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No Matter Whether You Ask: Yes-No Questions and Their Kin in Mandarin



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# No Matter Whether You Ask:
# Yes-No Questions and Their Kin in Mandarin

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Doctor of Philosophy in Linguistics

by

Zhuo Chen

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ABSTRACT OF THE DISSERTATION

No Matter Whether You Ask:
Yes-no Questions and Their Kin in Mandarin

by

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Doctor of Philosophy in Linguistics
University of California, Los Angeles, 2022
Professor William Harold Torrence Jr., Chair

This dissertation describes and analyzes the syntactic properties of three inter-related structures in both standard and non-standard varieties of Mandarin: yes-no question, unconditional adverbial clauses, and verb echo answers to yes-no questions.

All human languages have ways to ask a yes-no question, but cross-linguistically they differ from each other in the exact strategies used. I systematically look at a type of sentence-internal question particle that is only used in forming yes-no questions in Jianghuai Mandarin, providing cross-linguistic evidence for Bhatt & Dayal's (2020) proposal about the existence of a class of dedicated yes-no question particles in human languages. I further compare three types of yes-no questions formed with a sentence-internal question particle *ha/a* or/and an A-not-A string in two

mutually intelligible varieties of Jianghuai Mandarin spoken in Wuhu and Nanjing. The distributional differences between *ha/a* and A-not-A string are understandable if they are within two separate functional projections, QuP and PolP respectively. Meanwhile, the parallel behaviors of all three types of yes-no questions are taken as evidence that they all share the same underlying structure that involve both QuP and PolP, and the variation in their surface forms is reduced to the lexicon. Building on Holmberg's (2016) analysis of yes-no questions, I argue that the syntax of yes-no questions in Jianghuai Mandarin not only involves a PolP headed by an open-valued polarity variable [±Pol], but a QuP headed by a dedicated yes-no question particle must also be present.

Furthermore, I discuss another structure where a yes-no question seems to be allowed, unconditional adverbial clauses, which have not attracted much attention in the literature on Mandarin syntax Unlike the traditional assumption, I show that there exist two distinct types of unconditional adverbial clauses in Mandarin: Headed antecedents and bare antecedents consistently differ from each other in both their internal and external syntax. Regarding the internal syntax, bare antecedents involve an impoverished structure: They are TPs without a left periphery; whereas headed antecedents involve a full-fledged CP-domain. I argue that only headed but not bare antecedents involve an embedded interrogative. In terms of the external syntax, bare antecedents are base generated at Spec *dou*P within the consequent and then overtly move to their canonical pre-consequent position, hence they all fall under the category of central adverbial clauses. In contrast, the merger of headed antecedents is independent from *dou,* and hence they exhibit more flexibility in their attachment sites and varying degrees of integration with the

consequent. It is argued that they can realize as any of the three types of adverbial clauses: central adverbial clauses, peripheral adverbial clauses, and overarching speech-act modifiers, each of which show distinct properties in their external syntax (and internal syntax). This provides cross-linguistic evidence for the three-way division in adverbial clauses recently proposed by Frey (2020) and Badan & Haegeman (2022).

Neutral yes-no questions are typically answered by repeating the verb in the question (i.e. "verb echo answers" or VEA) in Mandarin, which is the third structure I investigate in this dissertation. Building on existing studies (Liu 2014, Simpson 2015, Holmberg 2016, Wei 2019, a.o.), I provide converging empirical evidence showing that VEAs must not only involve a base-generated verb or a VP, and there must be an underlying sentential structure. I show that Mandarin VEAs do not involve pro-drop and analyses involving pro-drop face two kinds of empirical challenges: Elements that cannot be pro-dropped are nevertheless omitted from VEAs; whereas elements that can be dropped still allow elements extracted from them to surface in VEAs. Meanwhile, I argue that a head movement approach cannot account for (i) variations in VEAs, especially various kinds of phrasal elements occurring in VEAs; and (ii) VEAs to embedded yes-no questions with matrix scope. I instead propose that Mandarin VEAs are derived through (remnant) PolP movement followed by TP ellipsis.

The dissertation of Zhuo Chen is approved.

Anoop K Mahajan

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For my father, who ignited my interest in languages

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ACKNOWLEDGEMENTS

Dissertating is a challenging task. Dissertating during a pandemic is doubly challenging. Dissertating during a pandemic while being separated from the committee by the Pacific Ocean is triply challenging. Dissertating during a pandemic while being separated from the committee by the Pacific Ocean and teaching three classes is, well, not something that I would wish upon anyone, unless, they are surrounded by a supporting cast like the one I have.

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## PUBLICATIONS

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Chen, Z., & Lehman, B. (2021). An argument analysis of cognate objects in Dschang (Yemba). *Proceedings of the Linguistic Society of America*, *6*(1), 913-926.

# Chapter 1 Introduction

## 1.1 Overview of the dissertation

In this dissertation, I describe and analyze the syntactic properties of three inter-related structures in both standard and non-standard varieties of Mandarin: yes-no questions, unconditional adverbial clauses, and answers to yes-no questions.

All human languages have ways to ask a yes-no question, but cross-linguistic variations are found regarding the exact strategies used in different languages. For instance, English yes-no questions are typically formed with "subject-auxiliary inversion", where the auxiliary/modal verb moves to the beginning of a clause in yes-no questions:

(1) a. John **has** eaten durians.
b. **Has** John eaten durians?

Meanwhile, in languages like Hindi-Urdu, a particular question particle *kay:* is used. The presence of *kya:* changes a declarative into a yes-no interrogative, whereas no word order change is needed:

(2) [Hindi-Urdu]
a. anu=ne uma=ko kita:b di:
Anu.ERG Uma=ACC book.F give.PFV.F
'Anu gave a/the book to Uma'.

b. **kya:** anu=ne uma=ko kita:b di:
Q Anu.ERG Uma=ACC book.F give.PFV.F
'Did Anu give a/the book to Uma?' (Bhatt & Dayal 2020: 3)

Furthermore, a combination of both is also found in languages like Finnish, where a question particle *ko/kö* is used, while overt movement is observed as well, indicated by the change of the surface position of the verb:

(3) [Finnish]
a. Minä **pidän** tästä kirjasta.
I like this.ABL book.ABL
'I like this book.'

b. **Pidät-kö** sinä tästä kirjasta?
like-KO you this.ABL book.ABL
'Do you like this book?' (Holmberg 2016: 28)

In the Wuhu dialect of Jianghuai Mandarin, like its Standard Mandarin counterpart, a yes-no question can be formed by an A-not-A string, which involves reduplicating the predicate and having a negation intervening between the reduplicant and the base:

(4) a. Zangsen tieʔ zuoʔqiu.
Z. kick soccer
'Zhangsan plays soccer.'

b. Zangsen **tieʔ-peʔ-tieʔ** zuoʔqiuʔ
Z. kick-NEG-kick soccer
'Does Zhangsan play soccer?'

Interestingly, beyond A-not-A questions like (4b), speakers of Wuhu Mandarin more canonically use a sentence-internal *ha* question particle to form yes-no questions:

(5) Zangsen **ha** tieʔ zuoʔqiuʔ
Z. Q kick soccer
'Does Zhangsan play soccer?'

In chapter 2 of this dissertation, I investigate the syntax of yes-no questions formed with an A-not-A string like (4b) and yes-no questions formed with a sentence-internal particle *ha* like (5). I argue that underlyingly they involve identical syntactic structures.

Meanwhile, in addition to yes-no questions, A-not-A string and yes-no question particle *ha* are also found in unconditional adverbial clauses, the syntax of which has not been well studied:

(6) a. peʔgun Zangsen **ha** tieʔ zuoʔqiu, Lisi dou zi da lanqiu.
no matter Z. Q kick soccer L. DOU only play basketball
'No matter whether Zhangsan plays soccer, Lisi only plays basketball.'

b. peʔgun Zangsen **tieʔ-peʔ-tieʔ** zuoʔqiu, Lisi dou zi da lanqiu.
no matter Z. kick-NEG-kick soccer L. DOU only play basketball
'No matter whether Zhangsan plays soccer, Lisi only plays basketball.'

In chapter 3, I identify and investigate two distinct types of unconditional adverbial clauses, and argue that they differ from each other in both the derivational history within the unconditional adverbial clauses (i.e. the internal syntax), and the interactions between the adverbial clause and the main clause (i.e. the external syntax).

Furthermore, both A-not-A questions like (4b) and *ha* questions like (5) are answered by echoing the verb ("verb echo answer") in the question:

(7) **tieʔ** /peʔ **tieʔ**
kick NEG kick
'Yes (lit. kick) /No (lit. not kick).'

In chapter 4, I describe and analyze verb echo answers to yes-no questions like (7), and propose that they involve an underlying full sentential structure. After evaluating alternative analyses, I propose that the echoed answers are derived through (remnant) phrasal movement followed by TP ellipsis.

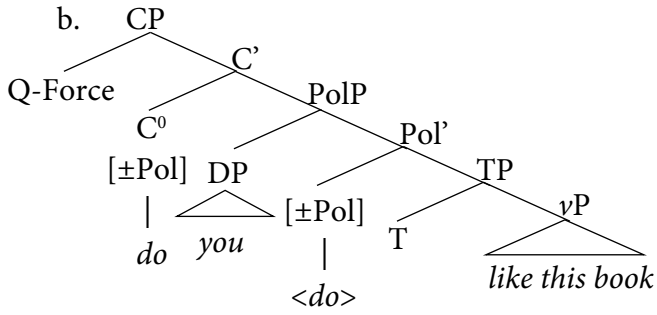
The rest of this chapter is organized as follows. Section 1.2 gives a brief introduction of the theoretical background regarding yes-no question particles, yes-no questions and their answers. In section 1.3, I introduce the background of two non-standard varieties of Mandarin where most of the comparative data in this dissertation come from. Overviews of my proposals of yes-no questions, unconditional adverbial clauses, and verb echo answers are laid out in sections 1.4, 1.5, and 1.6 respectively.

## 1.2 Theoretical background

Assuming a Hamblin/Karttunen approach to questions semantics (Hamblin 1973, Karttunen 1977), Holmberg (2016) argues that a yes-no question denotes a disjunctive set of alternative propositions, a proposition *p* and its negation ¬*p*. The disjunction is either transparently encoded as Mandarin *haishi* questions, or realized as a syntactic element, i.e. a polarity variable with open value ([±Pol]), which is the head of a TP-internal functional projection PolP in the syntactic representation of yes-no questions with various surface forms. For instance, the A-not-A string in Mandarin and the question particle *ko/kö* in Finnish are proposed to be an overt spell-out of [±Pol]. In the derivation of a yes-no question, [±Pol] is assumed to undergo movement to the C-domain so the disjunction can have sentential scope. The movement is overt in languages like Finnish and English, and it is covert in Mandarin and Thai. In addition, a Q-Force in the left periphery is claimed to be responsible for the interrogative interpretation. Take an English yes-no question like (8a) as an example, Holmberg assume (8b) as its underlying derivation:

(8) a. Do you like this book?

b.




(Holmberg 2016: 34)

Meanwhile, Bhatt & Dayal (2020) argue that Hindi-Urdu *kya:* exemplifies a particular set of lexical items in certain human languages, i.e. dedicated polar question particles ("PQPs"). They are distinct from well-established (regular) interrogative particles like Japanese *-ka*, which occur in both polar questions and *wh*-questions (cf. Hagstrom 1999, Ginsburg 2008). Although Bhatt & Dayal (2020) and Holmberg (2016) share the same analytical intuition that the surface position of these yes-no question particles is the C-domain, Bhatt & Dayal (2020) differ from Holmberg's analysis of Finnish *ko/kö* by assuming that Hindi-Urdu *kya:* is an element within ForceP.

In this dissertation, I address several interrelated questions concerning the syntax of yes-no question particles and/or yes-no questions against the backdrop of Holmberg (2016) and Bhatt & Dayal (2020):

i. How do dedicated yes-no question particles behave in yes-no questions cross-linguistically?

ii. Can existing analyses of yes-no question particles be straightforwardly extended to languages like Wuhu and/or Nanjing Mandarin? And if not, how should we analyze them and how does that tell us about the syntax of yes-no questions in general?

iii. Do yes-no question particles ever occur in structures other than yes-no questions? If so, what does it tell us about the syntax of these "question" particles and these structures?

iv. How does answering these questions inform us about the polarity variable [±Pol] and its behaviors within yes-no questions and other structures?

