (¬ > only)

ii. Wide: ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin) (only > ¬)

b. John kò **kàn** şe German_F

John NEG only do German

i. Narrow: ‘It is not only *German* that John takes (but also French).’ (¬ > only)

ii. Wide: ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin) (only > ¬)

c. John kò **kàn** şe German **nìkan**

John NEG only do German_F only

i. Narrow: ‘It is not only *German* that John takes (but also French).’ (¬ > only)

ii. Wide: ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin) (only > ¬)

Even more interestingly, in ex-situ focus cases, the scope with negation seems to be determined by the landing site of the focus where *nìkan* can be optionally pronounced. Consider (99)-(100). The negation takes wide scope over ‘only’ when *kì-í* ‘not (habitual)’ precedes the ex-situ focus,²⁰ and narrow scope under ‘only’ when *kò* ‘not’ follows the focus, where *nìkan* may or may not pronounced. In

20. This is a biclausal configuration. A complementizer *pé* can be added after *kì-í* şe.

both cases, however, the negation is higher than *kàn*. The sentences are unambiguous, and scope reconstruction is independently blocked by negation.

(99) Narrow scope under negation in Yorùbá

- a. *kì-í* *şe* German_F *ni* John ***kàn*** *şe* __
 NEG do German FOC John only do
 ‘It is not only *German* that John takes (but also French).’ (i.e., John takes German and French)
 ($\neg > \text{only}$)

- b. *kì-í* *şe* German_F ***nikan*** *ni* John ***kàn*** *şe* __
 NEG do German only FOC John only do
 ‘It is not only *German* that John takes (but also French).’ (i.e., John takes German and French)
 ($\neg > \text{only}$)

(100) Wide scope over negation in Yorùbá

- a. German_F *ni* John *kò* ***kàn*** *şe* __
 German FOC John NEG only do
 ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin)
 (only $> \neg$)
- b. German_F ***nikan*** *ni* John *kò* ***kàn*** *şe* __
 German only FOC John NEG only do
 ‘It is only *German* that John just didn’t take.’ (i.e., John didn’t take German—he took French and Latin)
 (only $> \neg$)

Recently, Aremu (2026) argues that the above pattern is due to the syntactic inflexibility of *kò*, which cannot be placed under *kàn* (**kàn* *kò*). He shows that a different negation, *kò* (cf. Adebayo 2021), can be placed before *kàn* in (101) with a [$\neg > \text{only}$] reading. This negation *kò* (high tone) should be not confused with the verb *kò* (low tone) ‘refuse’.

- (101) German_F (***nikan***) *kò* *ni* John ***kàn*** *şe*.
 German only NEG NI John only do
 ‘It is not only *German* that John took.’ ($\neg > \text{only}$) (Aremu 2026:199)

However, *kò* is a special negation used with the copula *ni*. The regular negation *kò* used for verbs

and another copula *je* is banned before the copula *ni*.

- (102) a. Kinìhún {**kó**, ***kò**} ni ọba ẹranko.

Lion NEG NEG COP king animal

‘The lion is not the king of animals.’

- b. Kinìhún {***kó**, **kò**} je ọba ẹranko.

Lion NEG NEG COP king animal

‘The lion is not the king of animals.’

The *ni* in Aremu (2026)’s example (101), hence, should be analyzed as a copula (cf. Bisang and Sonaiya 2000) instead of a focus marker that signals movement. While it is unclear to me why the only scope is [$\neg$ > only] even though the subject with *nìkan* precedes *kò*, this pattern is general in other copula sentences, as illustrated below in (103).

- (103) a. Kinìhún_F **nìkan** kó ni ọba ẹranko.

Lion only NEG COP king animal

‘Not only *the lion* is the king of animals (but also the elephant).’

($\neg$ > only)

* ‘Only *the lion* is not the king of animals (all other animals are)’

(*only > $\neg$)

- b. Kinìhún_F **nìkan** kò je ọba ẹranko.

Lion only NEG COP king animal

‘Not only *the lion* is the king of animals (but also the elephant).’

($\neg$ > only)

* ‘Only *the lion* is not the king of animals (all other animals are)’

(*only > $\neg$)

This invites further investigation of the syntax of copula in Yorùbá (e.g., whether it involves predicate inversion). What is important here is that the use of special *kò* does not invalidate the above argument based on regular negation *kò*.

Moreover, the pattern of *kò* extends to other (regular) forms of negation, like irrealis *má*. *Má* can be used in imperatives. In in-situ focus cases with *nìkan*, the scope is ambiguous, although *kàn* can only precede *má*.

(104) Relative scope of exclusives with irrealis negation in Yorùbá

- a. (**Kàn**) má mú German_F **nìkan!** (...)
 only NEG.INF take German only
 i. ‘Only *German* is such that you shouldn’t take.’ (only > ¬)
 ii. ‘Don’t take only *German*!’ (You should also take French!) (¬ > only)
- b. Wide scope (only > ¬) continuation
 ... Má mú German! Mú Faranse!
 NEG.INF take German take French
 ‘... Don’t take German, take French!’
- c. Narrow scope (¬ > only) continuation
 ... mú German ati Faranse!
 take German and French
 ‘... Take German and French!’

In ex-situ focus, the movement site also determines the scope with *má*. Focus movement is not compatible with imperatives, so I provide a case with the mood marker *kí* ‘should’ and irrealis *má* under it, where focus movement is possible.²¹ In (105), the wide scope reading is necessary after the focus with *nìkan* is moved before the negation, contrasting with the in-situ case in (104) that is ambiguous. Again, to obtain the narrow scope reading under negation, a biclausal configuration with *kì-í se* must be used, as in (106).

- (105) German_F **nìkan** ni kí o **kàn** má mu.
 German only FOC MOOD 2SG only NEG.INF take
 ONLY: ‘Only *German* is such that you shouldn’t take.’ (only > ¬)
 NOT: ‘You should not only take *German*.’ (*¬ > only)
- a. Wide scope (only > ¬) continuation
 ... Má mú German! Mú Faranse!
 NEG.INF take German take French
 ‘... Don’t take German, take French!’

21. *Kí* is usually analyzed as a complementizer in Yorùbá, but it can follow the regular complementizer *pé*.

- b. Narrow scope ($\neg > \text{only}$) continuation

#... Mú German ati Faranse!
 take German and French
 #‘... Take German and French!’

(106) kì-í še German_F **nìkan** ni kí o **kàn** mu.

NEG do German only FOC MOOD 2SG only take

NOT: ‘Only *German* is such that you shouldn’t take.’

(*only > $\neg$)

ONLY: ‘You should not only take *German*.’

($\neg > \text{only}$)

- a. Wide scope (only > $\neg$) continuation

#... Má mú German! Mú Faranse!
 NEG.INF take German take French
 #‘... Don’t take German, take French!’

- b. Narrow scope ($\neg > \text{only}$) continuation

... Mú German ati Faranse!
 take German and French
 ‘... Take German and French!’

The data of *má* form a mirroring pattern with *kò*:

(107) Word order vs. scope (in-situ focus)

- a. Word order: kò kàn (... Focus-*nìkan*)

(Scope: only > $\neg$, $\neg > \text{only}$)

- b. Word order: *kàn* má (... Focus-*nìkan*)

(Scope: only > $\neg$, $\neg > \text{only}$)

(108) Word order vs. scope (ex-situ focus)

- a. Word order: Focus-*nìkan* ... kò kàn ...

(Scope: only > $\neg$)

- b. Word order: Focus-*nìkan* ... *kàn* má ...

(Scope: only > $\neg$)

- c. Word order: kì-í ... Focus-*nìkan* ... *kàn* ...

(Scope: $\neg > \text{only}$)

It is clear that *kàn*’s position plays no role in determining the scope with negation. On the other hand, the position of the negation does affect scope with other elements, including the modal *lè* ‘may’ and adfocal *nìkan* ‘only’, as we have seen above. I thus conclude that *kàn* does not carry exclusive semantics.

It is the movement site of the focus, where *nikan* can be pronounced, that determines the scope.

4.4.4 Wide scope under ellipsis

The last difference between Vietnamese and Yoruba concerns ellipsis. As a cross-linguistically robust generalization, exclusive operators cannot associate *into* elided sites (English: Beaver and Clark 2008:§7; Bassi, Hirsch, and Trinh 2022; Cantonese: L. Y.-L. Cheung 2009:213; Yip 2025a, 2026; Kasem: Aremu 2025; cf. Tancredi 1990). The association is only possible if *only* itself is included in the ellipsis site.

(109) Focus association of *only* fails in VP ellipsis (Bassi, Hirsch, and Trinh 2022)

A: I **only** know he brought WHITE_F wine. What about you?

a. B1: I **only** know he brought WHITE_F wine, too.

b. *B2: I **only** know he did ~~bring WHITE_F wine~~, too.

cf. B3: I do ~~only know he brought WHITE_F wine~~, too.

cf. B4: I know he did ~~bring white wine~~, too.

(110) a. Kim only SALUTES_F because Sandy only SALUTES_F.

b. *Kim only SALUTES_F because Sandy only does ~~<SALUTES>~~.

(Beaver and Clark 2008:177)

I provide one more pair of examples in Cantonese, using the adverbial *zinghai* ‘only’.

(111) Focus association of *zinghai* fails in VP ellipsis in Cantonese

a. Aaming **zinghai** wui maai siusyut_F. *Aafan dou **zinghai** wui [~~VP maai siusyut_F~~]

Ming only will buy novel Fan also only will

Int.: ‘Ming will only buy *novels*. Fan as well.’

b. Aaming wui **zinghai** maai siusyut_F. Aafan dou wui [~~VP zinghai maai siusyut_F~~]

Ming will only buy novel Fan also will

‘Ming will only buy *novels*. Fan as well.’

Bassi, Hirsch, and Trinh (2022) argue that English adfocal *only* is not a quantifier, but it merely signals the presence of a null operator. Their argument is based on the scopal interaction of *only* with

ellipsis. English adfocal *only* shows a scopal ambiguity with modals. However, it loses the wide-scope interpretation under ellipsis.

- (112) a. Jill may bring **only** WINE_F. (may > only, only > may)
 b. ... Bill may, too. (◇ > only, *only > ◇)
 i# Therefore, Bill cannot bring beer.
 ii. ...Of course Bill can also bring beer if he likes.

(adapted from Bassi, Hirsch, and Trinh 2022:816,818)

Quantifiers, in contrast, preserve wide scope under ellipsis (Sag 1976; Fox 2000; Bassi, Hirsch, and Trinh 2022).

- (113) a. A boy is standing on **every** building. (...) (every > a)
 b. A girl is, too. (every > a)

(Bassi, Hirsch, and Trinh 2022:820)

Bassi, Hirsch, and Trinh (2022) propose that the contrast can be accounted for if one assumes that adfocal *only* in English is not an exclusive quantifier, but a concord particle signaling a null exclusive operator (EXCL/ONLY). In the attempted wide scope readings, the null operator appears above the pronounced modal, but it cannot associate into the ellipsis site with the unpronounced *wine*. In the narrow scope readings, in contrast, the null operator occurs below the modal and is included in the ellipsis site.

- (114) a. ^{OK}[Bill [may <EXCL [bring only WINE]>]]]
 b. *[Bill [EXCL [may <bring only WINE>]]]

(adapted from Bassi, Hirsch, and Trinh 2022:816,818)

This test is crucial for our purpose of testing the semantic import. We have seen above that Yorùbá adverbial *kàn* does not carry exclusive semantics. However, it does not mean that the adfocal *nìkan* carries exclusive semantics. One can easily imagine an alternative analysis that there is always a null operator responsible for exclusivity, as schematized in (115). The test above can help us decide whether it is *nìkan* or the purported null operator that has the relevant semantics.

- (115) Neither adverbial nor adfocal particles carry exclusive semantics in Yorùbá (to be rejected)

OP_{EXCL}-Ø ... *kàn* [VP ... XP_F-*nìkan*]

As for Vietnamese, we have argued above that adverbial *chỉ* carries exclusive semantics, but adfocal *mỗi* does not. We then expect that *mỗi* should behave like English adfocal *only* in banning wide scope under ellipsis.

4.4.4.1 Vietnamese

In Vietnamese, adverbial *chỉ* cannot associate into ellipsis site. This is shown in the examples (116) based on a storyboard.

(116) Failure of focus association into ellipsis site in Vietnamese

Preceding context (Karaoke-9)

Minh, bạn chỉ có thể hát [ba bài]_F.

Minh 2SG only can sing three CL

‘Minh, you can only sing *three* songs.’

a. *Baseline without ellipsis* (Karaoke-10)

Châu, em cũng **chỉ** có thể hát [ba bài]_F.

Chau 2SG also only can sing three CL

‘Châu, you also can only sing *three* songs.’

b. *Ellipsis site excludes chỉ* (Karaoke-10)

*Châu, em cũng **chỉ** có thể.

Chau 2SG also only can

Int.: ‘Châu, you also can only sing *three* songs.’

c. *Ellipsis site includes chỉ* (Karaoke-10)

Châu, em cũng {vậy/ thể}.

Chau 2SG also that.way that.way

‘Châu, you as well.’

We have established that Vietnamese also has the same constraint on focus association into ellipsis site for overt adverbial particles. Now we are in a position to test the null operator (if any) in cases with only the adfocal particles. As shown in (117), while *mỗi* may have wide scope above a modal like ‘may’, it is not available under ellipsis. Only the narrow scope ‘only’ reading is available.

(117) Wide scope does not survive ellipsis in Vietnamese

i. Context for narrow scope: *This is Nam and Lan's graduation day. Although everyone is supposed to bring at least two drinks, Nam and Lan are the ones who graduate so they are free from this limitation. You know that they like wine.*

ii. Context for wide scope: *This is a wine tasting day. Everyone must bring wine. No other alcohols are allowed. You know Nam and Lan will attend the event.*

a. Nam có thể mang **mỗi** [rượu vang]_F.

Nam may bring only wine

i. It is allowed that Nam only brings *wine*. (although Nam can also bring other alcohols)

(may > only)

ii. 'Nam can only bring *wine*.' (Nam cannot bring other alcohols like whisky)

(only > may)

b. ... Lan cũng có thể.

Lan also may

ONLY: '... It is also allowed that Lan only brings *wine*.'

(may > only)

NOT: '... Lan can only bring *wine* as well.'

(*only > may)

Together with the results of tests of backward association, multiple association, and scopal interaction with negation and modals as well as 'almost', I conclude that it is the adverbial particle *chỉ* that carries the exclusive semantics, but not the adfocal particle *mỗi*.

(118) The adverbial particle carries exclusive semantics in Vietnamese (as an A-quantifier)

[... **chỉ** ... [VP ... *mỗi*-XP_F]]

4.4.4.2 Yorùbá

In Yorùbá, *kàn* also fails to associate into ellipsis sites as shown below.

(119) Failure of focus association into ellipsis site in Yorùbá

a. Olùkó náà **kàn** gba John láàyè [láti ɕe German_F (nìkan)]. (...)

teacher the only permit John give.chance to do German only

'The teacher only allows John to take *German*.' (John cannot take French) (only > permit)

- b. ...*Olùkó **kàn** gba Mary náà láàyè [~~lāti-ʒe German nikan~~].
 teacher only permit Mary as.well give.chance

Int.: ‘The teacher also only allows Mary to take *German*.’ (Mary cannot take French)

(only > permit)

Note that (119) does not support that *kàn* is an exclusive operator—Cantonese SFP *zaa3* also fails to associate into ellipsis sites, as in (120) below, but we have already seen that it is a scalar particle rather than a true exclusive.

(120) Failure of focus association into ellipsis site of Cantonese SFP *zaa3*

Aaming wui zinghai maai [jat-bun syu]_F zaa3. (...)

Ming will only buy one-CL book SFP.only

‘Ming will only buy *one book*.’

- a. Aafan dou wui ~~zinghai maai [jat-bun syu]_F~~.

Fan also will

‘Fan will too.’

- b. *Aafan dou wui ~~zinghai maai [jat-bun syu]_F~~ **zaa3**.

Fan also will SFP.only

Int.: ‘Ming will only buy *one book*. Fan will too.’

It is possible that the ellipsis constraint is more general and applies to other focus-sensitive particles. This is orthogonal to the point intended here. The point of (119) is that it sets up the logic of argumentation of the ellipsis test. If *nikan* alone allows wide scope readings in ellipsis cases, we cannot attribute it to be a language-specific quirk, for example, that the ellipsis constraint is somehow absent in Yorùbá. Since Yorùbá does obey the ellipsis constraint, any survival of wide scope readings under ellipsis will support that *nikan* is the exclusive quantifier.

Nikan has scopal ambiguities with verbs like ‘permit’. Strikingly, both wide and narrow scope are *retained* when *nikan* and the focus are elided. The preservation of wide scope is evidenced by the continuation in (121c) (note that *kò lè* is unambiguously [not > may], as discussed above). Here, *fún idí èyí* ‘therefore, lit. for this reason’ indicates that “Mary cannot take French” is inferred from the wide scope reading, which excludes French from the permitted set of languages (i.e., only German) to be taken. If the sentence only has the narrow scope reading, this inference should not be successful—“Mary can-

not take French” is only compatible with, but does not follow from, the narrow scope reading (which essentially says nothing about permission of taking French).

(121) Wide scope over object control verbs survives ellipsis in Yorùbá

- a. Olùkọ náà gba John láàyè [láti ɕe German_F **nìkan**]. (...)
 teacher the permit John give.chance to do German only
 i. ‘The teacher allows John to take only *German*.’ (John can take French if he likes)
 (permit > only)
 ii. ‘The teacher only allows John to take *German*.’ (John cannot take French)
 (only > permit)
- b. ... Olùkọ gba Mary náà láàyè. (...)
 teacher permit Mary as.well give.chance
 i. ‘The teacher also allows Mary to take only *German*.’ (permit > only)
 ii. ‘The teacher also only allows Mary to take *German*.’ (only > permit)
- c. *Wide scope continuation*
 ... Fún ìdí èyí Mary kò lè ɕe Faransé.
 for reason this Mary NEG can do French
 ‘Therefore, Mary cannot take French.’

The same is observed with subject control verbs.

(122) Wide scope over subject control verbs survives ellipsis in Yorùbá

- a. Ade kò [láti gbe omi_F **nìkan** wá].
 Ade refuse to bring water only come
 i. ‘Ade refused to only bring *water*.’ ⇔ Ade wants to bring both wine and water.
 (refuse > only)
 ii. ‘Ade only refused to bring *water*.’ ⇔ Ade wants to bring wine but not water.
 (only > refuse)
- b. ... Ayo náà kò.
 Ayo also refuse
 i. ‘Ayo also refused to only bring *water*.’ (refuse > only)
 ii. ‘Ayo also only refused to bring *water*.’ (only > refuse)

c. *Narrow scope continuation*

... ó fe gbe waini náà wá.
 3SG want bring wine too come
 ‘He wants to bring wine too.’

d. *Wide scope continuation*

... kò fe gbe omi wá.
 NEG want bring water come
 ‘He doesn’t want to bring water.’

Therefore, I conclude that wide scope readings of *nìkan* survive ellipsis in Yorùbá.²² This disputes the alternative analysis in (123) where both *kàn* and *nìkan* are non-exclusive, and a null sentential operator is responsible for the exclusive semantics:

(123) Neither adverbial nor adfocal particles carry exclusive semantics in Yorùbá (rejected)

$\boxed{\text{OP}_{\text{EXCL}} - \emptyset}$... *kàn* ... [_{VP} ... *XP_F-nìkan*]

Nìkan is a D-quantifier. Its wide scope by covert movement is not bled by ellipsis, patterning with other D-quantifiers in English (e.g., *every*). There is no null sentential exclusive operator OP_{EXCL} in the language. This is schematized in (124).

(124) The adfocal particle carries exclusive semantics in Yorùbá (as a D-quantifier)

[... *kàn* ... [_{VP} ... *XP_F-nìkan*]]

22. Aremu (2026) claims that *nìkan*’s wide scope disappears after ellipsis. Yet, he did not replicate the example above in (121) (reported in Yip and Adedeji 2024, confirmed by 4 native speakers). Rather, he tested another example in (i). Unlike Aremu (2026), my consultants found the wide scope reading unavailable even in the non-elided baseline (i-a) (marked by %). Note that (i)’s narrow scope naturally entails the wide scope reading, as promising to only come tomorrow means not promising to come on other days.

- (i) a. Tolú şèlérí láti wá [ní òla] nìkan.
 Tolu promise to come LOC tomorrow only
 Tolu promised to come only tomorrow. (promise > only, %only > promise)
- b. Dàpò náà şèlérí [_{VP}...] pèlú.
 Dapo too promise also
 i. Narrow: ‘Dapo promised to only come tomorrow.’
 ii. *Wide: ‘Only tomorrow is such tha Dapo promised to come.’

4.4.5 The locus of scalarity

Having contrasted the import of exclusivity in Vietnamese and Yorùbá, we proceed to examining the locus of scalarity. In the following, I show that the pattern mirrors the exclusive import: it is the non-exclusive particle that signals the scalar component. In other words, it is **adfocal *mỗi*** that carries the scalar component in Vietnamese, whereas it is **adverbial *kàn*** that indicates the scalar component in Yorùbá. I recruit the tests developed for Cantonese in Chapter 2 and apply them to both languages.

4.4.5.1 Vietnamese

I present four tests of scalarity for Vietnamese below:

(125) Testing scalarity in exclusive doubling in Vietnamese

- a. Contextual (non-)salience of excluded alternatives
- b. Listing scenarios
- c. Equal-to-expectation vs. lower-than-expectation readings
- d. Superlatives: associating with upper bound vs. lower bound on a scale

Let us begin by testing the effect of contextual salience of alternatives on *mỗi*. The context in (126) does not highlight any alternatives. The use of adverbial *chỉ* is the most preferred option. Using *mỗi* conveys a strong sense of judgmental tone and fails to express the neutral tone required by the context. Most consultants commented that *mỗi* suggests that the customer “did not buy enough”, “was short of cash”, and gives rise to a certain attitude of “disappointment”, “expectation to buy something else”, and “whining as to why buy just one but not two”, and even “brings up a drama”. This judgmental tone is found in both singleton *mỗi* and doubling cases.

(126) The lack of contextual salient alternatives

You are a cashier in a meat market. You just served a customer, and your colleague seems to be curious about what that person bought. You report in a neutral tone:

- a. Người đó **chỉ** mua [thịt bò]_F (à).

person that only buy beef SFP

‘That person only bought *beef*.’

↪ Neutral tone

(mean=6.8/7, SD=0.56, n=15)

b. Người đó mua **mỗi** [thịt bò]_F.

person that buy only beef

‘That person only bought *beef*.’

↪ Judgmental tone related to “not enough”

(mean=5.6/7, SD=0.99, n=15)

c. Người đó **chỉ** mua **mỗi** [thịt bò]_F.

person that only buy only beef

‘That person only bought *beef*.’

↪ Judgmental tone related to “not enough”

(mean=5.67/7, SD=1.11, n=15)

A consultant reported that adding a follow-up sentence *Nghèo nàn thật* “how poor!” renders *mỗi* natural and even more preferred than *chỉ*.

(127) {a. (126a)/ b. (126b)/ c. (126c)} ... Nghèo nàn thật!

poor really

‘That person only bought *beef*. How poor!’

a. *Chỉ*: 5/7, n=1

b. *Mỗi*: 7/7, n=1

c. *Chỉ...mỗi*: 7/7, n=1

Another way to improve *mỗi* is to highlight the salience of an excluded alternative, such as by bringing it up in a preceding question, as in (128). The consultants often reported that the use of *mỗi* in this context no longer gives rise to the judgmental, “not enough”, or “drama-like” tone, and can be neutral. It also conveys a contrastive sense of “expecting pork but only beef was bought”. A few speakers however reported that the judgmental tone still persists.²³

23. Northern Vietnamese uses *thịt lợn* for ‘pork, lit. meat-pig’ and Southern Vietnamese uses *thịt heo*.

(128) The presence of contextual salient alternatives

You are a cashier in a meat market. You just served a customer, and your colleague asked whether the customer bought pork (Q). Then you answer: that person only bought beef (A1/A2/A3).

Q. Người đó có mua thịt lợn/heo, phải không?

person that have buy pork right not

‘That person bought pork, right?’

A1. *Chỉ*: (126a) ‘That person only bought *beef*.’ (mean=6.69/7, SD=0.63, n=13)

A2. *Môi*: (126b) ‘That person only bought *beef*.’ (mean=6.31/7, SD=0.75, n=13)

↪ can be a neutral tone for most speakers; remains judgmental for a few

A3. *Chỉ...môi*: (126c) ‘That person only bought *beef*.’ (mean=6.54/7, SD=0.78, n=13)

↪ can be a neutral tone for most speakers; remains judgmental for a few

A final way to improve *môi* is to bring up a scale of quantity by mentioning conjunction of two alternatives in the context, such as the preceding question ‘did the customer buy both pork and beef?’ in (129). This is the most natural context to use *môi* for all my consultants, including those speakers who found (128) above judgmental, as indicated by the highest rating and the lowest standard deviation value. We can conclude that *môi* carries a strong scalar component that is best satisfied by a ranking on a contextual scale, rather than mere contextual salience.

(129) The presence of a scale of quantity

You are a cashier in a meat market. You just served a customer, and your colleague asked whether the customer bought pork and beef (Q). Then you answer: that person only bought beef (A1/A2/A3).

Q. Người đó có mua thịt lợn/heo và thịt bò, phải không?

person that have buy pork and beef right not

‘That person bought pork and beef, right?’

A1. *Chỉ*: (126a) ‘That person only bought *beef*.’ (mean=6.78/7, SD=0.44, n=9)

A2. *Môi*: (126b) ‘That person only bought *beef*.’ (mean=6.55/7, SD=0.52, n=11)

(i.e., just one kind of meat)

A3. *Chỉ...môi*: (126c) ‘That person only bought *beef*.’ (mean=7/7, SD=0, n=9)

(i.e., just one kind of meat)

Second, in a listing scenario where the alternatives are equally salient and the contextual scale is suppressed as in (130), adverbial *chỉ* conveys a neutral tone without any speaker's judgment. However, once adverbial *mỗi* is used, the consultants often reported that it conveys a sense of the speaker's judgment. Some comments from them are that (130b) and (130c) express that Nam, Minh, and Lan are "very picky", "difficult people", "annoying and could only eat one kind of meat; hard to entertain", and the speaker thinks "why don't they eat all the meat". This further confirms that *mỗi* has a scalar component which ranks the focus lower on some scale (e.g., quantity).

(130) A listing scenario

There will be a party soon. You're reporting the dietary restrictions of each person to the organizer:

- a. Nam **chỉ** ăn [thịt bò]_F, Minh **chỉ** ăn [thịt cừu]_F, Lan **chỉ** ăn [thịt heo]_F, ...

Nam only eat beef Minh only eat lamb Lan only eat pork

'Nam only eats *beef*, Minh only eats *lamb*, Lan only eats *pork* ...'

↪ Neutral tone (mean=6.93/7, SD=0.26, n=15)

- b. Nam ăn **mỗi** [thịt bò]_F, Minh ăn **mỗi** [thịt cừu]_F, Lan ăn **mỗi** [thịt heo]_F, ...

Nam eat only beef Minh eat only lamb Lan eat only pork

'Nam only eats *beef*, Minh only eats *lamb*, Lan only eats *pork* ...'

↪ Judgmental/negative tone related to pickiness (mean=6.08/7, SD=0.64, n=13)

- c. Nam **chỉ** ăn **mỗi** [thịt bò]_F, Minh **chỉ** ăn **mỗi** [thịt cừu]_F, Lan **chỉ** ăn **mỗi**

Nam only eat only beef Minh only eat only lamb Lan only eat only

[thịt heo]_F, ...

pork

'Nam only eats *beef*, Minh only eats *lamb*, Lan only eats *pork* ...'

↪ Judgmental/negative tone related to pickiness (mean=6.31/7, SD=0.63, n=13)

Third, consider an equal-to-expectation case in (131) which is elicited from a storyboard. The context suppresses the numerical scale by marking “one” as the expected number. Here, *mỗi* is less preferred, as indicated by its lower naturalness rating. The fully felicitous option is the singleton *chỉ* case.

(131) An equal-to-expectation reading in Vietnamese

Context: Bear, Snake, and Fish threw a party. Since very often people/animals overlap in bringing drinks but not food, they planned to each bring one kind of thing. Squirrel asked Crab what they brought. Crab answers, everyone brought one kind of thing. This is as expected.

- a. Animal-Party-4 (mean=6.9/7, SD=0.31, n=20)

Mỗi người **chỉ** mang [một thứ]_F.

each person only bring one kind

‘Each person only brought *one kind* of thing.’

- b. Animal-Party-4 (mean=4.2/7, SD=1.51, n=20)

#Mỗi người mang **mỗi** [một thứ]_F.

each person bring only one kind

‘Each person just brought *one kind* of thing.’ ⇏ not enough, should be more

- c. Animal-Party-4 (mean=5.36/7, SD=1.56, n=14)

#Mỗi người **chỉ** mang **mỗi** [một thứ]_F.

each person only bring only one kind

‘Each person just brought *one kind* of thing.’ ⇏ not enough, should be more

Let us further compare two scenarios, one with suppression of the scale, and the other with activation of the scale. The first scenario in (132) is what the original storyboard has. Every animal was supposed to bring one kind of thing, and Bear did. Here, using *mỗi* to ask what Bear bought is degraded. Note that this is a case of association with *wh*-words, which is possible in Vietnamese with *chỉ* or *mỗi* (or both), as discussed in §4.2.

(132) An equal-to-expectation reading, with *wh*-association

Everyone bought one kind of thing. This is as expected. Squirrel asks: “Bear only brought what?”

- a. Animal-Party-5 (mean=6.76/7, SD=0.71, n=19)

Gấu **chỉ** mang [cái gì]_F đến?

bear only bring what come

Lit.: ‘Bear only brought *what?*’, i.e., ‘What is the x such that Bear only bought x?’

- b. Animal-Party-5 (mean=4.74/7, SD=1.28, n=19)

#Gấu mang **mỗi** [cái gì]_F đến?

bear bring only what come

Lit.: ‘Bear only brought *what?*’, i.e., ‘What is the x such that Bear only bought x?’

- c. Animal-Party-5 (mean=5.53/7, SD=1.31, n=19)

#Gấu **chỉ** mang **mỗi** [cái gì]_F đến?

bear only bring only what come

Lit.: ‘Bear only brought *what?*’, i.e., ‘What is the x such that Bear only bought x?’

In contrast, the second scenario in (133) says that every animal was supposed to bring *two* kinds of thing but Bear only brought one. This makes the numerical scale of quantity salient. Now, the use of *mỗi* is much improved. This shows that *mỗi* is licensed when the context supports a lower ranking of the focus than an alternative on a scale.

(133) A lower-than-expectation reading, with *wh*-association

Context: Everyone is supposed to bring two. However, Bear only brought one. Squirrel asks: "Bear only brought what?"

- a. Animal-Party-5, modified (mean=6.69/7, SD=0.75, n=18)

Gấu **chỉ** mang [cái gì]_F đến?

bear only bring what come

Lit.: 'Bear only brought *what?*', i.e., 'What is the x such that Bear only bought x?'

- b. Animal-Party-5, modified (mean=6.19/7, SD=1.1, n=18)

Gấu mang **mỗi** [cái gì]_F đến?

bear bring only what come

Lit.: 'Bear only brought *what?*', i.e., 'What is the x such that Bear only bought x?'

- c. Animal-Party-5, modified (mean=6.44/7, SD=1.04, n=18)

Gấu **chỉ** mang **mỗi** [cái gì]_F đến?

bear only bring only what come

Lit.: 'Bear only brought *what?*', i.e., 'What is the x such that Bear only bought x?'

Last but not least, consider the superlative test. The context in (134) invokes two scales: performance of the student and difficulty of the assignments, which correlate with each other. The harder the assignment the student does, the better the student is. The focus involves a superlative of the upper bound of the difficulty scale (i.e., “the hardest problem set”), which signals the upper bound of the performance scale as well (i.e., “the best student”). Here, *mỗi* is less natural. Only *chỉ* may convey the intended reading felicitously. Some consultants also reported that *mỗi* gives rise to a negative tone that Nam was supposed to do more than one problem set, but he only did one. In other words, to license *mỗi* in this context, an additional scale of quantity should be invoked in order to rank the focus lower than an alternative: <one PS, two PS, ...>.

(134) A superlative test with the upper bound in Vietnamese

This school has a policy of issuing multiple problem sets for each assignment due and students only need to submit one. You ask a teacher who is the best student. The teacher answered: Nam is the best student, because ...

- a. Em ấy **chỉ** làm [bài tập khó nhất]_F
 3sg only do assignment difficult most
 ‘He only does the *hardest* assignment.’ (mean=7/7, SD=0, n=13)
- b. #Em ấy làm **mỗi** [bài tập khó nhất]_F
 3sg do only assignment difficult most
 ‘He only does the *hardest* assignment.’ ⇏ not enough (mean=5.43/7, SD=1.28, n=14)
- c. #Em ấy **chỉ** làm **mỗi** [bài tập khó nhất]_F
 3sg only do only assignment difficult most
 ‘He only does the *hardest* assignment.’ ⇏ not enough (mean=5.57/7, SD=1.09, n=14)

In contrast, when the superlative targets the lower bound of the difficulty scale (i.e., “the easiest problem set”), which is also a lower bound of the performance scale (i.e., “the worst student”), *mỗi* is more natural.

(135) A superlative test with the lower bound in Vietnamese

[You ask a teacher who is the worst student. The teacher answered: Nam is the worst student, because ...]

- a. Em ấy **chỉ** làm [bài tập dễ nhất]_F
3sg only do assignment easy most
‘He only does the *easiest* assignment.’ (mean=7/7, SD=0, n=13)
- b. Em ấy làm **mỗi** [bài tập dễ nhất]_F
3sg do only assignment easy most
‘He only does the *easiest* assignment.’ (mean=6.64/7, SD=1.08, n=14)
- c. Em ấy **chỉ** làm **mỗi** [bài tập dễ nhất]_F
3sg only do only assignment easy most
‘He only does the *easiest* assignment.’ (mean=6.57/7, SD=0.94, n=14)

In short, we have seen that in adverbial-adfocal doubling in Vietnamese, the adfocal particle *mỗi* carries a scalar component, which is not required by the adverbial particle *chỉ*. The scalar component says that the focus should be ranked lower than the excluded alternatives on a contextual scale. Unlike Cantonese SFP *zaa3* ‘only’, an ordering of contextual salience is not a sufficient licensing condition of Vietnamese adfocal *mỗi* at least for some speakers.

Before proceeding to Yorùbá, two notes are in order regarding the differences between Cantonese *zinghai-zaa3* doubling and Vietnamese *chỉ-mỗi* doubling. Recall the discussion in Chapter 2 that Cantonese *zinghai*’s exclusion is entailment-based, and it lacks the English *only*’s scalar uses, which exclude alternatives by their ranking on a non-logical scale (“scalar exclusion”). The scalar *only* allows for association with the focus when only one alternative can be true, which is not possible for *zinghai* (i.e., *zinghai* cannot perform “vacuous quantification”). Although *zaa3* encodes a scalar component, it is not-at-issue and does not affect the truth conditions in cases with *zinghai*. To convey this scalar exclusion, only the scalar *zihai* can be used. The examples are reproduced below.

- (136) a. ??Nei-ci caakjim Aaming **zinghai** paai dai-ji_F ming **zaa3**. [Cantonese]

this-CL test Ming only rank second place SFP.only.

Int.: 'Ming only/just ranked the *second* (highest score) on this test.'

- b. Nei-ci caakjim Aaming **zihai** paai dai-ji_F ming **zaa3**. [Cantonese]

this-CL test Ming only rank second place SFP.only.

'Ming just ranked the *second* (highest score) on this test.'

Interestingly, such a scalar exclusion is allowed in Vietnamese *chi-mỗi* doubling, as in (137). Since one test only has one score, getting 10 points already excludes the possibilities of getting other amount of points. This is a case where only scalar *only* but not quantificational *only* is licensed.

- (137) a. Trong bài kiểm tra này, Lan được 80 điểm. (...)

in CL test this Lan get 80 point

'In this test, Lan got 80 points. (...)'

- b. ... còn Nam **chỉ** được **mỗi** [10 điểm]_F. Nam dốt lắm!

and Nam only get only 10 point Nam stupid very

'Nam only got 10 points. Nam is so stupid!'

Second, recall that Cantonese *zinghai-zaa3* doubling does not have a downplaying reading. Such a reading requires adverbial *zibatgwo* 'just' and SFP *ze1* 'just'. An example is illustrated below.

- (138) *Ming lost 500 HKD today and he keeps complaining to me. I say to him, "you only lost 500 HKD, not a big deal – I lost 1000 HKD before!"*

- a. #Nei **zinghai** mgin-zo [500 man]_F **zaa3**. [Cantonese]

2SG only lose-PFV 500 dollar SFP.only

Int.: 'You just lost 500 HKD, not a big deal.'

- b. Nei **zibatgwo** mgin-zo [500 man]_F **ze1**. [Cantonese]

2SG just lose-PFV 500 dollar SFP.just

'You just lost 500 HKD, not a big deal.'

Vietnamese *chi-mỗi* doubling allows such a downplaying reading, unlike Cantonese.

- (139) *Nam lost 500K dong today and he keeps complaining to me. I say to him, “you only lost 500K dong, not a big deal – I lost 1000K dong before!”*

Bạn **chỉ** mất **mỗi** 500K_F.

2sg only lose only 500K

‘You just lost 500K dong, not a big deal.’

4.4.5.2 Yorùbá

Turning to Yorùbá, I also present four tests to examine the scalar component in *kàn-nìkan* doubling. After that, I will discuss whether the scalar component has truth conditional effects, in relation to a different adfocal *lásán* ‘only, just’ which performs scalar exclusion.

(140) Testing scalarity in exclusive doubling in Yorùbá

- a. Contextual (non-)salience of excluded alternatives
- b. Listing scenarios
- c. Equal-to-expectation vs. lower-than-expectation readings
- d. Superlatives: associating with upper bound vs. lower bound on a scale

First, when the excluded alternatives are not salient in the context, using *nìkan* alone is felicitous, as in (141). However, using *kàn* gives rise to an additional scalar reading, implying, for example, ‘lamb is the cheapest’. This no longer fits to the context with the intended neutral and reporting tone.

(141) The lack of contextual salient alternatives

*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 s/he bought. You answer in a **neutral, reporting** tone:*

- a. ó ra àgbò_F **nìkan**.

3sg buy lamb only

‘S/he only bought *lamb*.’

- b. #ó **kàn** ra àgbò_F.

3sg only buy lamb

‘S/he only/just bought *lamb*.’ $\rightsquigarrow$ Lamb is cheapest, etc.

c. #ó **kàn** ra àgbò_F **nìkan**

3sg only buy lamb only

‘S/he only/just bought *lamb*.’ ∼→ Lamb is cheapest, etc.

As briefly mentioned in §4.2.2, Yorùbá has a scalar adfocal particle, *lásán*. It is not licensed in this context as well. Its use implies that buying only lamb is not enough, and people usually buy more.

(142) *Same context as (141)*

#ó ra àgbò_F **lásán**

3sg buy lamb just

‘S/he just bought *lamb*.’ ∼→ usually people buy more

Kàn can be used in a context where the excluded alternative is salient, even though its ranking on a contextual scale (e.g., price) is the same as the focus. This is shown in (143). Interestingly, *lásán* is still not licensed. It seems that *lásán* cannot be licensed by mere contextual salience, similar to Cantonese adverbial *zibatgwo* and Vietnamese adfocal *mỗĩ*. Put differently, the exclusion performed by *lásán* must be based on a contextual scale rather than salience.

(143) The presence of contextual salient alternatives

*You are a cashier in a meat market in the US. **Beef and lamb have the same price.** You just served a customer, and your colleague asked **whether the customer bought beef.** You answer:*

a. Rárá, ó ra àgbò_F **nìkan**.

no 3sg buy lamb only

‘No, s/he only bought *lamb*.’

b. Rárá, ó **kàn** ra àgbò_F (**nìkan**).

no 3sg only buy lamb only

‘No, s/he only/just bought *lamb*.’

c. #Rárá, ó ra àgbò_F **lásán**

no 3sg buy lamb just

‘No, s/he just bought *lamb*.’

Second, consider a listing scenario in (144). With all the alternatives equally salient, only *nìkan*

(144) A listing scenario

289

b. ... #Bíà **kàn** gbé oúnjẹ_F wá.

Bear only carry food come

‘... And Bear only/just brought *the food*.’ ∼ Bear should have brought more

c. ... #Bíà **kàn** gbé oúnjẹ_F **nìkan** wá.

Bear only carry food only come

‘... And Bear only/just brought bring *the food*.’ ∼ Bear should have brought more

In contrast, when the expectation is “two” instead of “one”, using *kàn* alone becomes felicitous. Moreover, as compared to using *nìkan* alone, adding *kàn* is preferred to convey the lower-than-expectation reading.

(146) A lower-than-expectation reading

Ó yẹ kí Bíà gbé ǹ̀kan méjì_F wá. (...)

EXPL suppose MOOD Bear carry something two come

‘Bear was expected to bring two (kinds of thing).’

a. ... ^{??}Bíà (si) gbé oúnjẹ_F **nìkan** wá.

Bear and carry food only come

‘... And Bear did only bring *the food*.’

b. ... Bíà **kàn** gbé oúnjẹ_F wá.

Bear only carry food come

‘... And Bear only/just brought *the food*.’ ∼ Bear should have brought more

c. ... Bíà **kàn** gbé oúnjẹ_F **nìkan** wá.

Bear only carry food only come

‘... And Bear only/just brought bring *the food*.’ ∼ Bear should have brought more

Lastly, *kàn*, unlike *nìkan*, cannot associate with the upper bound of a scale, as shown in (147). The scale here is the price of wine, which is made salient by the context where the wealth of customers is evaluated.

(147) A superlative test with the upper bound

This is wine store. Usually people only buy one kind of wine. You ask the boss who is the richest customer. The boss answered: Ade is the richest, because ...

a. ó máa-ní ra [waini tí ó wọn jù lọ]_F **nikan**.

3SG HAB-PROG buy wine REL 3SG expensive EXC EXC only

‘He only buys the *most expensive* wine.’

b. #ó **kàn** máa-ní ra [waini tí ó wọn jù lọ]_F.

3SG only HAB-PROG buy wine REL 3SG expensive EXC EXC

‘He only/just buys the *most expensive* wine.’

c. #ó **kàn** máa-ní ra [waini tí ó wọn jù lọ]_F **nikan**.

3SG only HAB-PROG buy wine REL 3SG expensive EXC EXC only

‘He only/just buys the *most expensive* wine.’

If we change the focus to be the lower bound of a scale (i.e., “the cheapest wine”), *kàn* can then associate with it.

(148) A superlative test with the lower bound

This is wine store. Usually people only buy one kind of wine. You ask the boss who is the poorest customer. The boss answered: Ade is the poorest, because ...

a. ó máa-ní ra [waini tí ó rọjú jù lọ]_F **nikan**.

3SG HAB-PROG buy wine REL 3SG cheap EXC EXC only

‘He only buys the *cheapest* wine.’

b. ó **kàn** máa-ní ra [waini tí ó rọjú jù lọ]_F.

3SG only HAB-PROG buy wine REL 3SG cheap EXC EXC

‘He only/just buys the *cheapest* wine.’

c. ó **kàn** máa-ní ra [waini tí ó rọjú jù lọ]_F **nikan**.

3SG only HAB-PROG buy wine REL 3SG cheap EXC EXC only

‘He only/just buys the *cheapest* wine.’

In short, we see that *kàn* is associated with a scalar requirement of ranking the focus lower on some

scale, which can be based on quantity or non-logical strength (e.g., price), or even contextual salience. This component is absent in the meaning of *nìkan*.

Having established the scalar component of *kàn*, I discuss whether this component affects the truth conditions of the exclusion performed by *nìkan* in doubling. As we will see, the answer is no. This is similar to Cantonese *zinghai-zaa3* doubling. I present three tests below, where have also been recruited to test Cantonese Adv-SFP doubling with *zinghai* and *zaa3* (Chapter 2):

(149) Testing the truth-conditional effects of scalarity

- a. Rank order readings with compatible alternatives
- b. Rank order readings with incompatible alternatives
- c. Negating the preadjacent

First, consider a rank-order reading with compatible alternatives. In the scenario in (150), Togo got two medals. Getting a silver, of course, does not entail getting a bronze. If the exclusion is entailment-based, it would be inconsistent with the context. However, silver is ranked higher than bronze on the medal rank. If the exclusion is based on a scale/rank of non-logical strength, then it should exclude only gold instead of also bronze, consistent with the context. Here, using *nìkan* alone is infelicitous in (150a). It conveys an entailment-based exclusion reading where bronze is also excluded, contradicting the context. Using *kàn* alone in (150b), on the other hand, delivers the intended scalar exclusion.

(150) A rank-order reading with compatible alternatives

Scenario: [Olympic game: Nigeria got 1 gold | Togo got 1 silver & 1 bronze]

Ade and you are discussing which team performed the best in the last Olympic game. You said: Nigeria was definitely better, because ...

- a. #Tógò gba [àmì fàdákàF kan] **nìkan**. (Wòn sì gba bàbà kan.)
Togo collect medal silver one only 3PL and collect bronze one
‘The only medal Togo got was a *silver*. (Well, they also got a bronze.)’
- b. Tógò **kàn** gba [àmì fàdákàF kan]. (Wòn sì gba bàbà kan.)
Togo only collect medal silver one 3PL and collect bronze one
‘Togo only/just got a *silver*. (Well, they also got a bronze.)’

c. #Tógò **kàn** gba [àmì fàdákàf kan] **nikan**. (Wòn sì gba bàbà kan.)

Togo only collect medal silver one only 3PL and collect bronze one

#‘The only medal Togo got was just a *silver*. (Well, they also got a bronze.)’

Importantly, scalar exclusion is still *not* possible in the doubling case in (150c). This is expected if *nikan* carries exclusive semantics on the at-issue level and *kàn* signals scalar readings on the not-at-issue level. This case is reminiscent of Cantonese *zinghai-zaa3* doubling, where the use of *zaa3* does not affect the entailment-based exclusion performed by *zinghai*, as shown below (reproduced from Chapter 2).

(151) Scenario: [Taiwan: 1 gold | Hong Kong: 1 silver 1 bronze] [Cantonese]

Ming and you are discussing which team performed the best in the last Olympic game. You said: Taiwan was definitely better, because ...

a. ??Gongdeoi **zinghai** ling-zo jat-go aagwan_F.

HK.team only get-PFV one-CL 1st-runner-up

Int.: ‘Hong Kong Team only got a *silver*. (What a loser.)’

b. ??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.)’

c. Gongdeoi (**zihai**_{scalar}) ling-zo jat-go aagwan_F **zaa3**.

HK.team only get-PFV one-CL 1st-runner-up SFP.only

‘Hong Kong Team only got a *silver*. (What a loser.)’

The second test also involves a rank order but with incompatible alternatives. That is, the truth of one alternative implies the falsity of the other alternatives according to our world knowledge. An entailment-based exclusion would be vacuous and lead to abnormality, whereas a scalar exclusion is not subject to the same constraint (e.g., Coppock and Beaver 2014; Alxatib 2020). The test is given in (152). Here, *Nikan* expresses an infelicitous reading where John could have got two kinds of points (e.g., one for performance and one for participation). To express the scalar reading that John’s point is lower than some alternative (e.g., Mary’s point), only *kàn* alone can be used. Doubling is not felicitous either, suggesting that *kàn* does not alter the basis of the *nikan*’s exclusion. Note that the scalar adfocal particle *lāsán* ‘only, just’ can be used here and also doubled with *kàn*.

(152) A rank-order reading with incompatible alternatives

- a. #Ìdà ọ́górín_F **nìkan** ni John (**kàn**) gbà nínú ẹ̀kọ́ Faranse.
 present eighty only FOC John only get inside course French
 #‘The only kind of points John got is *80 points* for French.’
- b. Ìdà ọ́górín_F ni John **kàn** gbà nínú ẹ̀kọ́ Faranse.
 present eighty FOC John only get inside course French
 ‘John only got *80 points* for French.’ (while Mary got 90 points!)
- c. Ìdà ọ́górín_F **lásán** ni John (**kàn**) gbà nínú ẹ̀kọ́ Faranse.
 present eighty just FOC John only get inside course French
 ‘John only got *80 points* for French.’ (while Mary got 90 points!)

The third test is about whether the prejacent can be negated. Quantificational *only* presupposes its prejacent, which projects through negation. In the case of scalar *only* (for some English speakers) and *just*, however, the truth of the prejacent does not project up (Coppock and Beaver 2014).

(153) John isn’t **just/%only** a graduate student. (He is a professor!)

→ John is a graduate student (adapted from Coppock and Beaver 2014:379)

In Yorùbá, when *nìkan* is negated, the prejacent always projects up, as in (154). Using *nìkan* alone yields a pragmatically odd reading that the presenter is both a graduate student and a professor, whereas using *kan* is unproblematic. Again, doubling *nìkan* and *kan* result in the same odd reading that the presenter is both.

(154) (Non-)projection of prejacent of exclusives through negation

At a conference, you just attended a talk greatly delivered. You told Ade that the presenter must be a graduate student instead of just an undergraduate student. Ade answer:

- a. #Ràrá, ki-i ẹ̀ [akekoo-gboye]_F **nìkan**, ojogbon ni
 no, NEG do student-certify only professor COP
 #‘No! S/he is not only a graduate student but also a professor.’ (i.e., S/he is both)

- b. Rára, kii **kan**-an še akekoo-gboyef, ojogbon ni
 no NEG only-HTS do student-certify professor COP
 ‘No! S/he is not just *a graduate student*. S/he is (actually) a professor.’
- c. #Rára, kii **kan**-an še akekoo-gboyef **nikan**, ojogbon ni
 no NEG only-HTS do student-certify only professor COP
 #‘No! S/he is not only *a graduate student* but also a professor.’ (i.e., S/he is both)

From the above three tests we see that *nikan* performs an entailment-based exclusion, and the truth conditions remain unchanged in doubling with *kàn*. Therefore, *kàn*’s scalar component has no truth conditional effects and is not-at-issue. It is compatible with both entailment-based exclusion (by adfocal *nikan*) and scalar exclusion (by adfocal *lásán*). Moreover, *kàn* also allows for a downplaying reading, where the exclusion is not entailment-based, as in (155) (with a sentence-final *ni* that marks the whole clause as the focus).

- (155) [Akín **kàn** še German]_F ni. (ó tún še Faransé.)
 Akin just do German FOC 3SG also do French
 ‘John just took German (as a requirement, nothing special). He also took French.’

4.4.6 Interim summary

To summarize, Vietnamese and Yorùbá systematically differ in the semantic import of exclusivity:

(156) Differences in association and scopal behavior of exclusive focus particles

- a. *Backward association*
 Adverbial *chi* in Vietnamese does not allow backward association with moved focus, whereas adverbial *kàn* in Yorùbá does;
- b. *Multiple association*
 Adverbial *chi* in Vietnamese may establish association different from that of adfocal *môi* in multiple-focus cases, whereas adverbial *kàn* may not and is dependent on adfocal *nikan*;

c. *Scopal interaction with negation and modals*

The position of adverbial *chi* in Vietnamese determines the scope with negation and modals, whereas the position of adverbial *kàn* does not.

d. *Wide scope under ellipsis*

The wide scope reading of adfocal *mỗi* in Vietnamese does not survive in ellipsis, and yet that of adfocal *nikan* does.

I have also responded to a recent objection by Aremu (2026). While his observations are insightful, I demonstrate they do not constitute valid counterarguments. The challenges either did not consider independent properties of Yorùbá (e.g., negation blocking reconstruction), or have empirical confounds (e.g., *kàn*'s scalarity). Once both aspects are considered, the patterns no longer support his intended claim. Note that I have not discussed Aremu (2026)'s last counterargument based on split scope readings. I will address it in §4.5.3 after offering the proposal, and show it also does not hold up as a challenge.

Furthermore, I have demonstrated that Vietnamese and Yorùbá systematically differ in the semantic import of scalarity as well. Scularity here refers to the a (not-at-issue) scalar requirement that the prejacent of exclusives is ranked lower than excluded alternatives along a contextual scale. I applied the tests developed for Cantonese to both languages, and showed that the locus of scalarity corresponds to the non-exclusive particles in the doubling.

(157) The locus of scalarity

The scalar component is carried by the adfocal *mỗi* in Vietnamese, whereas it is signaled by the adverbial *kàn* in Yorùbá.

We thus obtain a neat mirroring pattern of exclusive doubling in Vietnamese and Yorùbá, where the imports for exclusivity and scalarity are flipped in positions/particle types.

(158) Differential semantic import in adverbial-adfocal exclusive doubling in Vietnamese

[*chi*_[Exclusivity] ... [*mỗi*_[Scularity] XP_F] ...]]
└──────────────────┘

(159) Differential semantic import in adverbial-adfocal exclusive doubling in Yorùbá

[*kàn*_[Scularity] ... [XP_F *nikan*_[Exclusivity]] ...]] (simplified, see §4.5.2)
└──────────────────┘

4.5 Parameterizing ‘only’

This section argues that Vietnamese and Yorùbá differ in the semantic type of exclusives. Vietnamese has an A-quantifier exclusive manifested as adverbial *chỉ*, which is a one-place propositional operator. Yorùbá has a D-quantifier exclusive manifested as adfocal *nìkan*, which is a two-place operator on entities and properties. In other words, the semantic type of exclusives is “parameterized” in the two languages, comparable to Coppock and Beaver (2014)’s type parameter for exclusives. The other particles, namely, adfocal *mỗi* in Vietnamese and adverbial *kàn* in Yorùbá, do not carry exclusive semantics but rather not-at-issue scalarity. As I will propose, they also differ in their semantics types: *mỗi* is a two-place operator on entities and properties, whereas *kàn* is associated with a two-place scalar operator on quantifiers and properties. We then obtain two types of languages of exclusive doubling, as in (160).

- (160) a. *Type I: doubling, adverbial particle*= OP_{EXCL}

$\boxed{OP_{EXCL}}$ [VP ... Prt-XP_F] (Vietnamese; English)

- b. *Type II: doubling, adfocal particle*= Qu_{EXCL}

Prt [VP ... $\boxed{Qu_{EXCL}}$ -XP_F] (Yorùbá)

I will discuss Vietnamese in §4.5.1 first, and then turn to Yorùbá in §4.5.2. I discuss an issue of split scope readings at the end in §4.5.3.

4.5.1 Vietnamese: Exclusivity as A-quantification

In this subsection, I propose that Vietnamese adverbial-adfocal exclusive doubling instantiates a scalar focus structure like Cantonese adverbial-SFP exclusive doubling, but the relative positions between the exclusive and scalar operators are flipped: the former is higher than the latter in the Vietnamese case, as illustrated in (161).

- (161) Adverbial-adfocal exclusive doubling realizes scalar focus structures in Vietnamese

[*chỉ*_[Exclusivity] ... [*mỗi*_[Scalarity] XP_F] ...]
└────────────────────────────────┘

I argue that their quantification domains, the Roothian C variables, are co-indexed, just like the Adv-SFP doubling case. The co-indexation approach not only derives the scalar focus meaning composi-

tionally, but also the (c)overt movement of the focus in syntax. The proposal is elaborated in §4.5.1.1, with discussion of an alternative with alternative passing ($\sim_{pass}$) in §4.5.1.2.

4.5.1.1 A scalar focus analysis with alternative co-indexation

Before giving a compositional analysis of the semantics of doubling, it is necessary to flesh out some syntactic assumptions. First, I assume that *chi* is an adverb rather than a functional head (following Erlewine 2017b; Hole 2017; *pace* Sun 2021 who analyzes it as a Foc head).²⁵ As argued in Chapter 3, *chi* has flexible adjunction sites to the main clause from CP to ν P:

- (162) The syntax of adverbial *chi*
- $$[\text{CP} \Delta [\text{TP} \Delta [\text{vP} \Delta [\text{vP} \Delta [\text{v} \text{ V } * \Delta \text{ Obj } * \Delta \dots]]]]]$$
- Flexible adjunction sites of *chi*

As for $\tilde{m\ddot{o}i}$, I assume that it forms a constituent with a full-fledged DP, labeled as QP here. It cannot occur inside a DP. I further assume that it requires F-marking of or within its syntactic sister. This is why $\tilde{m\ddot{o}i}$ is always “adfocal” (attaching to a focus).²⁶

- (163) The syntax of adfocal $\tilde{m\ddot{o}i}$ ‘only’
- $$[\text{QP } \tilde{m\ddot{o}i} [\text{DP} [\text{NumP} [\text{CIP } \text{NP}]]]]_{\text{F}}$$

Second, as already argued in §4.3, $\tilde{m\ddot{o}i}$ and its focus associate move to a position right below *chi*. In the in-situ cases, covert movement still happens and can be detected by island effects (see evidence in §4.3; *pace* Hole 2017; Quek and Hirsch 2017’s Agree-only analysis for in-situ cases), as in (164).

- (164) Focus movement of $\tilde{m\ddot{o}i}$ -QP

- a. $[\text{TP}/\nu\text{P} \dots \text{ch}\ddot{\text{i}} [\text{QP } \tilde{m\ddot{o}i} \text{DP}_{\text{F}}] [\text{TP}/\nu\text{P} \dots \Delta \dots]]$ (Ex-situ focus)
- ↑
overt movement
- b. $[\text{TP}/\nu\text{P} \dots \text{ch}\ddot{\text{i}} \Delta [\text{TP}/\nu\text{P} \dots [\text{QP } \tilde{m\ddot{o}i} \text{DP}_{\text{F}}] \dots]]$ (In-situ focus)
- ↑
covert movement

25. Sun (2021)’s analysis requires an additional syntactic machinery of Undermerge in handling focus movement with $\tilde{m\ddot{o}i}$, which is a counter-cyclic operation that Internally Merges an element as a complement, enforcing the original complement to be a specifier (Pesetsky and Torrego 2007; Pesetsky 2013; Yuan 2017). Undermerge, however, violates the Extension Condition (Chomsky 1995).

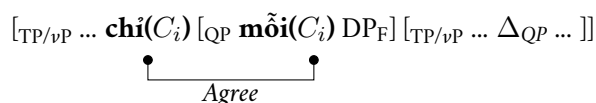
26. I set aside rare cases where $\tilde{m\ddot{o}i}$ exceptionally attaches to a PP. See the discussion in footnote 4.

I also assume that both types of movement occur in Narrow Syntax, and the copies may either be pronounced in the highest position or the lowest (Pronounce Lower Copy in Bošković and Nunes 2007). The latter case is comparable to covert *wh*-movement in *wh*-in-situ languages like Coptic Egyptian (Reintges 2007) or Mongolian (Fong 2019).

Third, while previous proposals assume the movement to be feature-triggered, such as a scalar feature [SCAL] by Hole (2017, 2023) and an exclusive feature [ONLY] by Sun (2021), I do *not* assume so. I will show that the movement is a consequence of the co-indexation of alternatives of *chi* and *môi*. Without the movement, the LF would render the semantics unable to compose. I assume that Internal Merge is free (Chomsky 2015; cf. Move Alpha by Lasnik and Saito 1992) and does not need to be triggered by syntactic features. As we will see, the non-feature-triggered nature of this movement also explains the absence of Relativized Minimality based intervention effects.

Last but not least, I do assume a syntactic dependency between *môi* and *chi*, namely Agree. I propose that it is why their alternatives are always co-indexed. The Agree operation transmits an index of their quantification domain (comparable to binding, Reuland 2001; Kratzer 2009).

(165) Agree of *chi* and *môi* in indices



We are now in a position to give a semantic analysis. I propose that *chi* is a propositional exclusive operator that performs A-quantification, as in (166). It takes a preadjacent proposition (type $\langle s, t \rangle$, abbreviated as *st*), and excludes all the alternative propositions (in C_i) that are not entailed by the preadjacent. It also presupposes the truth of the preadjacent. I also assume a null counterpart of *chi*, *EXCL*, which has the same semantics.

(166) The semantics of adverbial *chi*

$$\begin{aligned}
 \llbracket \mathbf{chi}/\mathbf{EXCL} \rrbracket(C_i) &= \lambda p_{st} \lambda w_s. \mathbf{AI}: \forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q] \\
 &\quad \mathbf{NAI}: p(w)
 \end{aligned}$$

As for *môi*, I propose that it does not denote exclusive semantics, on a par with the operator-particle approach to Vietnamese exclusive doubling (Quek and Hirsch 2017; Sun 2021, see also Hole 2017). Unlike previous accounts, I propose that *môi* itself contributes to scalarity on the not-at-issue level. Precisely, it is a two-place operator that takes an entity (type *e*) and an (intensional) property (type

$\langle e, st \rangle$). On the at-issue level, it simply returns the proposition (which will be the prejacent of *chi*) with the property applied to the entity. On the not-at-issue level, it requires that the prejacent proposition formed be ranked lower than all the alternative propositions (in C_i) on some contextual scale. The semantics is given in (167).

(167) The semantics of adfocal $m\tilde{o}i$ (attaching to entity-denoting DPs)

$$\llbracket m\tilde{o}i \rrbracket(C_i) = \lambda x_e \lambda P_{\langle e, st \rangle} \lambda w. \text{ AI: } P(x)(w)$$

$$\text{NAI: } P(x) \in C_i \wedge \forall q \in C_i [P(x) \not\leq q \rightarrow P(x) <_s q]$$

Effectively, $m\tilde{o}i$ imposes a condition on the alternative set before the exclusion performed by *chi*. Since the prejacent must be ranked as the lowest on the scale, alternatives that are ranked even lower than the prejacent are not considered *per* the requirement of $m\tilde{o}i$.²⁷

I illustrate how the proposal works below. Consider (168) with an object focus. There is a scalar reading that Nam’s speaking English is ranked lower on a scale of impressiveness salient in the context, as evaluated by how difficulty the language is.

(168) *Context: In a school in Vietnam, we are discussing what foreign languages the students speak concerning their difficulty levels. Impressively, Linh can speak German, which is difficult to master due to its complex morphology and limited learning resources as compared to English. Nam, however, can only speak English, which is easier to master.*

a. Nam **chỉ** nói **m\tilde{o}i** [tiếng Anh]_F.

Nam only speak only English

Lit.: ‘Nam only speak only English.’

i.e., ‘Nam just speaks English.’ (not impressive)

b. $C_i = \{^{\wedge} \text{Nam speaks English}, ^{\wedge} \text{Nam speaks German}\}$

where $^{\wedge} \text{Nam speaks English} <_{\text{difficulty/impressiveness}} ^{\wedge} \text{Nam speaks German}$

The LF of (168) is given in (169), with semantic types. I assume that the subject is reconstructed

27. The entry in (167) only deals with $m\tilde{o}i$ attaching to entity-denoting DPs. To extend to cases with quantifier DPs, I suggest $m\tilde{o}i(C_i)$ is type-flexible regarding its first argument, as in (i) with a quantifier-attaching entry. See also Yip and Ahenkorah (2026) for the need of type flexibility in adfocal exclusives in Akan. For simplicity, I only focus on cases of $m\tilde{o}i$ attaching to entity-denoting DPs in this subsection.

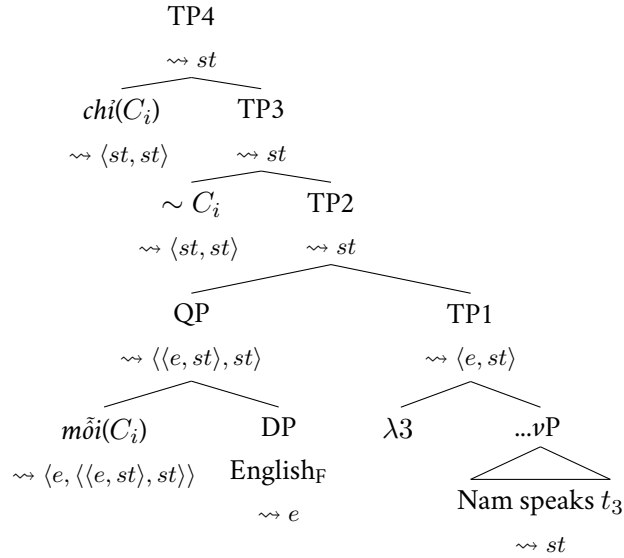
(i) The semantics of adfocal $m\tilde{o}i$ (attaching to quantifier DPs)

$$\llbracket m\tilde{o}i \rrbracket(C_i) = \lambda Q_{\langle \langle e, st \rangle, st \rangle} \lambda P_{\langle e, st \rangle} \lambda w. \text{ AI: } Q(P)(w)$$

$$\text{NAI: } Q(P) \in C_i \wedge \forall q \in C_i [Q(P) \not\leq q \rightarrow Q(P) <_s q]$$

to Spec ν P for interpretation. The (covert) movement of QP formed by $m\tilde{o}i$ leaves a type e trace, which is then lambda-abstracted right below the landing site of the movement. The resetting operator $\sim$, immediately below the exclusive operator chi , is triggered by chi but not by $m\tilde{o}i$.

(169) The LF of (168), typed



The semantic composition of (169) is given in (170). First, the core proposition with an unbound variable (left by the movement) is lambda-abstracted, giving a property “the thing that Nam speaks” (Steps i-ii). Second, $m\tilde{o}i$ combines with the object English and this property, giving a proposition “Nam speaks English” on the AI level. Importantly, it contributes on the NAI level that “Nam speaks English” is ranked lower than all other alternatives salient in the context (i.e., in the contextual variable C_i) (Steps iii-iv). At this point, the alternative semantic value is a set of propositions with the skeleton of “Nam speaks y ”, such as {Nam speaks English, Nam speaks German, Nam speaks Vietnamese, ...}. Third, the resetting operator $\sim$, triggered by chi , comes in and restricts C_i to be a subset of the above alternative set (which goes through, since $C_i = \{\text{Nam speaks English, Nam speaks German}\}$ is a subset of {Nam speaks English, Nam speaks German, Nam speaks Vietnamese, ...}). It also resets the alternative value to be a single set of the preja cent proposition (Step v). Finally, chi takes the preja cent proposition and excludes propositions in C_i that are not entailed by the preja cent (Step vi). In this case, only “Nam speaks German” is excluded. “Nam speaks Vietnamese” is not excluded, as desired, since “Nam speaks Vietnamese” is ranked even lower than the preja cent and cannot be included in the C_i , as required by $m\tilde{o}i$ (as the question under discussion is about “what foreign languages” in (168)).

(170) The semantic composition of (169)

(ENG = English; DEU = German; VIE = Vietnamese)

- i. The core proposition (with QP moved)

$$\llbracket \nu P \rrbracket^o = \wedge \text{Nam speaks } x_3 \quad ; \quad \llbracket \nu P \rrbracket^{alt} = \{ \wedge \text{Nam speaks } x_3 \}$$

- ii. Lambda abstraction triggered by QP movement

$$\llbracket \text{TP1} \rrbracket^o = \lambda x_3. \wedge \text{Nam speaks } x_3 \quad ; \quad \llbracket \text{TP1} \rrbracket^{alt} = \{ \lambda x_3. \wedge \text{Nam speaks } x_3 \}$$

- iii. Moved QP with scalar *môĩ* and the object

$$\begin{aligned} \llbracket \text{QP} \rrbracket^o &= \lambda P_{\langle e, st \rangle}. P(\text{ENG}) \quad ; \quad \llbracket \text{QP} \rrbracket^{alt} = \{ \lambda P_{\langle e, st \rangle}. P(\text{ENG}) \\ &\quad \lambda P_{\langle e, st \rangle}. P(\text{DEU}) \\ &\quad \lambda P_{\langle e, st \rangle}. P(\text{VIE}), \dots \} \end{aligned}$$

$$\boxed{\text{NAI}}: P(\text{ENG}) \in C_i \wedge \forall q \in C_i [P(\text{ENG}) \not\subseteq q \rightarrow P(\text{ENG}) <_s q]$$

- iv. The core proposition with QP merged back

$$\begin{aligned} \llbracket \text{TP2} \rrbracket^o &= \wedge \text{Nam speaks ENG} \quad ; \quad \llbracket \text{TP2} \rrbracket^{alt} = \{ \wedge \text{Nam speaks ENG}, \\ &\quad \wedge \text{Nam speaks DEU}, \\ &\quad \wedge \text{Nam speaks VIE}, \dots \} \end{aligned}$$

$$\boxed{\text{NAI}}: \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \wedge \text{Nam speaks ENG} <_s q]$$

- v. Resetting the alternatives by $\sim$

$$\llbracket \text{TP3} \rrbracket^o = \wedge \text{Nam speaks ENG} \quad ; \quad \llbracket \text{TP3} \rrbracket^{alt} = \{ \wedge \text{Nam speaks ENG} \}$$

$$\boxed{\text{NAI}}: \text{(a)} \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \wedge \text{Nam speaks ENG} <_s q]$$

$$\text{(b)} C_i \subseteq \llbracket \text{TP2} \rrbracket^{alt}$$

- vi. The resulting proposition with exclusive *chỉ*

$$\llbracket \text{TP4} \rrbracket^o = \wedge \text{Nam only speaks ENG} \quad ; \quad \llbracket \text{TP4} \rrbracket^{alt} = \{ \text{Nam only speaks ENG} \}$$

$$\text{Where } \wedge \text{Nam only speaks ENG} = \lambda w. \forall q [(q \in C_i \wedge q(w)) \rightarrow \wedge \text{Nam speaks ENG} \subseteq q]$$

$$\boxed{\text{NAI}}: \text{(a)} \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \wedge \text{Nam speaks ENG} <_s q]$$

$$\text{(b)} C_i \subseteq \llbracket \text{TP2} \rrbracket^{alt}$$

$$\text{(c)} \wedge \text{Nam speaks ENG} \in CG$$

Let us consider how the proposed co-indexation dependency derives the syntactic movement of QP. There are several properties of the QP movement. First, it is obligatory—even in apparent in-situ cases, island effects suggest that covert movement has taken place.

Second, the movement lands right below *chỉ* or its null counterpart EXCL. This is evidenced by the “scope freezing” effect of overt movement (see §4.4.4): once moved, the scopal relation between the exclusive and other operators (e.g., modals and negation) becomes fixed, as schematized below.

(171) “Scope freezing” effects of overt focus movement with *mỗi*

- a. In-situ: [OP_{Modal/Neg/...} [... [_{VP} V [QP *mỗi* DP_F]]]] (only > OP; OP > only)
- b. Ex-situ: [[QP *mỗi* DP_F] OP_{Modal/Neg/...} [... [_{VP} V *t*_{QP}]]] (only > OP; *OP > only)
- c. Ex-situ: [OP_{Modal/Neg/...} [QP *mỗi* DP_F] [... [_{VP} V *t*_{QP}]]] (*only > OP; OP > only)

The pattern remains the same with *chỉ* pronounced. For example, the QP must be moved across the negation in (172) for wide scope over it (only > ¬).²⁸

- (172) a. *Nam **chỉ** không [QP *mỗi* [tiếng Anh]_F] nói *t*_{QP}.
 Nam only not only English speak
 Int.: ‘Nam only does not speak *English*. (He speaks German and Vietnamese.)’ (only > ¬)
- b. Nam **chỉ** [QP *mỗi* [tiếng Anh]_F] (mới) không nói *t*_{QP}.
 Nam only only English just not speak
 ‘Nam only does not speak *English*. (He speaks German and Vietnamese.)’ (only > ¬)

Third, the movement of *mỗi* must not be higher than *chỉ* (see also Erlewine 2017b). We have seen similar cases in §4.4.1, reproduced with adaption below.

28. I assume that these cases involve spelling out the highest copy. In other words, there does not exist a derivation where the QP moves to a position below *không* (intermediate site), and then to the position below *chỉ* (terminating site), with the intermediate copy pronounced.

- (173) a. *Hôm qua Nam [QP **mỗi** thịt bò_F] (mới) **chỉ** (mới) ăn t_{QP} .
 yesterday Nam only beef just only just eat
 Int.: ‘Nam only ate *beef* yesterday.’
- b. Hôm qua Nam **chỉ** [QP **mỗi** thịt bò_F] (mới) ăn t_{QP} .
 yesterday Nam only only beef just eat
 ‘Nam only ate *beef* yesterday.’

The three properties are summarized in (174). In the following, I will show that the co-indexation of C_i between *chỉ* and *mỗi*, together with their semantics, derives all these three properties.²⁹

(174) Properties of the QP movement with *mỗi*

- a. It is obligatory;
- b. It must be immediately below *chỉ*/EXCL (i.e., there can be no other operators in-between);
- c. It must not land above *chỉ*.

The first property is an immediate consequence of *mỗi*’s semantic type, $\langle e, \langle \langle e, st \rangle, st \rangle \rangle$. It forms a QP of the type $\langle \langle e, st \rangle, st \rangle$. When QP is in the object position, there is a type mismatch between the verb and QP: the verb requires a type e object, and yet QP does not have the required type. Movement is therefore needed, which leaves a type e trace that can combine with the verb. The trace variable is further lambda-abstracted to create the type $\langle e, st \rangle$, feeding QP.

- (175) a. $*[V_{\langle e, \langle e, st \rangle \rangle} QP_{\langle \langle e, st \rangle, st \rangle}]$
 $\rightsquigarrow$ Type mismatch, Functional Application fails
- b. $[QP_{\langle \langle e, st \rangle, st \rangle} [\lambda 3 [\dots V_{\langle e, \langle e, st \rangle \rangle} t_{3e}]]]$
 $\rightsquigarrow$ Movement triggers Trace Conversion and subsequent Lambda Abstraction

The second and third properties are the consequences of the co-indexation of C_i , which arise from the interaction between *mỗi* and the $\sim$ triggered by *chỉ*. The key is that both of them make reference to C_i . Consider their semantics again, with the relevant parts boxed:

29. The third property could also be due to an independent restriction that *chỉ* cannot “backward” associate with the moved focus out of its c-commanding domain (Erlewine 2014).

(176) a. $\llbracket \sim C \alpha \rrbracket^o = \llbracket \alpha \rrbracket^o$, with presupposition: $C \subseteq \llbracket \alpha \rrbracket^{alt}$

b. $\llbracket \sim C \alpha \rrbracket^{alt} = \{\llbracket \alpha \rrbracket^o\}$

(Rooth 1992, formulation from Erlewine 2025:536)

(177) $\llbracket m\tilde{o}i \rrbracket(C_i) = \lambda x_e \lambda P_{\langle e, st \rangle} \lambda w. \mathbf{AI}: P(x)(w)$

NAI: $P(x) \in C_i \wedge \forall q \in C_i [P(x) \not\subseteq q \rightarrow P(x) <_s q]$

$M\tilde{o}i$ requires its output proposition (let us call it r) to be in C_i , and $\sim$ requires C_i to be a subset of the alternative value of the prejacent proposition (let us call it p). If there is an intervening operator between $m\tilde{o}i$ and C_i (which is always immediately below chi), there will be a **mismatch** between r and p . Precisely, p will contain the intervening operator, so as its alternative semantic value.

(178) $*[chi(C_i) [\sim C_i [\underbrace{[OP_{Modal/Neg/...} [\underbrace{[QP-m\tilde{o}i(C_i) [_{TP/vP} \dots]]}_{r}}]_{p}]]]$

In other words, there is an immediate scope constraint similar to the one in Cantonese adverbial-SFP doubling (Chapter 3). There must not be any scope-bearing operators between chi (precisely, $\sim C_i$) and $m\tilde{o}i$ such that they alter the truth conditions of r .³⁰

In the following, I show how the immediate scope constraint falls out compositionally. Consider the illicit example with an intervening negation, reproduced from (172) below in (179).

(179) *Nam **chỉ** không $[_{QP}$ **mỗi** [tiếng Anh]_F] nói t_{QP} .

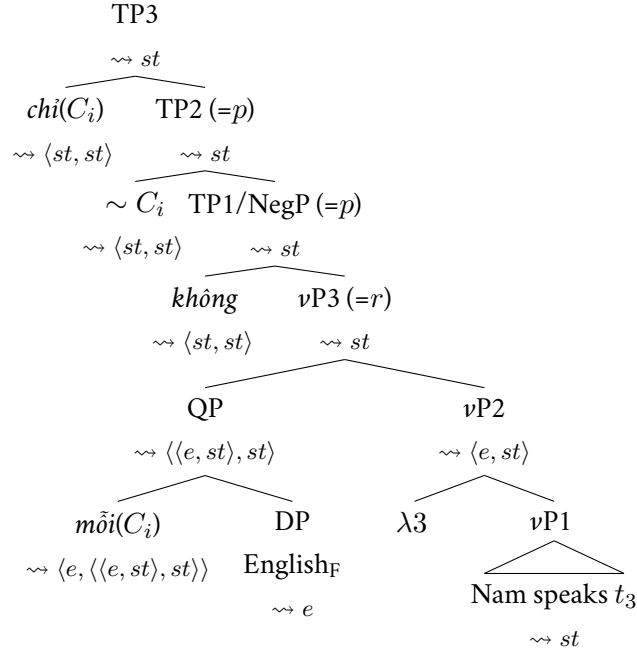
Nam only not only English speak

Int.: ‘Nam only does not speak *English*. (He speaks German and Vietnamese.)’ (only > $\neg$)

The LF of (179) is given in (180), with semantics types.

30. The prediction is that double negation can intervene between them. Such a configuration is difficult to test since [only not not p] is often unnatural on its own. I leave it to future work.

(180) The LF of (179), typed



The semantic composition of (172) is given below (with $\nu P3$ -internal composition ignored for simplicity). First, $mõi$ requires its output proposition, r , “Nam speaks English” to be in C_i (Step i). Second, the negation comes in and yields a negative proposition p : “Nam doesn’t speak English” (Step ii). Importantly, the alternative set now becomes negative as well, since the alternatives of $\nu P3$ combine pointwise with the negation. Third, $\sim$ restricts the Roothian C_i to be a subset of the alternative set of p (Step iii). Since p ’s alternatives are all negative, C_i , as their subset, cannot contain an affirmative proposition. That is, “Nam speaks English” cannot be contained in C_i , contradicting $mõi$ ’s requirement. The derivation crashes.

(181) An attempted semantic composition of (172)

i. The core proposition with QP

$$\begin{aligned} \llbracket \nu P3 \rrbracket^o &= \wedge \text{Nam speaks ENG} & ; & \quad \llbracket \nu P3 \rrbracket^{alt} = \{ \wedge \text{Nam speaks ENG}, \\ & & & \wedge \text{Nam speaks DEU}, \\ & & & \wedge \text{Nam speaks Giang, ...} \} \\ \boxed{\text{NAI}}: & \boxed{\wedge \text{Nam speaks ENG} \in C_i} \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \\ & \wedge \text{Nam speaks ENG} <_s q] \end{aligned}$$

(This step conflicts with (iii))

ii. Negating the core proposition (TP1=NegP)

$$\begin{aligned} \llbracket \text{NegP} \rrbracket^o &= \wedge \text{Nam doesn't speak ENG} & ; & \quad \llbracket \text{NegP} \rrbracket^{alt} = \{ \wedge \text{Nam doesn't speak ENG}, \\ & & & \wedge \text{Nam doesn't speak DEU}, \\ & & & \wedge \text{Nam doesn't speak VIE, ...} \} \\ \boxed{\text{NAI}}: & \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \\ & \wedge \text{Nam speaks ENG} <_s q] \end{aligned}$$

iii. Resetting the alternatives by $\sim$

$$\begin{aligned} \llbracket \text{TP2} \rrbracket^o &= \wedge \text{Nam doesn't speak ENG} & ; & \quad \llbracket \text{TP2} \rrbracket^{alt} = \{ \wedge \text{Nam doesn't speak ENG} \} \\ \boxed{\text{NAI}}: & \text{(a)} \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \\ & \wedge \text{Nam speaks ENG} <_s q] \\ & \boxed{\text{(b)} C_i \subseteq \llbracket \text{TP1/NegP} \rrbracket^{alt}} & (\rightsquigarrow \wedge \text{Nam speaks ENG} \notin C_i, \text{ conflicting with (i)}) \end{aligned}$$

vi. The resulting proposition with exclusive *chi*

$$\begin{aligned} \llbracket \text{TP3} \rrbracket^o &= \wedge \text{Nam only doesn't speak ENG} & ; & \quad \llbracket \text{TP3} \rrbracket^{alt} = \{ \wedge \text{Nam only doesn't speak ENG} \subseteq q \} \\ \text{Where } \wedge \text{Nam only doesn't speak ENG} &= \lambda w. \forall q [(q \in C_i \wedge q(w)) \rightarrow \wedge \text{Nam doesn't speak ENG} \subseteq q] \\ \boxed{\text{NAI}}: & \text{(a)} \wedge \text{Nam speaks ENG} \in C_i \wedge \forall q \in C_i [\wedge \text{Nam speaks ENG} \not\subseteq q \rightarrow \\ & \wedge \text{Nam speaks ENG} <_s q] \\ & \text{(b)} C_i \subseteq \llbracket \text{TP1/NegP} \rrbracket^{alt} \\ & \text{(c)} \wedge \text{Nam doesn't speak ENG} \in CG \end{aligned}$$

The third property is accounted for in the same spirit. If QP moves above *chi*, there will be a mismatch between QP's output *r* and $\sim$'s prejacent *p* again:

$$(182) \quad *[\underbrace{\text{QP-}\tilde{m\ddot{o}i}(C_i)}_r \lambda 3 [\underbrace{\text{chi}(C_i) [\sim C_i [\text{TP/vP} \dots t_3 \dots]]}_p]]$$

Chi gives an exclusive proposition, “Nam only speaks English”. This proposition will also be QP’s output proposition, which is, however, not contained in C_i . C_i can only be the set of propositions without the exclusive, otherwise the exclusion by *chi* cannot be performed.

Note that $\tilde{m\ddot{o}i}$ ’s movement can be long-distance even when covert, as in cases where in-situ focus with $\tilde{m\ddot{o}i}$ takes wide scope across finite CP boundaries. I have assumed that $\tilde{m\ddot{o}i}$ ’s movement is driven by semantic considerations rather than syntactic features, which is reminiscent of Quantifier Raising. QR, however, is usually regarded as clause-bounded (Chomsky 1975; May 1977). Nevertheless, there are instances of long-distance QR. For example, universal quantifiers can take wide scope over embedded clauses taken by certain verbs, like *make sure* and *ensure* (Farkas and Giannakidou 1996; Barker 2022; Wang 2024), as in (183). See also Wang (2023, 2025) and references therein for QR out of relative clauses. (But see Erlewine and Kotek 2018:458ff for comparison between covert focus movement and QR.)

(183) Some student made sure/ensured [that **every speaker** had a ride].

a. ‘There is some student x such that x made sure/ensured that for every speaker y, y had a ride.’

($\exists > \forall$)

b. ‘For every speaker y, there is some student x such that x made sure/ensured that y had a ride.’

($\forall > \exists$)

(Farkas and Giannakidou 1996:6 via Wang 2024:334)

Another issue is that QR is usually covert, at least in English. It seems different from $\tilde{m\ddot{o}i}$ ’s movement which can also be overt. Yet, overt QR is also attested across languages, such as Hungarian (Surányi 2003) and Cantonese (M. K. T. Lee 2011; T. T.-M. Lee 2024), and even argued to exist in certain constructions in English (pseudogapping: Johnson 2008; Quantifier Float: Kim 2025; see also Overfelt 2015 for long-distance rightward movement required by semantics).

We can also explain the focus association and scopal behavior. First, as for backward association, this is not possible in Vietnamese, because the adverbial particle *chi* must c-command its focus associate on the surface syntactic structure. In other words, the operator cannot associate with a moved focus at a higher position. The constraint can be derived under Copy Theory of Movement, as proposed by Erlewine (2014) for English *only*. His core idea is that when the focus is moved out, it leaves a lower

copy which serves as *only*'s focus associate. The copy undergoes Trace Conversion and is interpreted as a definite description. The composition proceeds as normal. However, the higher copy out of *only*'s scope is also interpreted, which ultimately leads to contradictory requirements on the variable being quantified over. The resulting meaning is uninterpretable. Without going into details, I suggest that his proposal can be carried over to Vietnamese *chỉ* and account for the ban on backward association.

Second, multiple associations are possible in Vietnamese. Since the adverbial *chỉ* functions as an operator, it must associate with some focus element within its scope. When $m\tilde{o}i$ with a focused element is above *chỉ*, *chỉ* associates with another focus in its c-command domain. The higher $m\tilde{o}i$, for successful semantic composition, requires a null operator EXCL to merge higher and associate with the moved focus. This gives rise to multiple focus association as well as the multiple 'only' reading.

(184) Multiple focus association

[EXCL₁ [QP $m\tilde{o}i_1$ F1] ... [*chỉ*₂ ... [F2 ...]]]

E.g, 'Minh is the only one who Nam only gave roses to.'

Third, when negation and modals are involved, the scope is decided by the adverbial particle *chỉ*, which is the exclusive operator. While the movement of $m\tilde{o}i$ seems to have the same effects of determining the scope, it is a by-product of the dependency with *chỉ*: to identify the alternatives so as to satisfy $m\tilde{o}i$'s scalar component, $m\tilde{o}i$ -QP must move to a position immediately below *chỉ*, yielding the "scope freezing" effects.

Fourth, in cases of ellipsis, there is a null operator EXCL corresponding to *chỉ*. This null operator cannot associate with the elided focus when it appears above a modal, which is the configuration for wide scope readings. $M\tilde{o}i$ does not denote a quantifier, otherwise we would have expected that it underwent QR to get wide scope which could survive ellipsis.

4.5.1.2 An alternative analysis with alternative passing

I discuss an alternative analysis here, which recruits the non-resetting $\sim_{\text{pass}}$ operator. As we will see, this analysis requires a syntactic trigger for the movement of $m\tilde{o}i$, in contrast to the co-indexation approach which derives the locality on movement as a natural consequence.

The core idea is that $m\tilde{o}i$, instead of taking *chỉ*'s alternatives, takes its own alternative set. That is, there are two Roothian *C* variables. Under a Roothian system, $m\tilde{o}i$'s taking its own *C* means that it

triggers $\sim_{\text{reset}}$ immediately below it. $m\tilde{o}i$ is adjacent to the focus, so it has access to it. It then imposes the not-at-issue scalar requirement on the alternatives. However, to ensure that *chi* also has access to the alternatives, it is necessary to recruit a non-resetting $\sim_{\text{pass}}$ (e.g., Bade and Sachs 2019; Erlewine 2025). The idea is schematized below, with an in-situ focus. As I will discuss below, movement is not necessary for this account to work.

(185) Alternative passing in Vietnamese adverbial-adjfocal doubling

(boldface = levels where alternatives constrain C)

$$[\dots \textit{chi}(C_j) [\sim_{\text{reset}} C_j [\mathbf{LP} \dots [\mathbf{QP} \textit{m}\tilde{o}i(C_i) [\sim_{\text{pass}} C_i [\mathbf{DP} \dots F \dots]]] \dots]]]]$$

The semantics of $m\tilde{o}i$ is proposed in (186). On the at-issue level, it is an identity function and simply passes up the semantic value of its sister to the higher node. On the non-at-issue level, it imposes an requirement that the preadjacent entity is ranked lower than all the alternatives on some contextual scale. Again, I only focus on cases with an entity-denoting DP, but the semantics can be extended to other cases with a simple change of the input and output semantic types.

(186) The semantics of adjfocal $m\tilde{o}i$ (alternative version 1)

$$\llbracket m\tilde{o}i \rrbracket(C_i) = \lambda x_e. \mathbf{AI}: x$$

$$\mathbf{NAI}: \forall y \in C_i [x \neq y \rightarrow x <_s y]$$

Note that $m\tilde{o}i$ here is made as a one-place operator of entities. It imposes the ordering requirement on the alternatives directly, without triggering movement. The ordering is between entities rather than propositions. One can make it as a two-place operator, so it looks for a second argument that it can take after movement, as in (187). The difference is not crucial here—both versions do not derive the *locality* of movement, that is, $m\tilde{o}i$ must move to a position immediately below *chi* without intervening scopal elements. For simplicity, I adopt version 1 in (186). (The difference would matter for possibility of anti-piping, though; Branen and Erlewine 2023; Michael Yoshitaka Erlewine p.c.)