Meanwhile, Holmberg (2016) further argues that answers to yes-no questions involve an underlying full sentential structure that corresponds to one of the alternative propositions denoted by the yes-no question. It is claimed that a valued polarity variable is involved in answers to yes-no questions. Regarding the derivation of verb echo answers, three different strategies are proposed: (i) subject pro-drop combined with verb-stranding VP ellipsis (e.g., Mandarin); (ii) head movement of V followed by TP ellipsis (e.g., Finnish); and (iii) (remnant) PolP movement followed by TP ellipsis (e.g., Thai). Therefore, regarding the syntax of verb echo answers in Mandarin, the following questions can be asked:

v. What are the properties of verb echo answers in Mandarin? Can any of these derivations be extended to (different varieties of) Mandarin and explain the observed properties of Mandarin verb echo answers? For instance, what is the role of valued polarity variable or PolP in deriving verb echo answers in Mandarin?

I answer these questions by investigating three types of superficially distinct yet underlyingly closely related syntactic constructions in Mandarin dialects: yes-no questions, echo answers to yes-no questions, and unconditional adverbial clauses. The data are mainly drawn from three mutually intelligible varieties of Mandarin: Standard Mandarin, Wuhu and Nanjing dialects of Jianghuai Mandarin.

To varying degrees, all three constructions in Sinitic languages have been studied within the generative framework. Various forms of yes-no questions, especially A-not-A questions, in Sinitic

languages have been investigated (Huang 1982, 1991, Ernst 1994, Cole & Lee 1997, Wu 1997, Schaffar 2000, Gasde 2004, Jin 2021, a.o.). Answers to yes-no questions in Mandarin Chinese have also attracted some attention in recent work, where different approaches to derivational relations between yes-no questions and their answers have been proposed (Liu 2014, Simpson 2015, Holmberg 2016, and Wei 2019). The relation between A-not-A questions and unconditionals has been briefly discussed as well (Lin 1996). However, neither the empirical domain of these constructions has been systematically investigated, nor the exact nature that all three constructions share in common has been fully understood.

This dissertation addresses these questions based on the assumption that the aforementioned three constructions form a natural class by all involving the polarity variable in their syntactic representation and derivation. Across these constructions, evidence will be provided for the existence of a functional projection, a polarity phrase (PolP) headed by the polarity variable. I will further argue that the polarity variable itself does not undergo movement in Mandarin, and externally merging a [±Pol] alone does not necessarily turn the clause into an interrogative, contrary to what is proposed in Holmberg (2016). As I show, answering these questions not only furthers our understanding of the polarity variable, but also provides more explanatory analyses for these structures by looking at different theoretical issues beyond the polarity variable itself, e.g., the truncation vs. intervention approach to main clause phenomena, the typology of adverbial clauses, the distinction between pro-drop and ellipsis in Mandarin, and the existence/absence of V head movement in Mandarin, etc.

## 1.3 Wuhu and Nanjing Mandarin

The city of Wuhu is located in southeastern Anhui province in east China, approximately 180 miles west of Shanghai. More than 1.6 million people live in the metro area of Wuhu (2020 census). The Wuhu Mandarin is the primary language for daily use among the local population. Nanjing is the capital of Jiangsu Province, which borders Anhui Province on the east. It is about 50 miles north of Wuhu. Almost 10 million people live in the metro area of Nanjing (2020 census). Nanjing Mandarin is spoken in most parts of Nanjing. In traditional Chinese dialectology, both Wuhu and Nanjing Mandarin are categorized as varieties of Jianghuai Mandarin (Wurm et al. 1987). Speakers of Wuhu and Nanjing Mandarin find these two dialects mutually intelligible. The map below illustrates the geographic locations of three cities, Wuhu, Nanjing, and Shanghai, in the lower Yangtze River area.

I myself is a native speaker of Wuhu Mandarin. Therefore, data from Wuhu Mandarin were mostly generated by myself, and checked by four other native speakers: Xiuping Chen, Chen Cui, Chen Huang, Lin Sun. Reported judgements on Nanjing Mandarin data were verified by two native speakers, Wenting Tang and Lin Sun.

In this dissertation, various kinds of empirical arguments are based on data from these two non-standard varieties of Mandarin. As I show, especially concerning the syntax of yes-no questions, comparative data from these understudied varieties of Mandarin (e.g., the existence of sentence-internal question particles like *ha/a* in Wuhu and Nanjing Mandarin, the co-occurrence of *a* and A-not-A string in Nanjing Mandarin, and the (in)compatibility between *ha/a* and different kinds of unconditional adverbial clauses in Wuhu and Nanjing Mandarin, etc.) provide crucial evidence for my proposal, which cannot be straightforwardly motivated if we only look at data from Standard Mandarin.

### 1.4 *ha/a* questions in Jianghuai Mandarin

In chapter 2, I describe and analyze dedicated yes-no questions particles and different types of yes-no questions in two mutually intelligible dialects of Jianghuai Mandarin: Wuhu and Nanjing Mandarin.

Three types of yes-no questions with distinct surface forms are examined, including A-not-A questions (9b), sentence-internal Q-particle questions (9c) (pronounced as *ha* in Wuhu Mandarin and *a* in Nanjing Mandarin), and Q+A-not-A questions in Naning Mandarin (9d).

(9) a. Zangsen qieʔ-guo liulin.
Z. eat-EXP durian
'Zhangsan ate durians.'

b. Zangsen **qieʔ-mei-qieʔ-guo** liulin?
Z. eat-NEG-eat-EXP durian
'Did Zhangsan eat durians?'

c. Zangsen **ha/a** qieʔ-guo liulin?
Z. Q eat-EXP durian
'Did Zhangsan eat durians?'

d. Zangsen **a qieʔ-mei-qieʔ-guo** liulin?
Z. Q eat- NEG-eat-EXP durian
'Did Zhangsan eat durians?'

All questions in (9b-9d) are neutral yes-no questions and require the same type of answers by echoing the main verb (together with the aspectual suffix, if there is any):

(10) a. **qieʔ-guo** /mei **qieʔ-guo**
eat-EXP NEG eat-EXP
'Yes (lit. ate)/No (lit. not ate).'

b.*dei /*peʔ dei
correct NEG correct
Intended 'Yes./No.'

Thus, in terms of the interpretation, they can be seen as all denoting the same Rooth-Hamblin set of alternatives consisting of a proposition and its negation:

(11) {*Zhangsan ate durians*, ¬*Zhangsan ate durians*}

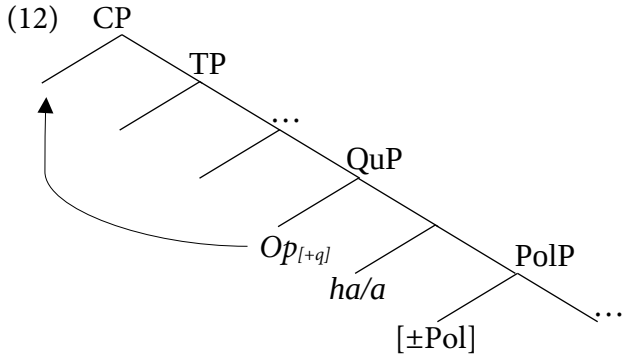
Following Holmberg's (2016) cross-linguistic study of yes-no questions, given the fact yes-no questions in (9b-9d) are all neutral yes-no questions that can be answered in the same way, I assume that they share a polarity phrase in their underlying syntactic representations. The head of PolP is a polarity variable with an open value ([±Pol]), which introduces a disjunction of alternative

propositions. Extending Holmberg's (2016) of Standard Mandarin A-not-A questions to Wuhu and Nanjing Mandarin, the A-not-A string can be straightforwardly analyzed the spell-out of [±Pol] in (9b) and (9d).

Nevertheless, I show that Holmberg's analysis of Finnish question particle *-ko/-kö*, which treats *-ko/-kö* as the spell-out of [±Pol], cannot be extended to *a/ha* in Mandarin dialects. In particular, these question particles behave quite differently from the A-not-A string, unexpected under analyses that treat them as spell-outs of the same syntactic head [±Pol].

Instead, inspired by Cole & Lee's (1997) analysis of Teochew yes-no questions and Cable's (2010) analysis of question particles in *wh*-questions, I propose that there is also a clause-internal functional projection, a question phrase QuP in yes-no questions, and question particles, *ha/a*, are the overt realizations of the QuP head. I further argue that A-not-A questions, *ha/a* questions and *a* + A-not-A questions all share an identical underlying structure which crucially involve two distinct functional projections: a QuP and a PolP.

(12)




Under this analysis, one obvious question immediately arises is how to explain the superficial differences among the yes-no questions in (9b-9d). I then argue that the differences among A-not-

A questions, *ha/a* questions and *a* +A-not-A questions can be explained by assuming that both Qu head and [±Pol] have two allomorphs in the lexicon: Qu head can be either an overt question particle *ha/a* or a null morpheme, and similarly, [±Pol] has either an overt spell-out as the A-not-A string or an unpronounced counterpart. Thus, in A-not-A questions, a null Qu head is externally merged whereas the [±Pol] is spelled-out. The situation is reversed in *ha/a* questions: a null [±Pol] and an overt Qu head are externally merged. Finally, both [±Pol] and Qu head are spelled-out in *a* + A-not-A questions.

One property of Standard Mandarin A-not-A questions that has been well established in the literature is its island-sensitivity (Huang 1991 a.o.), illustrated in (13):

(13) * Zhangsan xihuan [$_{RC}$ **chi-mei-chi-guo** liulian] de ren?
Z. like eat-NEG-eat-EXP durian DE people
Intended 'Does Zhangsan like people who eat durians or people who don't?'

To account for this, following Cole & Lee's (1997) analysis of island-sensitivity of yes-no questions formed with clause-internal question particle *ka* in Teochew, I also propose that a Q-operator (Op) base generated at the specifier position of the clause-internal QuP moves to the left periphery. This movement shows properties of canonical A-bar dependency: It is unbounded but is sensitive to syntactic islands.

Given (12), my proposal that both QuP and PolP are involved in yes-no questions in (9b-9d) would predict that, *ha/a* questions and *a*+ A-not-A questions should all exhibit island-sensitivity as they all involve a QuP and hence movement of a question operator. This is indeed what I found:

They are consistently ruled out in various kinds of syntactic islands, e.g., relative clauses as shown below.

(13) a.* Zangsen honxi [$_{RC}$ **ha/a** qieʔ-guo liulin] di ren?
Z. like Q eat-EXP durian DE people
Intended 'Does Zhangsan like people who eat durians or people who don't?'

b.* Zangsen honxi [$_{RC}$ **a** **qieʔ-mei-qieʔ-guo** liulin] di ren?
Z. like Q eat- NEG-eat-EXP durian DE people
Intended 'Does Zhangsan like people who eat durians or people who don't?

## 1.5 Unconditional adverbial clauses in Mandarin

In chapter 4, I discuss an understudied structure which is also compatible with yes-no question particles *ha/a* and/or (*a* +) A-not-A string: unconditional adverbial clauses, as illustrated below in Standard Mandarin (14a) and Jianghuai Mandarin (14b-d):

(14) a. (buguan) Zhangsan **chi-bu-chi** liulian, Lisi dou zhi chi lizhi.
no matter Z. eat-NEG-eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

b. (peʔgun) Zangsen **qieʔ-peʔ-qieʔ** liulin, Lisi dou zi qie lizi.
no matter Z. eat- NEG-eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

c. peʔgun Zangsen **ha/a** qie liulin, Lisi dou zi qie lizi.
no matter Z. Q eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

d. peʔgun Zangsen **a** **qieʔ-peʔ-qieʔ** liulin, Lisi dou zi qie lizi.
no matter Z. Q eat- NEG-eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

The relation between questions and unconditionals has been cross-linguistically attested (Haspelmath & König 1998, Rawlins 2008a, b, Bailey 2013, a.o.). Such relation has also been found

in Mandarin (Lin 1996). More specifically, it has been noticed that, in addition to questions, an A-not-A string can also occur within unconditionals: Lin (1996) is one of the few studies that look at unconditionals in Mandarin, in which several empirical generalizations and analytical proposals have been made. However, as I show, some of them face empirical challenges.

Following the tradition in the study of conditionals, I use the term "antecedent" to refer the unconditional adjunct, and "consequent" for the main clause. It is observed that unconditional adverbial clauses in Mandarin may optionally involve a clause-initial *wulun/buguan* 'no matter' in the antecedent (14a-b), which further leads to the proposal that *wulun/buguan* has been elided in cases where there is no overt *wulun/buguan.* Adopting the terminology in Lin (1996) and Rawlins (2008a), I refer to unconditionals with *buguan/wulun* as "headed unconditionals", and those without *buguan/wulun* as "bare unconditionals". Meanwhile, it has been proposed that Mandarin unconditionals also involve an obligatory *dou* 'all' in the consequent clause. For instance, all examples in (14) would be ungrammatical if *dou* does not occur.

Nevertheless, a closer look at the empirical picture suggests that Lin's generalizations should be revised. For instance, *dou* is not always obligatory: The presence of modal adverbs like *yiding* 'definitely' or *kending* 'certainly' within the consequent makes it optional, and this optionality turns out to correlate with the presence/absence of *buguan/wulun*. More specifically, when there is an overt *buguan/wulun* in the antecedent, *dou* in the consequent becomes optional (15a); whereas it is obligatory when there is a bare antecedent (15b). In other words, *dou* is only optional in headed but not bare antecedents.

(15) a. HEADED UNCONDITIONALS: (*dou*)
**buguan** mingtian xia-bu-xiayu,
no matter tomorrow rain-NEG-rain
Zhangsan yiding (**dou**) hui zhunshi chuxian.
Z. definitely DOU will on.time show.up
'No matter whether it rains tomorrow, Zhangsan definitely will show up on time.'

b. BARE UNCONDITIONALS: *(*dou*)
mingtian xia-bu-xiayu, Zhangsan yiding */??(**dou**) hui zhunshi chuxian.
tomorrow rain-NEG-rain Z. definitely DOU will on.time show.up

The correlation between the headed/bare unconditionals and the obligatoriness of *dou* is schematized in (16): In unconditionals, bare antecedents must co-occur with a consequent involving *dou*, whereas headed antecedents does not require the presence of *dou* in the consequent.

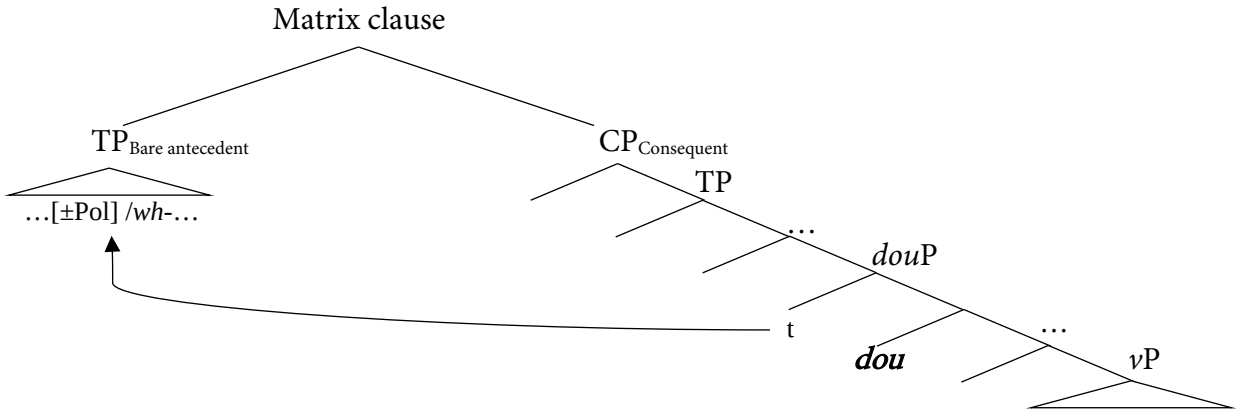
(16) a. HEADED UNCONDITIONALS
[$_{\text{ANTECEDENT}}$ ***buguan/wulun*** …A-not-A/*wh*…], [$_{\text{CONSEQUENT}}$ … (***dou***) …]

b. BARE UNCONDITIONALS
[$_{\text{ANTECEDENT}}$ …A-not-A/*wh*…], [$_{\text{CONSEQUENT}}$ … *(***dou***) …]

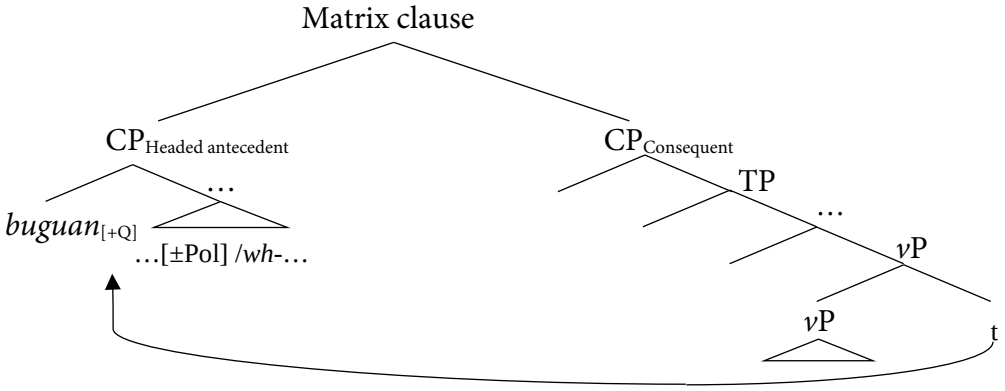
Furthermore, a systematic comparison between headed and bare unconditional antecedents demonstrates that these two types of adverbial clauses differ from each other in both their internal and external syntax. Regarding their internal syntax, I show that although both involve variables like [±Pol] or *wh*-element, only headed antecedents but not bare antecedents involve CPs with (i) a full-fledged left periphery and (ii) a [+q] $C^0$. Regarding their external syntax, I propose that bare antecedents are closely integrated into the consequent and fall under the category of "central adverbial clause (CAC)" (cf. terminology in Haegeman 1991; 2003; 2006a; b; 2010a; b; 2012): They are externally merged at Spec *dou*P above *v*P within the consequent, and move to the canonical pre-consequent sentence-initial position (17a). In contrast, headed antecedents are independent

from *dou* and allow more flexibility in their external syntax: They may behave like CACs, and when they do, they have a lower merge site compared to bare antecedents before moving to the derived pre-consequent position (17b).

(17) a. The syntax of CAC bare antecedents




b. The syntax of CAC headed antecedents




Furthermore, headed antecedents can also behave like a "peripheral adverbial clause (PAC)" (18a) and a speech-act modifier and are directly merged in the surface pre-consequent position (18b) (à la Frey 2020, 2021; Badan & Haegeman 2022).

(18) a. buguan (xianzai) daodi gao-bu-gaoxing,
no matter now DAODI happy-NEG-happy
Zhangsan mingtian dou hui lai.
Z. tomorrow DOU will come
'No matter whether he is truly happy or not (now), Zhangsan will come tomorrow.'

b. [buguan ni yuan-bu-yuanyi ting shihua],
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotion DE
'No matter whether you want to hear the truth or not, the company will not give you a promotion.'

## 1.6 Verb echo answers to yes-no questions in Mandarin

In chapter 4, I turn to another structure that involves the polarity variable: answers to yes-no questions. Under Holmberg's (2016) analysis, answers to yes-no questions assign either a positive or a negative value to the polarity variable. The following examples illustrate that verb echo answers ("VEA") are consistently used to answer yes-no questions in standard (19) and non-standard (20) varieties of Mandarin:

(19) a. Q: Zhangsan **chi-bu-chi** liulian?
Z. eat-NEG-eat durian
'Does Zhangsan eat durians?'

b. A: **chi** /bu **chi**
eat NEG eat
'Yes./No.'

(20) a. Q: Zangsen ha/a **qieʔ** liulinʔ
Z. Q eat durian
'Does Zhangsan eat durians?'

b. A: **qieʔ** /peʔ **qieʔ**
eat NEG eat
'Yes./No.'

Building on Holmberg (2016), I first show that Mandarin VEAs must involve an underlying full sentential structure, supporting the analytical intuition share by previous studies (Liu 2014, Simpson 2015, Holmberg 2016, and Wei 2019). Evidence for the existence of a lower structure that is larger than a single verb can be found in the facts that (i) VEAs may involve a verb from a VO idiom; (ii) they may be a "reflexive verb" or a "reciprocal verb"; and (iii) an "adjunct-inclusive interpretation" is available for VEAs. Meanwhile, there is also evidence supporting the existence of middle clause structure in VEAs: (i) they obligatorily require a modal if there is one in the yes-no question; (ii) aspectual markers are also required in VEAs. Moreover, various arguments further point to the existence of high clause structure underlying VEAs: (i) different kinds of sentence-final particles are compatible with VEAs; (ii) sentential-level elements like speaker-oriented evaluative adverbs can occur in VEAs as well.

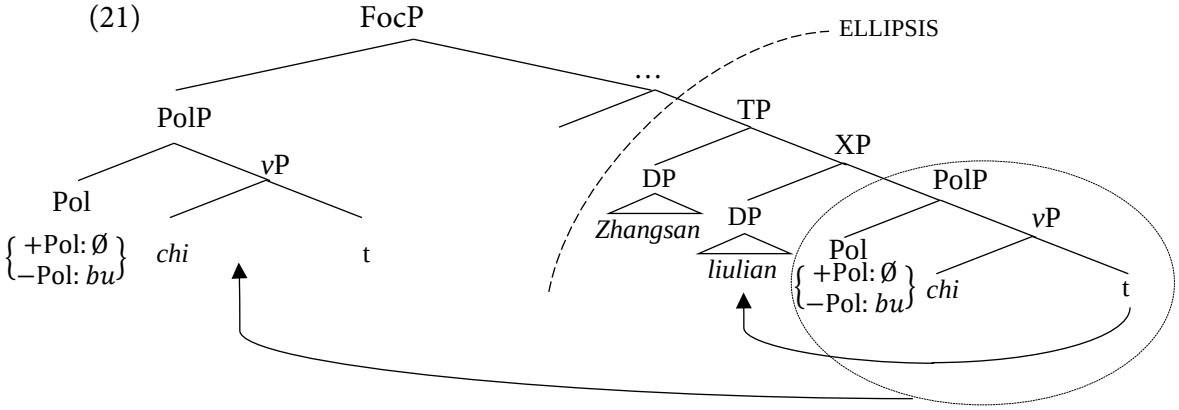
Regarding how the surface string in a VEA can be derived from the underlying full sentential structure, I first evaluate a few approaches. In particular, I argue that Mandarin VEAs cannot involve pro-drop. Two kinds of arguments are made to support my proposal. On the one hand, various elements that are not pro-droppable are nevertheless not required in VEAs. Hence, the omission of these elements from VEAs cannot be the result of pro-drop. On the other hand, pro-droppable subjects/objects allow extraction out of them. The presence of extracted elements within VEAs thus strongly argue against the analytical possibility that the unpronounced subjects/objects in VEAs have been pro-dropped.

Meanwhile, I also show that Mandarin VEAs cannot involve head movement. One reason to object a head movement approach is that certain echo answers are clearly of phrasal category.

Another argument concerns the Head Movement Constraint: Since various kinds of heads that are structurally higher than the echoed elements can be omitted, the derivation must not involve head movement.

Furthermore, based on scopal interactions between VEA and TP-internal quantificational elements, I argue that VEAs must be in a derived position scoping over the entire TP, which is the result of (remnant) movement of PolP. The missing object is explained by the assumption that object is moved to a position above PolP prior to PolP movement, whereas the missing subject is the result of TP ellipsis, evident in the restriction against voice mismatch between the yes-no question and the corresponding VEA. In addition, I show how my proposal can capture varying surface forms of VEAs to the same yes-no question. The structure in (21) schematizes my analysis of Mandarin VEAs like (19b):

(21)



# Chapter 2 Jianghuai Mandarin *ha/a* questions

Inspired by Holmberg's (2016) proposal that the syntactic representation of yes-no questions involves a functional projection Polarity Phrase (PolP) that is headed by a polarity variable with open value ([±Pol]), in this chapter I will be primarily concerned with yes-no questions in Jianghuai Mandarin, a non-standard variety of Mandarin. In particular, the data come from two mutually understandable dialects of Jianghuai Mandarin, spoken in Wuhu and Nanjing respectively.