(187) The semantics of adjfocal $m\tilde{o}i$ (alternative version 2)

$$\llbracket m\tilde{o}i \rrbracket(C_i) = \lambda x_e \lambda P_{\langle e, st \rangle} \lambda w. \mathbf{AI}: P(x)(w)$$

$$\mathbf{NAI}: \forall y \in C_i [x \neq y \rightarrow P(x) <_s P(y)]$$

(188) A sample LF with movement, required by version 2

$$[\dots \textit{chi}(C_j) [\sim_{\text{reset}} C_j [\mathbf{LP} (\dots) [\mathbf{QP} \textit{m}\tilde{o}i(C_i) [\sim_{\text{pass}} C_i [\mathbf{DP} \dots F \dots]]] \dots]]] \lambda 3 [\dots t_3 \dots]]]$$

As for *chi*, there does not need to be a change in its semantics. Its entry is reproduced in (189).

(189) The semantics of adverbial *chi*

$$\llbracket \text{chi/EXCL} \rrbracket(C_j) = \lambda p_{st} \lambda w_s. \mathbf{AI:} \forall q[(q \in C_j \wedge q(w)) \rightarrow p \subseteq q]$$

$$\mathbf{NAI:} p(w)$$

I illustrate how this alternative works below. The example from (168) is given below in (190).

(190) *Context: In a school in Vietnam, we are discussing what foreign languages the students speak concerning their difficulty levels. Impressively, Linh can speak German, which is difficult to master due to its complex morphology and limited learning resources as compared to English. Nam, however, can only speak English, which is easier to master.*

a. Nam **chỉ** nói **mỗi** [tiếng Anh]_F.

Nam only speak only English

Lit.: ‘Nam only speak only *English*.’

i.e., ‘Nam just speaks *English*.’ (not impressive)

b. $C_i = \{\text{English, German}\}$; where *English* $<_{\text{difficulty}}$ *German*

c. $C_j = \{\wedge \text{Nam speaks English}, \wedge \text{Nam speaks German}\}$

The LF and the semantic composition are given below.

(191) The LF of (190):

$$[_{vP3} \text{chi}(C_j) [_{vP2} \sim_{\text{reset}} C_j [_{vP1} \text{Nam speaks } [_{QP} \text{mỗi}(C_i) [_{DP2} \sim_{\text{pass}} C_i [_{DP1} \text{English}_F]]]]]]]$$

The semantic composition:

a. $\llbracket \text{DP1} \rrbracket = \text{ENG}$; $\llbracket \text{DP1} \rrbracket^{\text{alt}} = \{\text{ENG, DEU, VIE, ...}\}$

b. $\llbracket \text{DP2} \rrbracket = \text{ENG}$; $\llbracket \text{DP2} \rrbracket^{\text{alt}} = \{\text{ENG, DEU, VIE, ...}\}$ (No resetting in this step)

$\llbracket \text{NAI} \rrbracket$: (a) $C_i \subseteq \llbracket \text{DP1} \rrbracket^{\text{alt}}$ (satisfied: $C_i = \{\text{ENG, GER}\} \subseteq \{\text{ENG, DEU, VIE, ...}\}$)

c. $\llbracket \text{QP} \rrbracket = \text{ENG}$; $\llbracket \text{QP} \rrbracket^{\text{alt}} = \{\text{ENG, DEU, VIE, ...}\}$

$\llbracket \text{NAI} \rrbracket$: (a) $C_i \subseteq \llbracket \text{DP1} \rrbracket^{\text{alt}}$

$\llbracket \text{NAI} \rrbracket$: (b) $\forall y \in C_i [\text{ENG} <_s y]$ (satisfied: $\text{ENG} <_{\text{difficulty}} \text{DEU}$)

d. $\llbracket vP1 \rrbracket = \wedge \text{Nam speaks ENG}$;

$\llbracket vP1 \rrbracket^{\text{alt}} = \{\wedge \text{Nam speaks ENG}, \wedge \text{Nam speaks DEU}, \wedge \text{Nam speaks VIE, ...}\}$

- e. $\llbracket \nu P2 \rrbracket = \wedge \text{Nam speaks ENG} ; \llbracket \nu P2 \rrbracket^{alt} = \{\wedge \text{Nam speaks ENG}\}$
 $\boxed{\text{NAI}}: (\mathbf{a}) C_i \subseteq \llbracket \text{DP1} \rrbracket^{alt}$
 $\boxed{\text{NAI}}: (\mathbf{b}) \forall y \in C_i [\text{ENG} <_s y]$
 $\boxed{\text{NAI}}: (\mathbf{c}) C_j \subseteq \llbracket \nu P1 \rrbracket^{alt} \text{ (satisfied: } C_j = \{\wedge \text{Nam speaks ENG}, \wedge \text{Nam speaks DEU}\} \subseteq \llbracket \nu P1 \rrbracket)$
- f. $\llbracket \nu P3 \rrbracket = \wedge \text{Nam only speaks ENG} ; \llbracket \nu P3 \rrbracket^{alt} = \{\wedge \text{Nam only speaks ENG}\}$
 $\boxed{\text{NAI}}: (\mathbf{a}) C_i \subseteq \llbracket \text{DP1} \rrbracket^{alt}$
 $\boxed{\text{NAI}}: (\mathbf{b}) \forall y \in C_i [\text{ENG} <_s y]$
 $\boxed{\text{NAI}}: (\mathbf{c}) C_j \subseteq \llbracket \nu P1 \rrbracket^{alt}$
 $\boxed{\text{NAI}}: (\mathbf{d}) \wedge \text{Nam speaks ENG} \in CG \text{ (satisfied)}$

Now, consider the case with illicit negation intervention, reproduced in (192).

- (192) *Nam **chỉ không** $[_{QP} \text{ **mỗi** [tiếng Anh]}_F]$ nói t_{QP} .
 Nam only not only English speak
 Int.: ‘Nam only does not speak *English*. (He speaks German and Vietnamese.)’ (only > $\neg$)

The LF and semantic compositions are given below:

- (193) The LF of (190):

$$[_{TP2} \text{ chi}(C_j) [_{TP1} \sim_{reset} C_j [_{\text{NegP}} \text{ không} \dots \\ \dots [_{\nu P2} [_{QP} \text{ mỗi}(C_i) [_{DP2} \sim_{pass} C_i [_{\text{DP1}} \text{ English}_F]]]] \lambda_3 [_{\nu P1} \text{ Nam speaks } t_3]]]]$$

The semantic composition:

- a. $\llbracket \nu P1 \rrbracket = \wedge \text{Nam speaks } x$
- b. $\llbracket QP \rrbracket = \text{ENG} ; \llbracket QP \rrbracket^{alt} = \{\text{ENG}, \text{DEU}, \text{VIE}, \dots\}$
 $\boxed{\text{NAI}}: (\mathbf{a}) C_i \subseteq \llbracket \text{DP1} \rrbracket^{alt}$
 $\boxed{\text{NAI}}: (\mathbf{b}) \forall y \in C_i [\text{ENG} <_s y]$
- c. $\llbracket \nu P2 \rrbracket = \wedge \text{Nam speaks ENG} ;$
 $\llbracket \nu P2 \rrbracket^{alt} = \{\wedge \text{Nam speaks ENG}, \wedge \text{Nam speaks DEU}, \wedge \text{Nam speaks VIE}, \dots\}$
 $\boxed{\text{NAI}}: (\mathbf{a}) + (\mathbf{b})$
- d. $\llbracket \text{NegP} \rrbracket = \wedge \text{Nam doesn't speak ENG} ;$
 $\llbracket \text{NegP} \rrbracket^{alt} = \{\wedge \text{Nam doesn't speak ENG}, \wedge \text{Nam doesn't speak DEU}, \wedge \text{Nam doesn't speak VIE}, \dots\}$
 $\boxed{\text{NAI}}: (\mathbf{a}) + (\mathbf{b})$

- e. $\llbracket \text{TP1} \rrbracket = \wedge \text{Nam doesn't speak ENG} ;$
 $\llbracket \text{TP1} \rrbracket^{alt} = \{ \wedge \text{Nam doesn't speak ENG} \}$
 $\boxed{\text{NAI}} : (a) + (b)$
 $\boxed{\text{NAI}} : (\mathbf{c}) C_j \subseteq \llbracket \text{NegP} \rrbracket^{alt}$
- f. $\llbracket \text{TP2} \rrbracket = \wedge \text{Nam only doesn't speak ENG} ;$
 $\llbracket \text{TP2} \rrbracket^{alt} = \{ \wedge \text{Nam only doesn't speak ENG} \}$
 $\boxed{\text{NAI}} : (a) + (b) + (c)$
 $\boxed{\text{NAI}} : (\mathbf{d}) \wedge \text{Nam doesn't speak ENG} \in CG$

There are no semantic crashes—the composition goes smoothly. Under this analysis with non-resetting $\sim_{pass}$, the ungrammaticality in (192) is not due to semantics. The resulting meaning is simply that (i) Nam only doesn't speak English (e.g., Nam speaks German and Vietnamese), from the exclusive *chỉ*, and (ii) there is a salient scale in the context ranking English below other alternatives, e.g., German and Vietnamese are more difficult than English. This piece of meaning is from the scalar $\tilde{m\hat{o}i}$. However, (192) is ungrammatical regardless of the context.

We then need to explain why (192) is illicit. To do so, we can go back to the syntactic proposals by Hole (2017, 2023) or Sun (2021) that $\tilde{m\hat{o}i}$ has a syntactic feature (e.g., a scalar feature [SCAL] or an exclusive feature [ONLY]) that must be checked by movement to a position below *chỉ*. I suggest that this movement targets a focus projection. The featural compositions of the Foc head, $\tilde{m\hat{o}i}$, and *chỉ* are proposed below (not the same as Hole/Sun's proposals):

(194) The featural composition

- a. $\tilde{m\hat{o}i} : [u\text{EXCL:}_-, u\text{Foc:}_-]$
b. $\text{Foc} : [u\text{EXCL:}_-, i\text{Foc:}_+]$
c. $\text{chỉ}/\text{OP}_{\text{EXCL}} : [i\text{EXCL:}_+, u\text{Foc:}_-]$

Furthermore, I assume that these features can only be checked in a Spec-Head relation or a Spec-Spec relation (specifiers of the same head). I assume that multiple specifiers are possible. Feature checking is the trigger of the movement of QP with $\tilde{m\hat{o}i}$.³¹ I also assume that $\tilde{m\hat{o}i}$'s features percolate up to the whole QP. Therefore, the QP must move to (inner) SpecFocP for checking $[u\text{Foc:}_-]$. Moreover, *chỉ* must

31. There are various ways to implement it, such as specifying an EPP feature tied to [Foc] and [EXCL], or using a “structure building” feature $[\bullet\text{F}\bullet]$ for movement.

also be merged to (outer) SpecFocP, for checking its [$u\text{Foc}:_$], and also for checking Foc's [$u\text{EXCL}:_$]. As for $m\ddot{o}i$ /QP's [$u\text{EXCL}:_$], it is checked by chi at outer SpecFocP.³²

A derivation is given below.

(195) The derivation of focus movement of QP

a. Baseline

$[\text{FocP } \text{Foc}_{[u\text{EXCL}:_, i\text{Foc}:_]} [\dots [\text{vP } \dots [\text{QP } m\ddot{o}i_{[u\text{EXCL}:_, u\text{Foc}:_]} \text{DP}_F] \dots$

b. Feature percolation

$[\text{FocP } \text{Foc}_{[u\text{EXCL}:_, i\text{Foc}:_]} [\dots [\text{vP } \dots [\text{QP } m\ddot{o}i \text{DP}_F]_{[u\text{EXCL}:_, u\text{Foc}:_]} \dots$

c. Movement $\rightarrow$ checks [Foc] on $m\ddot{o}i$

$[\text{FocP } [\text{QP } m\ddot{o}i \text{DP}_F]_{[u\text{EXCL}:_, u\text{Foc}:_]} \text{Foc}_{[u\text{EXCL}:_, i\text{Foc}:_]} [\dots [\text{vP } \dots t \dots$

d. Merge $chi \rightarrow$ checks [EXCL] on $m\ddot{o}i$ and Foc; checks [Foc] on chi

$[\text{FocP } chi_{[i\text{EXCL}:_+, u\text{Foc}:_]} [\text{QP } m\ddot{o}i \text{DP}_F]_{[u\text{EXCL}:_, u\text{Foc}:_]} [\text{Foc}_{[u\text{EXCL}:_, i\text{Foc}:_]} [\dots [\text{vP } \dots t \dots$

This syntactic analysis derives two of the properties of the QP movement (the second one and the third one are about locality):

(196) Properties of the QP movement with $m\ddot{o}i$

- a. It is obligatory; $\leftarrow$ *derived by feature checking in a Spec-Head/Spec-Spec relation*
- b. It must be immediately below chi/EXCL (i.e., there can be no other operators in-between);
 $\leftarrow$ *derived by feature checking in a Spec-Head/Spec-Spec relation*
- c. It must not land above chi . $\leftarrow$ *not explained*

The above syntactic analysis does not impose a requirement on the structural relations between the uninterpretable [$u\text{F}$] and interpretable features [$i\text{F}$] (i.e., one can c-command the other in either direction). So, in principle, QP can move above chi to the outer SpecFocP, and it is still local enough for chi it check the [EXCL] feature. However, if QP moves above chi , an illicit backward association is created (Erlewine 2014). This is banned on independent grounds.

To summarize this subsection, I have argued that Vietnamese recruits an A-quantification strategy for exclusion. I have proposed a scalar focus analysis of Vietnamese adverbial-adfocal doubling. The

32. The focus feature [$u\text{Foc}:_$] is not necessary to derive QP movement. It is posited for potential focus intervention effects to other dependencies (e.g., *wh*-dependencies), in case one adopts a syntactic account for those effects.

gist is that there are two meaning components “distributed” on different particles: adverbial *chi* encodes exclusivity on the at-issue level, and adfocal *mōi* encodes scalarity on the not-at-issue level. Importantly, there is a (syntactio-)semantic dependency between them: namely, co-indexation of the alternative sets via Agree. The co-indexation derives another dependency between the particles, namely, (c)overt movement of the focus with *mōi*. It also explains the locality of this movement, which resembles the radical immediate scope constraint in adverbial-SFP doubling: the QP formed by *mōi* must move to a position immediately below *chi*, and they cannot be intervened by another scopal operator. I have also compared the co-indexation approach with an alternative approach that makes use of the non-setting $\sim$ operator. I show that under such an approach, the locality of QP movement is not expected. An independent syntactic analysis is needed to fully capture the patterns. The semantic co-indexation and syntactic feature-checking approaches make at least two different empirical predictions:

- Whether non-truth-condition-altering operators Δ can stay in-between *chi* and *mōi*, such as double negation (or potentially ‘also’, *modulo* focus intervention effects):

Co-indexation: Yes, i.e., [*chi* ... (Δ) ... *mōi*-QP ... *t*]

Feature checking: No, i.e., [*chi* ... (* Δ) ... *mōi*-QP ... *t*]

- Whether there will be *syntactic* intervention effects triggered on the movement path of QP *mōi*, such as by another focus projection or its kin Δ :

Co-indexation: No, i.e., [*chi* ... *mōi*-QP ... (Δ) ... *t*] (as movement $\neq$ feature-triggered here)

Feature checking: Yes, i.e., [*chi* ... *mōi*-QP ... (* Δ) ... *t*]

Unfortunately, I do not have the data available to verify these predictions.³³

There is another argument for the co-indexation approach over the non-resetting approach (Michael Yoshitaka Erlewine p.c.). In Erlewine (2025)’s “passing” squiggle theory, $\sim_{pass}$ and $\sim_{pass}$ can be freely used and it is up to independent grammatical constraints to filter out results from one operator or the other. Thus, *mōi* is not tied to $\sim_{pass}$ and should be able to come with $\sim_{reset}$. This predicts the configuration [*chi*₁ $\sim_{reset}$ [... {F1} ... [*mōi*₂ $\sim_{reset}$ F2] ... {F1} ...]] to be possible, where *mōi* associates with a different focus within *chi*’s scope but shields it from *chi*. Yet, empirically, when *mōi* is below a (clausemate) *chi*, they always associate with the same focus, suggesting that *mōi* does not come with its own $\sim$ operator.

33. Yet, given Occam’s Razors, the co-indexation approach without extra syntactic assumptions should be more superior.

4.5.2 Yorùbá: Exclusivity as D-quantification

This subsection proposes an analysis of Yorùbá adverbial-adfocal doubling with *kàn* and *nìkan*. I argue that it also instantiates a scalar focus structure like Vietnamese doubling, but the exclusive and scalar imports are flipped. The exclusivity is encoded by the adfocal particle, not by the adverbial particle. In other words, Yorùbá recruits a D-quantification strategy for exclusion. As for the scalarity, I suggest that it is encoded by a null scalar operator triggered by adverbial *kàn*. The structure and the semantic components are given below.

(197) Adverbial-adfocal exclusive doubling realizes scalar focus structures in Yorùbá

[*kàn* ... [**SCAL**_[Scalarity] [XP_F *nìkan*_[Exclusivity]]] ...]

└──────────┘ └──────────┘

(198) Two semantic components

a. *The exclusive quantifier:*

Import: From a D-quantifier, spelt out as *nìkan* or a null element QU_{EXCL}

Type: two-place, operating on entities and predicates

Dimension: At-issue

b. *The scalar operator:*

Import: From a higher-order-typed scalar operator SCAL, triggered by *kàn*

Type: two-place, operating on quantifiers and predicates

Dimension: Not-at-issue

I also argue for a (syntactio-)semantic dependency between the exclusive and the scalar operator, namely, co-indexation of their alternative sets, via Agree. Additionally, I propose a syntactic dependency between *kàn* and SCAL. These two dependencies together derive the (c)overt movement of the focus with *nìkan* and its locality properties. The dependencies are summarized below.

(199) Three grammatical dependencies

a. Co-indexation of alternatives between *nìkan*/QU_{EXCL} and SCAL, via Agree

b. Syntactic Agree between *kàn* and SCAL

c. As a result of the above two: (c)overt movement of *nìkan*/QU_{EXCL} with the focus

In the following, I discuss D-quantification of exclusion by *nìkan* first (§4.5.2.1), and then turn to the scalar focus analysis (§4.5.2.2).

4.5.2.1 Exclusion by D-quantifiers

I propose that *nikan* is a D-quantifier of exclusion. Focusing on nominal cases, I suggest that it forms a QP with a DP with an F-marking (on or inside the DP):

(200) The syntax of *nikan*:

$[_{QP} DP_F \textit{nikan}]$

As already seen, QP formed by *nikan* undergoes covert movement to a higher position within a clause or even across a clause. I assume that this movement is not triggered by syntactic features, but for scope-taking, like Quantifier Raising. I will discuss the locality of this movement more in §4.5.2.2. I assume that this movement leaves a type *e* trace, which triggers subsequent lambda abstraction:

(201) Covert movement of QP formed by *nikan*

$[\dots [_{QP} DP_F \textit{nikan}] \lambda 3 [_{VP/TP/etc.} \dots V t_3 \dots]$
 $\uparrow \text{-----} \downarrow$

The semantics of *nikan* is given in (202). It first takes an entity *x* denoted by its sister DP, and takes a property denoted by the property *P* created by lambda abstraction at the position the QP moves to. It then says that, informally, the property *P* only applies to *x*—if *P* applies to an entity *y* in the alternative, then *P*(*x*) entails *P*(*y*), which is only possible if *y* is *x* (or part of *x*). This effectively excludes non-*x* individuals from having *P*. So, only *x* has the property *P*. I also assume a null version of *nikan*, QU_{EXCL} , which has the same semantics. It accounts for the exclusivity in singleton *kàn* cases where *nikan* is absent.

(202) The semantics of adfocal *nikan* (attaching to entity-denoting DPs)

$\llbracket \textit{nikan}/QU_{EXCL} \rrbracket(C_i) = \lambda x_e \lambda P_{\langle e, st \rangle} \lambda w. \textbf{AI: } \forall y \in C_i [P(y)(w) \rightarrow P(x) \subseteq P(y)]$

NAI: $P(x)(w)$

- a. Take an entity *x* and a property *P*.
- b. **At-issue:** For all the individual *y* in the alternative set (*C_i*) of *x*, if the proposition [*y* has the property *P*] holds (in world *w*), then the prejacent proposition [*x* has the property *P*] entails this proposition [*y* has the property *P*]. (i.e., excluding all the relevant alternative propositions not entailed by the prejacent [*x* has the property *P*])
- c. **Not-at-issue:** Presuppose the prejacent proposition [*x* has the property *P*]

For simplicity, I only discuss cases where *nikan* takes an entity-denoting DP here. I assume that

nikan is type-flexible and can take an entity, a property, a quantifier, or even a proposition as its arguments. That it should be type-flexible is evidenced by its ability to associate with a (moved and nominalized) verb and clauses, as mentioned in §4.2.2. The case of properties will be discussed in §4.5.3. See also Yip and Ahenkorah (2026) for the type flexibility of adfocal exclusive particles in Akan, which carry exclusive semantics and are analyzed as two-place quantifiers.³⁴

I use the example (203) to show how the D-quantification of *nikan* works.

(203) *We're discussing what language(s) Ade took. In this school, there are two options: French & German.*

a. Ade mú [QP Faranse_F **nikan**].

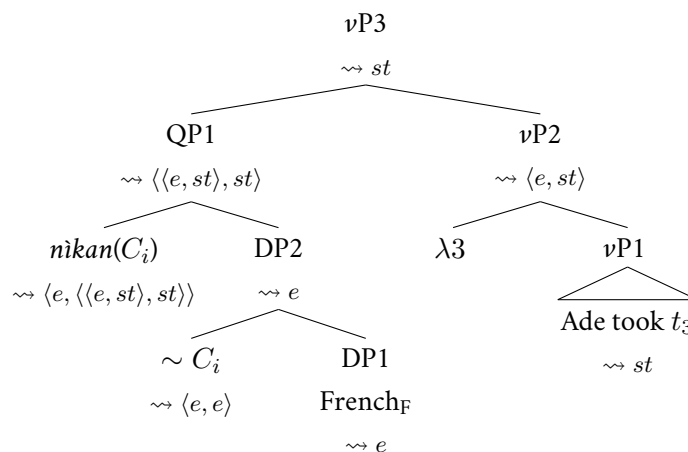
Ade take French only

'Ade only took *French*.'

b. $C_i = \{\textit{French}, \textit{German}\}$

The LF of (203) is given in (204), with QP movement and subsequent lambda abstraction. I assume that the subject is reconstructed to Spec ν P for interpretation. As an exclusive focus quantifier, *nikan* quantifies over alternatives by taking the Roothian variable C_i . It triggers the resetting operator $\sim$ immediately below it.

(204) The LF of (203), typed



34. Below, I give the entry of *nikan* taking quantifier DPs as an example.

(i) The semantics of adfocal *nikan* (taking quantifier DPs)
 $\llbracket nikan / Q_{\text{EXCL}} \rrbracket(C_i) = Q_{\langle \langle e, st \rangle, st \rangle} \lambda P_{\langle e, st \rangle} \lambda w. \text{ AI: } \forall \mathcal{R}_{\langle \langle e, st \rangle, st \rangle} \in C_i [\mathcal{R}(P)(w) \rightarrow Q(P) \subseteq \mathcal{R}(P)]$
NAI: $Q(P)$

The composition of (204) is given in (205). First, the core proposition with an unbound variable (left by the movement) is lambda-abstracted, giving a property “the thing (language) that Ade took” (Steps i-ii). Second, the focus in QP triggers a set of alternatives $\{French, German, English, \dots\}$. The resetting operator $\sim$, triggered by *nikan*, comes in and restricts C_i to be a subset of the above alternative set (which goes through, since $C_i = \{French, German\}$ is a subset of $\{French, German, English, \dots\}$) (Steps iii-iv). Third, *nikan* takes the focused DP “French” and forms a QP denoting a Generalized Quantifier. It sees inside the alternatives y in C_i (Step v). Lastly, it combines with the property “the thing (language) that Ade took” and applies it to the “French” and its alternatives y . It excludes all the propositions with the skeleton of “Ade took y ” that are not entailed by the proposition “Ade took French”.

(205) The semantic composition of (204)

(ENG = English; DEU = German; FRA = French)

- i. The core proposition (with QP moved)

$$\llbracket \nu P1 \rrbracket^o = \wedge Ade \text{ took } x_3 \quad ; \quad \llbracket \nu P1 \rrbracket^{alt} = \wedge Ade \text{ took } x_3$$

- ii. Lambda abstraction triggered by QP movement

$$\llbracket \nu P2 \rrbracket^o = \lambda x_3. \wedge Ade \text{ took } x_3 \quad ; \quad \llbracket \nu P2 \rrbracket^{alt} = \lambda x_3. \wedge Ade \text{ took } x_3$$

- iii. The focus in QP

$$\llbracket DP1 \rrbracket^o = FRA \quad ; \quad \llbracket DP1 \rrbracket^{alt} = \{FRA, DEU, ENG, \dots\}$$

- iv. Resetting the alternatives by $\sim$

$$\llbracket DP2 \rrbracket^o = FRA \quad ; \quad \llbracket DP2 \rrbracket^{alt} = \{FRA\}$$

$$\boxed{\text{NAI}}: (a) C_i \subseteq \llbracket DP2 \rrbracket^{alt} \text{ (satisfied: } C_i = \{FRA, DEU\} \subseteq \{FRA, DEU, ENG, \dots\})$$

- v. Combining with the exclusive *nikan*

$$\llbracket QP \rrbracket^o = \lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]$$

$$\llbracket QP \rrbracket^{alt} = \{\lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]\}$$

$$\boxed{\text{NAI}}: (a)$$

- iv. The core proposition with QP merged back

$$\llbracket \nu P3 \rrbracket^o = \lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]$$

$$\llbracket \nu P3 \rrbracket^{alt} = \{\lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]\}$$

$$\boxed{\text{NAI}}: (a) + (b) \wedge Ade \text{ took } FRA \in CG$$

The proposed analysis derives the scopal ambiguity of *nikan* with the height of QP movement.

When *nikan* takes wide scope over negation (e.g., *kò* and irrealis negation *má*) or modals (e.g., *lè* ‘may, can’), the QP moves across them. When *nikan* takes narrow scope under these operators, the QP moves below them. As long as the QP moves to position with a proposition type (*st*), the semantic composition will be successful. I label the projections in the preverbal fields as FPs below (F = “functional”).

(206) Scopal ambiguity of *nikan* within a clause

- a. *Wide scope over negation/modals* (only > $\neg/\diamond$)

[_{TP} [_{QP} DP_F *nikan*] $\lambda 3$ [_{FP} {*kò*, *má*, *lè*} ... [_{vP} ... V *t*₃ ...
 $\uparrow$ ----- $\downarrow$

- b. *Narrow scope under negation/modals* ($\neg/\diamond$ > only)

[_{TP} ... [_{FP} {*kò*, *má*, *lè*} ... [_{vP}₂ [_{QP} DP_F *nikan*] $\lambda 3$ [_{vP}₁ ... V *t*₃ ...
 $\uparrow$ ----- $\downarrow$

Similarly, the ambiguity of matrix and embedded scope can also be derived by the QP movement. QP moves above the matrix verb to acquire the wide scope reading out of the embedded CP. As for the embedded scope, QP only moves within the embedded clause. The covert QP movement, though can be long-distance, is blocked by syntactic islands, such as complex NP islands and adjunct islands. Thus, wide scope readings in an island configuration, which require movement out of the island, is not possible.

(207) Scopal ambiguity of *nikan* across a clause

- a. *Wide scope in the matrix clause* (only > know, etc.)

[_{CP}₁ ... [_{vP}₃ [_{QP} DP_F *nikan*] $\lambda 3$ [_{vP}₂ V_{matrix}-‘know’, etc. [_{CP}₂ ... [_{vP}₁ ... V_{embed} *t*₃ ...
 $\uparrow$ ----- $\downarrow$

- b. *Narrow scope in the embedded clause* (know, etc. > only)

[_{CP}₁ ... [_{vP}₂ V_{matrix}-‘know’, etc. [_{CP}₂ ... [_{QP} DP_F *nikan*] $\lambda 3$ [_{vP}₁ ... V_{embed} *t*₃ ...
 $\uparrow$ ----- $\downarrow$

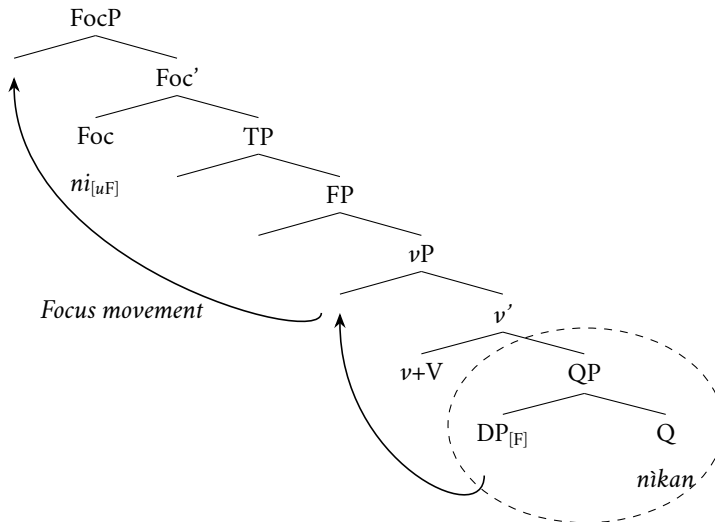
(208) QP movement blocked by islands

[_{CP}₁ ... [_{vP}₃ [_{QP} DP_F *nikan*] $\lambda 3$ [_{vP}₂ V_{matrix}-‘know’, etc. [_{islands}] ... [_{vP}₁ ... V_{embed} *t*₃ ...
 $\uparrow$ ----- $\downarrow$ ✗

In the case of overt focus movement with *ni*, I assume that the focus head *ni* attracts a focus con-

stituent with the F-marking to its specifier (after Awóbùlúyì 1978; Ilọrì 2010; Aremu 2024).³⁵ *Nikan* is pied-piped along. The movement goes through the ν P phase as an intermediate step.³⁶ *Ni*-focus movement is a feature-triggered movement, unlike the covert QP movement.

(209) Focus movement of QP

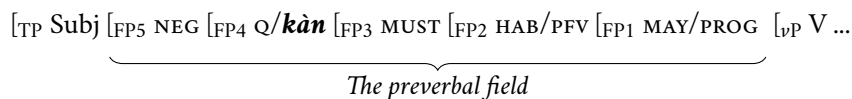


In the next subsection, I focus on exclusive doubling with *kàn*.

4.5.2.2 A scalar focus analysis with alternative co-indexation

Let us begin with the syntax of exclusive doubling. First, I propose that there are five functional projections in the preverbal field between TP and ν P in Yorùbá, labeled as FPs in (210). These preverbal particles have rigid ordering and cannot be flipped. The adverbial particle *kàn* occupies FP4, below negation *kò*. It competes for the same position with the preverbal question particle *ha*.

(210) The syntax of *kàn*



35. I do not assume a biclausal cleft analysis of *ni* in ex-situ focus cases (e.g., Bisang and Sonaiya 2000; Adesola 2005; Jones 2006). See Aremu (2024, 2026) for arguments supporting the monoclausal analysis. Without going into details, I note that the biclausal cleft analysis requires two exclusive quantifiers in exclusive doubling, for independent locality constraints of doubling (to be discussed in the next subsection), but the attested reading only has one exclusive.

36. The ν P phase edge serves as a potential reconstruction site for narrow scope readings under modal *lè* in ex-situ focus cases for speakers who can accept it (e.g., Aremu 2026), although the reconstruction reading was not readily accessible for my consultants. As for negation, I assume that it blocks reconstruction. I offer no explanation as to why it is the case, but negation blocking reconstruction is widely attested across languages (e.g., English raising: Boeckx 2001; Mandarin *you* 'again': T. Xu 2016; Y. Liu 2021).

Second, I propose that there is a null *SCAL* operator that attaches to the QP formed by *nìkan*. As I will discuss below, *SCAL* is responsible for the scalarity.³⁷

(211) The null scalar operator attaching to QP

[_{QP2} *SCAL* [_{QP1} *DP_F* *nìkan*]]

Third, I propose that *SCAL* mediates between *nìkan* and *kàn*. There is no direct dependency between *nìkan* and *kàn*. Instead, *kàn* Agrees with *SCAL*, and *SCAL* Agrees with *nìkan*. *Kàn* carries an uninterpretable [*uSCAL*:_] feature that needs to be valued by *SCAL*, which carries the interpretable counterpart [*iSCAL*:+]. On the other hand, *SCAL* and *nìkan*, both as focus-sensitive operators (scalar and exclusive), co-index their quantificational domain, namely the alternative set C_i , via Agree in indices. The two Agree relations are given below.

(212) Two Agree relations in exclusive doubling in Yorùbá

[_{TP} ... [_{FP4} *kàn*_[*uSCAL*:_] ... [_{νP2} [_{QP2} *SCAL*_[*iSCAL*:+] (C_i) [_{QP1} ~ C_i [_{DP_F} *nìkan*(C_i)]] λ3 [_{νP1} ... V t_3 ...

Fourth, I assume that Agree is subject to the Phase Impenetrability Condition (PIC) (Chomsky 2000). Effectively, Agree is phase-bounded: Agree cannot take place if crosses a phase boundary and the phase complement. I assume that CP and ν P are phases.

(213) Phase Impenetrability Condition (PIC)

- a. In a phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations. (Chomsky 2000:108)
- b. [_{ZP} ... Z [_{XP} X ... [_{HP= α} [H YP]]]];

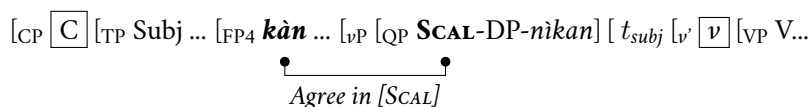
where Z and H are phase heads, and YP is visible to operations in HP but not ZP or XP.
- c. [_{ZP} ... Z [_{XP} X ... [_{HP= α} YP [H ...]]]];

where Z and H are phase heads, and H and YP are visible to operations in XP and Z but not above Z.

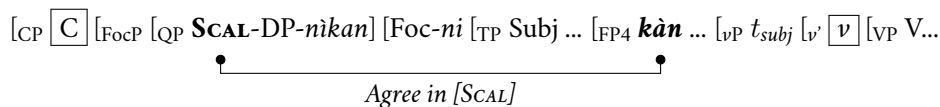
37. One may question whether such a null *SCAL* operator exists. Akan offers some potential support. In the language, there are two adfocal exclusive particles, *nkoaa* ‘only’ and *pɛ* ‘only’, but there are no adverbial particles. *Nkoaa* and *pɛ* can be stacked, as in *DP-nkoaa-pɛ*, giving rise to exclusive doubling (see Yip and Ahenkorah 2026). Interestingly, the two particles differ in scalarity (Comfort Ahenkorah, p.c.): *pɛ* is scalar. This is similar to the proposed QP structure for Yorùbá, where the scalar operator is higher than the exclusive quantifier. We can treat *pɛ* as the overt realization of *SCAL*: [_{QP2} [_{QP1} *DP_F* *Qu_{EXCL}*-*nkoaa*] *SCAL*-*pɛ*].

Lastly, I assume with Baker (2008) that Agree can be downward or upward. Concretely, I suggest that the Probe on *kàn* first searches downward, and then upward. Alternatively, it can also be understood as Cyclic Agree (Béjar and Rezac 2009): if the first appropriate Goal is not found in the first cycle, the Probe may search up in the second cycle. In other words, if QP with SCAL is at the ν P phase edge (after QP movement), *kàn* Agrees downward with it. On the other hand, if QP with SCAL is higher than *kàn* but still within the same CP phase, such as undergoing covert QP movement to TP or overt focus movement to SpecFocP, *kàn* Agrees upward with it. Note that FocP headed by *ni* is within the CP phase, because the ex-situ focus must follow the complementizer *pé* (e.g., in embedded clauses). Phase heads are boxed below.

(214) a. Downward agreement into the ν P edge



b. Upward agreement within the CP phase



With the syntactic components in place, we can give the semantic analysis below. I propose the semantics for SCAL in (215).

(215) The semantics of SCAL

$$\begin{aligned}
 \llbracket \text{SCAL} \rrbracket(C_i) &= \lambda \mathcal{Q}_{\langle \langle e, st \rangle, st \rangle} \lambda P_{\langle e, st \rangle} \lambda w. \text{ AI: } \mathcal{Q}(P)(w) \\
 &\text{ NAI: } \exists x_e \exists y_e [x \in C_i \wedge y \in C_i \wedge \\
 &\quad (P(x) \cap \mathcal{Q}(P) \neq \emptyset) \wedge \\
 &\quad (P(y) \cap \mathcal{Q}(P) = \emptyset) \wedge \\
 &\quad P(x) <_s P(y)]
 \end{aligned}$$

The operator SCAL takes two arguments: a quantifier $\mathcal{Q}$ (e.g., the QP formed by *nìkan*) and a property P . On the at-issue level, it only passes up the inputs by combining them together. It has no truth conditional effects. Call the output proposition r , which would be an exclusive proposition if the quantifier taken is formed by *nìkan*. On the not-at-issue level, SCAL requires two alternative individuals x and y , such that r does not exclude the proposition $[x \text{ has the property } P]$ (call it p) while r excludes the

proposition [*y* has the property *P*] (call it *q*), and *p* is ranked lower than *q* on some contextual scale, which can also be a scale of salience. So, effectively, it imposes an ordering requirement on the propositions formed based on the alternatives: the non-excluded one, i.e., the preja cent proposition of the exclusive, needs to be ranked lower than at least one excluded propositions.³⁸

As for *kàn*, I suggest that it is an identity function. It has no substantial semantic effects, neither at-issue nor not-at-issue. It is simply a functional head that signals the presence of the scalar operator SCAL.

(216) The semantics of adverbial *kàn*

$$\llbracket k\grave{a}n \rrbracket = \lambda p_{st}. \text{ AI: } p$$

We can now derive the semantics of exclusive doubling of *nìkan* and *kàn*. An example is given in (217), and the LF is given in (218).

(217) *We're discussing what language(s) Ade took. In this school, there are two options: French and German. Taking German is more impressive, as it is very common for schools to teach French in Nigeria, but not German.*

a. Ade **kàn** mú [_{QP} Faranse_F **nìkan**].

Ade only take French only

'Ade only/just took *French*.' (not impressive)

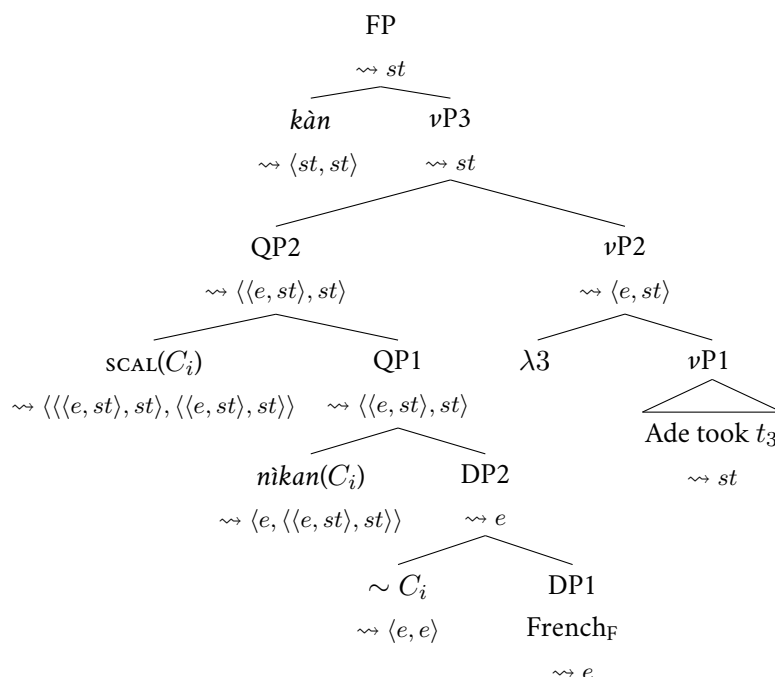
b. $C_i = \{French, German\}$

c. $\wedge Ade \text{ took } French <_{\text{impressiveness}} \wedge Ade \text{ took } German$

38. This scalar requirement is reminiscent of SFP *zaa3* in Cantonese, whose semantics is reproduced below.

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

(218) The LF of (217), typed



The semantic composition is given below. $\nu P2$ denotes a property after lambda abstraction triggered by QP movement (Steps i-ii). After *nikan* combines with the focus, QP1 denotes a quantifier type which looks for a property P , meaning roughly “only French has a property P ” (Steps iii-v). Rather than directly merging with $\nu P2$, *scal* is attached to the QP. It modifies the quantifier, and returns the same quantifier on the at-issue level, which then combines with the property denoted by $\nu P2$, yielding the proposition “Ade only took French” (Steps vi-vii). *scal*’s contribution is on the not-at-issue level in Step vi. It sees the same alternative set that *nikan* quantifies over, i.e., C_i by co-indexation (the set of *French* and *German* languages). It then imposes an ordering requirement on the alternatives: It finds an proposition formed based on C_i that is not excluded by “Ade only took French”, namely, “Ade took French”, and finds another proposition formed based on C_i that is excluded by “Ade only took French”, for example, “Ade took German”, and then ranks “Ade took French” to be lower than “Ade took German” on some scale. This is satisfied in the context with the scale of impressiveness. Finally, *kàn* combines with the resulting exclusive proposition, and returns the exact same proposition (Step viii).

(219) The semantic composition of (218)

(ENG = English; DEU = German; FRA = French)

i. The core proposition (with QP moved)

$$\llbracket \nu P1 \rrbracket^o = \wedge Ade \text{ took } x_3 \quad ; \quad \llbracket \nu P1 \rrbracket^{alt} = \wedge Ade \text{ took } x_3$$

ii. Lambda abstraction triggered by QP movement

$$\llbracket \nu P2 \rrbracket^o = \lambda x_3. \wedge Ade \text{ took } x_3 \quad ; \quad \llbracket \nu P2 \rrbracket^{alt} = \lambda x_3. \wedge Ade \text{ took } x_3$$

iii. The focus in QP

$$\llbracket DP1 \rrbracket^o = FRA \quad ; \quad \llbracket DP1 \rrbracket^{alt} = \{FRA, DEU, ENG, \dots\}$$

iv. Resetting the alternatives by $\sim$

$$\llbracket DP2 \rrbracket^o = FRA \quad ; \quad \llbracket DP2 \rrbracket^{alt} = \{FRA\}$$

$$\boxed{\text{NAI}}: (a) C_i \subseteq \llbracket DP2 \rrbracket^{alt} \quad (\text{satisfied: } C_i = \{FRA, DEU\} \subseteq \{FRA, DEU, ENG, \dots\})$$

v. Combining with the exclusive *nikan*

$$\llbracket QP1 \rrbracket^o = \lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]$$

$$\llbracket QP1 \rrbracket^{alt} = \{\lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]\}$$

$$\boxed{\text{NAI}}: (a)$$

$$\boxed{\text{NAI}}: (b) \wedge Ade \text{ took } FRA \in CG$$

vi. Attaching the *scAL*

$$\llbracket QP2 \rrbracket^o = \lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]$$

$$\llbracket QP2 \rrbracket^{alt} = \{\lambda P_{\langle e, st \rangle} \lambda w. \forall y \in C_i [P(y)(w) \rightarrow P(FRA) \subseteq P(y)]\}$$

$$\boxed{\text{NAI}}: (a) + (b)$$

$$\boxed{\text{NAI}}: (b) \exists x_e, y_e \in C_i [(P(x) \cap Q(P) \neq \emptyset) \wedge (P(y) \cap Q(P) = \emptyset) \wedge P(x) <_s P(y)]$$

vii. The core proposition with QP2 merged back

$$\llbracket \nu P3 \rrbracket^o = \lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]$$

$$\llbracket \nu P3 \rrbracket^{alt} = \{\lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]\}$$

$$\boxed{\text{NAI}}: (a) + (b)$$

$$\boxed{\text{NAI}}: (c) \exists x_e, y_e \in C_i [(\wedge Ade \text{ took } x \cap \wedge Ade \text{ only took } FRA \neq \emptyset) \wedge$$

$$(\wedge Ade \text{ took } y \cap \wedge Ade \text{ only took } FRA = \emptyset) \wedge$$

$$\wedge Ade \text{ took } x <_s \wedge Ade \text{ took } y]$$

viii. Combining with *kàn*

$$\llbracket FP \rrbracket^o = \lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]$$

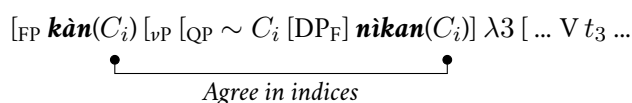
$$\llbracket FP \rrbracket^{alt} = \{\lambda w. \forall y \in C_i [Ade \text{ took } y \text{ in } w \rightarrow \wedge Ade \text{ took } FRA \subseteq \wedge Ade \text{ took } y]\}$$

$$\boxed{\text{NAI}}: (a) + (b) + (c)$$

After seeing how the scalar focus analysis results in the attested meaning, one may wonder why a null *SCAL* operator is posited to encode the scalarity, rather than saying that *kàn* encodes the scalarity. There are two reasons. The first one is related to the access to alternatives, and the second one is about the locality of QP movement. I elaborate on the first one below, and then turn to the second one.