In colloquial Wuhu Mandarin, the most productive form of yes-no questions involves a clause-internal questions particle *ha* that precedes the predicate (1b). Similar to Standard Mandarin, Wuhu Mandarin also has A-not-A questions (1c), where, descriptively speaking, the predicate undergoes partial or full reduplication and a negation intervenes between the base and the reduplicant, surfacing in the form of an "A-not-A" string.[1]

(1) a. Zangsen dong yuyixueʔ.[2]
Z. understand Semantics
'Zhangsan understands Semantics.'

[1] Following Huang (1991), Hagstrom (2017) assumes that an A-not-A string is morphologically a proclitic that reduplicates the (first) syllable of the immediately following lexical item that it attaches to, with a negation between the reduplicant and the base. Impressionistically, partial reduplication is more commonly attested with disyllabic verbs. For instance, *yinjiu* 'research' is a disyllabic verb and when it forms an A-not-A string, usually only the first syllable is reduplicated, but full reduplication is also found, similar to Standard Mandarin (cf. Hagstrom 2017):

Zangsen **yin(jiu)-pe-yinjiu** yuyixueʔ
Z. research-NEG-research Semantics
'Does Zhangsan research Semantics?'

[2] Unless otherwise specified, the data presented in this chapter are from Jianghuai Mandarin. The author is a native speaker of the Wuhu dialect of Jianghuai Mandarin and the data were generated by myself and verified by other native speakers of Wuhu Mandarin.

b. *ha* question
Zangsen **ha** dong yuyixue??
Z. Q understand Semantics
'Does Zhangsan understand Semantics?'

c. A-not-A question
Zangsen **dong-pe?-dong** yuyixue??
Z. understand-NEG-understand Semantics
'Does Zhangsan understand Semantics?'

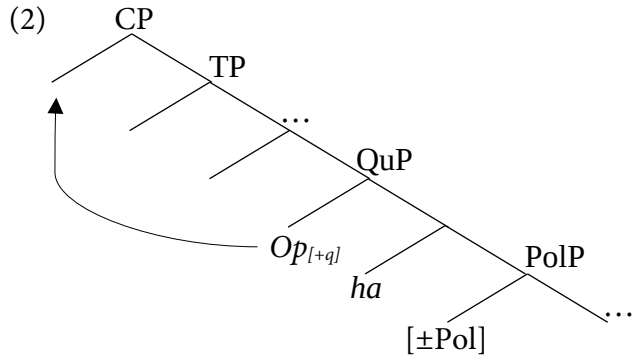
As illustrated in (1b), the preverbal position is the most canonical position of clause-internal question particle like *ha* in yes-no questions, and I will call them *ha* questions. Within the generative literature, various Mandarin dialects and Sinitic languages have been found to form yes-no questions using this kind of preverbal question particles, including *kam* in Taiwanese (Huang 1991), *ka* in Singapore Teochew (Cole & Lee 1997), *gə* in Kunming Mandarin (Schaffar 2000), *a?* in Suzhounese (Jin 2021), etc., which could be cognates of each other and share a common source *ke* in Classical Chinese (Zhu 1985, Zhang 1990, a.o.).

While much attention has been attracted to Standard Mandarin A-not-A questions, most previous studies only address yes-no questions formed with these clause-internal question particles for comparisons against A-not-A questions. No systematic work has been done on the distributional and/or interpretive properties of these clause-internal Q particle questions themselves. Meanwhile, it also remains to be answered how this type of questions can help us better understand the syntax of yes-no questions in general.

Building on Bailey (2013) and Holmberg (2016)'s work on yes-no question particles and the syntax of yes-no question, I propose that Jianghuai Mandarin yes-no questions syntactically involve three components, (i) a polarity phrase (PolP) headed by a polarity variable with open

value ([±Pol]), spelled-out by an A-not-A string; (ii) a TP-internal question phrase (QuP), headed by a clause-internal question particle like *ha*; and (iii) a Q-operator that is base-generated at Spec QuP and moves to the left periphery. The proposal is schematized in the tree structure in (2):

(2)




The rest of the paper is organized as following. Section 2.1 gives an overview of Holmberg's (2016) analysis of yes-no questions, which constitutes the analytical background of this chapter. Section 2.2 concerns the basic properties of *ha* and A-not-A questions in Wuhu Mandarin. Based on comparative data from Wuhu and Nanjing Mandarin, I lay out my arguments for (2) in the rest of this chapter: Section 2.3 is concerned with the surface position of *ha*, where I show that *ha* is TP-internal and is not in the left periphery. In section 2.4, showing that clause-internal question particles like *ha* is categorically distinct from the A-not-A string, I propose that *ha* heads a functional projection QuP that is different from PolP headed by the A-not-A string, and QuP is hierarchically higher than PolP. Section 2.5 discusses empirical observations regarding embedded yes-no questions, where I show their unbounded nature as well as locality conditions. A uniform analysis of yes-no questions in Jianghuai Mandarin is proposed in section 2.6. Section 2.7 concludes this chapter. In addition, an in-situ interpretation approach to the A-not-A string is discussed in the appendix.

## 2.1 Analytical background: Holmberg's (2016) analysis of yes-no question

Adopting the Hamblin/Karttunen approach to the semantics of questions (Hamblin 1973, Karttunen 1977), Holmberg (2016) assumes that a yes-no question semantically denotes a disjunction of alternative propositions, a proposition *p* and its negation ¬*p*. Syntactically, he argues that two components are involved in yes-no question formation: a polarity variable and a Q-Force. The polarity variable is claimed to be restricted to two values, positive and negative ([±Pol]), and it introduces the disjunction. The polarity variable is merged as the highest head within the TP and undergoes movement to the C-domain so the disjunction may have sentential scope. The Q-force feature takes the entire CP as its complement and derives the direct yes-no question interpretation: "Tell me the value of *x*, where *x* is [+ or - Pol]".

Under this approach, the A-not-A string in Standard Mandarin A-not-A questions is argued to straightforwardly encode the open-valued polarity variable [±Pol], and it covertly moves to the C-domain to get sentential scope (3b-c), as evident in the island-sensitivity of A-not-A questions (4); whereas an optional sentence-final particle *ne* is analyzed as the Q-force marker.[3]

(3) [Standard Mandarin]

a. ni **xi-bu-xihuan** zhe-ben shu (ne)?
2SG like-NEG-like this-CL book SFP
'Do you like this book?'

b. [$_{CP}$ $Q_{[A\text{-not-}A]}$ [$_{TP}$ *ni* $t_{[A\text{-not-}A]}$ [$_{VP}$ *xihuan zhe-ben shu*]]]

c. For which *x*, *x* is affirmative or negative, (you *x* like that book)

(Holmberg 2016: 25)

[3] Other examples include question particles that are only found in direct questions, including Standard Mandarin *ma* and Vietnamese *không* (cf. Bailey 2013), which are analyzed as morphological realizations of the Q-Force.

(4) * [ta **lai-bu-lai**] bijiao hao (ne)?
he come-NEG-come more good SFP
Intended reading: 'Is it better that s/he comes or that s/he doesn't?' (ibid. 23)

Meanwhile, Finnish clause-initial yes-no question particle *ko/kö* is also treated as overt realization of the open-valued polarity variable [±Pol]. It undergoes overt movement to the C-domain, pied-piping its host, i.e., the highest verb or auxiliary. The movement of [±Pol] in Finnish is illustrated in the variation of the surface positions of the verb in (5).

(5) [Finnish]
a. Minä pidän tästä kirjasta.
I like this.ABL book.ABL
'I like this book.'

b. Pidät-**kö** sinä tästä kirjasta?
like-KO you this.ABL book.ABL
'Do you like this book?' (Holmberg 2016: 28)

Furthermore, inspired by Laka (1994: 63-73), Holmberg (2016) points out that negative yes-no questions are "almost incontrovertible evidence" for the existence of the polarity variable as an independent syntactic element that is distinct from negation. For instance, the polar question particle *kö* co-occurs with negation *et* in a Finnish negative yes-no question in (6), showing that the presence of negation does not necessarily determine that a sentence has negative polarity. Instead, its polarity value could still be open as it is still interpreted as a direct yes-no question that needs to be answered by the addressee. Hence, Holmberg (2016) concludes that a functional projection PolP headed by a polarity variable is independent from NegP.

(6) [Finnish]
**Et-kö** sinä halua lukea tätä kirjaa?
NEG-KO you want read this book
'Don't you want to read this book?' (Holmberg 2016: 28)

## 2.2 Basic properties of yes-no questions in Wuhu Mandarin

With this analytic background in mind, in this section we can look at basic properties of yes-no questions in Wuhu Mandarin. As will be shown, *ha* questions and A-not-A questions behave similarly in many aspects.

As already seen in (1), a neutral yes-no question based on a statement like (7a) can be formed by either an A-not-A string (7b) or *ha* (7c), both of which must be responded by repeating the verb (i.e., "verb echo" or "echo" answer in Simpson 2015, Holmberg 2016) but not particle answers (7d-e):

(7) a. Zangsen qieʔ liulin.
Z. eat durian
'Zhangsan eat durians.'

b. A-not-A question
Q1: Zangsen **qieʔ-peʔ-qieʔ** liulinʔ
Z. eat-NEG-eat durian
'Does Zhangsan eat durians?'

c. *ha* question
Q2: Zangsen **ha** qie liulinʔ
Z. Q eat durian
'Does Zhangsan eat durians?'

d. Verb echo answer
A: qieʔ /peʔ qieʔ
eat NEG eat
'Yes (*lit*. eat). / No (*lit*. not eat).'

e. Particle answer
A: *dei /*peʔ qieʔ
correct NEG correct
Intended 'Yes. / No.'

Nevertheless, for native speakers of Wuhu, the most natural way to ask a yes-no question in colloquial conversations is to use the clause-internal particle *ha*. Another example of *ha* question with a non-habitual episodic predicate is given in (8b), which is minimally different from a declarative sentence (8a) by having *ha* in the preverbal position. In addition, it also requires verb-echo answers (8c).

(8) a. Zangsen qieʔ-guo liulin
Z. eat-EXP durian
'Zhangsan has eaten durians.'

b. Q: Zangsen **ha** qieʔ-guo liulin?
Z. Q eat-EXP durian
'Has Zhangsan eaten durians?'

c. A: qieʔ-guo /mei qieʔ-guo
eat-EXP NEG eat-EXP
'Yes (*lit*. eaten). / No (*lit*. not eaten).'

Wuhu Mandarin *ha* behaves differently from well-known question particles in other languages like Japanese *ka*, Sinhala *də*, or Tlingit *sá*, in that it is incompatible with either *wh*-adjunct (9a) or *wh*-argument questions, (9b-c), regardless of what the linear order between *ha* and the *wh*-element is.

(9) a. Zangsen (***ha**) {**weimeʔ /zenmeʔ /seʔmeʔ sihou**} (***ha**) qieʔ liulin?
Z. Q why how what time Q eat durian
'Why/how/when does Zhangsan eat durians?'

b. Zangsen (***ha**) qieʔ **seʔmeʔ**?
Z. Q eat what
'What does Zhangsan eat?'

c. **la-ge** (*ha) qie? liulin?
which-CL Q eat durian
'Who eats durians?'

However, this is by no means some peculiar property of Wuhu Mandarin *ha*. Bhatt & Dayal (2020) notices that Hindi-Urdu *kya:* is a dedicated "polar question particle" in that it only occurs in polar questions but not *wh*-questions (10). This property of *kya:* is proposed to be a necessary criterion for categorizing a lexical item as polar question particle cross-linguistically. Following their approach, I argue that Wuhu Mandarin *ha* is a type of dedicated yes-no question particle (also cf. Jin's (to appear) analysis of Suzhounese *a?*). [4]

(10) [Hindi-Urdu]
a. anu=ne uma=ko kita:b di:
Anu.ERG Uma=ACC book.F give.PFV.F
'Anu gave a/the book to Uma'.

b. **kya:** anu=ne uma=ko kita:b di:
Q Anu.ERG Uma=ACC book.F give.PFV.F
'Did Anu give a/the book to Uma?'

c.* **kya:** kis=ne uma=ko kita:b di:
Q who=ERG Uma=ACC book.F give.PFV.F
Intended: 'Who gave Uma a/the book?' (Bhatt & Dayal 2020: 3)

Another argument that *ha* is a question particle which is related to interrogativity comes from "*wh*-the-hell" questions in Mandarin, which are formed with an attitude adverb *daodi*. One particular property of *daodi* is that it must be licensed within interrogatives (Kuo 1996, Huang & Ochi 2004, Law 2008, Chou 2012, a.o.) and cannot occur in a declarative (11a). (11b) is minimally

[4] In Bhatt & Dayal's (2020) analysis, *kya:* is argued to be a C-domain element that is within ForceP. As will be seen in section 2.3, Wuhu Mandarin *ha* cannot be within the C-domain and must be in TP-internal.

distinct from (11a) by having the preverbal *ha*, the grammaticality of which suggests that it must be the presence of *ha* that is responsible for the interrogativity that licenses *daodi*. (11c) indicates that *daodi* is also compatible with an A-not-A string, like Standard Mandarin.

(11) a.* Zangsen **daodi** qieʔ liulin.
Z. truly eat durian
Intended 'Zhangsan truly eats durians.'

b. Zangsen **daodi** **ha** qieʔ liulin?
Z. truly Q eat durian
'Does Zhangsan truly eat durians?'

c. Zangsen **daodi** **qieʔ-peʔ-qieʔ** liulin?
Z. truly eat-NEG.-eat durian
'Does Zhangsan truly eat durians?'

The following example shows that a *ha* question can be embedded under matrix responsive (12a) and rogative (12b) predicates with an embedded question interpretation. The same holds for A-not-A questions (13).

(12) a. Lisi xiaodeʔ [Zangsen **ha** qieʔ-guo liulin].
L. know Z. Q eat-EXP durian
'Lisi knows whether Zhangsan has eaten durians.'

b. Lisi xiang zidao [Zangsen **ha** qieʔ-guo liulin].
L. want know Z. Q eat-EXP durian
'Lisi wants to know whether Zhangsan has eaten durians.'

(13) a. Lisi xiaodeʔ [Zangsen **qieʔ-mei-qieʔ**-guo liulin].
L. know Z. eat-NEG-eat-EXP durian
'Lisi knows whether Zhangsan has eaten durians.'

b. Lisi xiang zidao [Zangsen **qieʔ-mei-qieʔ**-guo liulin].
L. want know Z. eat-NEG-eat-EXP durian
'Lisi wants to know whether Zhangsan has eaten durians.'

Furthermore, bridging verbs like *jueʔdeʔ* 'think' can take a *ha* question as its complement. In such cases, the entire sentence must be interpreted as a matrix yes-no question (14a) and the corresponding answer must be formed by echoing the embedded verb and not the matrix verb (14b), therefore (14b) denotes a set of alternative propositions like (14c). In addition, note that only when *ha* surfaces in the main clause can the question be answered by echoing the matrix verb (15).

(14) a. Lisi jueʔdeʔ [Zangsen **ha** qieʔ-guo liulin]?
L. think Z. Q eat-EXP durian
'Does Lisi think Zhangsan has eaten durians?'

b. qieʔ-guo /mei qieʔ-guo /*jueʔdeʔ /*peʔ jueʔdeʔ
eat-EXP NEG eat-EXP think NEG think
'Yes (*lit*. eaten). / No (*lit*. not eaten).'

c. {Lisi thinks Zhangsan has eaten durians; Lisi thinks Zhangsan has not eaten durians.}

(15) a. Lisi **ha** jueʔdeʔ [Zangsen qieʔ-guo liulin]?
L. Q think Z. eat-EXP durian
'Does Lisi think Zhangsan has eaten durians?'

b. jueʔdeʔ /peʔ jueʔdeʔ /*qieʔ-guo /*mei qieʔ-guo
think NEG think eat-EXP NEG eat-EXP
'Yes (*lit*. think). / No (*lit*. doesn't think).'

c. {Lisi thinks Zhangsan has eaten durians; Lisi doesn't think Zhangsan has eaten durians.}

A parallel pattern is also found in A-not-A questions: They may also take matrix scope while being embedded under *jueʔdeʔ* 'think' and they must also be responded by echoing the embedded predicate (16).

(16) a. Lisi jueʔdeʔ [Zangsen **qieʔ-mei-qieʔ**-guo liulin]?
L. think Z. eat-NEG-eat-EXP durian
'Does Lisi think Zhangsan has eaten durians?'

b. qieʔ-guo /mei qieʔ-guo /*jueʔdeʔ /*peʔ jueʔdeʔ
eat-EXP NEG eat-EXP think NEG think
'Yes (*lit*. eaten). / No (*lit*. not eaten).'

In sum, basic properties of *ha* and *ha* questions in Wuhu Mandarin show that *ha* falls under the category of a type of dedicated yes-no question particles like Hindi-Urdu *kya:*. Meanwhile, *ha* questions behave similarly to A-not-A questions in many aspects, including (i) the interpretation, i.e., both are neutral questions without negative or positive bias, (ii) answer pattern, i.e., both require verb echo answers and do not allow particle answers, and (iii) embeddability, i.e., both can be embedded with either matrix or embedded scope. In the next section, I focus on the surface position of *ha* and argue that it is in a TP-internal position.

## 2.3 The surface position of *ha*

Under Bailey (2013) and Holmberg (2016), yes-no question particles like Finnish *ko/kö* are analyzed as [±Pol] that overtly move to the C-domain, whereas unembeddable ones like Standard Mandarin *ma* and Vietnamese *không* are treated as the spell-out of Q-Force. Therefore, question particles surface within the C-domain via overt movement or external merge.[5] Similarly, Hindi-Urdu *kya:* is also argued to be within ForceP above CP in Bhatt & Dayal (2020). Jin (to appear) combines the PolP and ForceP approaches to yes-no question particles and proposes that

[5] a ForceP is traditionally assumed to be a functional projection that is high in the left periphery (Rizzi 1997, 2001, 2004; Roussou 2000; a.o.).

Suzhounese yes-no question particle *aʔ* involves overt movement from Spec PolP to Spec ForceP. Nevertheless, in this section, I argue that the analytical intuition shared by existing analyses of yes-no question particles cannot be extended to Wuhu Mandarin sentence-internal yes-no question particle *ha*: Different arguments show that *ha* cannot be within the left peripheral C-domain, and instead, it is in a TP-internal position in the middle field of the clause.

First of all, the following examples illustrate that a neutral yes-no question can only be formed with a clause-internal *ha* in the pre-verbal position, which requires verb echo answers (17). The requirement on clause-internal *ha* to be in a pre-verbal position can be see in the following example, where a post-verbal clause-internal *ha* is ruled out.

(17) a. Q: Zangsen **ha** qieʔ-guo liulin?
Z. Q eat-EXP durian
'Did Zhangsan eat durians?'

b. A: qieʔ-guo /mei qieʔ-guo /*dei /*peʔ dei
eat-EXP NEG eat-EXP correct NEG correct
'Yes./No.'

(18) * Zangsen qieʔ-guo **ha** liulin?
Z. eat-EXP Q durian
Intended 'Did Zhangsan eat durians?'

Next, we can check the clause-peripheral positions. Clause-initial *ha* is ungrammatical (19), whereas although *ha* can occur clause-finally (20a), it behaves different from a clause-internal one like (16a) both in its interpretation and response pattern.

(19) * **ha** Zangsen qieʔ-guo liulin?
Q Z. eat-EXP durian
Intended 'Did Zhangsan eat durians?'

(20) a. Q: Zangsen qieʔ-guo liulin **ha**ʔ
Z. eat-EXP durian Q
'Zhangsan ate durians, right?'
NOT 'Did Zhangsan eat durians?'

b. A: dei /*peʔ dei /??qieʔ-guo /*mei qieʔ-guo
correct NEG correct eat-EXP NEG eat-EXP
'Right./*Wrong.'

Although (20a) shows that a clause-final *ha* is allowed, unlike a neutral yes-no question formed with a clause-internal *ha*, which allows either positive or negative answer (17b), a clause-final *ha* question has a very strong positive-bias: A negative response is strongly disfavored: (20a) does not allow echo answers and instead a particle answer is required. Therefore, the sentence-final *ha* in Wuhu Mandarin is similar to the sentence-final "confirmation yes-no question marker" *ba* in Standard Mandarin.[6]

Beyond the difference in the interpretation and answer pattern, another difference between sentence-internal *ha* and sentence-final *ha* concerns their embeddability. As already shown in (12) and (14), sentence-internal *ha* can be embedded with either embedded or matrix scope, but, like

[6] For instance, as pointed in Pan (2019), a question with this type of *ba* is often translated as a tag question in English:

ta zuotian jiu yijing chufa-le ba?
3SG yesterday then already leave-PERF BA
'He has already left yesterday, hasn't he?' (Pan 2019: 40)

Meanwhile, note that Wuhu Mandarin does also have neutral yes-no questions formed with a sentence-final *meʔ*, a cognate of Standard Mandarin *ma*.

Zangsen qieʔ-guo liulin meʔ?
Z. eat-EXP durian SFP
'Did Zhangsan eat durians?'

Like its Standard Mandarin counterpart, a SFP *meʔ* question also requires verb echo answers. But impressionistically, a SFP *meʔ* question is not widely used in colloquial speech.

many sentence-final particles in Standard Mandarin (Paul 2014, 2015; Pan 2019, a.o.), Wuhu Mandarin sentence-final *ha* turns out to be a strong root-only phenomenon in that it cannot be embedded, no matter whether an embedded or a matrix question is intended. As seen in the following examples, under a matrix responsive predicate like *xiaode?* 'know', a sentence-final *ha* must be interpreted as a tag in the main clause and cannot be interpreted as part of the embedded clause (21a); under a matrix rogative predicate like *xiang zidao* 'wonder', a sentence-final *ha* is completely ruled out as a result of two conflicting requirements: sentence-final *ha* resists embedding, but *xiang zidao* 'wonder' must take an embedded interrogative, so the structure cannot be rescued (21b); finally, under a bridging verb, a sentence-final *ha* cannot be interpreted as part of the embedded clause either and must be interpreted as a tag in the main clause (21c).

(21) a. Lisi xiaode? Zangsen qie?-guo liulin **ha?**
L. know Z. eat-EXP durian Q
Not 'Lisi knows whether Zhangsan has eaten durians.'
Only 'Lisi know Zhangsan has eaten durians, right?'

b.*Lisi xiang zidao Zangsen qie?-guo liulin **ha?**
L. want know Z. eat-EXP durian Q
Intended 'Lisi wants to know whether Zhangsan has eaten durians.'

c. Lisi jue?de? Zangsen qie?-guo liulin **ha?**
L. think Z. eat-EXP durian Q
Not 'Does Lisi think Zhangsan has (or has not) eaten durians?'
Only 'Lisi thinks Zhangsan has eaten durians, right?'

In the rest of this chapter, I will only focus on the neutral yes-no questions formed with a sentence-internal *ha*,[7] and leave the question whether the sentence-final positive-biased *ha* and the sentence-internal neutral *ha* are accidental homophonous or derivationally related to future studies.

Regarding the surface position of *ha*, I demonstrate two distributional properties of *ha* to show that *ha* does not behave like a C-domain element high in the left periphery, and instead it must be TP-internal: (i) *ha* follows various elements that are unambiguously subjects; and (ii) *ha* follows other independently motivated TP-internal elements.