Kàn is on the clausal spine and can only be a one-place propositional operator. Let us assume that its prejacent is the exclusive proposition formed by merging back QP with *nìkan* to *vP*, and there is co-indexation of alternative sets between *kàn* and *nìkan*, in a configuration below:

(220) A hypothetical scalar focus structure with scalar *kàn* (co-indexation)



However, the alternative set that *nìkan* quantifies over is a set of entities, instead of propositions that include the semantic content denoted by *vP*. There is no way for *kàn* to know which entities form a proposition that is excluded by, or consistent with, the prejacent exclusive proposition. In other words, there is a mismatch in the types of the alternatives (entity: *e*) and *kàn*'s prejacent (proposition: $\langle s, t \rangle$). We need to create a set of alternative propositions so *kàn* can check whether they are excluded or not.

In order to create such a set, it is necessary for the set of alternative entities to combine pointwise with the property denoted by *vP*. It is then tempting to consider the non-resetting $\sim_{pass}$ operator here (e.g., Bade and Sachs 2019; Erlewine 2025). A possible structure is posited below.

(221) A hypothetical scalar focus structure with scalar *kàn* (alternative passing)



However, just like the case of Cantonese adverbial-SFP doubling in Chapter 2, the alternatives also combine pointwise with *nìkan* itself, leading to a pre-exhaustified alternative set $\{\text{Ade only took French, Ade only took German, } \dots\}$. The scalar ordering is now between the exclusive proposition and its alternatives, rather than the propositions without exclusivity. That is, it would require a proposition like “Ade only took French” to be ranked below “Ade only took German”, but this meaning is too strong. The licensing condition of *kàn* is similar to Cantonese *zaa3* with regard to, for example, contextual salience of alternatives. These does not need to be a salient alternative exhaustified proposition; a salient proposition that is excluded by *nìkan* is enough.

The second consideration is the locality of QP movement. The presence of *kàn* constrains its landing site, but only to a limited extent. Recall that when *nìkan* is embedded in a complement clause taken by an attitude verb like ‘know’, there is scopal ambiguity. However, the sentence can be disambiguated by placing *kàn* in the matrix or embedded clauses. That is, a matrix *kàn* requires QP to move to the matrix for wide scope, and an embedded *kàn* requires QP to only move within the embedded clause for narrow scope.

(222) QP movement of *nìkan* across a clause is constrained by *kàn*

- a. *Matrix *kàn* enforces long-distance movement to the matrix clause* (only > know)

i. $[_{CP1} \dots [_{FP} \textbf{kàn} [_{vP3} [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{vP2} V_{\text{matrix}} \text{‘know’}, \text{etc.} [_{CP2} \dots [_{vP1} V_{\text{embed}} t_3 \dots$
 $\uparrow \text{-----} \downarrow$

ii. $*[_{CP1} \dots [_{FP} \textbf{kàn} [_{vP2} V_{\text{matrix}} \text{‘know’}, \text{etc.} [_{CP2} \dots [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{vP1} V_{\text{embed}} t_3 \dots$
 $\uparrow \text{-----} \times \text{-----} \downarrow$

- b. *Embedded *kàn* restricts the movement to be local within the embedded clause* (know > only)

i. $[_{CP1} \dots [_{vP2} V_{\text{matrix}} \text{‘know’}, \text{etc.} [_{CP2} \dots [_{FP} \textbf{kàn} [_{vP2} [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{vP1} V_{\text{embed}} t_3 \dots$
 $\uparrow \text{-----} \downarrow$

ii. $*[_{CP1} \dots [_{vP3} [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{vP2} V_{\text{matrix}} \text{‘know’}, \text{etc.} [_{CP2} \dots [_{FP} \textbf{kàn} [_{vP1} V_{\text{embed}} t_3 \dots$
 $\uparrow \text{-----} \times \text{-----} \downarrow$

However, within the same clause, *kàn* imposes no effects on the QP movement whatsoever. Regardless of whether other operators (e.g., negation and modals) are higher or lower than *kàn*, QP can still move above or below these operators for scopal ambiguity. The QP may even undergo overt focus movement to a position higher than both the operators and *kàn*.

(223) Clausemate *kàn* does not restrict QP movement

- a. *Operators higher than *kàn*: negation *kò**

i. $[_{FocP/TP} [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{FP} \underline{kò} [_{FP} \textbf{kàn} \dots [_{vP} \dots V t_3 \dots$ (only > $\neg$)
 $\uparrow \text{-----} \downarrow$

ii. $[_{TP} \dots [_{FP} \underline{kò} [_{FP} \textbf{kàn} \dots [_{vP2} [_{QP} DP_F \textit{nìkan}] \lambda 3 [_{vP1} \dots V t_3 \dots$ ($\neg$ > only)
 $\uparrow \text{-----} \downarrow$

b. Operators lower than *kàn*: irrealis negation *má* and modal *lè*

i. $[_{\text{FocP/TP}} [_{\text{QP}} \text{DP}_F \textit{nìkan}] \lambda 3 [_{\text{FP}} \textit{kàn} [_{\text{FP}} \textit{má/lè} \dots [_{\text{vP}} \dots \text{V } t_3 \dots]]]$ (only $> \neg/\diamond$)

↑ ----- ↓

ii. $[_{\text{TP}} \dots [_{\text{FP}} \textit{kàn} [_{\text{FP}} \textit{má/lè} \dots [_{\text{vP2}} [_{\text{QP}} \text{DP}_F \textit{nìkan}] \lambda 3 [_{\text{vP1}} \dots \text{V } t_3 \dots]]]]]$ ($\neg/\diamond > \text{only}$)

↑ ----- ↓

If *kàn* itself encodes scalarity and performs a check on what alternative propositions are excluded, we expect an immediate scope constraint similar to the ones in Cantonese adverbial-SFP doubling and Vietnamese adverbial-adfocal doubling. However, no such effects are found within the same clause. On the other hand, if the scalarity is encoded by *SCAL* which is attached to QP right above *nìkan*, we only expect a scope constraint between *SCAL* and *nìkan*, but not a scope constraint between *kàn* and *nìkan*. The placement of *kàn* should not affect the landing site of the QP movement which in turn determines the scope relative to other operators. This is exactly what we see in the clausemate cases.

The cross-clausal locality constraint is also explained by the current approach with the dependency between *kàn* and *SCAL*. Recall that Agree is subject to the PIC and cannot apply across a phase, unless the target is at a phase edge. Therefore, a matrix *kàn* cannot Agree with an embedded *SCAL*, which would cross two phases: the matrix *vP* and the embedded CP. An embedded *kàn* also cannot Agree with a matrix *SCAL*, which would again cross the matrix *vP* and the embedded CP.³⁹

(224) Locality of QP movement reduced to locality of Agree between *kàn* and *SCAL*

a. Matrix *kàn* cannot Agree with an embedded *SCAL* across phases

i. $[_{\text{CP1}} \dots [_{\text{FP}} \textit{kàn} [_{\text{vP3}} [_{\text{QP}} \textit{SCAL} \text{DP}_F \textit{nìkan}] \lambda 3 [_{\text{vP2}} [\text{v}] \text{V}_{\text{matrix}} [_{\text{CP2}} [\text{C}] \dots [_{\text{vP1}} \text{V}_{\text{embed}} t_3 \dots]]]]]]]$

•-----•
✓ Agree

ii. $*[_{\text{CP1}} \dots [_{\text{FP}} \textit{kàn} [_{\text{vP2}} [\text{v}] \text{V}_{\text{matrix}} [_{\text{CP2}} [\text{C}] \dots [_{\text{QP}} \textit{SCAL} \text{DP}_F \textit{nìkan}] \lambda 3 [_{\text{vP1}} \text{V}_{\text{embed}} t_3 \dots]]]]]]]$

•-----•
✗ Agree

39. Presumably, the QP with *SCAL* is moved to the matrix *via* the phase edges. There are two possibilities for the intermediate copies. First, one may assume that Agree with intermediate copies is not possible. Second, alternatively, we can also assume that it is possible, but only with pronounced or interpreted copies. The copies left by intermediate movement to phase edges do not satisfy either condition. There is some evidence that that Agree with the interpreted but unpronounced copies should be made possible, since overt focus movement to the matrix with an embedded *kàn* is possible, and the reading is a reconstructed one. For example, a reconstructed reading is enforced in *German nìkan ni Olùkò náà mò [pé Adé **kàn** mu]*. ‘The teacher knows that Ade only took German’, where *kàn* is embedded. The way to test reconstruction is by adding a negation in the matrix. We predict that an embedded *kàn* is ungrammatical in this case, since reconstruction is blocked by negation, and thus it is the matrix highest copy but not the embedded lower copy that is interpreted. This prediction is borne out: sentences like **German nìkan ni Olùkò náà kò mò [pé Adé **kàn** mu]* ‘Lit.: It is only German that the teacher does not know that Ade only took’ are ungrammatical under the intended doubled reading.

b. *Embedded kàn cannot Agree with a matrix SCAL across phases*

i. $[CP_1 \dots [_{\nu P_2} \boxed{v}] V_{\text{matrix}} [CP_2 \boxed{C}] \dots [FP \textit{kàn} [_{\nu P_2} [QP \textit{SCAL} DP_F \textit{nìkan}] \lambda_3 [_{\nu P_1} V_{\text{embed}} t_3 \dots$

•————•
✓ Agree

ii. $*[CP_1 \dots [_{\nu P_3} [QP \textit{SCAL} DP_F \textit{nìkan}] \lambda_3 [_{\nu P_2} \boxed{v}] V_{\text{matrix}} [CP_2 \boxed{C}] \dots [FP \textit{kàn} [_{\nu P_1} V_{\text{embed}} t_3 \dots$

•————•
✗ Agree

Moreover, *SCAL* cannot be placed in matrix (at any position, such as the subject which can be a quantifier) just to Agree with *kàn*, and associates with *nìkan* in an embedded clause. This is because *SCAL*'s quantificational domain C_i is co-indexed with *nìkan*. The composition will fail if *SCAL* takes a random quantifier Q in the matrix and checks whether the alternatives transmitted from *nìkan* in the embedded clause form propositions that are excluded by *SCAL*'s output proposition with Q applied to a property. This is because the matrix verb serves an intervening operator that changes the truth condition; and there is also a mismatch between the content of C_i and Q . We thus see that how the two dependencies, namely, Agree between *SCAL* and *kàn*, and co-indexation of C_i between *SCAL* and *nìkan*, derive the locality properties of the QP movement in Yorùbá adverbial-adfocal doubling. Both syntax and semantics play a role in deriving the locality conditions of the movement.

Last but not least, we can also explain the focus association and scopal behavior by the current analysis. Concerning backward association with focus, this type of association is possible in Yorùbá because the adverbial particle *kàn* is not a true operator and therefore does not establish an association with focus in the conventional sense. Indeed, it is semantically vacuous and only signals a covert scalar operator *SCAL*. As argued in §4.4.1, the backward association pattern cannot be reduced to scope reconstruction, which is not possible across negation that allows backward association of *kàn*.

Second, multiple association with focus is not possible with only *kàn* and one *nìkan* within the same clause. Association is achieved by *nìkan*, and *kàn* lacks the ability to associate with another focus. Moreover, because Agree can be either downward and upward, even when the focus with *nìkan* and *SCAL* is higher than *kàn*, *kàn* can still Agree with *SCAL* in the same clause.

Third, *nìkan* bears exclusive scope, but not *kàn*. Therefore, the position of *kàn* does not determine the relative scope with negation and modals.

Lastly, the ellipsis facts fall out since there is no null sentential exclusive operator EXCL (A-quantifier) in Yorùbá. Instead, wide scope is obtained through covert movement of *nikan* which is still available with ellipsis, rather than *via* any covert operator that could not associate with the elided material.⁴⁰

4.5.3 On the so-called split scope readings

In this subsection, I address the issue of split scope readings. They are often taken to support the operator-particle approach where the adfocal particles are semantically vacuous or at least non-exclusive (Y. Lee 2005; Quek and Hirsch 2017; Aremu 2026). Although the readings are available in both Vietnamese and Yorùbá exclusive doubling, I will show that it does not pose a challenge to the parametric approach with both A-quantification and D-quantification of exclusives.

4.5.3.1 An argument for the operator-particle approach

I first discuss the background of split scope readings. The observation is that when the focus itself contains a scope-bearing element, such as a conjunction or a numeral, its scope may be independent of the exclusive scope. This subsection will focus on the cases of numerals, but I will introduce the case of conjunction as part of the background here.

One of the earliest studies to recruit this argument is Y. Lee (2005), for Korean adfocal *-man* ‘only’. Lee points out that (225) has two readings. In the non-split-scope reading, both ‘only’ and ‘and’ take narrow scope under ‘some’, so one and the same person loves only John and Bill. In the split scope reading, interestingly, the scope of ‘and’ is higher than ‘some’ but yet the exclusive takes narrow scope. This reading involves two people: one likes only John; and the other likes only Bill.

(225) Split scope readings of Korean adfocal *-man* (Y. Lee 2005:187)

John-kwa-Bill-man-ul₁ [nwukwunka-ka t₁ salanhanta.]

John-and-Bill-only-ACC someone-NOM love

‘Only John and Bill, someone loves *t*.’

a. ‘There is someone who loves only *John and Bill*.’ (some > **only** > **and**)

b. ‘There is someone who loves only *John* and someone who loves only *Bill*.’

(**and** > some > **only**)

40. There remains a question as to why an exclusive focus cannot be elided with the presence of *kàn*. I offer no explanation, but I speculate that ellipsis disrupts the Agree relation between *kàn* and *scAL* that is included in the ellipsis site.

The split scope reading is unexpected if adfocal particles are D-quantifiers. D-quantifiers and the nominals (John and Bill) form a syntactic constituent. When the D-quantifier undergoes QR to obtain different scope, the conjunction's scope should also follow.

This argument is developed for the operator-particle analysis of English adfocal *only* by Quek and Hirsch (2017). Consider the sentence in (226). They observe that apart from the non-split-scope reading where a specific language is required, there is an alternative reading that only *one* language is required but the choice of the language is free. This represents a split scope reading, where the scope of the focused numeral phrase (NumP) *one_F language* is “split” from the adfocal *only*.

(226) Split scope readings of English adfocal *only*

You are required to learn **only** ONE_F language.

- a. Non-split: ‘There is only a certain language you are required to learn.’

(**only** > **one** > require)

- b. Split: ‘You are only required to learn a language, whichever one you choose.’

(**only** > require > **one**)

(Quek and Hirsch 2017, ex.6)

Quek and Hirsch (2017) argue that a D-quantifier approach to adfocal *only* derives only the non-split scope reading, because QR moves the whole *only one language* above *require*. In contrast, if scope is determined by a null operator EXCL above *require*, the split scope reading is naturally expected. The operator can also be spelt out as an adverbial *only*, as in ‘You are only required to learn one language’.

(227) The D-quantifier approach with QR

[_{TP} you $\lambda 1$ [_{VP} [**only one** lang.] $\lambda 3$ [_{VP} t_1 be.required [_{TP} PRO₁ $\lambda 2$ [_{VP} t_2 learn t_3]]]]]

(228) The operator-particle approach

[_{TP} you_{U1} [**Op_{EXCL}** [_{VP} t_1 be.required [_{TP} PRO₁ $\lambda 2$ [_{VP} t_2 learn [_{FP} F=*only_{adfoc}* **one** lang.]]]]]]]]

Let us return to Vietnamese and Yorùbá. I will focus on the numeral cases throughout this section.

Although we have established that the adfocal *m̃oi* is a (scalar) particle in Vietnamese and the adfocal *nikan* is an exclusive D-quantifier in Yorùbá, both languages allow split scope readings, as illustrated in (229–230). At first glance, this seems to be at odds with the parametric analysis of exclusives in the two languages.

(229) Split scope readings of Vietnamese adfocal *mỗi*

Để tốt nghiệp, John (chỉ) cần [học [QP **mỗi** ba_F khóa học]].

to graduate John only need study only three subject

Lit.: To graduate, John only need to take *three* courses.'

a. Non-split: '... namely, Vietnamese, English, and Mathematics; courses other than these three do not count.' (only > **three** > need)

b. Split: '... any three courses are fine.' (only > need > **three**)

(230) Split scope readings of Yorùbá adfocal *nìkan*

Olùkó náà (kàn) gba John láàyè [láti ẹ [QP ede kan_F **nìkan**]].

teacher the only permit John give.chance to do language one only

'The teacher only allows John to take *one* language.'

a. Non-split: '... namely, German.' (only > **one** > allow)

b. Split: '... any language is fine, but John is not allowed to take two.' (only > allow > **one**)

Recently, Aremu (2026) also observes the existence of split scope readings in Yorùbá as in (231), and formulates it as a counterargument against the D-quantifier analysis of *nìkan* in Yip and Adedeji (2024). He argues that if *nìkan* is a quantifier, its scope should not be "split" with its syntactic sister, assumed to be an existential quantifier here, since QR targets the whole DP instead of just the particle *nìkan*.

(231) Split scope readings of Yorùbá adfocal *nìkan*

Adam ní láti pa [QP adìẹ [mèjì]_F **nìkan**].

Adam has to kill fowl two only

Lit: 'Adam is required to slaughter only *two* fowls.'

Meaning: Adam is only required to slaughter (any) *two* fowls (he could slaughter more if he wishes) (only > require > **two**)

(adapted from Aremu 2026:200, ex.133)

The argument of scope splitting relies crucially on the assumption that numeral phrases denote

an existential quantifier ($\langle et, t \rangle$), i.e., they form a Generalized Quantifier (Barwise and Cooper 1981). Existential quantifiers may take wide scope over or narrow scope under the matrix verbs. The former leads to the “non-split” scope, and the latter yields the “split” scope. If adfocal *only* takes a quantifier as their first argument, their existential scope is expected to be tied to exclusive scope, unlike what we see above.

4.5.3.2 Against the split scope argument

However, there are reasons to doubt the assumption that NumPs denote existential quantifiers. First, there is an influential line of research that treats numerals as denoting properties (*et*) and/or property modifiers ($\langle et, et \rangle$), rather than existential quantifiers (Ionin and Matushansky 2006; Rothstein 2016; Bylinina and Nouwen 2018, cf. Link 1987, among many others).⁴¹ In the following examples, numerals lack quantificational force.

- (232) a. Every **two** houses come with one parking space. (Bylinina and Nouwen 2019, ex.14)
 b. **Three** men can lift the piano. (Bylinina and Nouwen 2018, ex.18)
 c. Rod A is **three** times longer than rod B. (Bylinina and Nouwen 2019, ex.15)

If numerals themselves do not denote a quantifier, there is no reason to assume that the NumP to which adfocal particles attach denotes a quantifier. Of course, we still need to explain cases with existential force, like *I saw two students* (‘There exist two students who I saw’). One possibility is to resort to a choice function analysis where the existential force is outsourced to a null quantifier above (either freely merged to different positions in a sentence Reinhart 1997; Winter 1997; or on the textual level, Kratzer 1998, 2003). Another possibility is to resort to Chierchia/Dayal-style $\exists$ type-shifter for existential force (Chierchia 1998; Dayal 2004, *et seq.*; see also Dayal 2020 for a discussion of Yorùbá nominal semantics). If we assume that, at least in Yorùbá, the type-shifter cannot be applied before the whole argument (with the inclusion of *nìkan*) is built completely, then the numerals do not carry existential force in the above Yorùbá examples.

The second reason is that the split scope readings are available even after movement of the focus with adfocal particles. This is unexpected since if numerals carry existential force, their scope should be determined by their position in the sentence. A case of split scope preservation is illustrated in Yorùbá

41. Another line treats numerals as degrees, e.g., Hackl (2000).

in (233) below.

(233) Preservation of split scope readings after movement in Yorùbá

[adię méjì_F **nìkan**] ni Adam ní láti pa __.

fowl two only FOC Adam has to kill

Lit: 'Adam is required to slaughter only *two* fowls.'

Meaning: Adam is only required to slaughter (any) *two* fowls (he could slaughter more if he wishes) **(only > require > two)**

Of course, one can still resort to reconstruction. Negation which blocks reconstruction (see §4.4.1) is useful in this case. As shown in (234), although the numeral (along with *nìkan*) moves across negation, split scope readings are still possible.

(234) Preservation of split scope readings after movement above negation in Yorùbá

- a. *Context: There are 20 required courses of the major in total. However, if students have sufficient background, they can be exempted from taking some courses. The upper limit is 2. The teacher knows that John is very advanced and knows all the stuff already, but due to the regulation ...*

[Iṣẹ́ méjì_F **nìkan**] ni Olùkọ́ náà (kàn) gba John láàyè [láti má
course two only FOC teacher the only permit John give.chance to NEG.INF
ṣe __].

do

Lit: 'The teacher only allows John not to take *two* course.'

Meaning: 'The number of courses John can be exempted from taking cannot exceed two.'

(only > allow > not > 2)

- b. Context: John is a graduate student. This semester, he has too many things on his plate: teaching, writing qualifying papers, organizing conferences, etc. So, as for course taking, his teacher (advisor) wants him to take at most one.

[Iṣẹ́ méjì_F **nìkan**] ni Olùkó nàà kò (kàn) gba John láàyè [láti ɕe
course two only FOC teacher the NEG only permit John give.chance to do
__].

Lit: ‘The teacher only disallows John to take *two* courses.’

Meaning: ‘The number of courses John takes cannot exceed two.’ (**only** > not > allow > 2)

Evidence also comes from Vietnamese, where adverbial particles are the exclusive operator and adfocal particles are not. The split vs. non-split scope ambiguity is not affected by movement, just like Yorùbá. Importantly, there is no scopal reconstruction in Vietnamese. Overt movement always “freezes” scope, as we have discussed above in §4.4.3 and §4.5.1.⁴²

(235) Preservation of split scope readings after movement above negation in Vietnamese

Để tốt nghiệp, [(chỉ) **mỗi** ba_F khóa học] John (mới) cần học __.
to graduate only only three subject John just need study

Lit.: To graduate, only *three* courses John need to take.’

- a. Non-split: ‘... namely, Vietnamese, English, and Mathematics; courses other than these three do not count.’ (**only** > **three** > need)
- b. Split: ‘... any three courses are fine.’ (**only** > need > **three**)

4.5.3.3 Deriving the split scope readings with exclusive D-quantifiers

In the following, I discuss how the split scope readings can be derived with a D-quantifier ‘only’, focusing on Yorùbá adfocal *nìkan*. The core idea is that numerals denote properties rather than existential quantifiers, as suggested above. However, it requires an amendment of the semantics of *nìkan*, enabling its type-flexibility. I illustrate the solutions using the example below (reproduced from (231)).

42. The adverb *mới* is optional for most speakers (and even degraded for some) when the focus moves in this case. This is different from Hole (2017)’s observation.

- (236) Split scope readings of Yorùbá adfocal -*nìkan* (adapted from Aremu 2026:200, ex.133)

Adam ní láti pa [QP adìḗ méjìf **nìkan**].

Adam has to kill fowl two only

Lit: ‘Adam is required to slaughter only *two* fowls.’

Meaning: Adam is only required to slaughter (any) *two* fowls (he could slaughter more if he wishes) **(only > require > two)**

I propose a solution with minimal changes of the semantics of *nìkan*, as given below.

- (237) The semantics of adfocal *nìkan* (attaching to property-denoting NumPs)

$$\llbracket nìkan_{property} \rrbracket(C_i) = \lambda Q_{\langle e, st \rangle} \lambda \mathcal{P}_{\langle \langle e, st \rangle, st \rangle} \lambda w. \forall N \in C_i [\mathcal{P}(N)(w) \rightarrow \mathcal{P}(Q) \subseteq \mathcal{P}(N)]$$

It is clear that (237) is simply a type-lifted version of *nìkan*’s entity-DP-attaching entry in (202) proposed in §4.5.2. The type of the first argument is lifted from *e* to $\langle e, st \rangle$, and the type of the second argument is lifted from $\langle e, st \rangle$ to $\langle \langle e, st \rangle, st \rangle$.

The crucial step required for this solution concerns how the second argument’s type can be lifted. This can be achieved by assuming that QR of the QP (NumP + *nìkan*) leaves a type *et* (or $\langle e, st \rangle$, for intensional property) trace. (This is not the standard view of QR, but see Yip and Ahenkorah 2026 for the need of such an analysis in Akan concerning VP focus association; also Poole and Keine 2024 and references therein for higher-order-typed traces.) Moreover, we also need to explain how the transitive verb, usually with the type of $\langle e, et \rangle$ (or $\langle e, \langle e, st \rangle \rangle$), can take a property *et* (or $\langle e, st \rangle$) as its first argument. There is a type mismatch if we assume the usual entry of transitive verbs.

Verbs, however, can sometimes take an object denoting a property. For example, in pseudo-incorporation, verbs are argued to take a property as its first argument (Dayal 2011):

- (238) a. The semantics of regular transitive verbs (Dayal 2011:146)

$$\llbracket catch_{TV} \rrbracket = \lambda x \lambda y \lambda e. [catch(e) \wedge Agent(e) = y \wedge Theme(e) = x]$$

- b. The semantics of verbs in pseudo-incorporation (Dayal 2011:146)

$$\llbracket catch_{INC-V} \rrbracket = \lambda P \lambda y \lambda e. [P-catch(e) \wedge Agent(e) = y]$$

$$Where \exists e[P-catch(e)] = 1 \text{ iff } \exists e'[catch(e') \wedge \exists x(P(x) \wedge Theme(e') = x)]$$

With the revised semantics of *nìkan* and a property-taking verb, we can derive the split scope reading below.

(239) Derivation of the split scope reading in (236) in Yorùbá

LF: $[_{TP2} [_{QP} [[_{NumP} \text{adiẹ́ méjì}] \sim C_i] \text{nikan}(C_i)] [_{TP1} \lambda Q_{\langle e, st \rangle} [\text{Adam ní láti pa } t_Q]]]$
‘fowl’ ‘two’ ‘only’ ‘Adam’ ‘has’ ‘to’ ‘kill’

- a. $[[\text{Adam}]] = a$
- b. $[[TP1]] = \lambda Q_{\langle e, st \rangle} \lambda w. \Box Q\text{-kill}(a)(w)$
 $\text{Where } \exists e[Q\text{-kill}(e)] = 1 \text{ iff } \exists e'[\text{kill}(e') \wedge \exists x(Q(x) \wedge \text{Theme}(e') = x)]$
- c. $[[\text{adiẹ́}]] = \lambda x. \text{fowl}(x)$
- d. $[[\text{méjì}_F]] = \lambda x. |x| = 2$
 $[[\text{méjì}_F]]^{alt} = \{\lambda x. |x| = 1, \lambda x. |x| = 2, \lambda x. |x| = 3, \dots\}$
- e. $[[NumP]] = \lambda x. \text{fowl}(x) \wedge |x| = 2$ (abbreviated as *2-fowls*)
(by Predicate Modification of (c) and (d))
 $[[NumP]]^{alt} = \{1\text{-fowl}, 2\text{-fowls}, 3\text{-fowls}, \dots\}$
- f. $[[QP]] = \lambda \mathcal{P}_{\langle \langle e, st \rangle, st \rangle} \lambda w. \forall N \in C_i[\mathcal{P}(N)(w) \rightarrow \mathcal{P}(2\text{-fowls}) \subseteq \mathcal{P}(N)]$
- g. $[[TP2]] = \lambda w. \forall N \in C_i[\Box N\text{-kill}(a)(w) \rightarrow \Box 2\text{-fowls-kill}(a) \subseteq \Box N\text{-kill}(a)]$
 $\text{Where } \exists e[2\text{-fowls-kill}(e)] = 1 \text{ iff } \exists e'[\text{kill}(e') \wedge \exists x(2\text{-fowls}(x) \wedge \text{Theme}(e') = x)]$
 $\rightsquigarrow$ For all properties N with the skeleton of “ n -fowls” (i.e., fowls with any cardinality),
if the following propositions hold in the world w : [it is required that there exists an event
where Adam slaughters some x and x are fowls with any cardinality ($=N$)],
then these propositions must be entailed by the prejacent proposition:
[it is required that there exists an event where Adam slaughters some x and x are fowls with
the cardinality of 2].
 $\rightsquigarrow$ Adam is only required to slaughter (any) two fowls.

Therefore, the so-called “split scope” readings do not form an argument against the D-quantifier approach to Yorùbá *nikan*. There are no variations between Vietnamese and Yorùbá in this respect, because the availability of these readings does not depend on the mode of quantification (A- vs. D-quantifiers), but rather the property denotation of numerals, which I assume to be widely possible across languages, and probably universal.

4.6 Towards a typology of exclusive doubling

4.6.1 A four-way typology

We have seen that it is possible for adverbial particles to be an exclusive operator or a scope-marking particles; similarly, for adfocal particles to be an exclusive quantifier or a “concord” particle attached to the focus. I argue that it is possible for languages to have *both* of them as exclusives, or *neither* of them as exclusives.

(240) A parametric view on exclusive focus particles (adverbial-adfocal doubling)

- a. *Type I: doubling, adverbial particle = OP_{EXCL}*

$\boxed{OP_{EXCL}}$ [VP ... Prt-XP_F] (Vietnamese, English)

- b. *Type II: doubling, adfocal particle = Qu_{EXCL}*

Prt [VP ... $\boxed{Qu_{EXCL}}$ -XP_F] (Yorùbá)

- c. *Type III: doubling, $OP_{EXCL} = null$*

$\boxed{OP_{EXCL}-\emptyset}$... Prt [VP ... Prt-XP_F] (Kasem)

- d. *Type IV: no doubling, with OP_{EXCL} & Qu_{EXCL}*

$\boxed{OP_{EXCL}}$ [VP ... $\boxed{Qu_{EXCL}}$ -XP_F] (Mandarin)

4.6.1.1 Kasem: neither of the adverbial and adfocal particles are exclusive

I argue that Kasem (Gur, Mabilia) exemplifies Type III, where neither of the adverbial and adfocal particles are exclusive. In other words, there is always a null exclusive operator.

(241) *Type III: doubling, $OP_{EXCL} = null$*

$\boxed{OP_{EXCL}-\emptyset}$... Prt [VP ... Prt-XP_F] (Kasem)

Kasem has the adverbial particle *weeni* ‘only’ and the adfocal particle *yerane* ‘only’, and they may be doubled with a single focus association as in (242). Note that in Kasem, the focus is always morphosyntactically marked by *mo* (Aremu 2025).

(242) Adverbial-adfocal exclusive doubling in Kasem (KS)

- a. Adam **weeni** o go [chwor_F] mo. (Adverbial)
 Adam only 3SG kill fowl FOC
 ‘Adam slaughtered only *a fowl*.’ (Aremu 2025, ex.14)
- b. Adam go [chwor_F] **yerane** mo diim. (Adfocal)
 Adam kill fowl only FOC yesterday
 ‘Adam slaughtered only *a fowl* yesterday.’ (Aremu 2025, ex.9b)
- c. Adam **weeni** o go [chwor_F] **yerane** mo. (Doubling)
 Adam only 3SG kill fowl only FOC
 ‘Adam slaughtered only *a fowl*.’ (Aremu 2025, ex.16)

First, backward association with focus of adverbial *weeni* is possible in (243), which I take to indicate that *weeni* is not an exclusive operator.

(243) Backward association with ex-situ object focus in Kasem

- a. Adam **weeni** o go chwor_F (**yerane**) mo.
 Adam only 3SG kill fowl only FOC
 ‘Adam only slaughtered *a fowl*.’ (Aremu 2025, ex.35a)
- b. Chwor_F (**yerane**) mo Adam **weeni** o goa ____.
 fowl only FOC Adam only 3SG kill.COMPL
 Lit. ‘*A fowl*, Adam only slaughtered. (and nothing else)’ (Aremu 2025, ex.35b)

Second, with multiple foci a doubled/concord reading (one exclusive operator associating with both foci) rather than a multi-‘only’ reading (two exclusive operators associating with each focus separately) is obtained with multiple adfocal *yerane* as in (244), unlike Yorùbá (and Vietnamese) as we have seen. The reading in (244) is that only the pair ⟨Adam, rice⟩ satisfies the eating relation, which has also been reported in Korean with adfocal *-man* ‘only’ on different foci (Y. Lee 2005). I take this to indicate that *yerane* is not an exclusive quantifier either.

(244) No multiple association with multiple adfocal particles in Kasem

Adam **yerane** mo di mumuna_F **yerane**

Adam only FOC eat rice FOC

Lit. ‘Only Adam ate only *rice*.’

(Aremu 2025, ex.30)

Reading: ‘It is the case that among those who could have eaten something, it is only Adam who ate something x, and x is rice.’

Finally, the wide scope reading of adfocal *yerane* does not survive ellipsis, unlike Yorùbá. This not only indicates that *yerane* is not a quantifier, but it also shows the presence of a null exclusive operator.

(245) Wide scope unavailable under ellipsis in Kasem

a. John wae o yeigi paano_F **yerane** mo.

(may > only, only > may)

John may 3SG buy bread only FOC

‘John may buy only *bread*.’

(Aremu 2025, ex.27)

b. ... Adam de wae ~~o yeigi paano yerane mo~~

(may > only, *only > may)

Adam too may 3SG buy bread only FOC

‘Adam may, too.’

(Aremu 2025, ex.27)

4.6.1.2 Mandarin: both adverbial and adfocal particles are exclusive

I argue that Mandarin exemplifies Type IV, where both adverbial and adfocal particles are exclusive. That is, it has both (overt) exclusive operators and (overt) exclusive quantifiers. It is a non-doubling language under the current framework (for adverbial-adfocal doubling; Mandarin does allow adverbial-SFP doubling, as discussed in Chapter 3).

(246) *Type IV: no doubling, having both (overt) OP_{EXCL} & Qu_{EXCL}*

$\boxed{OP_{EXCL}}$ [VP ... $\boxed{Qu_{EXCL}}$ -XP_F]

(multi-‘only’) (Mandarin)

Mandarin has the adverbial particle *zhi* ‘only’ and the adfocal particle *zhiyou* ‘only’, as illustrated in (247a-b). Note that *zhiyou* cannot stay in-situ and must move overtly to a preverbal position along with the focus (Hole 2017; Sun 2021).⁴³ Importantly, it is not possible to double *zhi* and *zhiyou* with

43. As shown below:

the same focus association, as can be seen in (247c).⁴⁴

(247) No adverbial-adfocal exclusive doubling in Mandarin Chinese (MC)

- a. Zhangsan **zhi** chi [niurou]_F. (Adverbial)
 Zhangsan only eat beef
 ‘Zhangsan only eats *beef*.’
- b. Zhangsan **zhiyou** [niurou]_F cai chi _____. (Adfocal)
 Zhangsan only beef just eat
 ‘Zhangsan only eats *beef*.’
- c. *Zhangsan **zhi zhiyou** [niurou]_F cai chi _____. (*doubling)
 Zhangsan only only beef just eat
 ‘Zhangsan only eats *beef*.’

The failure of doubling is not due to some identify avoidance constraint on pronouncing two adjacent *zhi*-syllables. As shown in (248), the scalar exclusive particle *zhishi* ‘only, just, lit. only.be’, when associating with the object focus, cannot co-occur with adfocal *zhiyou*, as in (248).

-
- (i) *Zhangsan chi-le **zhiyou** niurou_F.
 Zhangsan eat-PFV only beef
 Int.: ‘Zhangsan ate only *beef*.’

There is a rare occasion where *zhiyou* may be pronounced in a postverbal position. When the object is a numeral phrase, *zhiyou* may stay in-situ rather moving to a preverbal position, as in (ii). As far as I know, *zhiyou* does not have scopal ambiguity and cannot take wide scope when embedded in a complement clause.

- (ii) Zhangsan pao-le **zhiyou** [sanbai mi]_F.
 Zhangsan run-PFV only 300 meter
 ‘Zhangsan ran only *300 meters*.’

44. Mandarin contrasts with a closely related language Cantonese. While the adfocal particle *dak* ‘only’ in Cantonese also must move with the focus to a preverbal position, doubling with the adverbial particle *zinghai* ‘only’ is possible, as in (i). (But see Appendix A for an illicit case with *zijau* ‘only have’, the counterpart of Mandarin *zhiyou*.)

- (i) Adverbial-adfocal exclusive doubling in Cantonese
- a. Aaming **zinghai** jam [bezau]_F. (Adverbial)
 Ming only drink beer
 ‘Ming only drinks *beer*.’
- b. Aaming **dak** [bezau]_F sin wui jam _____. (Adfocal)
 Ming only beer just will drink
 ‘Ming only drinks *beer*.’
- c. Aaming **zinghai dak** [bezau]_F sin wui jam _____. (Doubling)
 Ming only only beer just will drink
 ‘Ming only drinks *beer*.’

(248) a. *Zhangsan **zhishi zhiyou** [niurou]_F cai hui chi __.

Zhangsan only only beef just will eat

‘Zhangsan will only eat beef.’

b. Zhangsan **zhishi** [niurou]_F cai hui chi __.

Zhangsan only beef just will eat

‘Zhangsan will only eat beef.’

On the other hand, *buzhi* ‘not only’, may occur with *zhi* and *zhiyou* as in (249).⁴⁵ It is therefore possible to pronounce two adjacent *zhi*-syllables.

(249) a. Mandy **buzhi zhi** hui [shuo “hao”]_F le.

Mandy not.only only will say yes SFP

‘Mandy already is beyond just saying “yes”.’

(Internet, 2021-11-04)

b. Shi-shang **buzhi zhiyou** [mama]_F hao!

world-on not.only only mum good

‘It’s not just *mum* who is the best in the world!’

(Internet, 2024-10-02)

Mandarin adverbial *zhi* does not allow for backward association (Aoun and Li 1993), as in (250).

(250) No backward association in Mandarin Chinese

#[Mali]_F, ta **zhi** xihuan __.

(topicalization)

Mary 3sg only like

Int.: ‘S/he only likes *Mary*.’

(Aoun and Li 1993:206)

Multiple association can also be established. In (251), adfocal *zhiyou* associates with the subject and the adverbial *zhi* associates with the object, giving rise to a multiple-‘only’ reading.

(251) No backward association in Mandarin Chinese

Zhiyou [Zhangsan]_{F1} **zhi** chi [niurou]_{F2}.

only Zhangsan only eat beef

‘Only Zhangsan only eats *beef*.’ (i.e., other people eat both beef and pork)

45. *Zhi* in *buzhi* ‘not only’ in (249) seems to be bleached and lose the meaning of ‘only’. Note that in order to negate *zhiyou* ‘only’, only *buzhi* rather than a plain negation *bu* can be used.

The positions of both *zhi* and *zhiyou* determine the scope with other scopal-bearing elements like modals, as shown in (252)-(253) with a permission modal *keyi* ‘may’.⁴⁶

(252) Scopal interaction between *zhi* and modals in Mandarin Chinese

- a. Zhangsan **keyi zhi** chi [niurou]_F. (◇ > only)
 Zhangsan may only eat beef
 ‘It is allowed that Zhangsan only eats *beef*.’ (He may also eat other meat if he likes.)
- b. Zhangsan **zhi keyi** chi [niurou]_F. (only > ◇)
 Zhangsan may only eat beef
 ‘Zhangsan can only eat *beef*.’ (He cannot eat other meat.)

(253) Scopal interaction between *zhiyou* and modals in Mandarin Chinese

- a. ?Zhangsan **keyi zhiyou** [niurou]_F cai chi __. (◇ > only)
 Zhangsan may only beef just eat
 ‘It is allowed that Zhangsan only eats *beef*.’ (He may also eat other meat if he likes.)
- b. Zhangsan **zhiyou** [niurou]_F cai **keyi** chi __. (only > ◇)
 Ming only beef just may eat
 ‘Zhangsan can only eat *beef*.’ (He cannot eat other meat.)

The ellipsis test is however inapplicable. *Zhiyou* does not have scopal ambiguity, and wide scope can only be achieved by pronouncing it above other scope-bearing elements.

However, we can recruit the ‘almost’ test for *zhiyou*’s semantics. In Mandarin, *chabuduo* ‘almost’ is flexible in placement in an adverbial position or an adnominal position.⁴⁷

46. There are some restrictions regarding the co-occurrence of *zhi* and *zhiyou* with the negation *bu*. *Zhi* cannot be directly followed by a negation and *zhishi* must be used for the wide scope reading. *Zhiyou*, on the other hand, cannot be directly negated by *bu* and the negation can only be the sentential negation *bushi* ‘lit. not be’ or *buzhi* ‘not only’, as also observed by Erlewine (2015, p.18, ex.35).

- (i) a. *bu zhi* ‘not only’
 b. **zhi bu* (cf. *zhishi bu*) ‘only not’
- (ii) a. **bu zhiyou* (cf. *bushi/buzhi zhiyou*) ‘not only’
 b. *zhiyou XP bu* ‘only not’

47. Another form is *jihu* ‘almost’, which prefers a preverbal position. It is marked, though not impossible, to put *jihu* postverbally.

- (254) a. Zhangsan **chabuduo** chi-le san wan fan.
 Zhangsan almost eat-PFV three CL rice
 ‘Zhangsan almost ate three bowls of rice.’ (e.g., 2.5 bowls)
- b. Zhangsan chi-le **chabuduo** san wan fan.
 Zhangsan eat-PFV almost three CL rice
 ‘Zhangsan almost ate three bowls of rice.’ (e.g., 2.5 bowls)

Both adverbial *zhi* ‘only’ and adfocal *zhiyou* ‘only’ may be modified by *chabuduo* ‘almost’. With the [almost > only], more than half a bowl of rice is eaten below. Since *zhiyou* can be modified by ‘almost’, it should carry (universal) quantificational force and be analyzed as a D-quantifier exclusive (whose semantics contain universal quantification).

- (255) a. Zhangsan **chabuduo zhi** chi-le ban_F wan fan.
 Zhangsan almost only eat-PFV half CL rice
 ‘Zhangsan almost only ate *half* bowls of rice.’
- b. Zhangsan chi-le **chabuduo zhiyou** ban_F wan fan.
 Zhangsan eat-PFV almost only half CL rice
 ‘Zhangsan ate almost only *half* bowls of rice.’
- c. Zhangsan **chabuduo** chi-le **zhiyou** ban_F wan fan.
 Zhangsan almost eat-PFV only half CL rice
 ‘Zhangsan almost ate only *half* bowls of rice.’

This constitutes another argument that Mandarin is a non-doubling language in the sense that both adverbial and adfocal particles carry exclusive semantics.

- (256) *Type IV: no doubling, having both OP_{EXCL} & Qu_{EXCL}*

zhi [_{VP} ... **zhiyou** -XP_F]

(multi-‘only’) (Mandarin)

4.6.2 Remarks on parameters

I have showcased in the domain of (adverbial-adfocal) exclusive doubling, quantification can be performed in the clausal domain (A-quantification, one-place operators) or in the nominal domain (D-quantification, two-place operators/quantifiers). Some languages allow for one only strategy in the respective empirical domain, and some languages allow for both. This raises a natural question of whether there is a “marco-parameter” that determines the availability of the quantification mode, such as $[\pm D\text{-Quantification}]$ and $[\pm A\text{-Quantification}]$. The marco-parameter setting would lead to a correlation between different types of quantifier doubling, for example, negative concord and modal concord (see §5 for some discussion).