To begin with, under the analysis where a clause-internal question particle is a Force head that is located within the C-domain, one question immediately arises concerns the positions and statuses of elements linearly preceding this question particle. More specifically, if *ha* is a Force head,

[7] Note that the restriction on *ha*'s surface position is one distinction between Wuhu Mandarin *ha* and Hindi-Urdu *kya:*, whose surface position allows much more variation:

(kya:) anu=ne (kya:) uma=ko (kya:) kita:b (%kya:) di: (kya:)?
Q Anu.ERG Q Uma=ACC Q book.F Q give.PFV.F Q
'Did Anu give a/the book to Uma?' (Bhatt & Dayal 2020: 4)

the sentence-initial external argument is expected to occupy a position that is even higher than the ForceP in the left periphery (cf. Roussou 2000, Bhatt & Dayal 2020, Jin 2021).[8]

The question is then, in previous examples involving sentence-internal *ha* questions, whether the external argument preceding *ha* is syntactically a subject or a topic. The answer to this question becomes less straightforward when we factor in the long discussion of Mandarin Chinese being a "topic-prominent" language and it is not always clear whether the sentence-initial external argument is a subject or a topic (see Paul & Whitman 2017, Xu 2017 for a review).

One diagnostic discussed in Paul & Whitman (2017) involves left dislocation. Extending their analysis of Standard Mandarin to Wuhu Mandarin, in (22), the third person pronoun *ta* is assumed to unambiguously occupy the subject position, whereas the left dislocated DP *Zangsen* is a topic, indicated by the immediately following optional topic marker *nan*, a cognate of the Mandarin topic marker *ne*.

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[8] For instance, Bhatt & Dayal (2020) notice that *kya:* may also occur clause-internally (a). Based on the observation that elements like weak indefinites, which independently resist movement/scrambling (b-c), cannot precede *kya:* either (d), they argue that clause-internal *kya:* is derived by overt movement of pre-*kya:* materials across *kya:*.

a. (**kya:**) anu=ne (**kya:**) uma=ko (**kya:**) kita:b (%**kya:**) di: (**kya:**)?
Q Anu-ERG Q Uma=ACC Q book.F Q give.PFV.F Q
'Did Anu give a/the book to Uma?'

b. ram=ne kal kuch kha:-ya: tha:
Ram=ERG yesterday something eat-PFV.MSG BE.PST.MSG
'Ram had eaten something yesterday.'

c. #ram=ne kuch$_i$ kal $t_i$ kha:-ya: tha:
Ram=ERG something yesterday eat-PFV.MSG BE.PST.MSG
Intended: 'Ram had eaten something yesterday.'

d. (**kya:**) ram=ne (**kya:**) kuch (*__kya:__) kha:-ya:?
Q Ram=ERG Q something Q eat-PFV.MSG
'Did Ram eat something?' (Bhatt & Dayal 2020: 4, 13)

(22) Zangsen$_i$ (nan), ta$_i$ qie? liulin.
Z. TOP 3SG eat durian
'(Speaking of) Zhangsan$_i$, he$_i$ eats durians.'

The question relevant for our interest is then whether this kind of left dislocated construction is compatible with a *ha* question, and if yes, where *ha* sits with respect to the left dislocated topic and the pronoun subject. (23) shows a *ha* question based on (22).

(23) Zangsen$_i$ (nan), **ta**$_i$ ha qie? liulin?
Z. TOP 3SG Q eat durian
'(Speaking of) Zhangsan$_i$, does he$_i$ eat durians?'

(23) illustrates that, in the presence of a left dislocated topic, *ha* follows the unambiguous pronoun subject in a yes-no question. Thus, the position of *ha* in yes-no questions like (23) suggests that it is within a *post-subject* instead of a post-topic position, making it hard to argue that *ha* is a left periphery element.

Meanwhile, non-referential DPs like *dajia* 'everyone' must occupy the subject position and cannot be topics, as evident in the lack of long-distance dependency in (24a). Nevertheless, they precede *ha* in yes-no questions (24b), suggesting that *ha* is indeed in a TP-internal position.

(24) a.* **dajia**$_i$, Zangsen jue?de?, [ t$_i$ dou qie? liulin].
everyone Z. think DOU eat durian
Intended 'As for everyone, Zhangsan believe they eat durians.'

b. **dajia** ha dou qie liulin?
everyone Q DOU eat durian
'Does everyone eat durians?'

Pronominal subjects like *wo/women* 'I/we', *ta/tamen* 's/he/they' do not seem to be topics either (25a), yet they can perfectly be the subject of a *ha* question (25b), suggesting that *ha* is in a position lower than these pronominal subjects in such cases:

(25) a.*{**wo/women/ta/tamen**}$_i$, Zangsen jue?de?, [ $t_i$ yingai qie? liulin].
1SG/1PL/3SG/3PL Z. think should eat durian
Intended 'As for me/us/him/her/them$_i$, Zhangsan believe $t_i$ should eat durians.'

b. {**wo/women/ta/tamen**} ha yingai qie? liulin?
1SG/1PL/3SG/3PL Q should eat durian
'Should I/we/s/he/they eat durians?'

Furthermore, Paul et al. (2020) argues that in Mandarin locative constructions, PlacePs including locative DPs like *xuexiao* 'school' and locative PostPs like *shu xia* 'tree under' occupy the subject position and cannot be analyzed as topics. The following examples show that *ha* consistently follow these subject PlacePs in Wuhu Mandarin, suggesting that *ha* must follow but not precede subjects.

(26) a. **xue?xiao** ha nen he? jiu?
school Q can drink alcohol
'Is it drinking alcohol allowed in school?'

b.*ha **xue?xiao** nen he? jiu?
Q school can drink alcohol

(27) a. **su xia** ha zang cao?
tree under Q grow grass
'Does grass grow under the tree?'

b.*ha **su xia** zang cao?
Q tree under grow grass

Another kind of evidence concerns various other non-subject elements that can linearly precede *ha* in yes-no question. One of them is the adverb *daodi* 'truly', which is typically used to form "*wh*-the-hell" questions in Standard Mandarin (Huang & Ochi 2004, Law 2008, Chou 2012). (28a) is an example showing that *ha* is also compatible with a *ha* question in Wuhu:

(28) a. Zangsen **daodi** ha qie? liulin?
Z. truly Q eat durian
'Does Zhangsan truly eat durians?'

b. * Zangsen ha **daodi** qie? liulin?
Z. Q truly eat durian

The contrast in (28) suggests that *ha* must follow but not precede *daodi*. Adopting the analysis of *daodi* that it is a TP-internal adverb (Huang & Ochi 2004, Law 2008), under the proposal that *ha* is a C-domain element, we would not expect such order restriction on *ha* in "*ha*-the-hell" questions like (28).

Another type of element that linearly interacts with *ha* involves "object preposing", in which a normally post-verbal internal argument occurs in a position preceding elements like modals, negation, and adverbs (cf. Shyu 1995, Ernst & Wang 1995, Paul 2002, Badan 2008, Badan & Del Gobbo 2015; Tsai 2015, a.o.). The examples in (29) illustrate that object preposing is found in Wuhu Mandarin as well, where the definite internal argument may surface in a position preceding the frequentative adverb.

(29) a. Zangsen jincang qie? **zei-zong liulin**.
Z. often eat this-type durian
'Zhangsan often eats this type of durians.'

b. Zangsen **zei-zong liulin** jincang qie?.
Z. this-type durian often eat
'Zhangsan often eats this type of durians.'

It is widely accepted that the preposed object occupies a TP-internal topic position (e.g., Ernst & Wang 1995, Paul 2005). (30) is an example of a *ha* question involving object preposing, which illustrates that *ha* must follow but not precede the preposed object. Similar to "*ha*-the-hell" questions, the order restriction in *ha* questions involving TP-internal topic is unexpected under analyses in which *ha* is in the left periphery.

(30) a. Zangsen ha jincang qie? **zei-zong liulin**?
Z. Q often eat this-type durian
'Does Zhangsan often eats this type of durians?'
b. Zangsen **zei-zong liulin** ha jincang qie??
Z. this-type durian Q often eat
'Does Zhangsan often eats this type of durians?'

c.*/?? Zangsen ha **zei-zong liulin** jincang qie??
Z. Q this-type durian often eat

Hence, under analyses that sentence-internal *ha* is a C-domain element in neutral yes-no questions, it is rather unclear how the surface word order can be derived when *ha* linearly follows independently motivated TP-internal elements including various types of non-topic subjects, interrogative attitude adverb *daodi*, and preposed objects. Instead, assuming that *ha* is within a TP-internal position in the middle field of the clause, the observed word order follows naturally.[9]

[9] Another type of empirical observation that is consistent with a non-C-domain element analysis of *ha* is that, unlike Wuhu Mandarin *ha*, traditionally assumed C-domain question particles in Standard Mandarin resist embedding. For instance, yes-no questions formed with *me?*, the Wuhu Mandarin cognate of Standard Mandarin sentence-final particle *ma*, cannot be embedded with either embedded or matrix scope.

## 2.4 Differentiating between *ha* and A-not-A

In section 2.2, we saw that in Wuhu Mandarin yes-no questions, *ha* and the A-not-A string are similar to each other in many aspects, including interpretation, answer patterns, and embeddability, etc. Nevertheless, in this section, I provide both Wuhu-internal and comparative evidence to show that *ha* cannot be analyzed as the same syntactic element as an A-not-A string.

If this proposal is on the right track, we immediately predict that *ha* may co-occur with an A-not-A string in yes-no questions. However, this is not borne out: *ha* cannot co-occur with an A-not-A string in Wuhu Mandarin, regardless of what the linear order between them is (31).

(31) a.* *ha* ≺ A-not-A
* Zangsen ha **qie?-pe?-qie?** liulin?
Z. Q eat-NEG-eat durian
Intended 'Does Zhangsan eat durians?'

b.* A-not-A ≺ *ha*
*Zangsen **qie?-pe?-qie?** ha liulin?
Z. eat-NEG-eat Q durian

This kind of complementary distribution between *ha* and an A-not-A string is reminiscent of a similar restriction against the co-occurrence of *kam* and A-not-A in Taiwanese, a dialect of

Southern Min.[10] This restriction is argued as evidence that *kam* and A-not-A compete for the same syntactic position (Huang 1991). However, data from both related and unrelated Sinitic languages suggests that this complementary distribution might be an exception. We can first look at Nanjing Mandarin, another variety of Jianghuai Mandarin (Wurm et al. 1987) that is mutually intelligible with Wuhu Mandarin. It is spoken in Nanjing, a city about 60 miles northeast of Wuhu. Nanjing Mandarin also has both A-not-A questions (32a) and yes-no questions formed with a preverbal question particle, pronounced as *a* (32b).

(32) [Nanjing Mandarin]

a. Zangsen **qieʔ-peʔ-qieʔ** liulin?
   Z. eat-NEG-eat durian
   'Does Zhangsan eat durians?'

b. Zangsen **a** qieʔ liulin?
   Z. Q eat durian
   'Does Zhangsan eat durians?' (W.T. Tang p.c.)

Of particular interest to us here is that, unlike Wuhu Mandarin or Taiwanese, Nanjing Mandarin allows the question particle *a* and the A-not-A string to co-occur within the same yes-no question with a restricted linear order, giving the form of an "*a* + A-not-A" question:

[10] For instance, as pointed in Huang (1991), although Taiwanese has A-not-A questions and also pre-verbal *kam* questions, *kam* cannot co-occur with an A-not-A string:

[Taiwanese]

a. li kam bat chit-e lang?
   you Q know this person
   'Do you know this person?'

b. li bat-m-bat chit-e lang?
   you know-NEG-know this person

c.* li kam bat-m-bat chit-e lang?
   you Q know-NEG-know this person (Huang 1991: 327)

(33) [Nanjing Mandarin]

a. *a* ≺ A-not-A

Zangsen a **qie?-pe?-qie?** liulin?
Z. Q eat-NEG-eat durian
'Does Zhangsan eat durians?'

b. *A-not-A ≺ *a*

Zangsen **qie?-pe?-qie?** a liulin?
Z. eat-NEG-eat Q durian (W.T. Tang p.c.)

This kind of co-occurrence between a clause-internal question particle and an A-not-A string is not limited to Nanjing Mandarin. In contrast, it is widely attested in different varieties of Jianghuai Mandarin and Wu dialects spoken across the Lower Yangtze area (Zhang 1990). An incomplete list includes *xə?* in Huai'an Mandarin, *kə?* in Dongliu Mandarin, *a?* in Suzhounese and Shanghainese (Wu):[11]

(34) a. [Huai'an Mandarin]

ni xə? **qu-bu-qu**?
2SG Q go-NEG-go
'Will you go (there)?'

b. [Dongliu Mandarin]

kə? **xiang-bu-xiang**?
Q fragrant-NEG-fragrant
'Does it smell good?'

c. [Suzhounese]

nai a? **qu-wu-qu**?
2SG Q go-NEG-go
'Will you go (there)?'