I suggest that a marco-parameter as such cannot be maintained. First, it is not clear where in the grammar such a parameter would be encoded. Current Minimalist Program allows variations in the lexicon as (non-)bundling of features and specification of their values, or, alternatively, variation on the interface level, such as in the PF concerning Externalization. Marco-parameters are thought to be clusters of properties from micro-parameters based on features. Second, such a marco-parameter is also empirically untenable. (Standard American) English does not allow negative concord and belongs to Type IV, with both sentential negators and negative quantifiers. Yet, English belongs to Type I in exclusive doubling since the adfocal *only* is not an exclusive quantifier (cf. Quek and Hirsch 2017, among others). A potential alternative is to augment the quantification force and domains in the parameters (e.g., $[-D\text{-Quantification}: \neg\exists]$ in languages with no negative quantifiers ‘nobody’). However, it is also hard to perceive that the Conceptual-Intentional system specifies that a certain kind of logical operators (or a certain combination of them) can only have a one-place or a two-place entry.

The parameters discussed in this chapter are on the lexical level, similar to Coppock and Beaver (2014)’s parameters for exclusives in their lexical schema. I suggest the following dimensions of variations, for both exclusive and scalar operators:

(257) Lexical parameters of exclusivity

Type: one-place (propositional) vs. two-place

Scale: entailment-based vs. rank-order-based ...

(258) Lexical parameters of scalarity

<i>Type:</i>	one-place (propositional)	vs.	two-place
<i>Scale:</i>	salience-based	vs.	rank-order-based ...
<i>Strength:</i>	$\forall$ (e.g., <i>môì</i>)	vs.	$\exists$ (e.g., <i>zaa3, kàn</i>) ...

With co-indexation of alternatives, the type parameter predicts three types of combinations, and a fourth type that should not exist (see §4.5.2.2 for discussion on the compositional problems from the mismatch between the types of alternatives quantified by exclusives and the preajacent of the propositional scalar operator).⁴⁸

(259) Prediction by the type parameter + co-indexation of alternatives (p = propositional level)

- a. One-place p -EXCL + one-place p -SCAL
 $[_p \text{ SCAL}(C_i) [\text{EXCL}(C_i) [\sim C_i \dots F] \dots]]$ (OK: Cantonese, Mandarin, Vietnamese)
- b. One-place p -EXCL + two-place SCAL
 $[_p \text{ EXCL}(C_i) [\sim C_i [_{QP} \text{ SCAL}(C_i) F] \dots]]$ (OK: Vietnamese)
- c. Two-place EXCL + two-place SCAL
 $[_{QP} \text{ SCAL}(C_i) [\text{EXCL}(C_i) [\sim C_i F] \dots]]$ (OK: Yorùbá, Akan(?))
- d. **Non-existent:** Two-place EXCL + one-place p -SCAL
 - i. $*[_p \text{ SCAL}(C_i) [_{QP} \text{ EXCL}(C_i) [\sim C_i F] \dots]]$ (*: mismatch in types)
 - ii. $*[_{QP} \text{ EXCL}(C_i) [\sim C_i F] [_p \text{ SCAL}(C_i) \dots]]$ (*: mismatch in types)

There remains a question of why languages like Yorùbá have a [two-place] parametric setting for exclusives, languages like Cantonese and Vietnamese have a [one-place] setting, and languages like Mandarin allow for both.⁴⁹ While I do not have a full explanation, I suspect that it has to do with idiosyncratic properties of the exclusive focus particles in the language. Yorùbá adverbial *kàn*, unlike Cantonese *zinghai* and Vietnamese *chỉ*, are located in the preverbal field and has a fixed ordering with other particles (e.g., negation). The position does not change even when the exclusive has different scopes. Yet, when *nikan* undergoes overt movement with the focus, the change in position correlates

48. Thai only has adfocal particles and SFPs for exclusives (Rusawang and Ruangjaroon 2017; Yip and Manowang 2026). Their adfocal particles are D-quantifiers (e.g., their wide scope survives ellipsis). If their SFPs are scalar operators, this may be a counterexample to the non-existence of the fourth type. If so, alternative passing could be invoked as an alternative analysis. I leave it for future research.

49. Kasem has a [one-place] setting since the null EXCL is a propositional operator.

with the change in scope, at least in the case of negation. This is very different from Cantonese and Vietnamese where the positions of the adverbial particles always determine the scope. To the best of my knowledge, there is no mismatch between their positions and scope in any case. When children acquire the language and see two particles, there might be competing hypotheses as to which one is the true exclusive. I speculate that Yorùbá children tend to entertain the hypothesis that *nikan* rather than *kàn* is the exclusive, since *kàn*'s position does not affect the scope at least within a clause. In contrast, Cantonese and Vietnamese children can easily confirm the hypothesis that *zinghai* and *chi* are exclusives. As for why Mandarin has both A- and D-quantification for exclusives, the answer could be as simple as that the same morpheme *zhi* is used in both adverbial (*zhi*, *zhishi*, *zhibuguo*) and adfocal (*zhiyou*) particles, and the children associate the quantificational force with the morpheme itself.

Yorùbá is not the only language that recruits D-quantifiers for exclusion. Akan adfocal particle, *nkoaa* 'only', also behaves like a D-quantifier in preserving wide scope readings under ellipsis (see Yip and Ahenkorah 2026). Thai adfocal particle *khee* 'only' also has the same pattern (see Yip and Manowang 2026). Interestingly, these two languages do not have adverbial particles for exclusives as well as adverbial-adfocal doubling (but see Appendix A for other kinds of doubling that they have). If they recruited A-quantification for exclusivity, the exclusive operator would have always been null, posing issues for children to acquire it. The children would have no overt (form-based) evidence to determine whether the language employs a null operator: the only evidence available is whether the wide scope reading disappears after ellipsis, which is negative (based on unavailability of a reading) and covert (meaning-based). Therefore, treating the adfocal particles as D-quantifiers is a more natural option: "what you see is what you get".

Chapter 5

Conclusion

5.1 Summary of the dissertation

This dissertation has investigated form-meaning mismatches in quantifier doubling through the lens of exclusive doubling (focus particle concord) from a comparative and theoretical perspective. I argue that doubling is neither redundant nor a mere reflex of syntactic dependency. Instead, exclusive doubling reveals a scalar focus structure, where the two particles encode different meaning components: at-issue exclusivity and not-at-issue scalarity, and moreover establish a syntactico-semantic dependency.

Chapter 2 established the central claim that exclusive doubling instantiates scalar focus structures. Through a detailed analysis of Cantonese adverbial particle *zinghai* ‘only’ and sentence-final particle *zaa3* ‘only’, I demonstrated that exclusivity and scalarity are distributed across two particles, with *zaa3* contributing a not-at-issue scalar component that ranks the prejacent relative to excluded alternatives. *Zaa3* accesses the lower alternative set quantified by *zinghai* by co-indexation of the Roothian contextual variable of alternatives *C*, a semantic consequence of syntactic Agree. The requirement of exclusiveness under *zaa3*’s scope is a natural consequence of *zaa3*’s semantics with this dependency. I also addressed the covert exclusive operator EXCL, suggesting that it serves as a last resort strategy when no lexical exclusives are included so as to satisfy *zaa3*’s semantic requirement. Furthermore, I showed that the EXCL operator is semantically and distributionally different from the covert exhaustification operator (EXH) regulated by meaning strengthening. There are thus different types of covert exclusive/exhaustivity operators. On the other hand, I also discussed varieties of scales encoded by exclusive and scalar particles as well as variations in the ranking between the focus and alternatives.

Chapter 3 extended this proposal by examining intervention effects in exclusive doubling. The observed non-uniformity of interveners and their difference from canonical *wh*-intervention effects provided evidence that the dependency in exclusive doubling is semantic rather than purely syntactic. Notably, only quantifiers that alter truth conditions serve as interveners, and focus operators without truth condition effects do not trigger intervention effects in exclusive doubling. This quantifier-only intervention poses challenges for both syntactic accounts based on Relativized Minimality and semantic accounts based on alternative resetting, but falls out as a natural consequence of the current approach where *zaa3*'s alternative set is co-indexed with *zinghai*. Intervention effects are derived compositionally as illicit scopal configurations where a quantifier weakens the exclusion by *zinghai* and feeds it to *zaa3*. I also discussed how witnessability enables certain quantifiers to acquire wide scope and cease to trigger intervention effects. The implication is that intervention effects are not uniform across dependencies and interveners, and should be understood as a descriptive label. Moreover, I discussed how similar intervention effects are attested in Mandarin and Vietnamese exclusive doubling, with variations in the syntax and yet invariant semantic dependencies, showing the cross-linguistic generality of the proposed approach.

Chapter 4 further broadened the empirical and theoretical scope by investigating adverbial–adfocal exclusive doubling and the locus of quantification regarding the clausal domain with A(verbial)-quantification and nominal domains with D(eterminer)-quantification. I contrasted Vietnamese and Yorùbá, where adverbial and adfocal particles have distinct forms and can be doubled. I showed that the locus of quantification is subject to cross-linguistic variation: the semantic exclusion is performed by adverbial particles in Vietnamese (A-quantification) whereas it is performed by adfocal particles in Yorùbá (D-quantification). A battery of tests based on backward association, multiple association, relative scope with negation and modals, ‘almost’ modification, and wide scope under ellipsis is provided to show the differences in the carrier of exclusive semantics. The locus of scalarity shows a mirroring pattern—it is on the adfocal particles in Vietnamese while on the adverbial particles in Yorùbá. Extending this set of tests across languages, I developed a four-way parametric typology where the exclusive semantics may be encoded by (a) the adverbial particles (Vietnamese and English), (b) the adfocal particles (Yorùbá), (c) neither of them (Kasem), and (d) both of them (Mandarin). Last but not least, I discussed the logical space of parametric settings under the current approach.

5.2 Future directions

I identify three future directions for pursuing and extending the proposed approach:

- (1) a. The role of semantics dependencies in focus constructions
- b. Distributed not-at-issue domains with at-issue quantificational force
- c. Variation and the typology of quantification strategies

First, I have limited my scope to exclusive focus particles, because they affect truth-conditions and their doubling imposes an immediate challenge to compositionality and syntax-semantics mapping. However, it is well known that other focus particles also allow doubling, including additive and scalar ‘even’ particles (see Hole 2017; P. P.-I. Lee 2019; Liao and Jheng 2025; Aremu 2026, among many others). For example, in Cantonese/Mandarin, scalar *lin/lian* ‘even’ requires the (non-scalar) additive focus particle *dou/ye* ‘also’. Intuitively, they operate on the same set of alternatives. In some languages like Japanese, the scalar ‘even’ and non-scalar additive particles have the same form, *mo*. This is in a way parallel to English *only*: it has both quantificational and scalar uses. Even a pattern of variation as preliminary as such already raises interesting questions on whether they can be analyzed with the same scalar focus approach with semantic dependencies between focus particles. This possibility has already been explored from a syntactic perspective by Hole (2017), namely that the scalar component in ‘even’ focus in Mandarin and Vietnamese are “distributed”. On a related note, Liao and Jheng (2025) has an insightful proposal with strong empirical support that ‘even’ particles in Mandarin Chinese vary in the types of scales that they require. How co-indexation of the alternative sets may play out for other focus particles is a promising next step.

Second, the role of not-at-issue meaning has received increasing attention not only at the semantics-pragmatics interface (e.g., Tonhauser 2012), but also specially on quantifier doubling phenomena that were thought to be primarily syntactic, such as negative concord. For example, Kuhn (2022) proposes a dynamic semantic approach to negative concord. In his analysis, while n-words are indefinites (as generally assumed), they induce a post-supposition that no d-ref (discourse referent) is introduced in any assignment at the NAI level. This requires licensing by a negation in a higher scope position, deriving the obligatory co-occurrence of negation. Kuhn (2022) also shows how this semantic approach successfully predicts locality by considerations on Quantifier Raising.

Moreover, M. Liu (2021) has shown that universal concord in Mandarin with the D-quantifier *mei* ‘every’ and the adverb *dou*, often treated as a distributor, should be analyzed otherwise with an NAI dimension. He proposes that *dou* is not quantificational but presuppositional, and operates on sub-domain focus alternatives, requiring the prejacent to be the strongest. Its dependency with *mei* ‘every’, which carries universal force, is a semantic result between its semantics and Maximize Presupposition. This approach also opens a door as to whether focus alternatives are involved in apparently non-focus phenomena, such as universal quantification here. Simpson and Wu (2002a) crucially points out the role of focus in the diachronic development of concord and agreement phenomena, including negative concord. They argue for a focus shell that decays into a simple concord/agreement layer. Overall, there are accumulating insights on how NAI meaning and focus may figure in seemingly syntactic phenomena, and the findings in this dissertation add yet another case.

There is another domain that is rich in concord/doubling but the NAI meaning has yet to be explored, namely, modals. Modals are special in that they inherently are quantificational and affect truth conditions; nevertheless, their quantificational domain is restricted by conversational backgrounds (e.g., modal bases and ordering sources), which are not-at-issue. This parallels exclusive focus: they perform at-issue exclusion with a quantificational domain of focus alternatives, which are not-at-issue. It would be very interesting to see whether languages may have designated particles for conversational backgrounds, and yet depend on a modal.

Last but not least, given the typology of exclusive focus particles and exclusive doubling, we may compare whether there is possible correlation on the strategies for A- and D-quantification cross-linguistically. Recall the typology below:

(2) A parametric view on exclusive focus particles (adverbial-adfocal doubling)

- a. *Type I: doubling, adverbial particle = OP_{EXCL}*

$\boxed{OP_{EXCL}}$ [VP ... Prt-XP_F] (Vietnamese, English)

- b. *Type II: doubling, adfocal particle = Qu_{EXCL}*

Prt [VP ... $\boxed{Qu_{EXCL}}$ -XP_F] (Yorùbá)

- c. *Type III: doubling, $OP_{EXCL} = null$*

$\boxed{OP_{EXCL} - \emptyset}$... Prt [VP ... Prt-XP_F] (Kasem)

- d. *Type IV: no doubling, with OP_{EXCL} & Qu_{EXCL}*

$\boxed{OP_{EXCL}}$ [VP ... $\boxed{Qu_{EXCL}}$ -XP_F] (Mandarin)

I observe that this typology parallels the typology of negative concord proposed by Biberauer and Zeijlstra (2012). Both negative quantifiers (D-quantification) and clausal negation (similar to A-quantification) are available for the negative concord/doubling. This is given below. (NC = negative concord; DN = double negation.)

(3) Biberauer and Zeijlstra (2012)'s view on negative concord

- a. *Non-strict NC, only negative markers are semantically negative*

$\boxed{Neg_{[iNEG]}}$ [VP ... $n_{[uNEG]}$ -NP] (Spanish, Italian, Portuguese)

- b. *Only n-words are semantically negative*

$Neg_{[uNEG]}$ [VP ... $\boxed{n_{[iNEG]}}$ -NP] (Afrikaans A)

- c. *Strict NC, both negative markers and n-words are semantically non-negative*

$\boxed{OP_{-[iNEG] - \emptyset}}$... $Neg_{[uNEG]}$ [VP ... $n_{[uNEG]}$ -NP] (Czech, Serbo-Croatian, Greek, Afrikaans B)

- d. *DN languages: both negative markers and n-words are semantically negative*

$\boxed{Neg_{[iNEG]}}$ [VP ... $\boxed{n_{[iNEG]}}$ -NP] (Dutch, German, Swedish)

In double negation (DN) languages, both negative markers and n-words are semantically negative. This parallels Mandarin where both adverbial and adfocal particles are semantically exclusive.

(4) DN languages

- a. Jan belt **niet niemand** (Dutch)

Jan calls NEG n-body

DN: 'Jan doesn't call nobody' = 'Jan calls somebody'

- b. [Jan belt **niet**_[iNEG] **niemand**_[iNEG]]

In non-strict NC languages, only negative markers are semantically negative, but n-words are not. There may also be null negation, when the n-words are preverbal. This parallels Vietnamese where only adverbial particles are semantically exclusive.

(5) Non-strict NC languages

- a. Gianni ***(non)** ha telefonato a nessuno (Italian)

Gianni NEG has called to n-body

NC: 'Gianni didn't call anybody'

- b. [Gianni **non**_[iNEG] ha [telefonato a nessuno_[uNEG]]]

- c. Ieri nessuno (***non**) ha telefonato (a nessuno) (Italian)

yesterday n-body NEG has called to n-body

'Yesterday nobody called anybody'

- d. [Ieri **OP**_[iNEG] [nessuno_[uNEG] ha [telefonato (a nessuno_[uNEG])]]]

In strict NC languages, as argued by Zeijlstra (2004), both negative markers and n-words are *not* semantically negative. There is always a null negation. This parallels Kasem where both adverbial and adfocal particles are not semantically exclusive, and exclusivity comes from a null operator.

(6) Strict NC languages

- a. Milan nevidi nikoho (Czech)

Milan NEG.sees n-body

'Milan doesn't see anybody'

- b. [Milan **OP**_[iNEG] [ne_[uNEG]vidi [nikoho_[uNEG]]]]

- c. Dnes nikdo *(ne)vola (Czech)

Today n-body NEG.calls

‘Today nobody is calling’

- d. [Dnes OP_{-[iNEG]} [nikdo_[uNEG] [ne_[uNEG] vola]]]

In certain varieties of Afrikaans (Biberauer and Zeijlstra 2012), n-words are semantically negative but negative markers are not, as evidenced by the double negation reading with multiple n-words. This parallels Yorùbá where only adfocal particles are semantically exclusive.

(7) Afrikaans (Variety A)

- a. **Niemand** het **niks** gekoop nie (Afrikaans A)

n-body has n-thing bought NEG

Only DN: ‘No-one had bought nothing’, i.e. ‘Everyone bought something’ (*NC)

(Biberauer and Zeijlstra 2012:357)

- b. [**Niemand**_[iNEG] het **niks**_[iNEG] gekoop nie_[uNEG]]

- c. Hier slaap **niemand** nie (Afrikaans A)

here sleeps n-body NEG

NC: ‘Nobody sleeps here’

(Biberauer and Zeijlstra 2012:357)

- d. [Hier slaap **niemand**_[iNEG] nie_[uNEG]]

We thus obtain the same four-way typology. Substantial work is required for us to understand the theoretical underpinning of variation and the typology in quantificational strategies.

In sum, this dissertation argues that exclusive doubling is a window into the architecture of grammar, revealing how meaning can be distributed across multiple elements constrained by semantic dependencies. The findings can serve as basis of further work on issues at the syntax-semantics interface in various empirical domains. More generally, this dissertation provides an answer to the question: “if one suffices, why two?”, which is: depending on the lexical encoding of the language and the dimension of the meaning concerned, sometimes **it is two that suffice, but not only one only**.

Bibliography

- Abusch, Dorit. 1997. "Sequence of Tense and Temporal de re." *Linguistics and Philosophy* 20 (1): 1–50.
- Adebayo, Taofeeq A. 2021. "Yorùbá Sentential Negative Markers." *Studies in African Linguistics* 50 (1): 140–166.
- Adesola, Oluseye. 2005. "Pronouns and null operators: A-bar dependencies and relations in Yoruba." PhD diss.
- Adesola, Oluseye. 2010. "The non-agreeing subject resumptive pronoun in Yoruba." In *Topics in Kwa Syntax*, edited by E.O. Aboh and J. Essegbey, 65–89. Springer Science+Business Media B.V.
- Aelbrecht, Lobke, and Liliane Haegeman. 2012. "VP ellipsis is not licensed by VP Topicalization." *Linguistic Inquiry* 43 (4): 591–614.
- Aelbrecht, Lobke, Rachel Nye, and Liliane Haegeman. 2012. "Main clause phenomena." *Main Clause Phenomena*, 1–439.
- Alonso-Ovalle, Luis. 2005. "Distributing the disjuncts over the modal space." In *PROCEEDINGS-NELS*, 35:75. 1.
- Alonso-Ovalle, Luis, and Aron Hirsch. 2022. "Keep *only* strong." *Semantics and Pragmatics* 15 (6): 1–46.
- Alxatib, Sam. 2014. "Free choice disjunctions under only." In *Proceedings of NELS*, 44:15–28.
- Alxatib, Sam. 2020. *Focus, Evaluativity, and Antonymy: A Study in the Semantics of Only and its Interaction with Gradable Antonyms*. Cham, Switzerland: Springer Nature.

- Anand, Pranav, and Adrian Brasoveanu. 2010. "Modal concord as modal modification." In *Proceedings of Sinn und Bedeutung 14*, 19–36.
- Aoun, Joseph, and Yen-Hui Audrey Li. 1993. "Wh-Elements in Situ: Syntax or LF?" *Linguistic Inquiry* 24 (2): 199–238.
- Aremu, Daniel. 2024. "Topic and focus asymmetries in Yorùbá." In *To the left, to the right, and much in between: A Festschrift for Katharina Hartmann*, edited by Anke Himmelreich, Daniel Hole, and Johannes Mursell, 185–204. Frankfurt: Goethe University Frankfurt.
- Aremu, Daniel. 2025. "Towards a propositional concord approach for exclusives in Kasem." In *Proceedings of 42nd West Coast Conference on Formal Linguistics*, 36–45. Somerville, MA: Cascadilla Proceedings Project.
- Aremu, Daniel. 2026. "Focus sensitivity in Mabilia and Yoruboid." PhD diss., Frankfurt am Main, Johann Wolfgang Goethe-Universität.
- Aremu, Daniel, and Philipp Weisser. 2024. "Prosodically determined coordinator placement in Yorùbá." *Glossa: a journal of general linguistics* 9 (1).
- Atoyebi, Joseph, Martin Haspelmath, and Andrej Malchukov. 2011. "Ditransitive constructions in Yorùbá." In *Studies in Ditransitive Constructions: A Comparative Handbook*, edited by Andrej Malchukov, Martin Haspelmath, and Bernard Comrie, 145–165. De Gruyter Mouton.
- Awóbùlúyì, Oladele. 1978. "Focus constructions as noun phrases." *Linguistic Analysis Seattle, Wash* 4 (2): 93–114.
- Badan, Linda, and Francesca Del Gobbo. 2015. "The even-construction and the low periphery in Mandarin Chinese." *The cartography of Chinese syntax* 11:33–74.
- Bade, Nadine, and Konstantin Sachs. 2019. "EXH passes on alternatives: a comment on Fox and Spector (2018)." *Natural Language Semantics* 27:19–45.
- Bajaj, Vandana. 2016. "Scaling up Exclusive -*hii*." Ph.D. dissertation, Rutgers, The State University of New Jersey.

- Baker, Mark C. 1985. "The Mirror Principle and Morphosyntactic Explanation." *Linguistic Inquiry* 16 (3): 373–416.
- Baker, Mark C. 2008. *The syntax of agreement and concord*. Vol. 115. Cambridge University Press.
- Bar-Lev, Moshe E. 2018. "Free choice, homogeneity, and innocent inclusion." *Hebrew University of Jerusalem dissertation*.
- Bar-Lev, Moshe E, and Danny Fox. 2020. "Free choice, simplification, and innocent inclusion." *Natural Language Semantics* 28 (3): 175–223.
- Barbiers, Sjef. 2010. "Focus particle doubling." In *Structure preserved: Studies in syntax for Jan Koster*, edited by Jan-Wouter Zwart and Marc de Vries, 21–30. Amsterdam/New York: Benjamins.
- Barbiers, Sjef. 2014. "Syntactic doubling and deletion as a source of variation." In *Linguistic Variation in the Minimalist Framework*, edited by M. C. Picallo, 197–223. OUP.
- Barker, Chris. 2022. "Rethinking scope islands." *Linguistic Inquiry* 53 (4): 633–661.
- Barwise, John, and Robin Cooper. 1981. "Generalized Quantifiers and Natural Language." *Linguistics and Philosophy* 4:159–219.
- Bassi, Itai, Guillermo Del Pinal, and Uli Sauerland. 2021. "Presuppositional exhaustification." *Semantics and Pragmatics* 14.11:1–43.
- Bassi, Itai, Aron Hirsch, and Tue Trinh. 2022. "Pre-DP *only* is a propositional operator at LF: a new argument from ellipsis." In *Semantics and Linguistic Theory* 32, 814–830.
- Bayer, Josef. 1996. *Directionality and logical form: On the scope of focusing particles and wh-in-situ*. Springer Science & Business Media.
- Bayer, Josef. 2018. "Criterial Freezing in the syntax of particles." In *Freezing: Theoretical Approaches and Empirical Domains*, edited by Jutta Hartmann, Marion Jäger, Andreas Konietzko, and Susanne Winkler, 225–263. Berlin: De Gruyter.

- Bayer, Josef. 2020. "Why doubling discourse particles?" In *Linguistic Variation: Structure and Interpretation*, edited by Ludovico Franco and Paolo Lorusso, 47–72. Berlin: Mouton de Gruyter.
- Beaver, David I., and Brady Z. Clark. 2003. "Always and only: why not all focus-sensitive operators are alike." *Natural Language Semantics* 11 (4): 323–362.
- Beaver, David I., and Brady Z. Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning*. Chichester: Wiley Blackwell.
- Beck, Sigrid. 1996. "Wh-constructions and transparent Logical Form." PhD diss., Universität Tübingen.
- Beck, Sigrid. 2006. "Intervention effects follow from focus interpretation." *Natural Language Semantics* 14:1–56.
- Beck, Sigrid, and Shin-Sook Kim. 1997. "On WH- and Operator Scope in Korean." *Journal of East Asian Linguistics* 6 (4): 339–384.
- Beck, Sigrid, and Shin-Sook Kim. 2006. "Intervention Effects in Alternative Questions." *Journal of Comparative Germanic Linguistics* 9 (3): 165–208.
- Béjar, Susana, and Milan Rezac. 2009. "Cyclic Agree." *Linguistic Inquiry* 40 (1): 35–73.
- Belletti, Adriana. 2001. "'Inversion' as Focalization." In *Subject Inversion in Romance and the Theory of Universal Grammar*, edited by Aafke C Hulk and Jean-Yves Pollock, 60–90. Oxford University Press.
- Belletti, Adriana. 2004. "Aspects of the Low IP Area." In *The Structure of CP and IP*, edited by Luigi Rizzi, 16–51. Oxford: Oxford University Press.
- Benthem, J.F.A.K. van. 1989. "Logical Constants Across Types." *Notre Dame Journal of Formal Logic* 3.
- Berman, Stephen. 1991. "On the Semantics and Logical Form of Wh-Clauses." PhD diss., University of Massachusetts.
- Bhatia, Sakshi. 2014. "Multiple focus in Hindi-Urdu." In *Formal Approaches to South Asian Languages* 4.

- Bhatt, Rajesh, and Veneeta Dayal. 2020. "Polar question particles: Hindi-Urdu *kya*." *Natural Language & Linguistic Theory* 38 (4): 1115–1144.
- Biberauer, Theresa, and Hedde Zeijlstra. 2012. "Negative Concord in Afrikaans: filling a typological gap." *Journal of Semantics* 29 (3): 345–371.
- Bisang, Walter, and Remi Sonaiya. 1999. "The functional motivation of the high tone syllable in Yoruba." *JALL* 20:1–19.
- Bisang, Walter, and Remi Sonaiya. 2000. "Information structuring in Yoruba." *Linguistics* 38 (1): 169–197.
- Bjorkman, Bronwyn M., and Hedde Zeijlstra. 2019. "Checking up on (ϕ -) agree." *Linguistic Inquiry* 50 (3): 527–569.
- Boeckx, Cedric. 2001. "Scope reconstruction and A-movement." *Natural Language and Linguistic Theory* 19 (3): 503–548.
- Borer, Hagit. 1984. "Restrictive relatives in modern Hebrew." *Natural Language and Linguistic Theory* 2 (2): 219–260.
- Borer, Hagit. 2005. *In name only. Structuring sense, volume 1*. Oxford: Oxford University Press.
- Bošković, Željko, and Jairo Nunes. 2007. "The Copy Theory of Movement: A view from PF." In *The Copy Theory of Movement*, edited by Jairo Nunes and Norbert Hornstein, 13–74. Oxford: Blackwell Publishers.
- Bouma, Gosse, Petra Hendricks, and Jack Hoeksema. 2007. "Focus Particles Inside Prepositional Phrases: A Comparison of Dutch, English, and German." *The Journal of Comparative Germanic Linguistics* 10 (1): 1–24.
- Branan, Kenyon, and Michael Yoshitaka Erlewine. 2023. "Anti-pied-piping." *Language* 99 (3): 603–653.
- Breheny, Richard, Nathan Klinedinst, Jacopo Romoli, and Yasutada Sudo. 2018. "The symmetry problem: current theories and prospects." *Natural Language Semantics* 26:85–110.

- Brennan, Virginia Mary. 1993. "Root and Epistemic Modal Auxiliary Verbs." Ph.D. dissertation, University of Massachusetts.
- Büring, Daniel. 2001. "A Situation Semantics for Binding out of DP." In *Proceedings of SALT XI*, edited by Rachel Hastings, Brendan Jackson, and Zsófia Zvolenszky, 56–75. Cornell University, Ithaca, NY: CLC Publications.
- Büring, Daniel, and Katharina Hartmann. 2001. "The syntax and semantics of focus-sensitive particles in German." *Natural Language and Linguistic Theory* 19 (2): 229–281.
- Butler, Jonny. 2003. "A minimalist treatment of modality." *Lingua* 113 (10): 967–996.
- Bylinina, Lisa, and Rick Nouwen. 2018. "On "zero" and semantic plurality." *Glossa: a journal of general linguistics* 3 (1).
- Bylinina, Lisa, and Rick Nouwen. 2019. "Numeral Semantics." Lecture notes at ESSLLI 2019.
- Cable, Seth. 2010. *The Grammar of Q: Q-Particles, Wh-Movement and Pied-Piping*. Oxford: Oxford University Press.
- Cable, Seth. 2014. "Distributive numerals and distance distributivity in Tlingit (and beyond)." *Language* 90 (3): 562–606.
- Cao, Thanh Viet. 2025. *Quantification and Plurality at the Interface: the case of Vietnamese*. PhD Dissertation, National Tsing Hua University.
- Carlson, Greg N. 1981. "Distribution of Free Choice "Any"." In *Proceedings of Chicago Linguistics Society*, edited by Roberta Hendrick, Carrie Masek, and Mary Frances Miller, 17:8–23.
- Carlson, Greg N. 1983. "Marking constituents." In *Linguistic categories: Auxiliaries and related puzzles: Volume one: Categories*, 69–98. Springer.
- Carlson, Greg N. 2006. "'Mismatches' of form and interpretation." In *Semantics in acquisition*, 19–36. Springer.

- Carstens, Vicki. 1987. "Extraction asymmetries in Yoruba." In *Current approaches to African linguistics*, Vol. 4, edited by David Odden, 61–72. Berlin: De Gruyter.
- Carstens, Vicki, and Jochen Zeller. 2020. "'Only' in Nguni: A phrase-final particle meets antisymmetry theory." *Linguistic Inquiry* 51 (2): 199–235.
- Charlow, Simon. 2019. "GIVENness and local contexts." In *Paper presented at Semantics and Linguistic Theory 29, University of California, Los Angeles*.
- Chen, Fulang. 2023. "Obscured universality in Mandarin." Ph.D. dissertation, Massachusetts Institute of Technology.
- Chen, Fulang. 2025a. "Generalized composite probing in Mandarin." In *Proceedings of 42nd West Coast Conference on Formal Linguistics*, edited by Shweta Akolkar, Amber Galvano, Akil Ismael, Kang Franco Liu, and Line Mikkelsen, 74–83. Somerville, MA: Cascadilla Proceedings Project.
- Chen, Fulang. 2025b. "Passivization and composite A/Ā-movement in the Mandarin bei-construction." *Natural Language & Linguistic Theory*, 1–87.
- Chen, Fulang, and Ka-Fai Yip. 2025. "Facilitator effects in Mandarin topicalization: Evidence for a crossing-based view of antilocality." In *Proceedings of the Fifty-Fifth Annual Meeting of the North East Linguistic Society (NELS-55)*, edited by Duygu Demiray, Roger Cheng-yen Liu, and Nir Segal, 1:115–128.
- Cheng, Lisa Lai-Shen. 1995. "On *dou*-quantification." *Journal of East Asian Linguistics* 4 (3): 197–234.
- Cheng, Lisa Lai-Shen, and Anastasia Giannakidou. 2013. "The non-uniformity of *wh*-indeterminates with polarity and free choice in Chinese." *Strategies of quantification* 44:123.
- Cheng, Lisa Lai-Shen, C.-T. James Huang, and C.-C. Jane Tang. 1997. "Negative particle questions: A dialectal perspective." *Journal of Chinese Linguistics Monograph Series*, no. 10, 65–112.
- Cheng, Siu Pong. 2015. "The Relationship of Syntactic and Semantic Aspects of Postverbal Particles and Their Preverbal Counterparts in Hong Kong Cantonese." PhD diss., The Chinese University of Hong Kong.

- Cheung, Candice Chi-Hang. 2015. "On the Fine Structure of the Left Periphery." In *The Cartography of Chinese Syntax*, edited by Wei-Tien Dylan Tsai, 75–130. Oxford: Oxford University Press.
- Cheung, Lawrence Yam-Leung. 2009. "Dislocation focus construction in Chinese." *Journal of East Asian Linguistics* 18 (3): 197–232.
- Chierchia, Gennaro. 1998. "Reference to Kinds across Languages." *Natural Language Semantics* 6 (4): 339–405.
- Chierchia, Gennaro. 2004. "Scalar Implicatures, Polarity Phenomena, and the Syntax/Pragmatics Interface." In *Structures and Beyond: The Cartography of Syntactic Structures*, edited by Adriana Belletti, 3:39–103. Oxford: Oxford University Press.
- Chierchia, Gennaro. 2006. "Broaden your Views: Implicatures of Domain Widening and the "Logicality" of Language." *Linguistic Inquiry* 37 (4): 535–590.
- Chierchia, Gennaro. 2013. *Logic in grammar: polarity, free choice, and intervention*. Oxford: Oxford University Press.
- Chierchia, Gennaro. 2021. "Four types of quantifiers at the interface between syntax and logic." Ms., Harvard University.
- Chierchia, Gennaro, Danny Fox, and Benjamin Spector. 2012. "Scalar implicature as a grammatical phenomenon." In *An International Handbook of Natural Language Meaning*, edited by Paul Portner, Claudia Maienborn, and Klaus von Heusinger, 2297–2331. Berlin: Mouton de Gruyter.
- Choi, Tsun Hei. 2022. "Rhetorical questions and polarity licensing: On Cantonese modal *sai2*." *Studies in Chinese Linguistics* 43 (2): 123–142.
- Choi, Tsun Hei. 2023a. "Negative wh-constructions in Cantonese revisited." Paper presented at The 27th International Conference on Yue Dialects, The Ohio State University.
- Choi, Tsun Hei. 2023b. "Separating wh NPI licensing in rhetorical questions with unselective binding." Paper presented at The Sixth Forum on Cantonese Linguistics (FoCaL-6), The Hong Kong University of Science / Technology.

- Choi, Tsun Hei. 2024a. "Negative *wh*-constructions in Cantonese revisited." In *Buckeye East Asian Linguistics*, vol. 9, edited by Wei William Zhou, Mineharu Nakayama, Marjorie K M Chan, and Zhiguo Xie, 6–21. Ohio State University.
- Choi, Tsun Hei. 2024b. "The syntax of rhetorical questions in Cantonese." MPhil thesis, The Chinese University of Hong Kong.
- Chomsky, Noam. 1975. *Reflections on language*. New York: Pantheon Books.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Massachusetts: MIT Press.
- Chomsky, Noam. 2000. "Minimalist inquiries: the framework." In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, edited by Roger Martin, David Michaels, and Juan Uriagereka, 89–156. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. "Derivation by phase." In *Ken Hale: a life in language*, edited by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2015. "Problems of projection: Extensions." In *Structures, Strategies and Beyond*, edited by Elisa Di Domenico, Cornelia Hamann, and Simona Matteini, 3–16. Amsterdam and Philadelphia: John Benjamins Publishing Company.
- Chomsky, Noam, and Howard Lasnik. 1993. "Principles and parameter theory." In *Syntax: an International Handbook of Contemporary Research*, edited by Arnim von Stechow, W Sternefeld, and T Vennemann, 506–569. Berlin: Walter de Gruyter.
- Chow, Keng Ji, and Michael Yoshitaka Erlewine. 2022. "Restrictions on the position of *exh*." In *Semantics and Linguistic Theory*, 522–542.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads: a cross-linguistic perspective*. New York: Oxford University Press.
- Constant, Noah. 2012. "Witnessable quantifiers license type-e meaning: Evidence from contrastive topic, equatives and supplements." In *Semantics and Linguistic Theory*, 286–306.

- Constant, Noah. 2014. "Contrastive topic: Meanings and realizations."
- Coppock, Elizabeth, and David I. Beaver. 2014. "Principles of the exclusive muddle." *Journal of Semantics* 31 (3): 371–432.
- Crnič, Luka. 2013. "Focus particles and embedded exhaustification." *Journal of Semantics* 30 (4): 533–558.
- Crnič, Luka. 2018. "A note on connected exceptives and approximatives." *Journal of Semantics* 35 (4): 741–756.
- Dahl, Östen. 1970. "Some notes on indefinites." *Language* 46 (1): 33–41.
- Dash, Bhamati, and Madhumanti Datta. 2022. "Focus anti-pied-piping in Bangla and Hindi-Urdu." *Formal Approaches to South Asian Languages*.
- Dayal, Veneeta. 1996. *Locality in Wh-Quantification: Questions and Relative Clauses in Hindi*. Dordrecht: Kluwer Academic Press.
- Dayal, Veneeta. 2004. "Number Marking and (In)Definiteness in Kind Terms." *Linguistics and Philosophy* 27 (4): 393–450.
- Dayal, Veneeta. 2011. "Hindi Pseudo-incorporation." *Natural Language and Linguistic Theory* 29 (1): 123–167.
- Dayal, Veneeta. 2016. *Questions*. Oxford University Press.
- Dayal, Veneeta. 2020. "Yoruba bare nominals from a neo-Carlsonian perspective." In *African languages in time and space: A Festschrift in honour of Professor Akinbiyi Akinlabi*, edited by Eno-Abasi Urua, Oluseye Adesola, Francis Egbokhare, and Harrison Adeniyi. Scholarship Publishing / Educational Consult.
- Dayal, Veneeta. 2025a. "The interrogative left periphery: How a clause becomes a question." *Linguistic Inquiry* 56 (4): 663–712.

- Dayal, Veneeta. 2025b. "What are discourse particles & Where do they reside?" In *Paper presented at Discourse Particles in South Asian Languages, IIT Delhi*.
- de Swart, Henriëtte. 2010. *Expression and Interpretation of Negation: An OT Typology*. Dordrecht: Springer.
- de Swart, Henriëtte, and Ivan A. Sag. 2002. "Negation and negative concord in Romance." *Linguistics and Philosophy* 25:373–417.
- Deal, Amy Rose. 2025. "Current models of Agree." *Berkeley Papers in Formal Linguistics* 4 (1).
- Deo, Ashwini. 2023. "Coordinated on the context: the many uses of Marathi =ts." *Formal Approaches to South Asian Languages*.
- Diesing, Molly. 1992. "Bare Plural Subjects and the Derivation of Logical Representations." *Linguistic Inquiry* 23 (3): 353–380.
- Do, Linda. 2025. "The Syntax of Discontinuous Constructions in Vietnamese." *Ms., Yale University*.
- Dong, Hongyuan. 2009. "Issues in the semantics of Mandarin questions." Ph.D. dissertation, Cornell University.
- Donovan, Michael. 2022. "Verbless imperatives." PhD diss., University of Delaware.
- Duffield, Nigel. 1999. "Final modals, adverbs and antisymmetry in Vietnamese." *Revue québécoise de linguistique* 27 (2): 91–129.
- Duffield, Nigel. 2017. "On what projects in Vietnamese." *Journal of East Asian Linguistics* 26 (4): 351–387.
- Eilam, Aviad. 2011. "Explorations in the Informational Component." PhD diss., University of Pennsylvania.
- Erlewine, Michael Yoshitaka. 2011. "Sentence-final *only* and the interpretation of focus in Mandarin Chinese." In *The Proceedings of the 22nd North American Conference of Chinese Linguistics (NACCL 22) and the 18th Annual Meeting of the International Association of Chinese Linguistics (IACL 18)*, edited by Lauren Eby Clemens and Louis Liu, 18–35. Columbus, Ohio: The Ohio State University.

- Erlewine, Michael Yoshitaka. 2012. "The effect of 'only' on quantifier scope: The dake blocking effect." In *Online Proceedings of GLOW in Asia Workshop for Young Scholars 2011*, edited by Koichi Otaki, Hajime Takeyasu, and Shin-ichi Tanigawa, 72–86. Mie: Mie University.
- Erlewine, Michael Yoshitaka. 2014. "Movement out of focus." PhD diss., Massachusetts Institute of Technology.
- Erlewine, Michael Yoshitaka. 2015. *In defense of Closeness: focus-sensitive adverb placement in Vietnamese and Mandarin Chinese*. Ms., McGill University.
- Erlewine, Michael Yoshitaka. 2017a. "Low sentence-final particles in Mandarin Chinese and the final-over-final constraint." *Journal of East Asian Linguistics* 26 (1): 37–75.
- Erlewine, Michael Yoshitaka. 2017b. "Vietnamese focus particles and derivation by phase." *Journal of East Asian Linguistics* 26 (4): 325–349.
- Erlewine, Michael Yoshitaka. 2018. "Even doesn't move but associates into traces: A reply to Nakanishi 2012." *Natural Language Semantics* 26 (3): 167–191.
- Erlewine, Michael Yoshitaka. 2022. "Mandarin exhaustive focus shì and the syntax of discourse congruence: The story of Singlish already." In *Particles in German, English, and beyond*, 323–354. John Benjamins.
- Erlewine, Michael Yoshitaka. 2025. "Focus intervention, multiple association, and the unity of focus and *wh* alternatives." *Linguistics and Philosophy* 48:527–571.
- Erlewine, Michael Yoshitaka, and Hadas Kotek. 2018. "Focus association by movement: Evidence from Tanglewood." *Linguistic Inquiry* 49 (3): 441–463.
- Farkas, Donka F, and Anastasia Giannakidou. 1996. "How Clause-Bounded is the Scope of Universals?" In *Proceedings of SALT VI*, edited by Teresa Galloway and Justin Spence, 35–52. Ithaca, NY: CLC Publications.

- Fiedler, Ines, Katharina Hartmann, Brigitte Reineke, Anne Schwarz, and Malte Zimmermann. 2010. "Subject focus in West African languages." In *Information Structure: Theoretical, Typological, and Experimental Perspectives*, edited by Malte Zimmermann and Caroline Féry, 163–176. Oxford: Oxford University Press.
- Fong, Suzana. 2019. "Proper movement through Spec-CP: An argument from hyperraising in Mongolian." *Glossa: a journal of general linguistics* 4 (1): 1–42.
- Fox, Danny. 2000. *Economy and semantic interpretation*. 215. Cambridge, Massachusetts: MIT Press.
- Fox, Danny. 2007. "Free choice and the theory of scalar implicatures." In *Presupposition and implicature in compositional semantics*, edited by Penka Stateva and Uli Sauerland, 71–120. London: Palgrave Macmillan.
- Fox, Danny. 2018. "Partition by exhaustification: Comments on Dayal 1996."
- Fox, Danny, and Roni Katzir. 2011. "On the characterization of alternatives." *Natural Language Semantics* 19 (1): 87–107.
- Fox, Danny, and David Pesetsky. 2006. "Cyclic Linearization of Shared Material."
- Fox, Danny, and Benjamin Spector. 2018. "Economy and embedded exhaustification." *Natural Language Semantics* 26:1–50.
- Frege, Gottlob. 1892. "Über Sinn und Bedeutung." *Zeitschrift für Philosophie und philosophische Kritik* 100:25–50.
- Fung, Roxana Suk-Yee. 2000. "Final particles in Standard Cantonese: semantic extension and pragmatic inference." PhD diss., The Ohio State University.
- Gajewski, Jon. 2013. "An analogy between a connected exceptive phrase and polarity items." *Beyond 'any' and 'ever': New explorations in negative polarity sensitivity*, 183–212.
- Gajewski, Jon, and Yael Sharvit. 2012. "In defense of grammatical approach to local implicatures." *Natural Language Semantics* 20 (1): 31–57.