[11] Zhang (1990) only provides phonetic transcriptions of the relevant question particles and sentential data reported in Zhang (1990) are all written in Chinese characters. In (34), except for the question particles, the Romanized data only reflect the words' pronunciations in Standard Mandarin and by no means correspond to their actual phonetic forms in each non-standard variety. The gloss and English translations are mine.

d. [Shanghainese]
yi a? **ceng lai wu ceng lai**?
3SG Q once come NEG once come
'Has s/he come (here) before?' (Zhang 1990: 15, 23, 32)

Furthermore, note that such occurrence should not be considered as some areal feature that is shared across neighboring varieties of Mandarin and Wu spoken in the same area. Instead, it is found in other Sinitic languages spoken in other geographic areas that are not mutually intelligible with either Mandarin or Wu.[12] For instance, another Sinitic language that behaves like Nanjing Mandarin is colloquial Singapore Teochew (Cole & Lee 1997), which has A-not-A questions (35a), *ka* yes-no questions (35b) and *ka* + A-not-A questions (35c).

(35) [Singapore Teochew]
a. Ah Meng **su-m-suka** ji bun zi?
A. like-NEG-like this CL book
'Does Ah Meng like this book?'

b. Ah Meng ka suka ji bun zi?
A. Q like this CL book
'Does Ah Meng like this book?'

[12] Meanwhile, the same pattern is further attested in Austroasiatic languages spoken in Southeast Asia like Mang (Gao 2003): In Mang, a yes-no question can be formed with a preverbal question particle $pə^{31}$(a), an A-not-A string (b), both of which may co-occur within a single yes-no question (c).

[Mang (Austroasiatic; Vietnam, Laos, China)]
a. $mi^{31}$ $pə^{31}$ $tɕiʔ^{51}$ $tɔk^{55}$ $mə^{31}$ $θi^{35}$ $ʔə^{31}ʔy^{51}$?
2SG Q do EXP thing that
'Did you do that (thing)?'

b. $mi^{31}$ **$lø^{51}$-$θə^{31}$-$lø^{51}$**?
2SG say-NEG-say
'Do/will you say?'

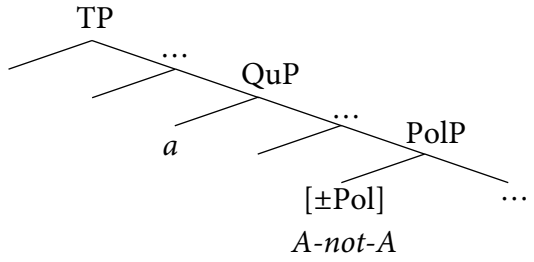
c. $lɔt^{55}$ $ʔə^{31}ŋin^{35}$ $pə^{31}$ **$hɔ^{51}$-$θə^{31}$-$hɔ^{51}$**?
night today Q come- NEG -come
'Will you come tonight?' (Gao 2003: 87)

c. Ah Meng ka **su-m-suka** ji bun zi?
A. Q like-NEG-like this CL book
'Does Ah Meng like this book?' (Cole & Lee 1997: 190, 192)

Thus, leaving aside the issue why *ha/kam* + A-not-A questions are banned in Wuhu Mandarin and Taiwanese, cross-linguistic data provide robust empirical argument that a sentence-internal question particle may co-occur with an A-not-A string in a neutral yes-no question, a pattern that is expected if we assume that the question particle is a distinct syntactic element than the A-not-A string.

Extending Holmberg's (2016) analysis of Standard Mandarin A-not-A question to Wuhu Mandarin, I also assume that an A-not-A string overtly realizes the open-valued polarity variable ([±Pol]) in neutral yes-no questions. Furthermore, I propose that sentence-internal question particles like *a* are within an independent functional projection, QuP (à la Cable 2010, Kotek 2019, etc.), which is distinct from PolP headed by [±Pol]. Regarding their hierarchical relation, given the word order restriction found in Nanjing (cf. (33), *a* ≺ A-not-A, *A-not-A ≺*a*), I assume that QuP is structurally higher than PolP. Thus, the underlying structure of a Nanjing Mandarin *a* + A-not-A question is schematized below:

(36)




Extending (36) to Wuhu Mandarin, despite the restriction on the co-occurrence between *ha* and an A-not-A string, we would still expect distributional differences between them Wuhu-

internally. This is, indeed, borne out. In particular, we can see that by comparing the interactions between *ha* and some other elements on the one hand, and the interactions between an A-not-A string and the same set of elements on the other. As we will see, *ha* is consistently higher than these elements, whereas the A-not-A string is consistently lower.

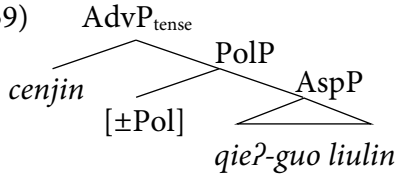
We can begin by looking at yes-no questions with more clause-internal materials like adverbs, and see how Q particles and A-not-A strings interact with these adverbs respectively. (37) illustrates a declarative sentence with a high tense-related adverb *cenjin* 'once' in Wuhu/Nanjing Mandarin (cf. its Standard Mandarin cognate *cengjing* discussed in Wu & Shen 2017):

(37) Zangsan **cenjin** qieʔ-guo liulin.
Z. once eat-EXP durian
'Zhangsan once ate durians.'

An A-not-A question based on (37) is given in (38), where the preferred position for the A-not-A string is to follow rather than precede *cenjin*, suggesting that the open-valued polarity variable [±Pol] must be linearly following and structurally lower than high temporal adverb *cenjin* (39).

(38) a. *once* ≺ A-not-A
Zangsen cenjin **qieʔ-mei-qieʔ**-guo liulin?
Z. once eat-NEG-eat-EXP durian
'Did Zhangsan once eat durians?'

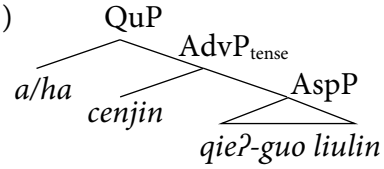
b. */??A-not-A ≺ *once*
*/?? Zangsen **cen-mei-cenjin** qieʔ-guo liulin?
Z. once-NEG-once eat-EXP durian
Intended 'Did Zhangsan once eat durians?'

(39)


Meanwhile, the positional restriction turns out to be the exact opposite when we look at *a* and *ha* questions based on (37). In (40), it is clear that not only *a* in Nanjing, but also *ha* in Wuhu, must precede but not follow *cenjin*. Therefore, the functional projection QuP that hosts *a/ha* must be higher but not lower than $AdvP_{tense}$, where *cenjin* is located (41). Furthermore, regardless of the (in)compatibility with an A-not-A string, the same behavior of *a* and *ha* suggests that they are both within the same functional projection distinct from PolP and their (in)compatibility with an A-not-A string cannot be the only empirical argument for their syntactic positions.

(40) a. *a/ha* ≺ *once*
Zangsen a/ha **cenjin** qie?-guo liulin?
Z. Q once eat-EXP durian
'Did Zhangsan once eat durians?'

b. */?*once* ≺ *a/ha*
*/?Zangsen **cenjin** a/ha qie?-guo liulin?
Z. once Q eat-EXP durian
Intended 'Did Zhangsan once eat durians?'[13]

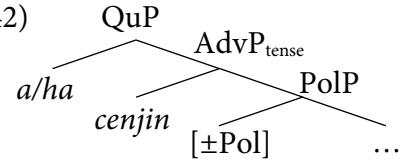
(41)



Thus, using an adverb like *cenjin* 'once' that is relatively high in the adverb hierarchy (Cinque 1999, Wu & Shen 2017) as a diagnostic, we are able to see the hierarchical differences between *ha/a* and the A-not-A string, as well as the parallel distribution between Wuhu *ha* and Nanjing *a*. The

[13] Throughout the rest of this chapter, unless specified otherwise, all data from Nanjing Mandarin and relevant judgments are collected through personal communications with W.T. Tang.

contrast illustrated between (38) and (40) is not expected if both *ha/a* and the A-not-A string encode the same functional head [±Pol], whereas it is not surprising under an analysis where *ha/a* and the A-not-A string are within categorically distinct functional projections with hierarchical differences in the clausal spine:

(42)




Moreover, if (42) is on the right track, given the fact that Nanjing Mandarin independently allows the question particle to co-occur with an A-not-A string, it is predicted that *cenjin* can intervene between *a* and the A-not-A string in an *a* + A-not-A question. This is indeed what I found:

(43) *a* ≺ *once* ≺ A-not-A

| Zangsen | **a** | cenjin | **qie?-mei-qie?**-guo | liulin? |
|---|---|---|---|---|
| Z. | Q | once | eat-NEG-eat-EXP | durian |

'Did Zhangsan once eat durians?'

The same logic of argumentation extends to what is called the anti-comitative "inner *ziji*" discussed in Tsai (2015, 2019). (44) illustrates that *ziga* in Wuhu Mandarin also allows such anti-comitative interpretation, which can be further emphasized by the optional modifying *yi-ge zen* 'lit. one person':

(44)

| Zangsen | **ziga** | (yi-ge | zen) | pa-guo | Zumulangma. |
|---|---|---|---|---|---|
| Z. | SELF | one-CL | person | climb-EXP | Mount.Everest |

'Zhangsan climbed Mount Everest alone (by himself).'

Similar to what we observed regarding *cenjin*, a parallel contrast between *ha/a* and the A-not-A string is seen when they interact with the anti-comitative *ziga*: *ha* is preferred to precede *ziga*, whereas the A-not-A follows it:

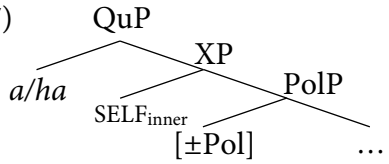
(45) a. *a/ha* ≺ SELF
Zangsen a/ha **ziga** pa-guo Zumulangma?
Z. Q SELF climb-EXP Mount.Everest
'Did Zhangsan climb Mount Everest alone?'

b.*/? SELF ≺ *a/ha*
*/? Zangsen **ziga** a/ha pa-guo Zumulangma?
Z. SELF Q climb-EXP Mount.Everest
Intended 'Did Zhangsan climb Mount Everest alone?'
? 'Did Zhangsan climb Mount Everest on his own initiative/voluntarily?'[14]

(46) a. SELF ≺ A-not-A
Zangsen ziga **pa-mei-pa**-guo Zumulangma?
Z. SELF climb-NEG-climb-EXP Mount.Everest
'Did Zhangsan climb Mount Everest alone?'

b. */??A-not-A ≺ SELF
*/?? Zangsen **zi-mei-ziga** pa-guo Zumulangma?
Z. SELF-NEG-SELF climb-EXP Mount.Everest
Intended 'Did Zhangsan climb Mount Everest alone?'

Adopting Tsai's analysis that anti-comitative "inner" self is within a functional projection somewhere below TP but above *v*P, the above order restriction can be made sense of under my proposal that *a/ha* heads a TP-internal functional projection that is higher than PolP:

(47)



[14] Note that (45b) is ungrammatical if the intended reading involves inner self, and the judgement is improved with an "outer self" reading, where *ziga* is interpreted as anti-causal, as the second translation suggests (without others' coercion/persuasion, cf. Tsai 2015, 2021).

Meanwhile, the hierarchical structure in (42) and (47) further leads us to speculate about whether the proposed difference between QuP headed by *ha/a* and PolP headed by the A-not-A string can be attested in other aspects of the grammar, in addition to the abovementioned linear word order restrictions. One such context is clauses embedded under certain control predicates like *dasun* 'plan'.

(48) a. Zangsen dasun [qieʔ liulin].
Z. plan eat durian
'Zhangsan plans to eat durians.'

b. Zangsen dasun [**qieʔ-peʔ-qieʔ** liulin]?
Z. plan eat-NEG.-eat durian
'Does Zhangsan plan to eat durians?'

c. ??/* Zangsen dasun [**ha/a** qieʔ liulin]?
Z. plan Q eat durian
Intended 'Does Zhangsan plan to eat durians?'