- Geurts, Bart, and Janneke Huitink. 2006. "Modal concord." In *Concord phenomena and the syntax semantics interface*, edited by Paul Dekker and Hedde Zeijlstra, 15–20. Malaga: ESSLLI.
- Giannakidou, Anastasia. 1998. *Polarity Sensitivity as (non)veridicality*. Amsterdam: John Benjamins Publishing Company.
- Giannakidou, Anastasia. 2000. "Negative...concord?" *Natural Language and Linguistic Theory* 18 (3): 457–523.
- Giannakidou, Anastasia, and Hedde Zeijlstra. 2017. "The Landscape of Negative Dependencies: Negative Concord and N-Words." In *The Wiley Blackwell Companion to Syntax, Second Edition*, edited by Martin Everaert and Henk van Riemsdijk, 1–38. Oxford: Blackwell.
- Grano, Thomas. 2012. "Control and restructuring at the syntax-semantics interface." PhD diss., The University of Chicago.
- Grano, Thomas. 2015. *Control and Restructur*. Oxford: Oxford University Press.
- Greenberg, Yael. 2022. "On the scalar antonymy of only and even." *Natural Language Semantics* 30 (4): 415–452.
- Greenberg, Yael. 2025. "(Not) (just) another scalar exclusive: Parameters along which scalar operators vary." Paper presented at Workshop on Scalarity at the Syntax-Semantics Interface (SYSSI), Stuttgart University.
- Groenendijk, Jeroen, and Martin Stokhof. 1982. "Semantic Analysis of wh-Complements." *Linguistics and Philosophy* 5:173–233.
- Groenendijk, Jeroen, and Martin Stokhof. 1984. "Studies on the Semantics of Questions and the Pragmatics of Answers." PhD diss., University of Amsterdam.
- Grosz, Patrick Georg. 2010. "Grading modality: A new approach to modal concord and its relatives." In *Proceedings of Sinn und Bedeutung 14*, 185–201.

- Grosz, Patrick Georg. 2012. *On the grammar of optative constructions*. John Benjamins Publishing Company.
- Guerzoni, Elena. 2006. "Intervention effects on NPIs and feature movement: towards a unified account of intervention." *Journal of East Asian Linguistics* 14 (4): 359–398.
- Hackl, Martin. 2000. "Comparative Quantifiers." PhD diss., Massachusetts Institute of Technology.
- Hacquard, Valentine. 2006. "Aspects of modality." Ph.D. dissertation, Massachusetts Institute of Technology.
- Haegeman, Liliane. 2010a. "The internal syntax of adverbial clauses." *Lingua* 120:628–648.
- Haegeman, Liliane. 2010b. "The Movement Derivation of Conditional Clauses." *Linguistic Inquiry* 41 (4): 595–621.
- Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena, and the composition of the Left Periphery*. Oxford: Oxford University Press.
- Haegeman, Liliane, and Terje Lohndal. 2010. "Negative Concord and (Multiple) Agree: A Case Study of West Flemish." *Linguistic Inquiry* 41 (2): 181–211.
- Haegeman, Liliane, and Raffaella Zanuttini. 1991. "Negative heads and the Neg Criterion." *Linguistic Review* 8:233–252.
- Haegeman, Liliane, and Raffaella Zanuttini. 1996. "Negative concord in West Flemish." In *Parameters and Functional Heads*, edited by Adriana Belletti and Luigi Rizzi, 117–180. Oxford University Press.
- Hamblin, Charles. 1973. "Questions in Montague grammar." *Foundations of Language* 10 (1): 41–53.
- Hara, Yurie. 2014. "Semantics and pragmatics of Cantonese polar questions: an inquisitive approach." In *Proceedings of the 28th Pacific Asia Conference on Language, Information and Computing*, 605–614.

- He, Yuyin. 2020. "Time in Mandarin: The Fingerprints of Tense and Finiteness." PhD diss., Harvard University.
- He, Yuyin. 2024. "Finiteness in Mandarin clausal complements: the role of ICH and future modals." *Journal of East Asian Linguistics* 33 (2): 259–297.
- Heim, Irene. 1994. "Interrogative semantics and Karttunen's semantics for "know"." In *Proceedings of the Israeli Association for Theoretical Linguistics*, 1:128–144.
- Henderson, Robert. 2014. "Dependent indefinites and their post-suppositions." *Semantics and Pragmatics* 7 (6): 1–58.
- Herrmann, Annika. 2013. *Modal and focus particles in sign languages: A cross-linguistic study*. Walter de Gruyter.
- Heycock, Caroline. 2006. "Embedded root phenomena." *The Blackwell companion to syntax*, 174–209.
- Heycock, Caroline. 2017. "Embedded Root Phenomena." *The Wiley Blackwell Companion to Syntax, Second Edition*, 1–37.
- Hiraiwa, Ken. 2001. "Multiple agree and the defective intervention constraint in Japanese." *MIT working papers in linguistics* 40:67–80.
- Hiraiwa, Ken. 2005. "Dimensions of symmetry in syntax: Agreement and clausal architecture." PhD diss., Massachusetts Institute of Technology.
- Hirsch, Aron. 2016. "An unexceptional semantics for expressions of exception."
- Hirsch, Aron. 2022. "Only as a form-meaning mismatch." Paper presented at Oberseminar, University of Göttingen.
- Hirsch, Aron. 2025. "Alternatives in focus." Colloquium talk at Yale University.
- Hirsch, Aron, and Michael Wagner. 2019. "Only reconstruction and backwards association." In *Amsterdam Colloquium*, 161–170.

- Hirsch, Aron, and Michael Wagner. 2025. "Only scope and backwards association." Ms., University of Maryland and McGill University.
- Hole, Daniel. 2004. *Focus and background marking in Mandarin Chinese: System and theory behind cai, jiu, dou and ye*. Routledge.
- Hole, Daniel. 2013. "Focus particles and related entities in Vietnamese." In *Linguistics of Vietnamese: An International Survey*, 265–303. Berlin/Boston: de Gruyter.
- Hole, Daniel. 2015. "A distributed syntax for evaluative 'only' sentences." *Zeitschrift für Sprachwissenschaft* 34 (1): 43–77.
- Hole, Daniel. 2017. "A crosslinguistic syntax of scalar and non-scalar focus particle sentences: the view from Vietnamese and Chinese." *Journal of East Asian Linguistics* 26 (4): 389–409.
- Hole, Daniel. 2023. "The relationship between Chinese *zhiyou* 'only' and *cai*: a matter of morphosyntax." *Journal of East Asian Linguistics* 32:245–260.
- Holmberg, Anders. 2000. "Scandinavian Stylistic Fronting: how any category can become an expletive." *Linguistic Inquiry* 31 (3): 445–483.
- Horn, Laurence R. 1969. "A presuppositional analysis of *only* and *even*." In *Proceedings of the Fifth Annual Meeting of the Chicago Linguistics Society*, 97–108. Chicago: Chicago Linguistic Society.
- Horn, Laurence R. 1972. "On the semantic properties of logical operators in English." PhD diss., University of California, Los Angeles.
- Horn, Laurence R. 1981. "Exhaustiveness and the semantics of clefts." In *Proceedings of the 11th Annual Meeting of the North Eastern Linguistic Society*, 125–142. Amherst: University of Massachusetts, Amherst.
- Horn, Laurence R. 1984. "Towards a new taxonomy for pragmatic inference: Q-and R-based implicature." In *Meaning, Form and Use in Context: Linguistic Application*, 11–42. Washington, DC: Georgetown University Press.

- Horn, Laurence R. 1989. *A natural history of negation*.
- Horn, Laurence R. 1996. "Exclusive company: *only* and the dynamics of vertical inference." *Journal of Semantics* 13 (1): 1–40.
- Horn, Laurence R. 2002. "Assertoric inertia and NPI licensing." In *Proceedings of CLS 38, vol. 2*, edited by M. Andronis, E. Debenport, A. Pycha, and K. Yoshimura, 55–82. University of Chicago, Department of Linguistics.
- Horn, Laurence R. 2009. "'Only' XL: The Assertoric Asymmetry of Exponibles." In *Semantics and Linguistic Theory*, 198–222.
- Horvath, Julia. 2007. "Separating "focus movement" from focus." In *Clever and Right: A Festschrift for Joe Emonds*, edited by V. S. S. et al. Karimi, 108–145. Berlin: Mouton de Gruyter.
- Howell, Anna. 2016. "A Hamblin semantics for alternative questions in Yoruba." In *Proceedings of Sinn und Bedeutung 20*, 359–376.
- Hu, Bo, and Hong Chen. 2022. "Subject Raising in Chinese Modal Auxiliary Verb Constructions: A-movement or A'-movement?" *Studies in Chinese Linguistics* 43 (1): 39–71.
- Huang, C.-T. James. 1982a. "Logical relations in Chinese and the theory of grammar." PhD diss., Massachusetts Institute of Technology.
- Huang, C.-T. James. 1982b. "Move wh in a language without wh movement." *The Linguistic Review* 1:369–416.
- Huang, C.-T. James. 2015. "On Syntactic Analyticity and Parametric Theory." In *Chinese Syntax in a Cross-Linguistic Perspective*, edited by Yen-Hui Audrey Li, Andrew Simpson, and Wei-Tien Dylan Tsai, 1–48. Oxford: Oxford University Press.
- Huang, C.-T. James. 2016. "The Syntax and Semantics of Prenominals : Construction or Composition ?*." 17 (4): 431–475.

- Huang, C.-T. James. 2022. "Finiteness opacity and Chinese clausal architecture." In *New Explorations in Chinese Theoretical Syntax: Studies in honor of Yen-Hui Audrey Li*, edited by Andrew Simpson, 17–77. Amsterdam: John Benjamins.
- Huang, Nick. 2018. "Control complements in Mandarin Chinese: implications for restructuring and the Chinese finiteness debate." *Journal of East Asian Linguistics* 27 (4): 347–376.
- Huitink, Janneke. 2008. "Modals, Conditionals, and Compositionality." PhD diss., Radboud Universiteit Nijmegen.
- Huitink, Janneke. 2012. "Modal concord: a case study of Dutch." *Journal of Semantics* 29 (3): 403–437.
- Hurford, James R. 1974. "Exclusive or inclusive disjunction." *Foundations of language* 11 (3): 409–411.
- Ilçrı, Johnson Fəlçurunşo. 2010. "Nominal constructions in Igala and Yoruba." PhD diss., Adekule Ajasin University, Akungba-Akoko.
- Ionin, Tania, and Ora Matushansky. 2006. "The Composition of Complex Cardinals." *Journal of Semantics* 23:315–360.
- Iordăchioaia, Gianina, and Frank Richter. 2015. "Negative concord with polyadic quantifiers: The case of Romanian." *Natural Language and Linguistic Theory* 33 (2): 607–658.
- Ippolito, Michela. 2008. "On the meaning of only." *Journal of Semantics* 25 (1): 45–91.
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, Massachusetts: MIT Press.
- Jacobs, Joachim. 1983. *Fokus und Skalen: Zur Syntax und Semantik der Gradpartikeln im Deutschen*. Tübingen: Niemeyer.
- Jacobs, Joachim. 1986. "The syntax of focus and adverbials in German." In *Topic, focus, and configurationality*, edited by Werner Abraham and Sjaak de Meij, 103–128. Amsterdam: John Benjamins.
- Jin, Dawei. 2020. "A semantic account of quantifier-induced intervention effects in Chinese why-questions." *Linguistics and Philosophy* 43 (4): 345–387.

- Johnson, Kyle. 2008. "The view of QR from ellipsis." In *Topics in Ellipsis*, edited by Kyle Johnson, 69–94. Cambridge, United Kingdom: Cambridge University Press.
- Jones, Susie. 2006. "Focus in Yorùbá: a semantic/pragmatic account." *ZAS Papers in Linguistics* 46:143–160.
- Karttunen, Lauri. 1973. "Presupposition of compound sentences." *Linguistic Inquiry* 4 (3): 169–193.
- Karttunen, Lauri. 1977. "Syntax and Semantics of Questions." *Linguistics and Philosophy* 1 (1): 3–44.
- Katzir, Roni. 2007. "Structurally-defined alternatives." *Linguistics and philosophy* 30:669–690.
- Kay, Paul. 1990. "Even." *Linguistics and philosophy* 13:59–111.
- Kayne, Richard S. 1998. "Overt vs. covert movement." *Syntax* 1 (2): 128–191.
- Kim, Jong-Bok, and Ivan Sag. 2002. "Negation without head-movement." *Natural Language and Linguistic Theory* 20 (2): 339–412.
- Kim, Kwang-sup. 2025. "An Overt QR Approach to Quantifier Float in English." *Available at SSRN 5437482*.
- Kinjo, Kunio, and Yohei Oseki. 2016. "Wh-Concord in Okinawan=Syntactic Movement+Morphological Merger." *University of Pennsylvania Working Papers in Linguistics* 22 (1): 177–186.
- Kiss, Katalin É. 1993. "Wh-Movement and Specificity." *Natural Language and Linguistic Theory* 11 (1): 85–120.
- Kiss, Katalin É. 1998. "On Generic and Existential Bare Plurals and the Classification of Predicates." In *Events and Grammar*, edited by Susan Rothstein, 145–162. Dordrecht: Kluwer Academic Publishers.
- Klinedinst, Nathan. 2004. "Only scalar *only*." Ms., University of California, Los Angeles.
- Klinedinst, Nathan. 2005. "Scales and *Only*." Master's thesis, University of California, Los Angeles.
- Kotek, Hadas. 2014. "Composing questions." PhD diss., Massachusetts Institute of Technology.

- Kotek, Hadas. 2019. *Composing questions*. Cambridge: The MIT Press.
- Kratzer, Angelika. 1991a. "Focus." In *Handbook of Contemporary Semantic Theory*, edited by T Venne-
mann and Arnim von Stechow. Blackwell Publishers.
- Kratzer, Angelika. 1991b. "The Semantics of Modal Words : A First Attempt." In *Semantics: An interna-
tional handbook of contemporary research*, edited by Arnim von Stechow, 639–650. Oxford: Oxford
University Press.
- Kratzer, Angelika. 1998. "Scope or pseudoscope? Are there wide-scope indefinites?" In *Events and gram-
mar*, edited by Susan Rothstein, 163–196. Dordrecht: Kluwer Academic Publishers.
- Kratzer, Angelika. 2003. "Scalar Implicatures: Are There Any?" *Lecture at Workshop on Polarity, Scalar
Phenomena and Implicatures. University of Milan-Bicocca*.
- Kratzer, Angelika. 2005. "Indefinites and the Operators they depend on: From Japanese to Salish." In
Reference and quantification: The Partee effect, edited by Gregory N Carlson and Francis Jeffrey
Pelletier, 113–142. Stanford, CA: CSLI Publications.
- Kratzer, Angelika. 2009. "Making a Pronoun: Fake Indexicals as Windows into the Properties of Pro-
nouns." *Linguistic Inquiry* 40 (2): 187–237.
- Kratzer, Angelika, and Junko Shimoyama. 2002. "Indeterminate pronouns: The view from Japanese."
In *Proceedings of the Tokyo conference on psycholinguistics*, edited by Yukio Otsu, 3:1–25. Tokyo:
Hituzi Syobo.
- Krifka, Manfred. 1991. "A Compositional Semantics for Multiple Focus Constructions." In *Proceedings
of the First Semantics and Linguistic Theory Conference*, edited by Steven Moore and Adam Zachary
Wyner, 127–158. Cornell University: Cornell University Working Papers in Linguistics.
- Krifka, Manfred. 2001. "Quantifying into question acts." *Natural Language Semantics* 9 (1): 1–40.
- Kroch, Anthony. 1972. "Lexical and inferred meanings for some time adverbs." *Quarterly progress reports
of the research laboratory of electronics* 104:260–267.

- Kuhn, Jeremy. 2017. "Dependent indefinites: The view from sign language." *Journal of Semantics* 34 (3): 449–491.
- Kuhn, Jeremy. 2022. "The dynamics of negative concord." *Linguistics and Philosophy* 45:153–198.
- Kuhn, Jeremy, and Valentina Aristodemo. 2017. "Pluractionality, iconicity, and scope in French Sign Language." *Semantics and Pragmatics* 10 (6): 1–49.
- Kwok, Helen. 1984. *Sentence Particles in Cantonese*. Hong Kong: Center of Asian Studies.
- Labov, William. 1972. "Negative attraction and negative concord in English grammar." *Language* 48 (4): 773–818.
- Ladd, Robert. 1981. "A first look at the semantics and pragmatics of negative questions and tag questions." In *Proceedings from the 17th Annual Meeting of the Chicago Linguistic Society*, 164–171. 17.
- Lai, Huei-Ling. 1999. "Rejected expectations: the scalar particles *cai* and *jiu* in Mandarin Chinese." *Linguistics* 37 (4).
- Lai, Yin Yee. 2014. "Temporal modification in Cantonese: the semantic study of the sentence-final particle *lei4* in simplex and bi-clausal sentences." PhD diss., City University of Hong Kong.
- Laka, Itziar. 1990. "Negation in Syntax: on the Nature of Functional Categories and Their Projections." PhD diss., Massachusetts Institute of Technology.
- Lasnik, Howard, and Mamoru Saito. 1992. *Move α* . Cambridge, Massachusetts: MIT Press.
- Lau, Cindy Wan Yee. 2021. "Leftward Focus Association: A Study of Cantonese *sin* and *dou*." PhD diss., The Chinese University of Hong Kong.
- Law, Ann. 2001. "A-not-A questions in Cantonese." *UCL Working Paper in Linguistics* 13:295–318.
- Law, Ann. 2002. "Cantonese sentence-final particles and the CP domain." *UCL Working Papers in Linguistics* 14:220–233.
- Law, Ann. 2004. "Sentence-final focus particles in Cantonese." PhD diss., University College London.

- Law, Jess Hoi-Ki. 2019. "Constraints on distributivity." PhD diss., Rutgers, The State University of New Jersey.
- Law, Jess Hoi-Ki, Haoze Li, and Diti Bhadra. 2018. "Questioning speech acts." In *Proceedings of Sinn und Bedeutung*, 22:53–70. 2.
- Law, Jess Hoi-Ki, Haoze Li, and Diti Bhadra. 2024. "Force shift: A case study of Cantonese *ho2* particle clusters." *Natural Language Semantics*, no. Accepted, 1–41.
- Law, Paul. 2021. "Scope of Cantonese SFP *zaa3* 'only' and Mandarin SFP *eryi* 'only'." Paper presented on The 25th International Conference on Yue Dialects, Guangdong-Hong Kong-Macao University Alliance for Chinese, December 18-19, 2021.
- Law, Paul. 2023. "The syntax of sentence-final particles *-le* and *éryi* in Mandarin Chinese." In *Proceedings of the 34th North American Conference on Chinese Linguistics (NACCL-34)*, edited by Chien-Jer Charles Lin, Alex Cherici, and Bihua Chen, 1–31. Department of East Asian Languages / Cultures, Indiana University Bloomington.
- Law, Sam-Po. 1990. "The syntax and phonology of Cantonese SFP." PhD diss., Boston University.
- Le, Giang Ha. 2014. "Vietnamese sentence final particles." MA thesis, University of Southern California.
- Lee, Man Ki Theodora. 2011. "Overt quantifier raising of Negative-wh-quantifiers in Cantonese." In *The 6th Cambridge Postgraduate Conference in Language Research*, 92.
- Lee, Peppina Po-lun. 2019. *Focus Manifestation in Mandarin Chinese and Cantonese: A Comparative Perspective*. London & New York: Routledge.
- Lee, Peppina Po-lun. 2024. "Dependencies between adverbs and sentence-final particles: A case of confirmative and non-confirmative modals in Cantonese." *Lingua* 312:103830.1–23.
- Lee, Tommy Tsz-Ming. 2017. "Defocalization in Cantonese right dislocation." *Gengo Kenkyu* 152:59–87.

- Lee, Tommy Tsz-Ming. 2022. "Towards the unity of movement: implications from verb movement in Cantonese." PhD diss., University of Southern California.
- Lee, Tommy Tsz-Ming. 2023. "Focus intervention effects of verb movement in Cantonese." In *Proceedings of the 34th North American Conference on Chinese Linguistics (NACCL-34)*, edited by Chien-Jer Charles Lin, Alex Cherici, and Bihua Chen, 1–15. Department of East Asian Languages / Cultures, Indiana University Bloomington.
- Lee, Tommy Tsz-Ming. 2024. *The Unity of Movement: Evidence from verb movement in Cantonese*. Amsterdam and Philadelphia: John Benjamins Publishing.
- Lee, Tommy Tsz-Ming, and Ka-Fai Yip. 2024. "Hyperraising, evidentiality, and phase deactivation." *Natural Language & Linguistic Theory* 42 (4): 1527–1578.
- Lee, Youngjoo. 2004. "The syntax and semantics of focus particles." Ph.D. dissertation, Massachusetts Institute of Technology.
- Lee, Youngjoo. 2005. "Exhaustivity as agreement: The case of Korean *man* 'only'." *Natural Language Semantics* 13 (2): 169–200.
- Leung, Chung-sum. 2005. *A study of the utterance particles in Cantonese as spoken in Hong Kong*. Hong Kong: City University of Hong Kong.
- Levinson, Stephen C. 2000. *Presumptive meanings: The theory of generalized conversational implicature*. MIT press.
- Li, Boya. 2006. "Chinese Final Particles and the Syntax of the Periphery." PhD diss., Utrecht: LOT.
- Li, Charles. 1976. "Subject and topic: A new typology of language." *Subject and topic*.
- Li, Haoze, and Jess Hoi-Ki Law. 2016. "Alternatives in different dimensions: a case study of focus intervention." *Linguistics and philosophy* 39:201–245.
- Li, Yee-Na. 2014. "A Semantic Study of Restrictive Particles in Cantonese." Ph.D. dissertation, City University of Hong Kong.

- Li, Yen-Hui Audrey. 1998. "Argument Determiner Phrases and Number Phrases." *Linguistic Inquiry* 29 (4): 693–702.
- Li, Yen-Hui Audrey. 2026. "Complements in noun phrases?" In *New Insights into Theoretical Syntax from Asian Languages: Studies in honor of C.-T. James Huang*, 406–435. John Benjamins Publishing Company.
- Liao, Wei-wen Roger, and Wei-Cherng Sam Jheng. 2025. "A tale of two EVENs." *Natural Language & Linguistic Theory*, 1–33.
- Lin, Jing, and Anastasia Giannakidou. 2015. "No exhaustivity for the Mandarin NPI *shenme*." Retrieved from home.uchicago.edu/giannaki/pubs/LinGianna 5.
- Lin, Tzong-Hong Jonah. 2006. "Complement-to-Specifier Movement in Mandarin Chinese." Ms, National Tsing Hua University.
- Lin, Tzong-Hong Jonah. 2011. "Finiteness of Clauses and Raising of Arguments in Mandarin Chinese." *Syntax* 14 (1): 48–73.
- Lin, Tzong-Hong Jonah. 2012. "Multiple-modal constructions in Mandarin Chinese and their finiteness properties." *Journal of Linguistics* 48 (1): 151–186.
- Lin, Jo-Wang. 1996. "Polarity Licensing and Wh-Phrase Quantification in Chinese." PhD diss., University of Massachusetts at Amherst.
- Lin, Jo-Wang. 1998. "On Existential Polarity wh-phrases in Chinese." *Journal of East Asian Linguistics* 7 (3): 219–255.
- Lin, Jo-Wang. 2014. "Wh-expressions in Mandarin Chinese." In *The Handbook of Chinese Linguistics*, edited by C.-T. James Huang, Yen-Hui Audrey Li, and Andrew Simpson, 180–207. Oxford: John Wiley & Sons.
- Lin, Jo-Wang, and Chih-Chen Jane Tang. 1995. "Modals as verbs in Chinese: a GB perspective. Bulletin of the Institute of History and Philology, Academia Sinica 66: 53–105." *Bulletin of the Institute of History and Philology, Academia Sinica* 66:53–105.

- Linebarger, Marcia C. 1987. "Negative polarity and grammatical representation." *Linguistics and Philosophy* 10:325–387.
- Link, Godehard. 1987. "Algebraic semantics of event structures." In *Proceedings of the sixth Amsterdam colloquium*, 243:262. ITLI Amsterdam.
- Liu, Mingming. 2017. "Varieties of alternatives: Mandarin focus particles." *Linguistics and Philosophy* 40 (1): 61–95.
- Liu, Mingming. 2018. *Varieties of alternatives: Focus particles and wh-expressions in Mandarin*. Vol. 3. Springer.
- Liu, Mingming. 2021. "A pragmatic explanation of the mei-dou co-occurrence in Mandarin." *Journal of East Asian Linguistics* 30:277–316.
- Liu, Tianhan. 2015. "Modal Concord in Mandarin." MA thesis, The University of British Columbia.
- Liu, Yuyang. 2021. "'Again' skipping in Mandarin Chinese." BA thesis, University of Massachusetts.
- Liu, Yuyang. 2025. "Mandarin Chinese ma: Q morpheme, SA intensifier, or PQP?" In *North East Linguistic Society (NELS) 55*, 2:89–98.
- Liu, Yuyang, and Yitong Luo. 2025. "Force, commitment, and perspective from Mandarin Chinese." Ms., Yale University.
- Liu, Yuyang, and Ka-Fai Yip. 2026. "Again, split aspect and finiteness in Chinese languages." *Natural Language and Linguistic Theory* 44:25.1–69.
- May, Robert. 1977. "The Grammar of Quantification." PhD diss., Massachusetts Institute of Technology.
- May, Robert. 1985. *Logical Form: Its Structure and Derivation*. Cambridge, MA: MIT Press.
- Mayr, Clemens. 2013. "Downward monotonicity in questions." In *Proceedings of sinn und bedeutung*, 17:345–362.
- Mayr, Clemens. 2014. "Intervention effects and additivity." *Journal of Semantics* 31 (4): 513–554.

- Mayr, Clemens. 2021. "Intervention Effects: "How many books did you not read?" In *The Wiley Blackwell Companion to Semantics*, 1–45. Wiley Online Library.
- McCawley, James D. 1981. *Everything that linguists have always wanted to know about logic, but were ashamed to ask*. Chicago: University of Chicago Press.
- McKenzie, Andrew, and Lydia Newkirk. 2020. "Almost at-a-distance." *Linguistics and Philosophy* 43 (4): 389–426.
- Meyer, Marie-Christine, and Uli Sauerland. 2009. "A pragmatic constraint on ambiguity detection." *Natural Language and Linguistic Theory* 27 (1): 139–150.
- Montague, Richard. 1973. "The proper treatment of quantification in ordinary English." In *Formal Philosophy*, edited by R. Thomason, 247–270. New Haven, Connecticut: Yale University Press.
- Morzycki, Marcin. 2001. "Almost and Its Kin, Across Categories." In *Proceedings of SALT XI*, edited by Rachel Hastings, Brendan Jackson, and Zsolia Zvolenszky, 306–325. Cornell University, Ithaca, NY: CLC Publications.
- Murphy, Andrew. 2017. "Toward a unified theory of wh-in-situ and islands." *Journal of East Asian Linguistics* 26:189–231.
- Ng, Ka-Hin. 2026. "A semantic analysis of Cantonese *sin*." MPhil thesis, The Chinese University of Hong Kong.
- Nguyen, Thi Hong Quy. 2021a. "Demonstratives as sentence final particles and the architecture of the periphery in Vietnamese." *VNU Journal of Foreign Studies* 37 (3).
- Nguyen, Thi Hong Quy. 2021b. "On the Sentential Periphery in Chinese and Vietnamese." PhD diss., The Chinese University of Hong Kong.
- Nicolae, Andreea Cristina. 2013. "Any questions? Polarity as a window into the structure of questions." PhD diss., Harvard University.
- Oh, Sei-Rang. 2006. "Plurality markers across languages." Ph.D. dissertation, University of Connecticut.

- Onions, Charles Talbut. 1966. *The Oxford Dictionary of English Etymology*. Oxford: Clarendon Press.
- Oshima, David Y. 2015. "Focus particle stacking."
- Overfelt, Jason. 2015. "Rightward movement: A study in locality." PhD diss., University of Massachusetts, Amherst.
- Pan, Victor Junnan. 2018. "Derivation of the Apparent Narrow Scope of Sentence-Final Particles in Chinese: A Reply to Erlewine (2017)." *Studies in Chinese Linguistics* 39 (2): 99–126.
- Pan, Victor Junnan. 2019. *Architecture of the periphery in Chinese*. New York: Routledge.
- Pan, Victor Junnan. 2022. "Deriving head-final order in the peripheral domain of Chinese." *Linguistic Inquiry* 53 (1): 121–154.
- Pan, Victor Junnan, and Waltraud Paul. 2014. "Finiteness in Mandarin Chinese and the basic syntax of kěnéng." *Unpublished paper*. URL http://crlao.ehess.fr/docannexe/file/1708/keneng_squib.pdf (2018-05-18).
- Park, Myung-Kwan. 2020. "Exclusive focus particles and their syntax & scope-taking in English, Vietnamese, and Korean." *Linguistic Research* 37 (1): 1–28.
- Partee, Barbara. 1973. "Some Structural Analogies Between Tenses and Pronouns in English." *Journal of Philosophy* 70:601–609.
- Partee, Barbara. 1986. "Any, Almost, and superlatives (the airport squib)." *University of Massachusetts Amherst ms*.
- Partee, Barbara. 1989. "Many Quantifiers." In *ESCOL 1988*. Ohio State University.
- Partee, Barbara. 1991. "Topic, Focus and Quantification." In *Proceedings of the First Semantics and Linguistic Theory Conference*, edited by Steven Moore and Adam Zachary Wyner, 159–188. Cornell University: Cornell University Working Papers in Linguistics.
- Paul, Waltraud. 2002. "Sentence-internal Topics in Mandarin Chinese: The Case of Object Preposing." *Language and Linguistics*, 695–714.

- Paul, Waltraud. 2014. "Why particles are not particular: Sentence-final particles in Chinese as heads of a split CP." *Studia Linguistica* 68 (1): 77–115.
- Paul, Waltraud. 2021. "Nobody there? On the non-existence of nobody in Mandarin Chinese and related issues." *Canadian Journal of Linguistics* 66 (3): 1–38.
- Peng, Liu, Alexander Wimmer, and Daniel Hole. 2026. "Minimal sufficiency with necessity modals." In *Proceedings of The 5th Tsinghua Interdisciplinary Workshop on Logic, Language, and Meaning (to appear)*.
- Penka, Doris. 2006. "Almost there': the meaning of "almost"." *ZAS Papers in Linguistics* 44 (2): 275–286.
- Penka, Doris. 2011. *Negative Indefinites*. Oxford: Oxford University Press.
- Penka, Doris. 2021. "Negative Indefinites and Negative Concord." In *The Wiley Blackwell Companion to Semantics*, edited by Daniel Gutzmann, Lisa Matthewson, Cécile Meier, Hotze Rullmann, and Thomas Ede Zimmermann, 1–23. John Wiley & Sons, Inc.
- Pesetsky, David. 1987. "Wh-in-Situ: Movement and Unselective Binding." In *The Representation of (In)definiteness*, edited by Eric J Reuland and Alice G B ter Meulen, 98–129. Cambridge, Massachusetts: MIT Press.
- Pesetsky, David. 2000. *Phrasal movement and its kin*. 132. Cambridge: MIT Press.
- Pesetsky, David. 2013. *Russian case morphology and the syntactic categories*. Cambridge, MA: The MIT Press.
- Pesetsky, David, and Esther Torrego. 2007. "The syntax of valuation and the interpretability of features." In *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation*, edited by Simin Karimi, Vida Samiian, and Wendy K Wilkins, 262–294. Amsterdam: John Benjamins Publishing Company.
- Phan, Trần. 2024. "Where two ends meet: non-at-issue meanings on the syntactic treetops of Vietnamese." PhD diss., National Tsing Hua University, Taiwan.
- Phan, Trần, and Wei-Tien Dylan Tsai. 2025. "Traversing the "where" landscape: Vietnamese *đâu* and the clausal architecture of Vietnamese." *Journal of East Asian Linguistics*, 1–38.

- Phan, Trang. 2023. *The syntax of Vietnamese tense, aspect, and negation*. Routledge.
- Phan, Trang, and Gennaro Chierchia. 2022. "Identifying (In)definiteness in Vietnamese noun phrase." *Journal of the Southeast Asian Linguistics Society* 15 (2): 27–49.
- Poole, Ethan, and Stefan Keine. 2024. "Not all reconstruction effects are syntactic." *Natural Language & Linguistic Theory*, 1–49.
- Portner, Paul. 2007. "Beyond the common ground: The semantics and pragmatics of epistemic modals." In *The Perspectives of Linguistics in the 21st Century*, edited by J.-Y. Yoon and K.-A. Kim. Seoul: Hankook Publishing Company.
- Portner, Paul. 2009. *Modality*. Oxford: Oxford University Press.
- Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford: Oxford University Press.
- Potts, Christopher. 2007. "The expressive dimension." *Theoretical Linguistics* 33 (2): 165–198.
- Preminger, Omer. 2014. *Agreement and its failures*. Cambridge: MIT Press.
- Qu, Yanfeng. 1994. "Object noun phrase dislocation in Mandarin Chinese." PhD diss., University of British Columbia.
- Quek, Yihui, and Aron Hirsch. 2017. "Severing focus form and meaning in Standard and Colloquial Singapore English." In *Proceedings of North East Linguistic Society 47*, edited by Andrew Lamont and Katerina Tetzloff, 15–24.
- Reinhart, Tanya. 1997. "Quantifier Scope: How Labor is Divided between QR and Choice Functions." *Linguistics and Philosophy* 20 (4): 335–397.
- Reintges, Chris H. 2007. "Variable pronunciation sites and types of *wh*-in-situ." In *The Copy Theory of Movement*, edited by Jairo Nunes and Norbert Hornstein, 249–287. Oxford: Blackwell Publishers.
- Reis, Marga. 2005. "On the Syntax of so-called focus particles in German – a reply to Buring and Hartmann 2001." *Natural Language and Linguistic Theory* 23 (2): 459–483.

- Renans, Agata. 2016. "Exhaustivity: On exclusive particles, clefts, and progressive aspect in Ga (Kwa)." PhD diss., Universität Potsdam.
- Renans, Agata. 2017. "Exclusive particles in Ga (Kwa)." *Journal of Semantics* 34 (4): 555–585.
- Reuland, Eric. 2001. "Primitives of binding." *Linguistic Inquiry* 32 (3): 439–492.
- Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, Massachusetts: MIT Press.
- Rizzi, Luigi. 1997. "The fine structure of the left periphery." In *Elements of grammar*, edited by Liliane Haegeman, 281–337. Dordrecht: Kluwer Academic Publishers.
- Rizzi, Luigi. 2001. "Relativized Minimality Effects." In *The handbook of contemporary syntactic theory*, edited by Mark Baltin and Chris Collins, 89–110. Malden, MA: Blackwell.
- Rizzi, Luigi. 2004. "Locality and Left Periphery." In *Structures and Beyond: The Cartography of Syntactic Structures*, edited by Adriana Belletti, 3:223–251. Oxford: Oxford University Press.
- Rizzi, Luigi. 2011. "Minimality." In *The Oxford Handbook of Linguistic Minimalism*, edited by Cedric Boeckx, 220–238. Oxford: Oxford University Press.
- Rizzi, Luigi. 2013. "Locality." *Lingua* 130:169–186.
- Ronai, Eszter, and Lucas Fagen. 2025. "Experimental evidence for variation across exclusive modifiers." *Glossa: a journal of general linguistics* 10 (1).
- Rooth, Mats. 1985. "Association with Focus." PhD diss., University of Massachusetts, Amherst.
- Rooth, Mats. 1992. "A theory of focus interpretation." *Natural Language Semantics* 1 (1): 117–121.
- Rooth, Mats. 1996. "Focus." In *The Handbook of Contemporary Semantic Theory*, edited by Shalom Lappin, 271–297. Oxford: Blackwell Publishers.
- Rooth, Mats. 2005. "Topic accents on quantifiers." *Reference and quantification: The Partee effect*, no. 173, 303.

- Rothstein, Susan. 2016. "Counting and measuring: A theoretical and crosslinguistic account." *Baltic International Yearbook of Cognition, Logic and Communication* 11 (1): 8.
- Rusawang, Tiyanuch, and Sugunya Ruangjaroon. 2017. "The semantic and syntactic analysis of focus particles in Thai." *Taiwan Journal of Linguistics* 15 (1): 1–28.
- Rushiti, Bujar. 2019. "Share-marking in Albanian: The distributive marker *nga*." Ph.D. dissertation, Paris Diderot University.
- Sag, Ivan. 1976. "Deletion and logical form." PhD diss., Massachusetts Institute of Technology.
- Sapir, Edward. 1921. *Language: an introduction to the study of speech*. New York: Harcourt, Brace / Co.
- Sauerland, Uli. 2004. "Scalar Implicatures in Complex Sentences." *Linguistics and Philosophy* 27 (3): 367–391.
- Sauerland, Uli, and Paul Elbourne. 2002. "Total reconstruction, PF-movement, and the derivational order." *Linguistic Inquiry* 33 (2): 283–319.
- Shi, Dingxu. 2023. "Evaluative Adverbs in Chinese." In *Oxford Research Encyclopedia of Linguistics*.
- Shyu, Shu-ing. 1995. "The Syntax of Focus and Topic in Mandarin Chinese." PhD diss., University of Southern California.
- Simons, Mandy, Judith Tonhauser, David Beaver, and Craig Roberts. 2010. "What projects and why." In *Semantics and Linguistic Theory (SALT) 20*, 309–327. Ithaca: CLC Publications.
- Simpson, Andrew. 2001. "Focus, presupposition and light predicate raising in east and southeast Asia." *Journal of East Asian Linguistics* 10 (2): 89–128.
- Simpson, Andrew, and Linh Pham. 2026. "Revisiting the syntax and interpretation of Vietnamese được." In *New Insights into Theoretical Syntax from Asian Languages: Studies in honor of C.-T. James Huang*, 230–259. John Benjamins Publishing Company.
- Simpson, Andrew, and Zoe Wu. 2002a. "Agreement, Shells, and Focus." *Language* 78 (2): 287–313.

- Simpson, Andrew, and Zoe Wu. 2002b. "IP-raising, tone sandhi and the creation of S-final particles: Evidence for cyclic spell-out." *Journal of East Asian Linguistics* 11 (1): 67–99.
- Smeets, Liz, and Michael Wagner. 2018. "Reconstructing the syntax of focus operators." *Semantics and Pragmatics* 11:1–6.
- Soh, Hooi Ling. 2005. "Wh-in-Situ in Mandarin Chinese." *Linguistic Inquiry* 36 (1): 143–155.
- Starke, Michal. 2001. "Move Dissolves into Merge: A Theory of Locality." PhD diss., University of Geneva.
- Sun, Yenan. 2020. "Only-concord in vietnamese: support for a bipartite analysis and undermerge." In *North East Linguistic Society (NELS)*, 50:183–192. 3.
- Sun, Yenan. 2021. "A bipartite analysis of *zhiyou* 'only' in Mandarin Chinese." *Journal of East Asian Linguistics* 30:319–355.
- Surányi, László Balázs. 2003. "Multiple operator movements in Hungarian." PhD diss.
- Swart, Helen de. 1992. "Intervention Effects. Monotonicity and Scope." In *Proceedings of SALT II*, 387–402.
- Sybesma, Rint, and Boya Li. 2007. "The dissection and structural mapping of Cantonese sentence final particles." *Lingua* 117 (10): 1739–1783.
- Szabolcsi, Anna. 1997. *Ways of scope taking*. xxi, 466. Dordrecht ; Boston ; London: Kluwer Academic Publishers.
- Szabolcsi, Anna. 2015. "What do quantifier particles do?" *Linguistics and Philosophy* 38:159–204.
- Szabolcsi, Anna. 2017. "Disembodied or phonetically null operators." In *Biolinguistic Conference on Interface Asymmetries*.
- Szabolcsi, Anna. 2018. "Two types of quantifier particles: Quantifier-phrase internal vs. heads on the clausal spine." *Glossa: a journal of general linguistics* 3 (1).

- Szabolcsi, Anna. 2024. "Cross-linguistic insights in the theory of semantics and its interface with syntax." *Theoretical Linguistics* 50 (1-2): 125–133.
- Szabolcsi, Anna, and Frans Zwarts. 1993. "Weak islands and an algebraic semantics for scope taking." *Natural language semantics* 1 (3): 235–284.
- Taglicht, Josef. 1984. *Message and Emphasis: On Focus and Scope in English*. London: Longman.
- Tancredi, Chris. 1990. "Not only EVEN, but even ONLY." Ms., Massachusetts Institute of Technology.
- Tang, Sze-Wing. 1998. "Parametrization of features in syntax." PhD diss., University of California, Irvine.
- Tang, Sze-Wing. 2002. "Focus and *dak* in Cantonese." *Journal of Chinese Linguistics* 30 (2): 266–309.
- Tang, Sze-Wing. 2003. "Properties of *ngaang* and the syntax of verbal particles in Cantonese." *Journal of Chinese Linguistics* 31 (2): 245–269.
- Tang, Sze-Wing. 2006a. "A Syntactic Analysis of the Discontinuous Construction of Function Words in Cantonese." *Hanyu Xuebao* 2:16–23.
- Tang, Sze-Wing. 2006b. "Syntactic properties of *sin* in Cantonese interrogatives." *Zhongguo Yuwen [Studies of the Chinese Language]*, no. 3, 225–232.
- Tang, Sze-Wing. 2008. "Syntactic Properties of the Discontinuous Construction 'mai... lo' in Cantonese." *Bulletin of Chinese Linguistics* 3 (1): 145–160.
- Tang, Sze-Wing. 2009. "The syntax of two approximatives in Cantonese: discontinuous constructions formed with *zai6*." *Journal of Chinese Linguistics* 37 (2): 227–256.
- Tang, Sze-Wing. 2011. "On gerundive nominalization in Mandarin and Cantonese." In *Nominalization in Asian Languages: Diachronic and Typological Perspectives*, edited by Foong Ha Yap, Karen Grunow-Harsta, and Janick Wrona, 147–160. Amsterdam and Philadelphia: John Benjamins Publishing Company.

- Tang, Sze-Wing. 2012. "A syntactic analysis of the speech act domain: evidence from *sin* in Cantonese." *Linguistic Sciences* 11 (1): 9–14.
- Tang, Sze-Wing. 2013. "Three conceptual domains of the sentence final particle *laa* in Cantonese." *Zhongguo Yuwen*, no. 3, 195–200.
- Tang, Sze-Wing. 2015a. "Cartographic syntax of pragmatic projections." In *Chinese Syntax in a Cross-Linguistic Perspective*, edited by Yen-Hui Audrey Li, Andrew Simpson, and Wei-tien Dylan Tsai, 429–442. Oxford: Oxford University Press.
- Tang, Sze-Wing. 2015b. *Yueyu yufa jiangyi [Lectures on Cantonese Grammar]*. Hong Kong: The Commercial Press.
- Tang, Sze-Wing. 2020. "Cartographic syntax of performative projections: evidence from Cantonese." *Journal of East Asian Linguistics* 29:1–30.
- Tang, Sze-Wing. 2022a. "On the grammar of the negative expression *Shenme* in Chinese." *Yuyanxue Luncong (Essays on Linguistics)* 1:31–57.
- Tang, Sze-Wing. 2022b. "On the syntax of the negative marker *mei6* in Cantonese." *Journal of Chinese Linguistics* 50 (2): 323–347.
- Tomioka, Satoshi. 2007. "Pragmatics of LF intervention effects: Japanese and Korean *wh*-interrogatives." *Journal of pragmatics* 39 (9): 1570–1590.
- Tonhauser, Judith. 2012. "Diagnosing (not-) at-issue content." *Proceedings of Semantics of Under-represented Languages of the Americas (SULA)* 6:239–254.
- Tran, Quang Huy. 2015. "Comparative analysis of sentence-final particles in Chinese and Vietnamese." PhD diss., Fujian Normal University.
- Tran, Thuan, and Malte Zimmermann. 2021. "A unified analysis of Vietnamese *moi* 'just/only' as a scale-sensitive particle." In *Proceedings of Sinn und Bedeutung*, 25:823–840.

- Truckenbrodt, Hubert. 2013. "An analysis of prosodic F-effects in interrogatives: Prosody, syntax and semantics." *Lingua* 124:131–175.
- Tsai, Cheng-yu Edwin. 2015. "Toward a Theory of Mandarin Quantification." Ph.D. dissertation, Harvard University.
- Tsai, Wei-Tien Dylan. 1994. "On Economizing the Theory of A-Bar Dependencies." PhD diss., MIT.
- Tsai, Wei-Tien Dylan. 1999. "On Lexical Courtesy." *Journal of East Asian Linguistics* 8 (1): 39–73.
- Tsai, Wei-Tien Dylan. 2010. "Tan Hanyu motaici de fenbu yu quanshi zhi duiying guanxi [On the syntax-semantics correspondences of Chinese modals]." *Zhongguo Yuwen [Studies of the Chinese Language]* 3:208–221.
- Tsai, Wei-Tien Dylan. 2015. "On the Topography of Chinese Modals." In *Beyond Functional Sequence*, edited by Ur Shlonsky, 275–294. New York: Oxford University Press.
- Tsai, Wei-Tien Dylan, and Ching-Yu Helen Yang. 2015. "Inner vs. outer A-not-A questions." Paper presented on International Workshop on Cartography of Syntax, Beijing Language / Culture University, December 6-7, 2015.
- Tsai, Wei-Tien Dylan, and Ching-Yu Helen Yang. 2026. "On the inner-outer dichotomy of A-not-A questions: A minimalist-cartographic account." In *New Insights into Theoretical Syntax from Asian Languages: Studies in honor of C.-T. James Huang*, 262–280. John Benjamins Publishing Company.
- Tsao, Feng-fu. 1977. *A functional study of topic in Chinese: The first step toward discourse analysis*.
- Tse, Keith. 2019. "Chinese cleft constructions: microparametric 'lateral' grammaticalization." *Buckeye East Asian Linguistics*, 69–78.
- Ura, Hiroyuki. 1996. "Multiple Feature-Checking: A Theory of Grammatical Function Splitting." PhD diss., Massachusetts Institute of Technology.

- Velleman, Dan, David Beaver, Emilie Destruel, Dylan Bumford, Edgar Onea, and Elizabeth Coppock. 2012. "It-clefts are IT (inquiry terminating) constructions." In *Semantics and linguistic theory*, 441–460.
- Verma, Manindra K. 1971. *The Structure of the Noun Phrase in English and Hindi*. Motilal Banarsidass, Delhi.
- Vo, Thi Minh Ha. 2012. "A comparative study of Chinese and Vietnamese tone particles." PhD diss., East China Normal University.
- von Fintel, Kai. 1994. "Restrictions on Quantifier Domains." PhD diss., University of Massachusetts-Amherst.
- von Fintel, Kai. 1999. "NPI licensing, Strawson entailment, and context dependency." *Journal of semantics* 16 (2): 97–148.
- von Fintel, Kai. 2008. "What is presupposition accommodation, again?" *Philosophical Perspectives* 22:137–170.
- von Fintel, Kai, and Anthony S. Gillies. 2007. "An opinionated guide to epistemic modality." In *Oxford Studies in Epistemology, Volume 2*, edited by Tamar Szabó Gendler and John Hawthorne, 36–62. Oxford: Oxford University Press.
- von Fintel, Kai, and Irene Heim. 2020. "Intensional Semantics." *Unpublished lecture notes*.
- von Fintel, Kai, and Sabine Iatridou. 2003. "Epistemic Containment." *Linguistic Inquiry* 34 (2): 173–198.
- von Fintel, Kai, and Sabine Iatridou. 2007. "Anatomy of Modal Construction." *Linguistic Inquiry* 38 (3): 445–483.
- Von Stechow, Arnim, and Thomas Ede Zimmermann. 1984. "Term answers and contextual change."
- Wagner, Michael. 2006. "Association by movement: evidence from NPI-licensing." *Natural Language Semantics* 14 (4): 297–324.

- Wakefield, John C. 2010. "The English equivalents of Cantonese sentence-final particles: A contrastive analysis." PhD diss., Hong Kong Polytechnic University.
- Wakefield, John C. 2020. "The Syntax and Semantics of Cantonese Particles in the Left Periphery." *Studies in Chinese Linguistics* 41 (2): 109–138.
- Wang, Huilei. 2023. "Quantifier Raising out of Mandarin relative clauses." *Natural Language Semantics* 31 (1): 25–69.
- Wang, Huilei. 2024. "Semantics of finite complement clauses and scope islandhood." In *Semantics and Linguistic Theory*, 324–345.
- Wang, Huilei. 2025. "Quantificational Scope and Clause-(Un) boundedness." PhD diss., University of California, Los Angeles.
- Watanabe, Akira. 2004. "The Genesis of Negative Concord: Syntax and Morphology of Negative Doubling." *Linguistic Inquiry* 35 (4): 559–612.
- Wei, Wei Haley. 2020. "Discourse particles in Mandarin Chinese." PhD diss.
- Wei, Wei Haley, and Yen-Hui Audrey Li. 2018. "Adverbial clauses in Mandarin Chinese." *Linguistic Analysis* 1-2:163–330.
- Whitman, John. 2026. "Noun complements are not [not complements]." In *New Insights into Theoretical Syntax from Asian Languages: Studies in honor of C.-T. James Huang*, 459–486. John Benjamins Publishing Company.
- Wijnbergen-Huitink, Janneke van. 2021. "Modal Concord." In *The Wiley Blackwell Companion to Semantics*, edited by Daniel Gutzmann, Lisa Matthewson, Cécile Meier, Hotze Rullmann, and Thomas Ede Zimmermann., 1–21. John Wiley & Sons, Inc.
- Wiltschko, Martina, and Johannes Heim. 2016. "The syntax of confirmationals." *Outside the clause: Form and function of extra-clausal constituents* 178:305.

- Wimmer, Alexander. 2022. “Zhi-*{yao, you}* ‘only-*{need, have}*’: On two conditional connectives in Mandarin.” *Journal of East Asian Linguistics* 31 (3): 401–438.
- Winter, Yoad. 1997. “Choice Functions and the Scopal Semantics of Indefinites.” *Linguistics and Philosophy* 20 (4): 399–467.
- Winterstein, Grégoire. 2012. “Only without its scales.” *Sprache und Datenverarbeitung* 35:29–47.
- Wong, Cheuk-lam Cherie. 2010. “Word order and subjectivity in Cantonese.” MPhil thesis, Hong Kong Polytechnic University.
- Wong, Cheuk-lam Cherie. 2014. “A Study on the Compound Particles in Cantonese.” PhD diss., The Chinese University of Hong Kong.
- Wong, Chi-hon. 2019. “Yueyu “sin1zi3” de yufa tedian [The grammatical properties of “sin1zi3” in Cantonese].” Undergraduate thesis, The Chinese University of Hong Kong.
- Wu, Jianxin. 1997. “A model-theoretic approach to A-not-A questions.” *University of Pennsylvania Working Papers in Linguistics* 4 (2): 273–289.
- Wurmbrand, Susi. 2014. “The Merge Condition: A syntactic approach to selection.” In *Minimalism and Beyond. Radicalizing the interfaces*, edited by Peter Kosta, Steven Franks, Teodora Radeva-Bork, and Lilia Schürcks, 130–166. Amsterdam: John Benjamins.
- Wurmbrand, Susi, and Magdalena Lohninger. 2023. “An implicational universal in complementation: Theoretical insights and empirical progress.” In *Propositional arguments in cross-linguistic research: Theoretical and empirical issues*, 183–232. Mouton de Gruyter Berlin.
- Xiang, Yimei. 2022. “Relativized Exhaustivity: mention-some and uniqueness.” *Natural Language Semantics* 30 (3): 311–362.
- Xu, Liejiong. 2000. “The Topic-Prominence Parameter.” *ZAS papers in Linguistics* 20:21–41.
- Xu, Ting. 2016. “Almost again: On the semantics and acquisition of decomposition adverbs.” Ph.D. dissertation, University of Connecticut.

- Yang, Barry Chung-Yu. 2012. "Intervention effects and *wh*-construals." *Journal of East Asian Linguistics* 21 (1): 43–87.
- Yip, Ka-Fai. 2019. "The Incompleteness Effects of Cantonese Verbal Suffixes." MPhil thesis, The Chinese University of Hong Kong.
- Yip, Ka-Fai. 2021. "Exclusive focus in Yoruba." Paper presented on The Southern New England Workshop in Semantics (SNEWS) 2021, University of Connecticut, May 1, 2021.
- Yip, Ka-Fai. 2022a. "Converbs and adverbial clauses: a case study in Cantonese." *Studies in Chinese Linguistics* 43 (2): 143–169.
- Yip, Ka-Fai. 2022b. "Universal Concord as Syntactic Agreement." *University of Pennsylvania Working Papers in Linguistics* 28 (1): 221–232.
- Yip, Ka-Fai. 2024a. "Cantonese exclusive focus marker *-dak* as perfective aspect." *Paper presented at The 28th International Conference on Yue Dialects, Hong Kong Metropolitan University.*
- Yip, Ka-Fai. 2024b. "Only 'only' only: a distributed meaning approach to exclusive doubling." In *Proceedings of SALT 34*, 480–501.
- Yip, Ka-Fai. 2024c. "Two types of temporal adverbial clauses in Cantonese." In *Proceedings of the 39th West Coast Conference on Formal Linguistics*, edited by Robert Autry, Gabriela de la Cruz, Luis A. Irizarry Figueroa, Kristina Mihajlovic, Tianyi Ni, Ryan Smith, and Heidi Harley, 274–282. Somerville: Cascadilla Proceedings Project.
- Yip, Ka-Fai. 2025a. "A unified biclausal approach to right dislocation in Chinese." *Journal of East Asian Linguistics* 34:631–674.
- Yip, Ka-Fai. 2025b. "Differentiating between evidential bias and epistemic bias in questions: Evidence from Cantonese." *Ms. Yale University.*
- Yip, Ka-Fai. 2026. "Right dislocation as multidominance, and beyond." In *Proceedings of Generative Linguistics in the Old World (GLOW)* 47, 1–14. Goethe University Frankfurt.

- Yip, Ka-Fai, and Olabode Adediji. 2024. "A quantifier-particle approach to exclusive focus particles in Yorùbá." In *Selected Papers from the 55th Annual Conference on African Linguistics*, (To appear). Language Science Press.
- Yip, Ka-Fai, and Comfort Ahenkorah. 2026. "Exclusive focus in Akan and type flexibility." In *Proceedings of the 55th North East Linguistic Society (NELS)*. (To appear).
- Yip, Ka-Fai, and Zhuo Chen. 2022. "Rethinking the internal syntax of adverbial clauses and operator movement." Paper presented at The 13th Generative Linguistics in the Old World in Asia (GLOW in Asia XIII), , The Chinese University of Hong Kong.
- Yip, Ka-Fai, and Tommy Tsz-Ming Lee. 2022. "Modal movement licensed by focus." In *New Explorations in Chinese Theoretical Syntax. Studies in honor of Yen-Hui Audrey Li*. Edited by Andrew Simpson, 165–192. Amsterdam and Philadelphia: John Benjamins.
- Yip, Ka-Fai, and Woraprat Manowang. 2026. "Only Exclusive Doubling in Thai." In *Paper presented at the 35th Annual Meeting of the Southeast Asian Linguistics Society (SEALS 35)*, Nanyang Technological University.
- Yuan, Michelle. 2017. "More on Undermerge: phrasal and head movement interaction in Kikuyu." In *A Pesky Set: Papers for David Pesetsky*, edited by Claire Halpert, Hadas Kotek, and Coppe van Urk, 543–552. Cambridge, MA: MIT Working Papers in Linguistics.
- Zanuttini, Raffaella. 1991. "Syntactic Properties of Sentential Negation: A Comparative Study of Romance Languages." PhD diss., University of Pennsylvania.
- Zanuttini, Raffaella. 1997. *Negation and Clausal Structure*. 201. Oxford: Oxford University Press.
- Zeijlstra, Hedde. 2004. "Sentential negation and Negative Concord." Ph.D. dissertation, University of Amsterdam.
- Zeijlstra, Hedde. 2007. "Modal Concord." In *Proceedings of SALT XVII*, edited by T. Friedman and M. Gibson, 317–332. Ithaca, NY: Cornell University.
- Zeijlstra, Hedde. 2012. "There is only one way to agree." *The Linguistic Review* 29 (3): 491–539.

Zeijlstra, Hedde. 2022. *Negation and Negative Dependencies*. New York: Oxford University Press.

Zhang, Niina Ning. 2019. "Sentence-final aspect particles as finite markers in Mandarin Chinese." *Linguistics* 57 (5): 967–1023.

Zimmermann, Malte. 2006. "Adverbial quantification and focus in Hausa." In *Proceedings of Sinn und Bedeutung*, 10:453–468. 2.

Appendix A: Exclusive doubling across languages

This appendix gathers cross-linguistic data of exclusive doubling from 17 languages. I order them roughly by geographical locations and/or language families. This list is not meant to be exhaustive, but rather illustrative of how ubiquitous exclusive doubling is across languages.

- (1) a. West African: Akan, Ga, Kasem (Gur, Mabia), Kusaal (Gur, Mabia), Yorùbá.
- b. Indian (Indo-Aryan): Bangla, Hindi.
- c. East Asian: Cantonese, Mandarin Chinese, Japanese, Korean.
- d. Southeast Asian: Thai, Vietnamese.
- e. European (Germanic): Dutch, English, German
- f. German sign language (Deutsche Gebärdensprache, DGS)

A1 West African languages

A1.1 Akan

Akan has two exclusive adfocal 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:

(2) Doubling exclusive focus particles in Akan

- a. Mary hũ [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.)

For a detailed description and a proposal of exclusive doubling, see Yip and Ahenkorah (2026).

A1.2 Ga

Ga has two adfocal particles (like Akan): *too* ‘only’ and *pɛ* ‘only’ (Renans 2017).

(3) Exclusive particles in Ga

- a. Kofi kane wolof **too** nyɛ.
 Kofi read book only yesterday
 ‘Kofi read only *a book* yesterday.’ (Renans 2017:556)
- b. Kofi kane wolof **pɛ** nyɛ.
 Kofi read book only yesterday
 ‘Kofi read only *a book* yesterday.’ (Renans 2017:556)

Interestingly, *too* ‘only’ and *pɛ* ‘only’ may co-occur, as shown below. Nevertheless, Renans (2017) observes that *too* ‘only’ may associate with the NP whereas *pɛ* may associate with the indefinite article, and different behavior arises concerning singular/plural and count/mass distinction. Whether the two particles can truly associate with a single focus awaits further exploration.

(4) Adfocal-adfocal exclusive doubling in Ga

John he [atomo kome]_F **too** pɛ.

John buy potato a only only

‘John bought only *one potato* yesterday.’

(Renans 2017:556)

A1.3 Kasem

Kasem has the adverbial particle *weeni* ‘only’ and the adfocal particle *yerane* ‘only’, and they may be doubled with a single focus association as in (5). Note that in Kasem, the focus is always morphosyntactically marked by *mo* (Aremu 2025). See Aremu (2026) for a detail study.

(5) Adverbial-adfocal exclusive doubling in Kasem

a. Adam **weeni** o go [chworɔ]_F mo. (Adverbial)

Adam only 3sg kill fowl FOC

‘Adam slaughtered only *a fowl*.’

(Aremu 2025, ex.14)

b. Adam go [chworɔ]_F **yerane** mo diim. (Adfocal)

Adam kill fowl only FOC yesterday

‘Adam slaughtered only *a fowl*.’

(Aremu 2025, ex.9b)

c. Adam **weeni** o go [chworɔ]_F **yerane** mo. (Doubling)

Adam only 3sg kill fowl only FOC

‘Adam slaughtered only *a fowl*.’

(Aremu 2025, ex.16)

A1.4 Kusaal

Kusaal has the adverbial particle *kudim* ‘only’ and the adfocal particle *ma’a* ‘only’, and they may be doubled with a single focus association as in (6). Note that in Kusaal, in-situ focus is morphosyntactically marked by *nɛ* (Aremu 2026).

(6) Adverbial-adfocal exclusive doubling in Kusaal

- a. Adam **kɔ̃dim** de nɛ [mui]_F. (Adverbial)
Adam only eat FOC food
'Ade only ate *rice*.' (Aremu 2026:131)
- b. Adam kɔ̃dig nɛ [nua]_F **ma'aa**. (Adfocal)
Adam kill.PFV FOC fowl only
'Adam slaughtered only *a fowl*.' (Aremu 2026:130)
- c. Adam **kɔ̃dim** di nɛ [mui]_F **ma'a**. (Doubling)
Adam only eat FOC food only
'Ade only ate *rice*.' (Aremu 2026:131)

A1.5 Yorùbá

Yorùbá 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 adfocal particle that immediately follows the focus. Doubling of them with the same focus association is allowed:

(7) Doubling exclusive focus particles in Yorùbá

- a. John **kan** fun [Mary]_F ni iwe. (Adverbial)
John only give Mary SEC book
'John gave only *Mary* a book.'
- b. John fun [Mary]_F **nikan** ni iwe. (Adfocal)
John give Mary only SEC book
'John gave only *Mary* a book.'
- c. John **kan** fun [Mary]_F **nikan** ni iwe. (Doubling)
John only give Mary only SEC book
'John gave only *Mary* a book.'

The earliest report of exclusive doubling in Yorùbá is from my own work (Yip 2021), followed up by Yip and Adedeji (2024), who reports another particle *lásán* 'just', and Aremu (2026), who reports an

additional particle *péré* ‘only, just’.

A2 Indian (Indo-Aryan) languages

A2.1 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., Dash and Datta 2022). 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:

(8) 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.’

(U. Banerjee p.c.)

A2.2 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; Dash and Datta 2022; Dayal 2025b). Doubling of *-hii* and *sirf* are allowed, as shown below:

(9) Doubling exclusive focus particles in Hindi

- 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)

A3 East Asian languages

A3.1 Cantonese

Cantonese has at least eight morphemes that may be translated as 'only': *zaai 1*, *zing 6*, *zi 2*, *sin 1*, *zi 3*, *dak 1*, *zaa 3*, *ze 1*.¹ They form lexical items in various word categories:

(10) The inventory of exclusive focus particles in Cantonese

- a. Adverbs: *zaai 1* 'only', *zing 6* 'only', *zi 2* 'only', *zing 6 hai 6* '(lit.) only-be', *zi 2 hai 6* '(lit.) only-be', *sin 1* 'only', *zi 3* 'only', *sin 1 zi 3* 'only' etc.
- b. Verbs (also serve as adfocus particles): *dak 1* 'only', *zi 2 jau 5* '(lit.) only-have'
- c. Verbal suffix: *-dak 1* 'only'
- d. Sentence-final particles: *zaa 3* 'only', *ze 1* 'only, just' (also other variants like *zaa 4*, *zek 1*)

Adverbs *Zaai 1* 'only', *zing 6* 'only' and *zi 2* 'only' are all adverbs with an exclusive meaning. Unlike English, Cantonese adverbs must occur pre-verbally. They also lack an adnominal/ adfocus use.

1. Note that *zi 2* and *zi 3* are different morphemes with distinct tones.

- (11) 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 (13).

- (12) Ngo {**zinghai**/ **zihai**} tai [siusyut]_F
 1sg only only read novel
 ‘I only read *novels*.’
- (13) 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’.²

- (14) [Aaming]_F {**sin**/ **zi**/ **sinzi**} tai siusyut
 Ming only only only read novel
 ‘Only *Ming* read novels.’

Verbs/adfocal particles *Dak1* ‘only’ and *zi2jau6* ‘(lit.) only-have’ are verbs, as in (15). They may also be used as adfocus particles, as shown in (16) with a subject focus and (17) with an (ex-situ) object focus. Note that they trigger obligatory focus movement which can be in a long-distance (=17a) or a local fashion (=17b). Also note that their relative linear order determines the scope with other operators. In (17a), the exclusive focus has wide scope over ‘know’ whereas it takes narrow scope in (17b).

- (15) Ngo {**dak**/ **zijau**} [ni bun siusyut]_F
 1sg only only.have this CL novel
 ‘I only have *this novel*.’

2. They are polysemous and have another temporal meaning ‘until’.

(16) {**Dak/ zijau**} [ngo]_F jau ni bun siusyut

only only.have 1SG have this CL novel

‘Only *I* have this novel.’

(17) 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*:

(18) 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 (20), 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 (17) (see Tang 2002 for other differences between the two *dak*).

(19) Keoi tai-**dak** [saam bun syu]_F

3SG read-only three CL book

‘He read only *three books*.’

(adapted from Tang 2002:267)

- (20) 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 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’.

- (21) Ngo tai [siusyut]_F **zaa3**
 1SG read novel SFP.only
 ‘I only read *novels*. (I don’t read poems.)’
- (22) Ngo tai [siusyut]_F **ze1**
 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. (23) shows a case of quadrupling of two adverbial particles, an adfocus particle and an SFP. A case of tripling is illustrated in (24), 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 (25).

- (23) **Zinghai dak** [Aaming]_F **sin** wui cidou gaa3 **zaa3**
 only only Ming only will late SFP SFP.only
 ‘Only *Ming* will be late (but others will not).’

(24) Ngo **zihai** sik-**dak** [saam wun fan]_F **zaa3**
 1sg only eat-only three CL rice SFP.only
 ‘I only eat *three bowls of rice*.’

(25) *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*.’

A3.2 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 adfocal *zhiyou* ‘only’, and the SFP *eryi* ‘only’. Hole (2017) argues that *cai* triggers a scalar reading that licenses doubling with the adfocal *zhiyou*, as illustrated in (=26a) (but see Sun 2021 for counter-evidence, and Hole 2023 for a reply). Other particles that allow doubling are *eryi* and *zhi*, as shown in (26b). Yet, *eryi* does not seem to solely express exclusiveness. It often occurs with scalar *zhibuguo* ‘merely’ and expresses a scalar reading (Yenan Sun p.c.), which is similar to Cantonese SFP *ze1* but not *zaa3*.

(26) 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-PFV this CL book SFP.only
 ‘Zhangsan only read *this book*.’

A3.3 Japanese

Japanese has two adfocal particles: *dake* ‘only’ and *shika*...NEG ‘only’ (Erlewine 2012 and many others). *Shika* is an NCI and must be licensed by a negation to mean ‘only’. *Dake* and *shika* can be doubled:

- (27) a. taro to hanako-**dake**-to hanas-eru.
 Taro and Hanako-only-with talk-can
 'I can talk with only [Taro and Hanako]_F.' (adapted from Erlewine 2012, ex.16a)

- b. taro to hanako-to-**shika** hanas-e-nai.
 Taro and Hanako-with-only talk-can-NEG
 'I can talk with only [Taro and Hanako]_F.' (adapted from Erlewine 2012, ex.16b)

(28) Adfocal-adfocal exclusive doubling in Japanese

- Pan-**dake-shika** tabenakatta.
 bread-only-only eat.Neg.Pst
 'I only ate bread.' (Oshima 2015, ex.24e)

Note that co-occurrence does not always yields a doubled/concord reading. Erlewine (2012) argues that the example below gives a multiple-‘only’ reading:

- (29) taro to hanako-**dake**-to-**shika** hanas-e-nai.
 Taro and Hanako-only-with-only talk-can-NEG
 Lit.: 'I can talk with only only [Taro and Hanako]_F.' (adapted from Erlewine 2012, ex.18)
 'Only with Taro and Hanako together is it possible for me to only talk to [them]_F.'

A3.4 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 exclusive operator is interpreted (i.e., (i) in (30), in addition to the two-ONLY reading (ii).

(30) Doubling exclusive focus particles in Korean

- 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 fruits as well as apples.'

(Y. Lee 2005:184)

Korean also has an adverbial particle *oloji* ‘only’, which allows doubling with adfocal *-man* ‘only’ (Jiyeong Kim p.c.). To the best of my knowledge, this fact has not been documented in the literature.

(31) [Minswu-nun **oloci** Chelswu_F-**man**(-ul) manna-ss-eyo].

Minsu-TOP only Cheolsu-only-ACC meet-PST-HON

‘Minsu only met *Cheolsu*.’

A4 Southeast Asian languages

A4.1 Thai

Thai has two types of exclusive particles (Rusawang and Ruangjaroon 2017): one that immediately precedes the focus, such as *khee* ‘only’; and the other that occurs sentence-finally, such as *thaw-nan* ‘only, lit.: equal-that’. They can be doubled with the same focus association (Andrew Simpson p.c., Woraprat Manowang p.c.). See Yip and Manowang (2026) for a detailed study.

(32) Adfocal-SFP exclusive doubling in Thai

a. thim kin **khee** nia_F. (Adfocal)

Tim eat only beef

‘Tim only eats beef.’

b. thim kin nia_F **thawnan**. (SFP)

Tim eat beef SFP.only

‘Tim only eats beef.’

c. thim kin **khee** nia_F **thawnan**. (Doubling)

Tim eat only beef SFP.only

‘Tim only eats beef.’

(Woraprat Manowang p.c.)

A4.2 Vietnamese

Vietnamese has five exclusive focus particles: the two adverbial particles *chi* ‘only’, which associates rightward, and *mới*, ‘only’ which associates leftward; the two adfocal particles *mãi* ‘only’ (not to be

confused with *mới*) and *có* ‘(lit.) have’; and the SFP *thôi* (Hole 2013, 2017; Erlewine 2017b; Sun 2021). (33) shows a case where adverbial *chỉ* and adfocal *mỗi* are interchangeable and may even be doubled to mark exclusive focus. Like Cantonese, Vietnamese allows up to four particles occurring together, as shown in (34). Also note that Hole (2017) argues that the adverbial *mới* always triggers a scalar meaning.

(33) 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)

- (34) 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)

A5 European (Germanic) languages

A5.1 Dutch

According to 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 as in (35a–35b). Interestingly, *maar* may occur twice in these two positions with the same reading in (35b). Moreover, *maar* may also co-occur with *alleen* with the same focus in (36), showing another case of doubling.

(35) Doubling exclusive focus particles in Dutch

- 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*.'

(Barbiers 2014:198)

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

(Barbiers 2010:27, translation cited from Hole 2017:406)

A5.2 English

While doubling of *only* is often disallowed in English as in (37), Bayer (2020) has reported some rare exceptions that are found online, reproduced in (38) below.

- (37) *John **only** bought **only** lobsters.

- (38) 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.

A5.3 German

In German, the exclusive focus particle *nur* may be used as an adverbial particle or an adfocal particle (Reis 2005; Meyer and Sauerland 2009; but see Jacobs 1983, 1986; Büring 2001 for an adverb-only view; see also Smeets and Wagner 2018). 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.³ Hole also notes that a scalar reading is necessary to license doubling.

(39) 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** eine_F Kugel] gegessen.

but 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)

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

A6 German sign language (Deutsche Gebärdensprache, DGS)

As reported in Herrmann (2013), German sign language (Deutsche Gebärdensprache, DGS) exclusive focus particle glossed as **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.

(40) 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.'

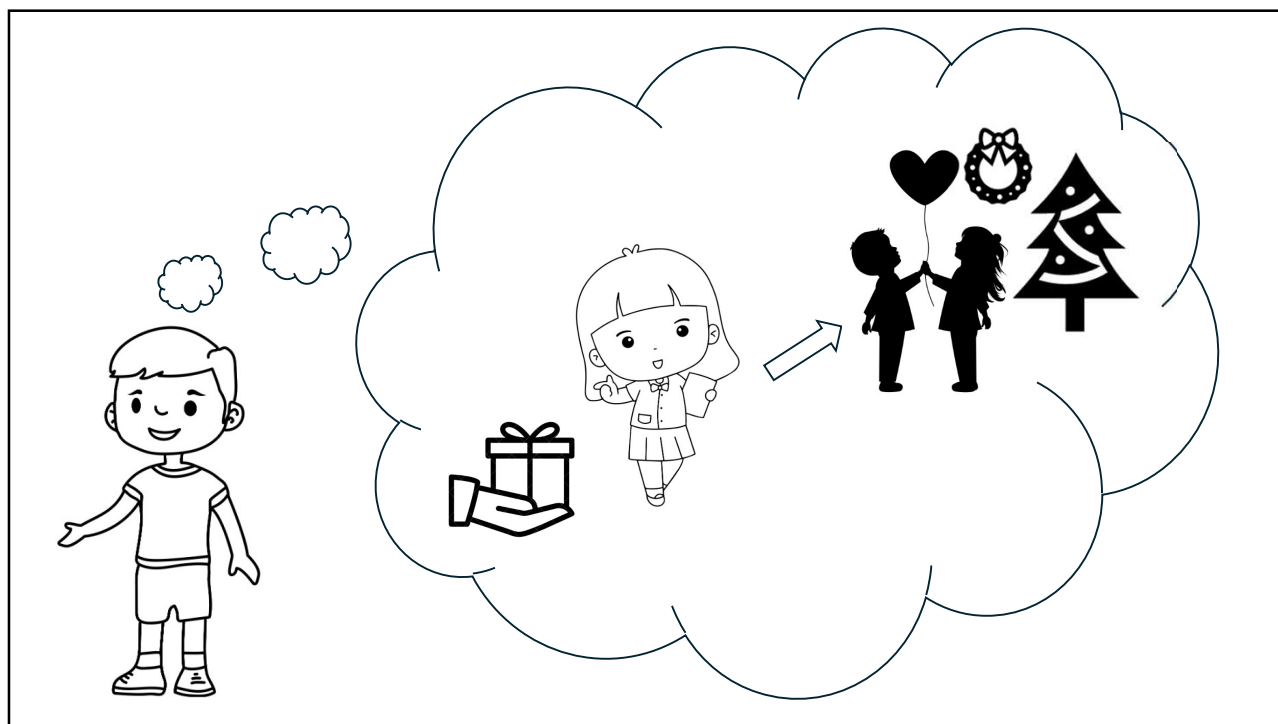
(Herrmann 2013:299-300)

Appendix B: Storyboards

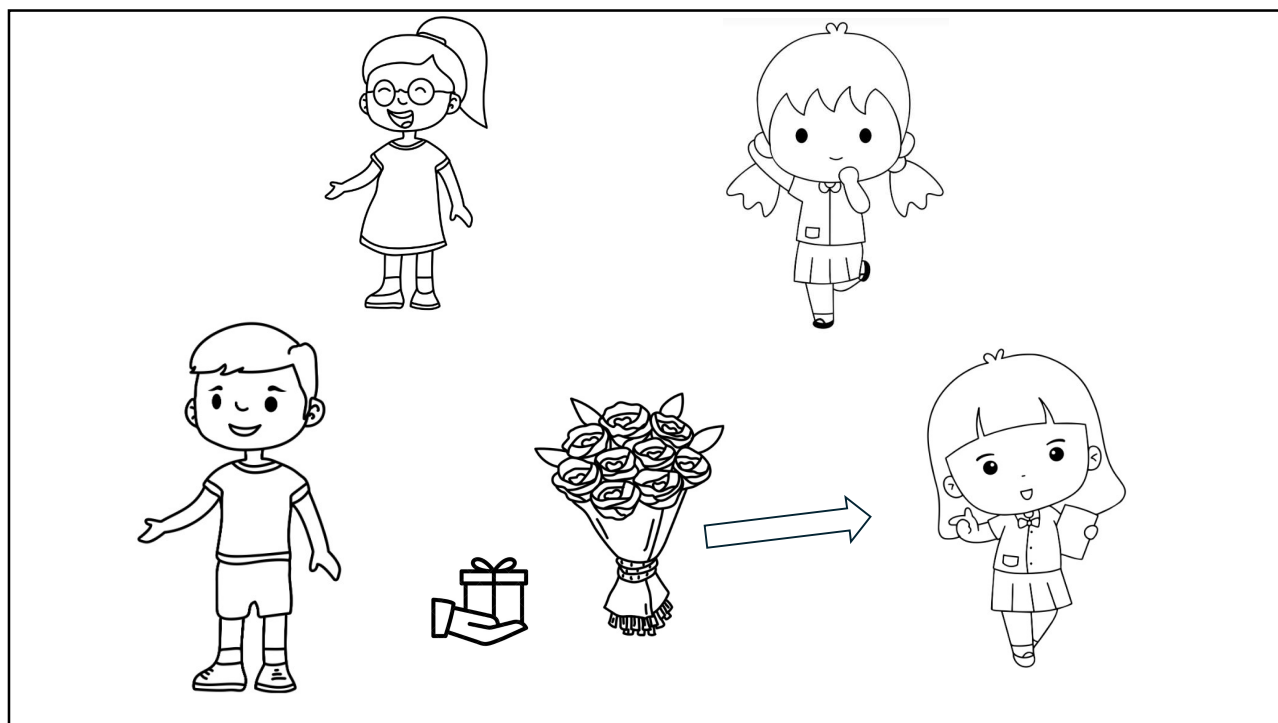
Four storyboards were used for elicitation. They were constructed by the author (with open copy right materials) or adapted from [Totem Field Storyboards](#).

- (1) a. Christmas Party (by the author)
- b. Bake off (adapted from [Totem Field Storyboards](#), by TFS Working Group)
- c. Karaoke (by the author)
- d. Animal Party (adapted from [Totem Field Storyboards](#), by Patrick Littell)

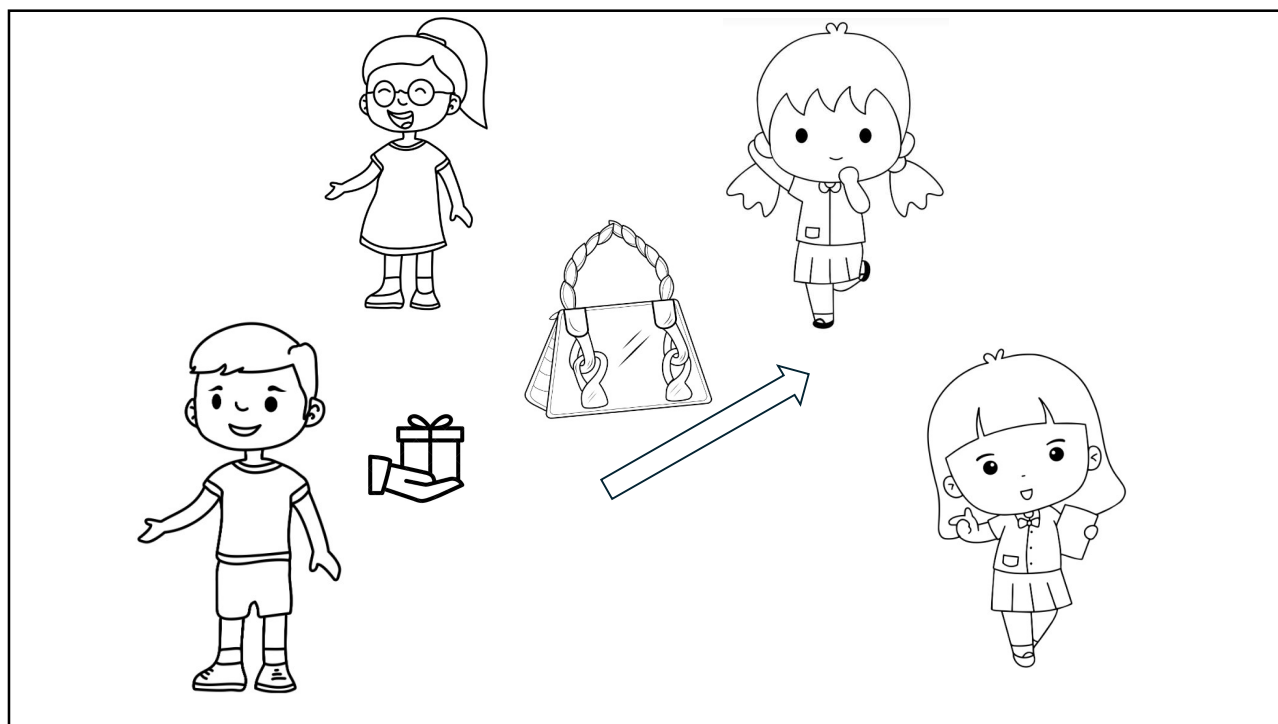
Christmas Party



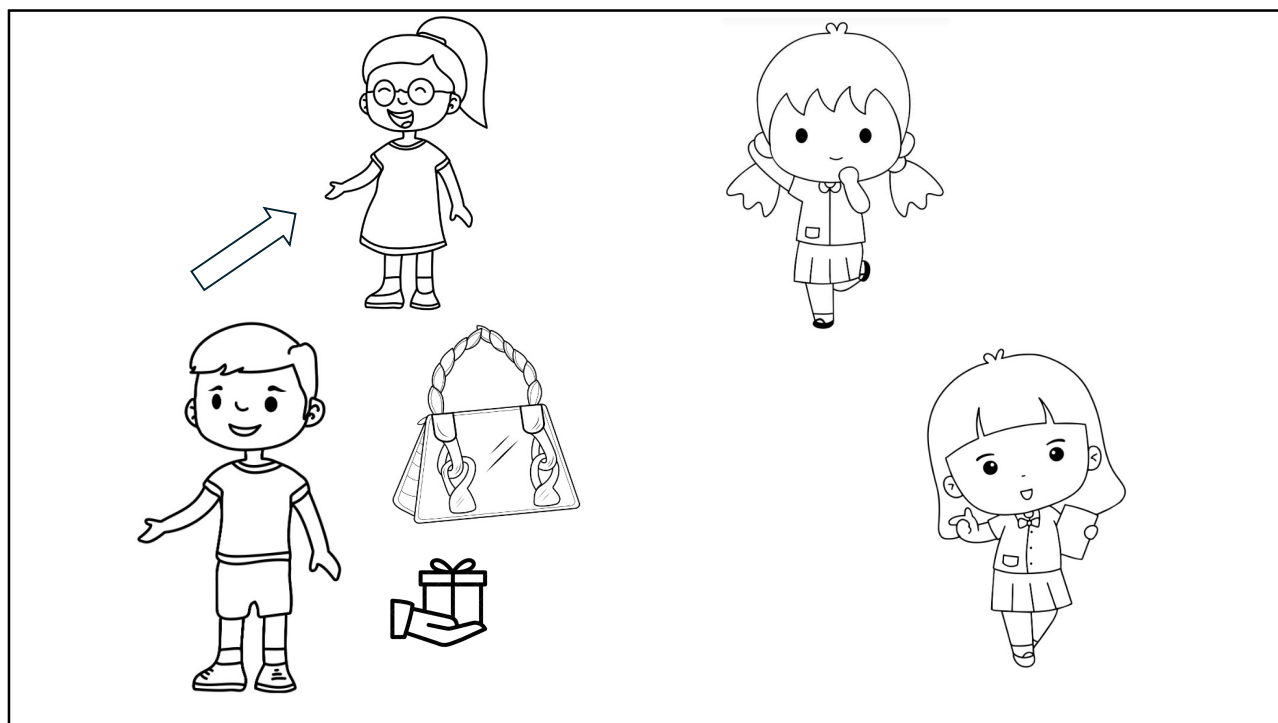
¹ Nam plans to give a gift to a girl for inviting her to a Christmas party.



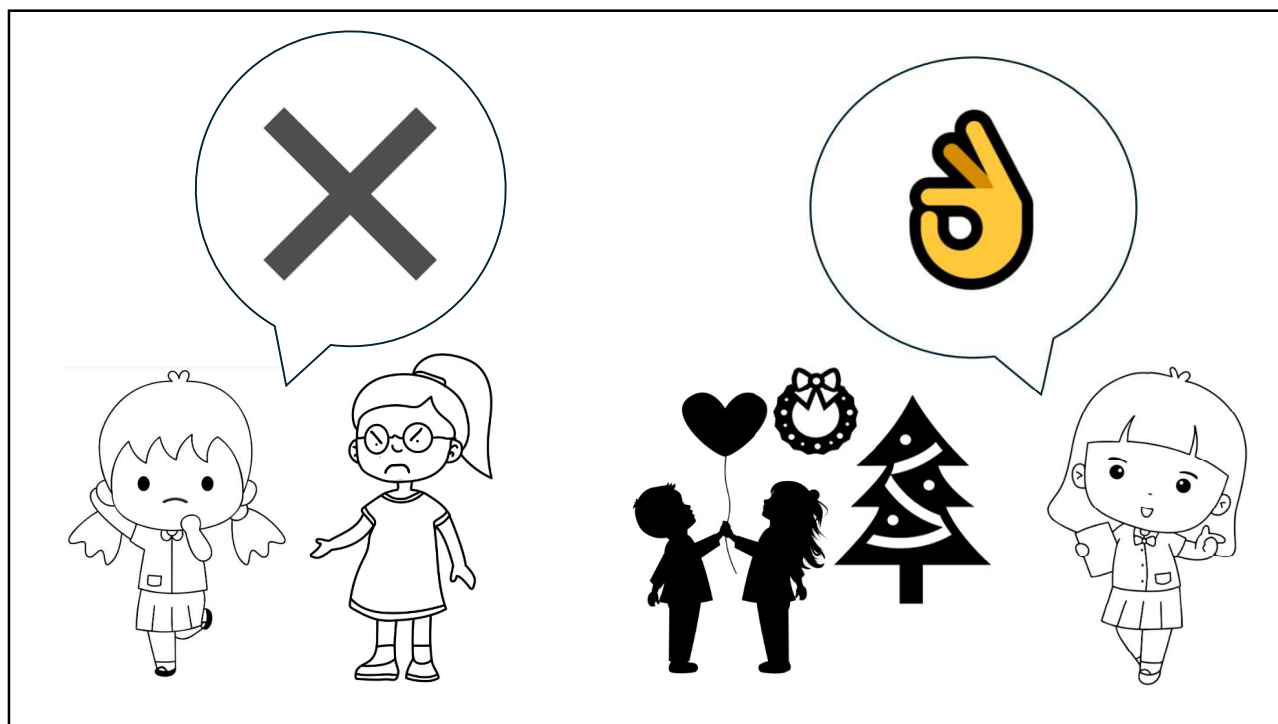
² Nam gave flowers to Linh.



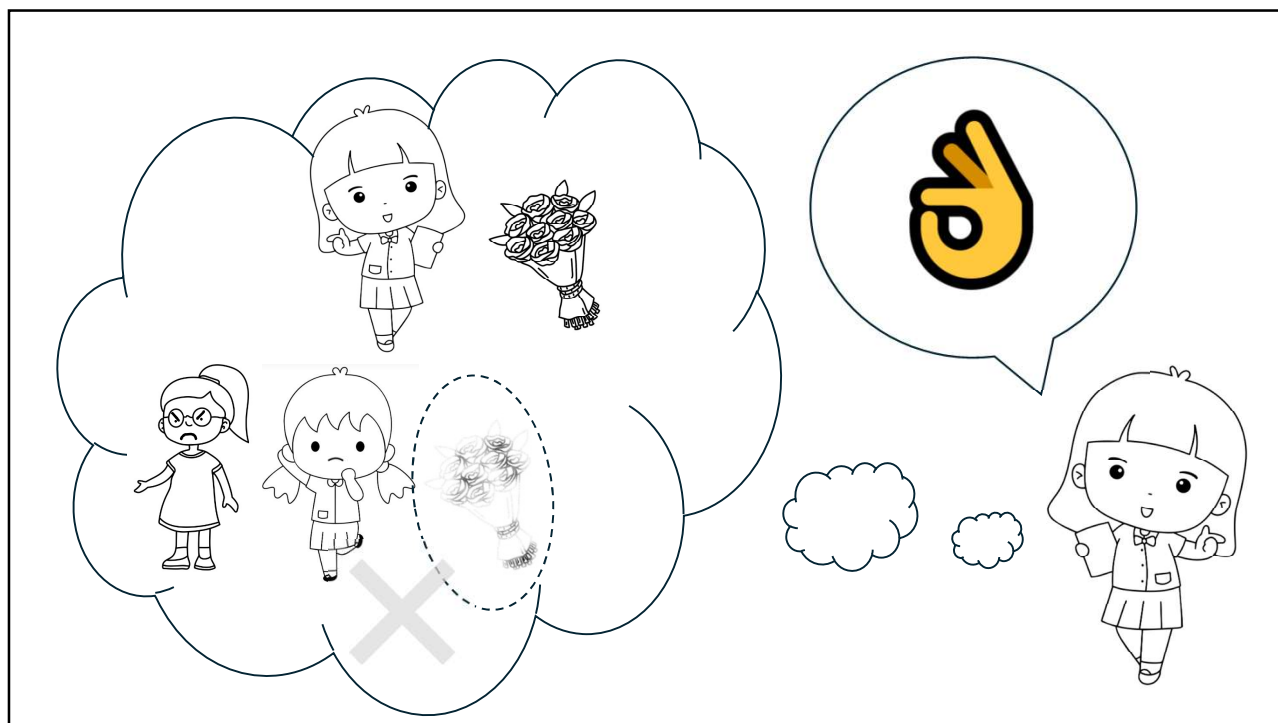
³ Nam gave a handbag to Giang.



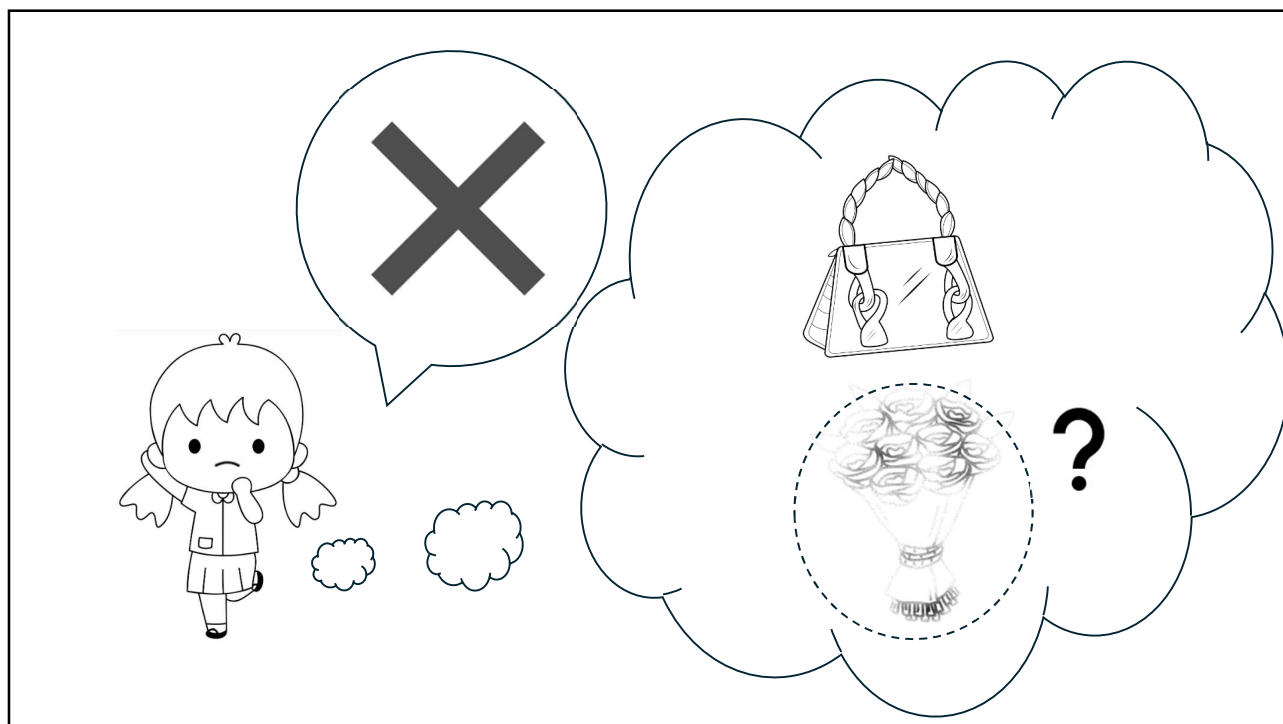
⁴ Nam also gave a handbag to Tuyết.



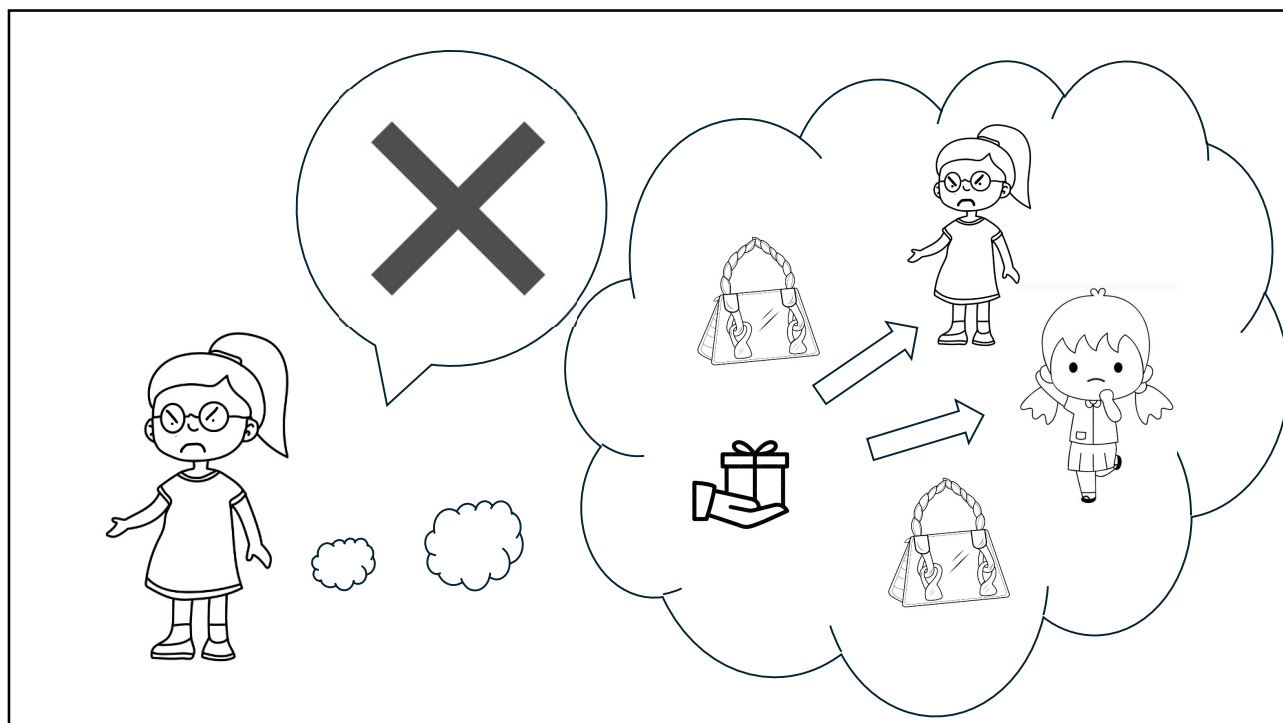
⁵ Only Linh said yes. Both Giang and Tuyết said no.



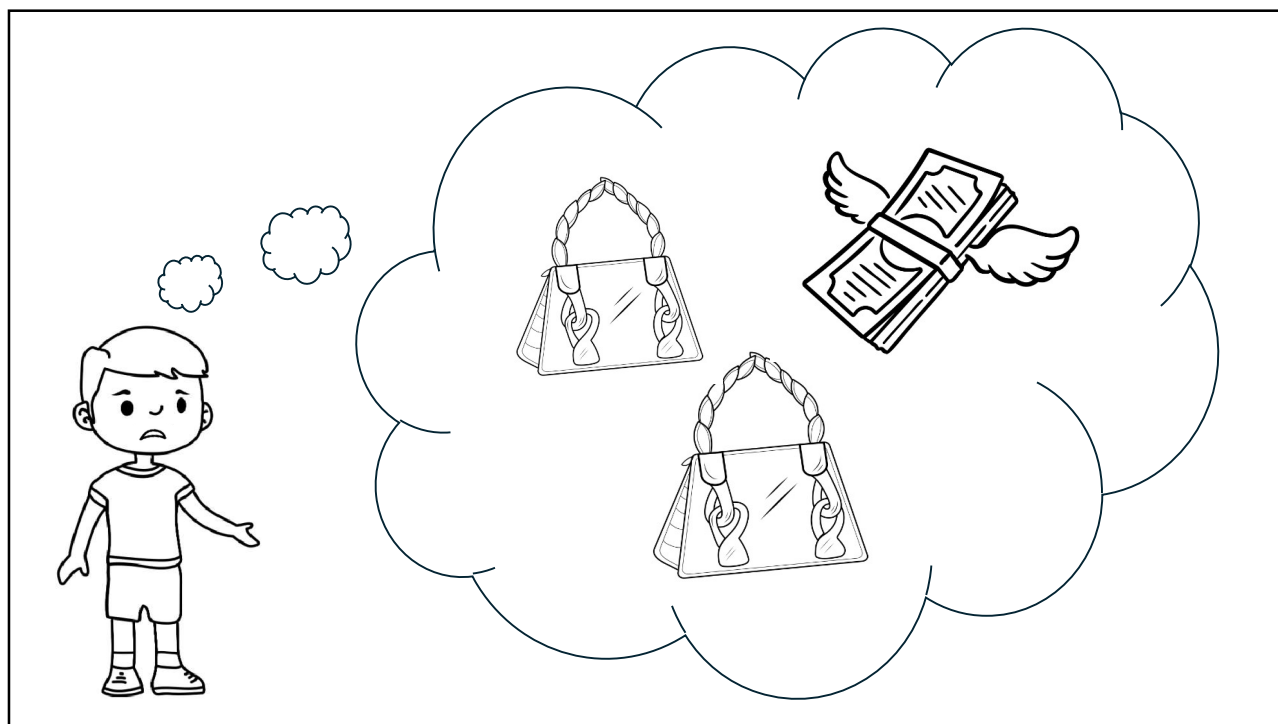
⁶ Linh say yes because Nam only gave flowers to HER, but not to Giang or Tuyết.



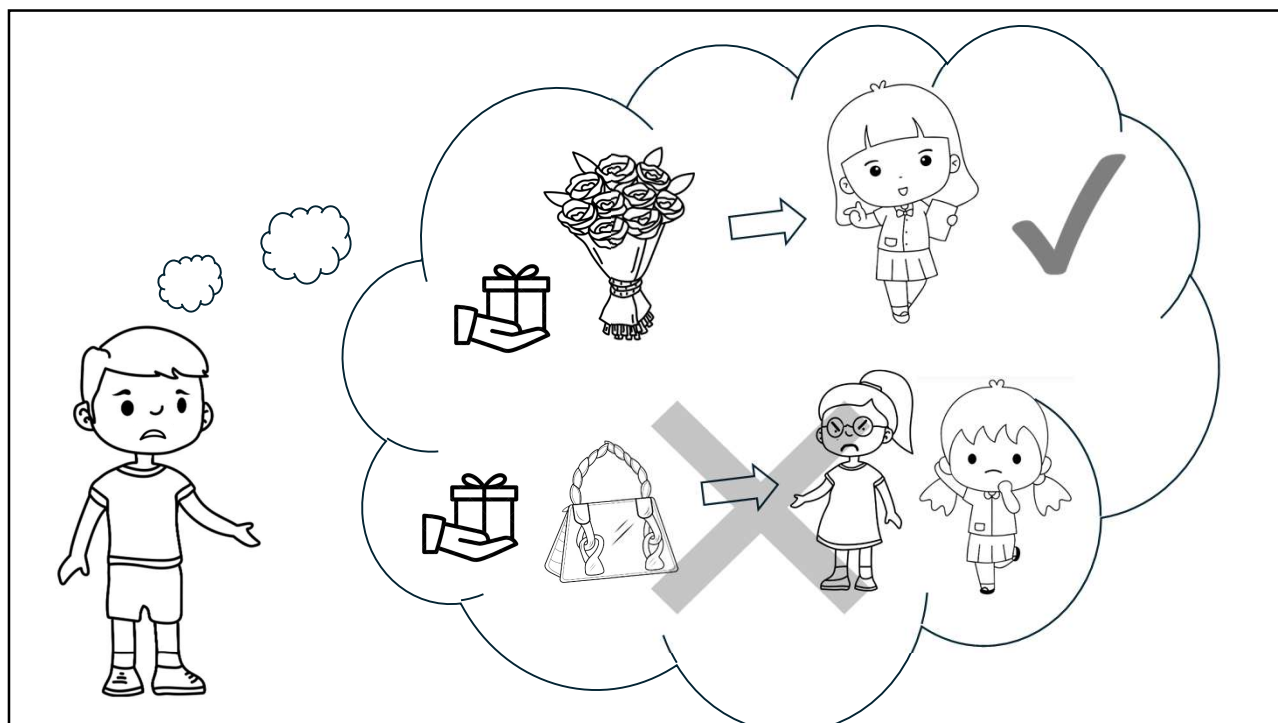
⁷ Giang said no because Nam only gave a HANDBAG to her, but not flowers.



⁸ Tuyết said no because Nam did not only gave a handbag to HER, but he also gave one to Giang.

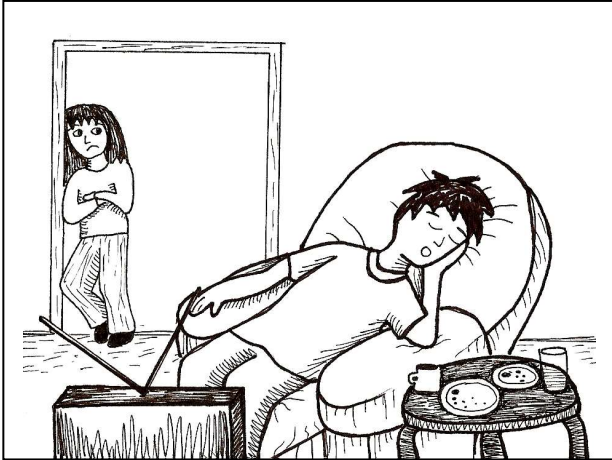


⁹ Nam thinks he wasted money on buying the handbags.

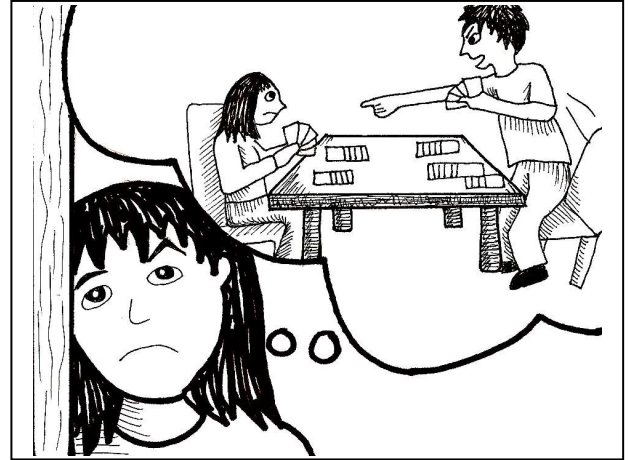


¹⁰ Nam thinks that he should have only given flowers to Linh.
He should not have given the handbags to Giang and Tuyết.

Bake Off



¹ Lan's husband is very lazy.



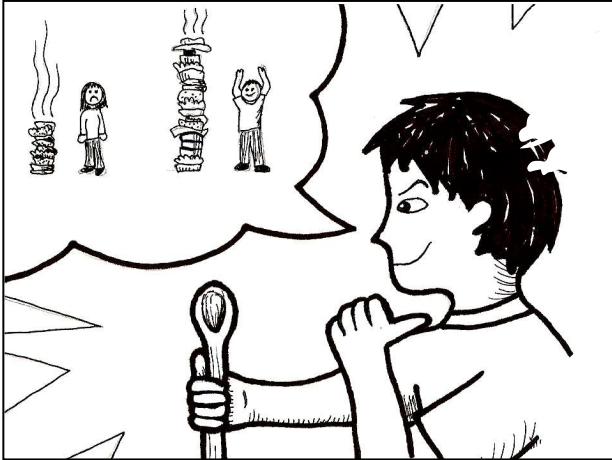
² But he's also very competitive!



³ So she challenged him to a baking contest ...



⁴ "I bet I can bake more pies than you can!"



5 "No, I can bake the most pies!"



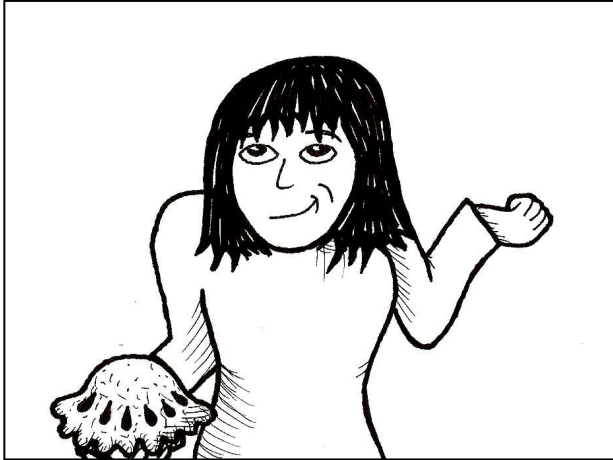
6 So they started baking.



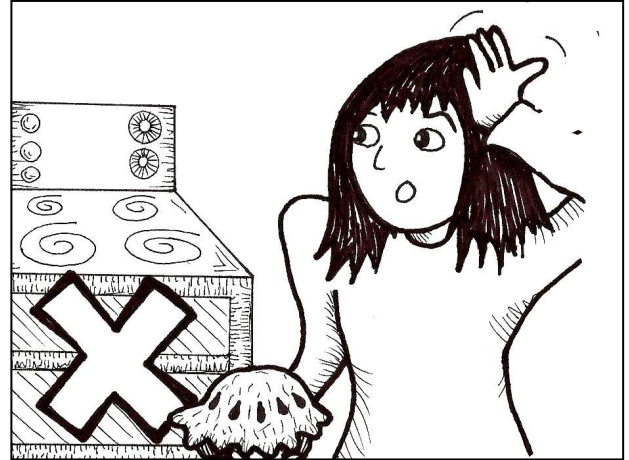
7 Her husband baked six pies.



8 He even baked a cake!



⁹ Lan only made one pie!



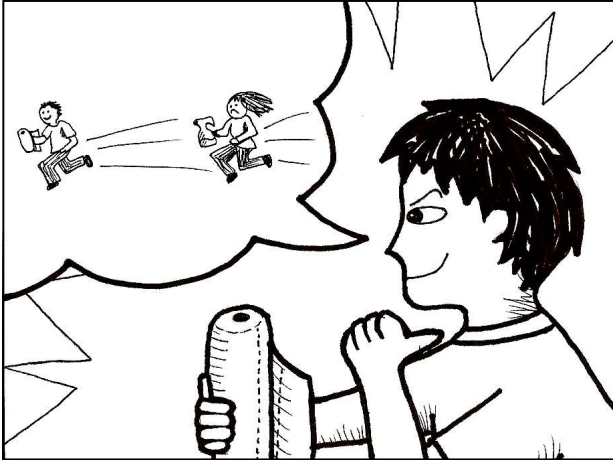
¹⁰ She didn't even put it in the oven!



¹¹ After the contest, the kitchen was very messy.



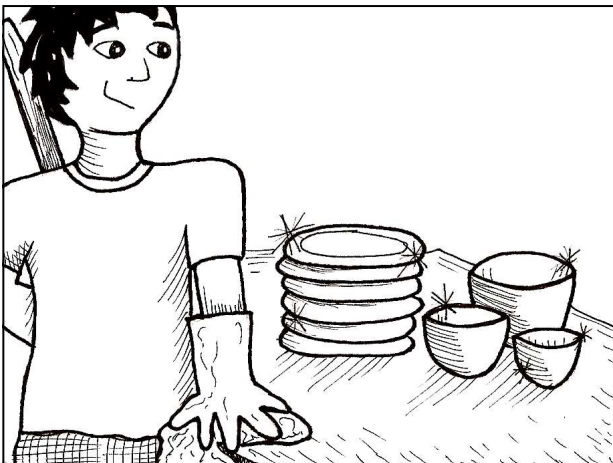
¹² "I bet I can clean faster than you can!"



13 "No, I can clean the fastest!"



14 So they started cleaning.



15 Her husband cleaned six plates and three bowls.



16 He even swept the floor!



17 Lan only cleaned two plates.



18 She didn't even get all the dirt off!



19 "I win! I baked more than you and cleaned more than you!"



20 "Yeah... but now I have a lot of pies and a clean kitchen!"

Karaoke



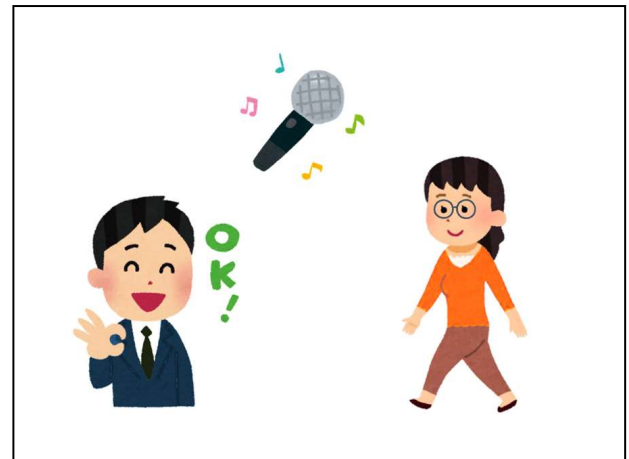
¹ Minh's two little sisters want to come with him to Karaoke tonight.



² The older little sister Châu is already 18 year old.



³ The younger little sister Kim is only 10 year old.



⁴ Minh says: Châu, you can come with me.



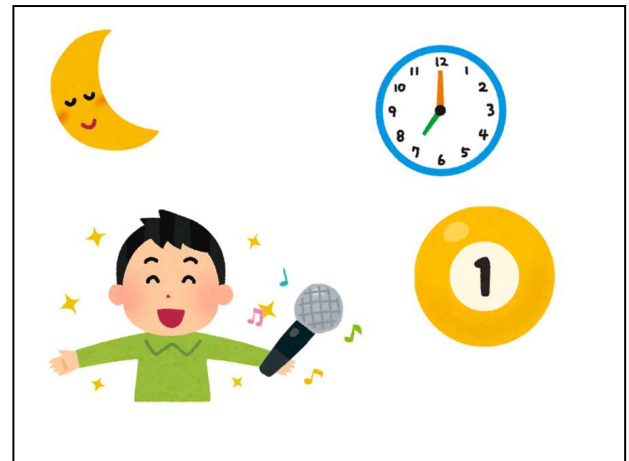
⁵ Kim, you cannot. You are only a child!



⁶ Kim is sad, but she does not cry. She only watches her older brother and sister walk out.



⁷ They arrive at the Karaoke. Minh's friend Phong is already there.



⁸ Phong says: We only have one hour.



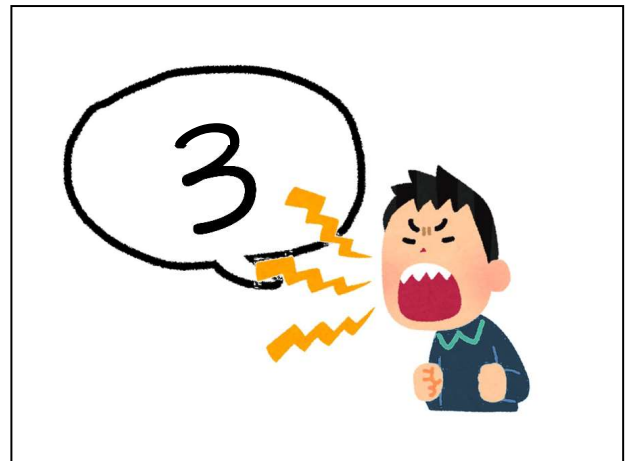
⁹ Minh, you can only sing three songs!



¹⁰ Châu, you also can only sing three songs!



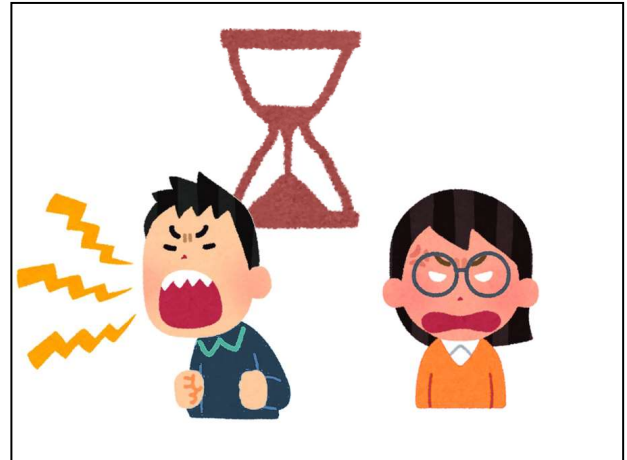
¹¹ However, Phong himself sang ten songs.



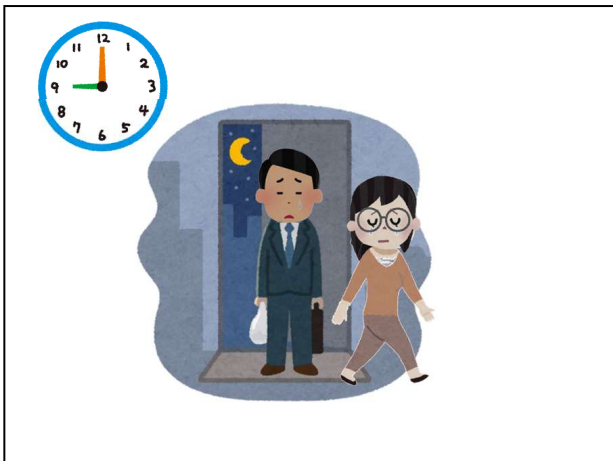
¹² Minh says: You did not only sing three!



¹³ Phong says: I never said I cannot sing more than three songs!



¹⁴ Minh and Châu are very angry, but the time is already up.

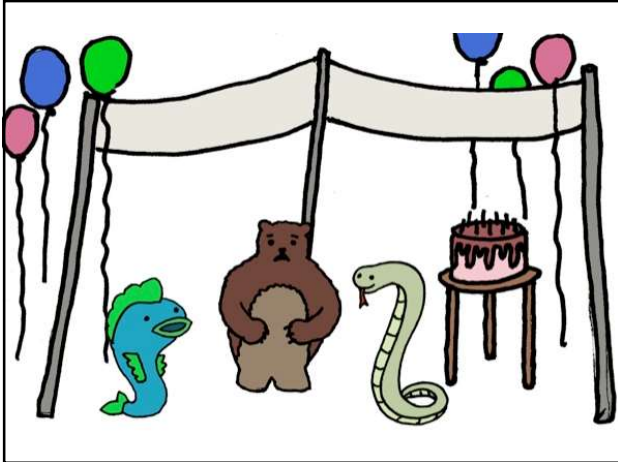


¹⁵ Minh and Châu return home sadly.

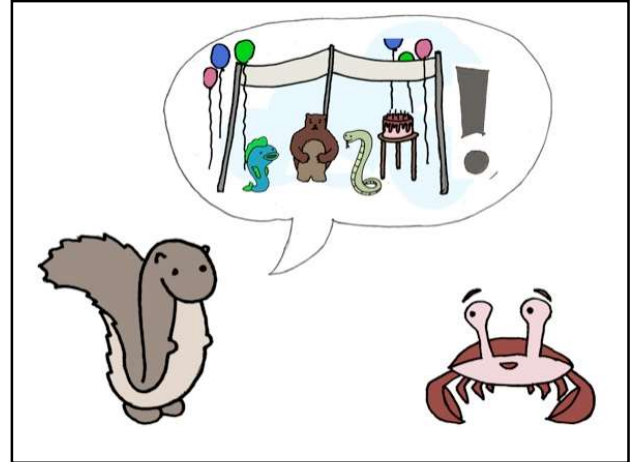


¹⁶ Guess what? Kim is using the TV as a karaoke to sing!

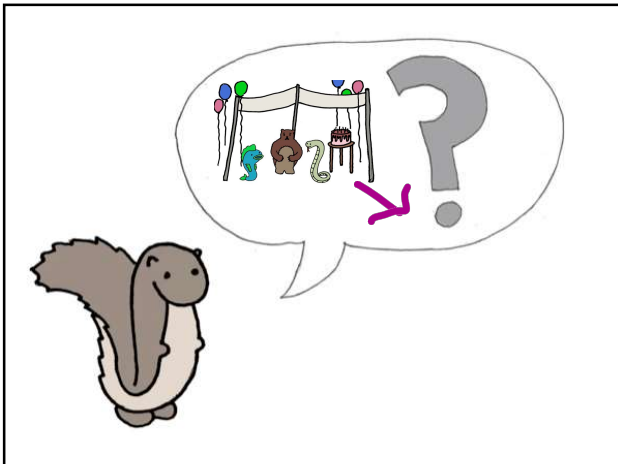
Animal Party



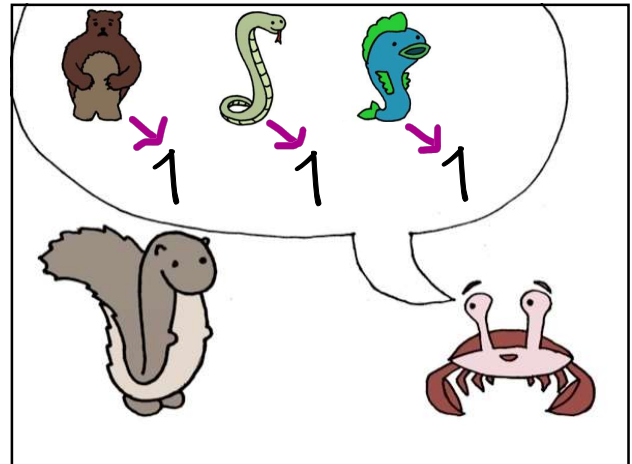
¹ Yesterday, Fish, Bear, and Snake threw a party.



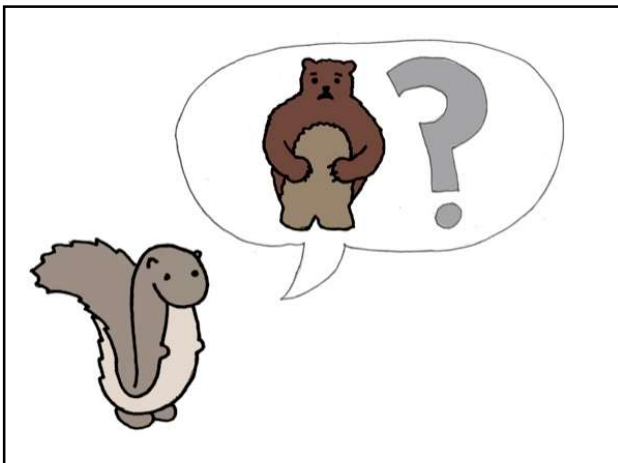
² Squirrel says: "What a great party!"



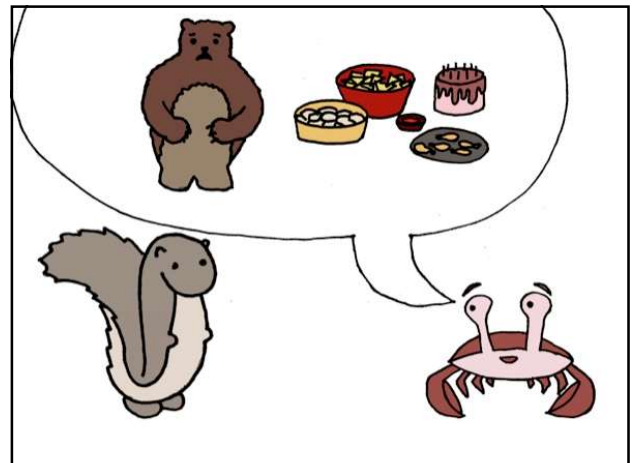
³ Squirrel asks: "What did everyone bring to the party?"



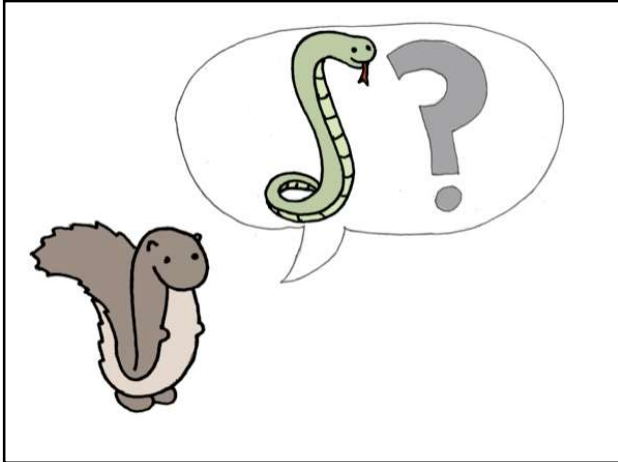
⁴ Crab answers: "Everyone only brought one kind of thing. We did not overlap."



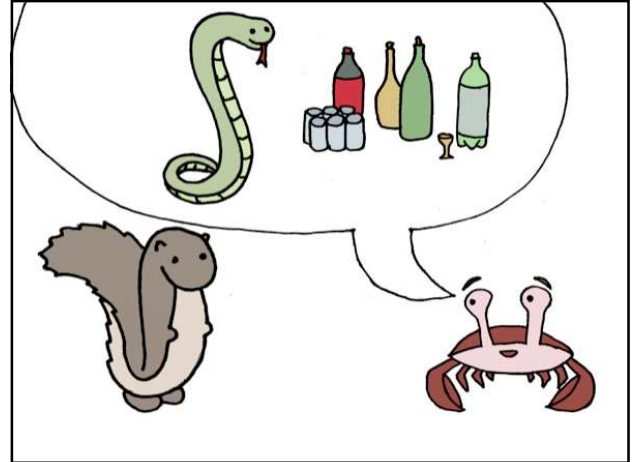
⁵ Squirrel asks: "Bear only brought what?"



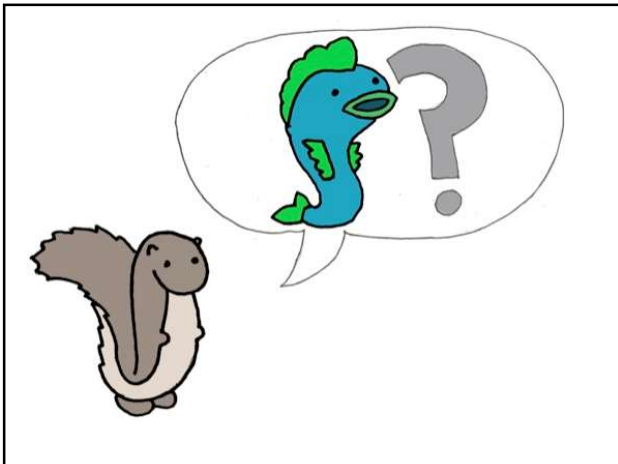
⁶ Crab answers: "Bear only brought the food."



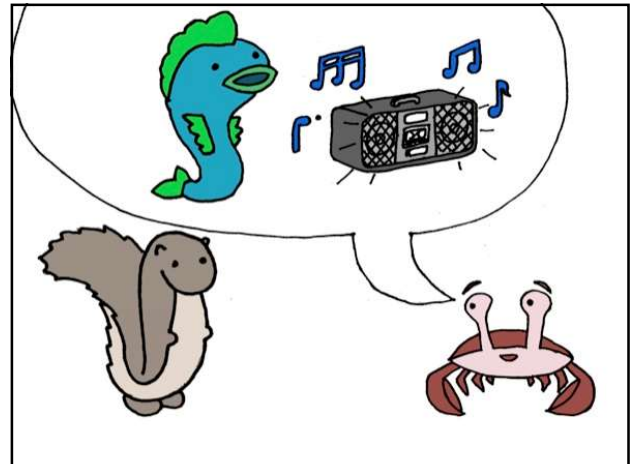
7 Squirrel asks: "Snake only brought what?"



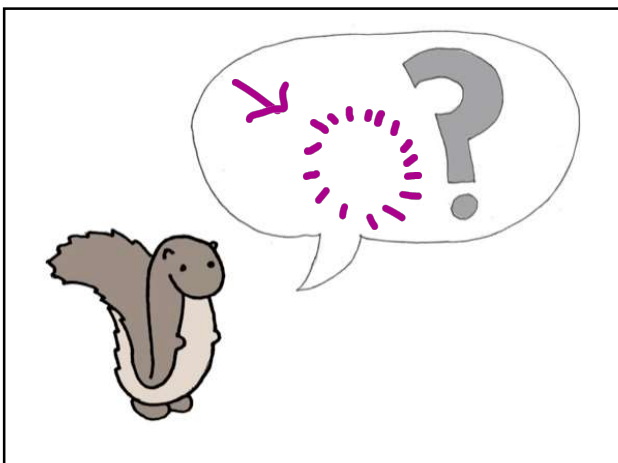
8 Crab answers: "Snake only brought the drink."



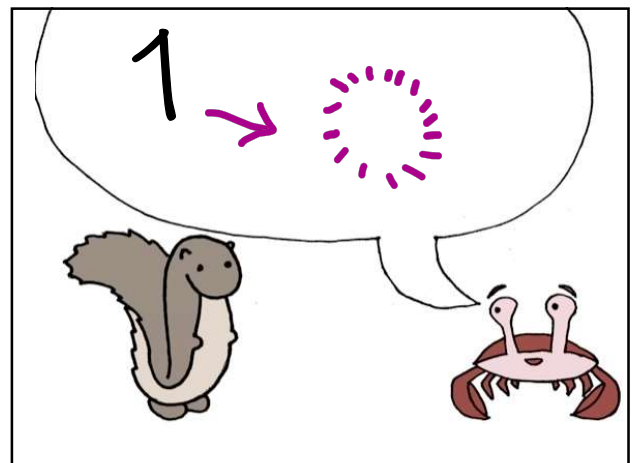
9 Squirrel asks: "Fish only brought what?"



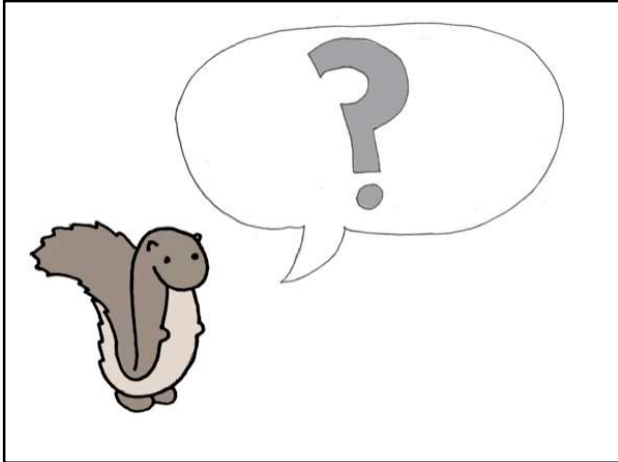
10 Crab answers: "Fish only brought the music."



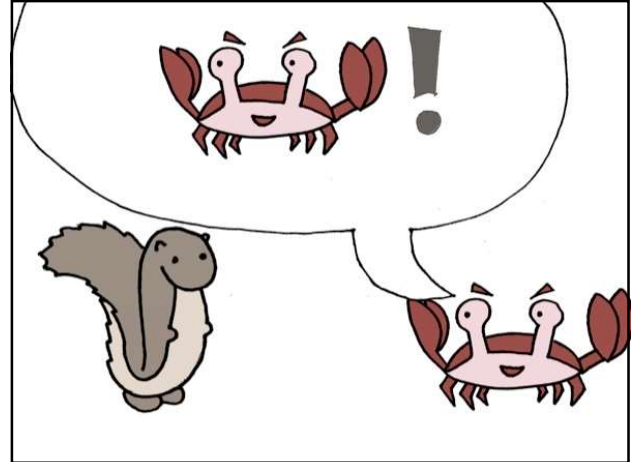
11 Squirrel asks: "Was there anyone brought nothing?"



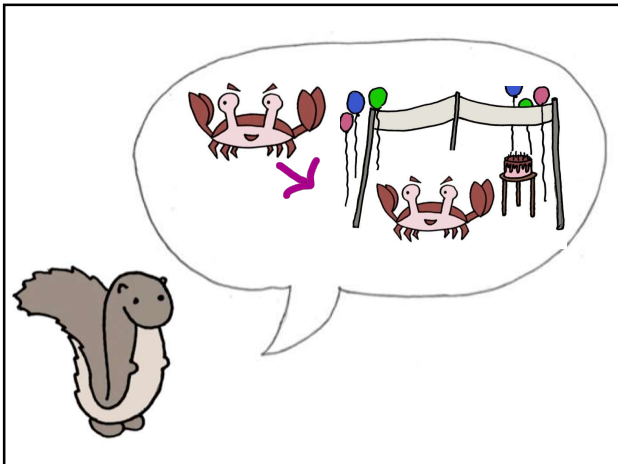
12 Crab answers: "Yes. There was only one such animal."



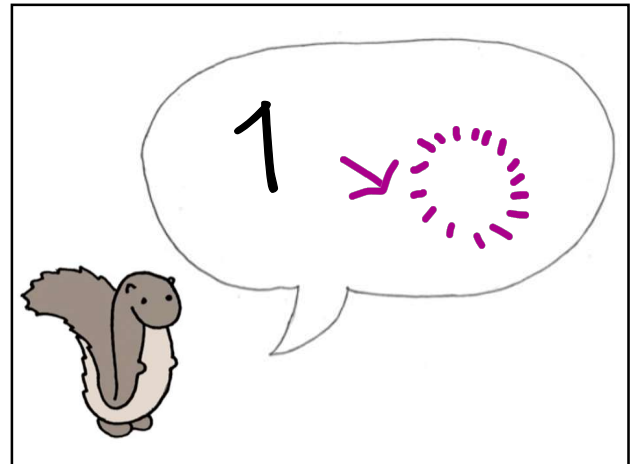
13 Squirrel asks: "Only who brought nothing?"



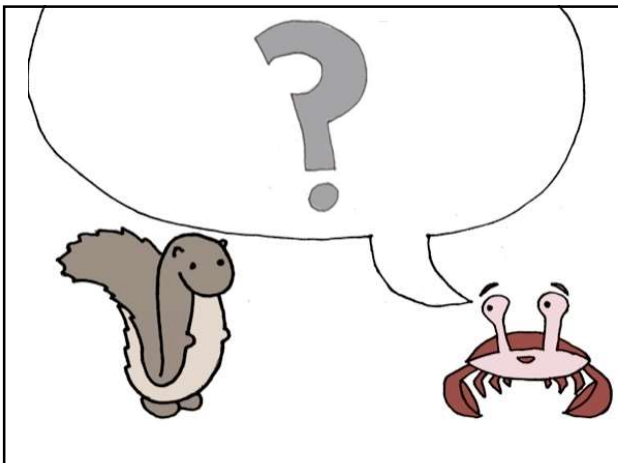
14 Crab answers: "Only me! Haha!"



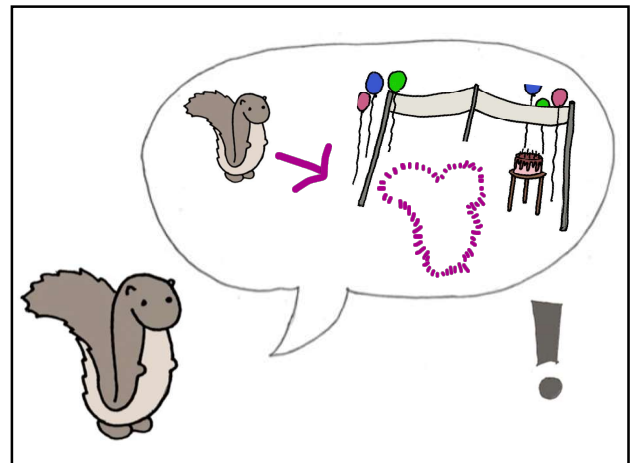
15 Squirrel says: "Actually, you at least brought yourself."



16 Squirrel says: "I know someone who really did not bring anything."



17 Crab asks: "Who?"



18 Squirrel answers: "Me! I did not even bring myself to the party!"