Although we have seen that both *ha* and an A-not-A string can be embedded with either embedded or matrix scope, the contrast between (48b) and (48c) shows that only the A-not-A string but not *ha/a* is allowed under *dasun* 'plan'. Assuming Paul's (2005) proposal that clauses embedded under some control verbs may lack certain functional projections which otherwise exist in non-embedded clauses (also cf. N. Huang's (2018) "domain-based" approach), we can understand the contrast in (48b-c): the complement clause of *dasun* has an impoverished structure and may be compatible with lower functional projections like PolP but may not allow higher functional projections like QuP hosting *ha/a*.

## 2.5 Locality effects in yes-no questions

In this section, I turn to locality effects of yes-no questions formed with *ha/a*, A-not-A, and *a* + A-not-A in Wuhu and Nanjing Mandarin. As I will show, although all of them show unbounded nature, they are consistently subject to two types of locality effects.

To begin with, A-not-A (49a), *ha/a* (49b), and *a* + A-not-A (49c) questions can all be deeply embedded while still have a matrix question reading, and these questions are consistently answered by echoing the most embedded verb, as seen below.

(49) a. Q1: Wangwu jiang [Lisi jueʔdeʔ [Zangsen **qieʔ-peʔ-qieʔ** liulin]]?
W. say L. think Z. eat-NEG.-eat durian
'Did Wangwu say Lisi thinks that Zhangsan eats durians, or did he say Lisi thinks that Zhangsan eats durians?'

b. Q2: Wangwu jiang [Lisi jueʔdeʔ [Zangsen **ha/a** qieʔ liulin]]?
W. say L. think Z. Q eat durian
'Did Wangwu say Lisi thinks that Zhangsan eats durians, or did he say Lisi thinks that Zhangsan eats durians?'

c. Q3: Wangwu jiang [Lisi jueʔdeʔ [Zangsen a **qieʔ-peʔ-qieʔ** liulin]]?
W. say L. think Z. Q eat-NEG.-eat durian
'Did Wangwu say Lisi thinks that Zhangsan eats durians, or did he say Lisi thinks that Zhangsan eats durians?'

d. A: qie /peʔ qieʔ
eat NEG eat

A well-known property of Mandarin A-not-A questions is their sensitivity to syntactic islands (Huang 1982b, 1991; Aoun & Li 1993; Ernst 1994; Law 2006; a.o., also cf. Pan 2011). (50) illustrates that this property of A-not-A questions carries over to Wuhu and Nanjing Mandarin: Although an A-not-A string can be embedded with matrix scope (50a), it is consistently ruled out when it

occurs within a relative clause (50b), a noun complement clause (50c), a sentential subject (50d), and an adjunct adverbial clause (50e).

(50) a. Lisi jueʔdeʔ [Zangsen **qieʔ-peʔ-qieʔ** liulin]?
L. think Z. eat-NEG.-eat durian
'Does Lisi think that Zhangsan eats durians or doesn't eat durians?'

b.*Zangsen jin-le [**qieʔ-peʔ-qieʔ** liulin] di xueʔseng?
Z. meet-PERF eat-NEG.-eat durian DE student
Intended 'Did Zhangsan meet students who eat durians or students who don't'?'

c.*Zangsen tingjiang-le [Zangsen **qieʔ-peʔ-qieʔ** liulin] di xiaoxieʔ?
Z. hear-PERF Z. eat-NEG.-eat durian DE news
Intended 'Did Zhangsan hear the news that Zhangsan eats durians or the news that Zhangsan doesn't eat durians?'

d.*[Zangsen **qieʔ-peʔ-qieʔ** liulin] bijiao hao?
Z. eat-NEG.-eat durian more good
Intended 'Is it better that Zhangsan eats durians or is it better that he doesn't eat durian?'

e.*[yinwei Zangsen **qieʔ-peʔ-qieʔ** liulin], Lisi hen senqi?
because Z. eat-NEG.-eat durian L. very angry
Intended 'Is Lisi very angry because Zhangsan eats durians, or is Lisi angry because Zhangsan doesn't eat durians?'

Interestingly, similar island effects are observed in *ha/a* questions in Wuhu and Nanjing Mandarin as well: they cannot occur with a relative clause (51b), a noun complement clause (51c), a sentential subject (51d), and an adjunct adverbial clause (51e) either.

(51) a. Lisi jueʔdeʔ [Zangsen **ha/a** qieʔ liulin]?
L. think Z. Q eat durian
'Does Lisi think that Zhangsan eats durians or doesn't eat durians?'

b.*Zangsen jin-le [**ha/a** qie liulin] di xueʔseng?
Z. meet-PERF Q eat durian DE student
Intended 'Did Zhangsan meet students who eat durians or students who don't'?'

c.* Zangsen tingjiang-le [Zangsen **ha/a** qie? liulin] di xiaoxie??
Z. hear-PERF Z. Q eat durian DE news
Intended 'Did Zhangsan hear the news that Zhangsan eats durians or the news that Zhangsan doesn't eat durians?'

d.* [Zangsen **ha/a** qie? liulin] bijiao hao?
Z. Q eat durian more good
Intended 'Is it better that Zhangsan eats durians or is it better that he doesn't eat durian?'

e.* [yinwei Zangsen **ha/a** qie? liulin], Lisi hen senqi?
because Z. Q eat durian L. very angry
Intended 'Is Lisi very angry because Zhangsan eats durians, or is Lisi angry because Zhangsan doesn't eat durians?'

Meanwhile, the exact same pattern is observed in Nanjing Mandarin *a* + A-not-A questions:

They are ruled out in all island configurations.

(52) a.* Zangsen jin-le [a **qie?-pe?-qie?** liulin] di xue?seng?
Z. meet-PERF Q eat-NEG.-eat durian DE student
Intended 'Did Zhangsan meet students who eat durians or students who don't'?'

b.* Zangsen tingjiang-le [Zangsen a **qie?-pe?-qie?** liulin] di xiaoxie??
Z. hear-PERF Z. Q eat-NEG.-eat durian DE news
Intended 'Did Zhangsan hear the news that Zhangsan eats durians or the news that Zhangsan doesn't eat durians?'

c.* [Zangsen a **qie?-pe?-qie?** liulin] bijiao hao?
Z. Q eat-NEG.-eat durian more good
Intended 'Is it better that Zhangsan eats durians or is it better that he doesn't eat durian?'

d.* [yinwei Zangsen a **qie?-pe?-qie?** liulin], Lisi hen senqi?
because Z. Q eat-NEG.-eat durian L. very angry
Intended 'Is Lisi very angry because Zhangsan eats durians, or is Lisi angry because Zhangsan doesn't eat durians?'

Therefore, all types of yes-no questions in Wuhu and Nanjing Mandarin that we have discussed so far consistently show sensitivity to different kinds of syntactic islands. Next, we can look at

another type of locality effects: (focus) intervention effects. Like adjunct *wh*-questions (Soh 2005, Ko 2005, Yang 2012, Li & Cheung 2015, Jin 2016, a.o.), A-not-A questions in Standard Mandarin have been reported to show intervention effects as well (Law 2006, Yang 2012, Erlewine 2014, a.o.). The following examples illustrate that A-not-A questions in Wuhu and Nanjing Mandarin are also subject to (focus) intervention effects: An A-not-A string cannot linearly follow a focus particle like *zi* 'only' (53b). The ungrammaticality of (53b) cannot be because A-not-A questions are in general incompatible with focus particles. As (54b) shows, having the A-not-A string realized on elements preceding *zi* will undo the intervention configuration and make the sentence grammatical.

(53) a. Zangsen zi qieʔ liulin.
Z. only eat durian
'Zhangsan only eats durians.'

b.*only ≺ A-not-A
* Zangsen zi **qieʔ-peʔ-qieʔ** liulin?
Z. only eat-NEG.-eat durian
Intended 'Does Zhangsan only eat durians?'

(54) a. Zangsen jincang zi qieʔ liulin.
Z. often only eat durian
'Zhangsan often only eats durians.'

b. A-not-A ≺ only
Zangsen **jin-peʔ-jincang** zi qieʔ liulin?
Z. often-NEG-often only eat durian
'Does Zhangsan often only eat durians?'

Interestingly, the same type of intervention effects is also observed in *ha/a* questions in Wuhu and Nanjing Mandarin: Although the most canonical position for *ha/a* is the immediately pre-

verbal position, it cannot surface in that position if it is following *zi* (55a), and instead, surfacing in a position preceding *zi* will undo the intervention configuration (55b).[15]

(55) a.* only ≺ *ha/a*
* Zangsen zi **ha/a** qie? liulin?
Z. only Q eat durian
Intended 'Does Zhangsan only eat durians?'

b. *ha/a* ≺ only
Zangsen **ha/a** zi qie? liulin?
Z. Q only eat durian
'Does Zhangsan only eat durians?'

Moreover, Nanjing Mandarin *a* + A-not-A questions are no exception to intervention effects: *zi* cannot precede *a* + A-not-A and must follow the entire *a* + A-not-A string.

(56) a.* only ≺ *a* + A-not-A
* Zangsen zi **a qie?-pe?-qie?** liulin?
Z. only Q eat-NEG-eat durian
Intended 'Does Zhangsan only eat durians?'

b. *a* + A-not-A ≺ only
Zangsen **a jin-pe?-jincang** zi qie? liulin?
Z. Q often-NEG-often only eat durian
'Does Zhangsan often only eat durians?'

Furthermore, the following example shows that although all three types of yes-no questions can be embedded under *jue?de?* while having a matrix question reading, the presence of a focus particle in the matrix clause brings intervention effects.

(57) a. Lisi zi jue?de? [Zangsen qie? liulin]
L. only think Z. eat durian
'Lisi only thinks that Zhangsan (as opposed to someone else) eats durians.'

[15] Note that Suzhounese *a?* is also reported to show intervention effects (Jin 2021).

b.*Lisi zi jue?de? [Zangsen **ha/a** qie? liulin]?
L. only think Z. Q eat durian
Intended 'Does Lisi only think that Zhangsan (as opposed to someone else) eats durians?'

c.*Lisi zi jue?de? [Zangsen **qie?-pe?-qie?** liulin]
L. only think Z. eat-NEG-eat durian
Intended 'Does Lisi only think that Zhangsan (as opposed to someone else) eats durians?'

d.*Lisi zi jue?de? [Zangsen **a qie?-pe?-qie?** liulin]
L. only think Z. Q eat-NEG-eat durian
Intended 'Does Lisi only think that Zhangsan (as opposed to someone else) eats durians?'

Hence, the observed ungrammaticality in (53-56) cannot be due to violation of a functional sequence in the clausal spine, e.g., a FocP must be structurally lower than a QuP or a PolP in the same clause, as such structural constraint is usually clause-bound. For instance, although *a* must precede an A-not-A string in Nanjing Mandarin, an A-not-A string can nevertheless occur in the main clause, which involves an embedded *a* question (58):

(58) a. Lisi xiaode? [Zangsen **a** qie? liulin].
L. know Z. Q eat durian
'Lisi knows whether Zhangsan eats durians.'

b. Lisi **xiao-pe?-xiaode?** [Zangsen **a** qie? liulin]?
L. know-NEG-know Z. Q eat durian
'Does Lisi know whether Zhangsan eats durians?'

Therefore, (57b-d) are ruled out due to intervention effects brought by the focus particle *zi*, which also behaves like an intervener to *ha/a*, A-not-A, and *a* + A-not-A in (53-56).

It is clear that, like island sensitivity, all types of yes-no questions in Wuhu and Nanjing Mandarin are subject to intervention effects as well.

## 2.6 On the syntax of QuP and PolP

So far, we have made the following two sets of (seemingly contradictory) empirical observations regarding yes-no questions in Wuhu and Nanjing Mandarin: one about the distinctions between sentence-internal question particles like *ha/a* and an A-not-A string; one about the similarities of various kinds of yes-no questions formed with *ha/a* or/and an A-not-A string:

(i) *ha/a* and an A-not-A string show distributional differences; *ha/a* consistently precedes an A-not-A string; *a* can co-occur with an A-not-A string;

(ii) *ha/a* questions, A-not-A questions, and *a* + A-not-A questions show identical properties regarding answer patterns, embeddability/unboundedness, and locality effects.

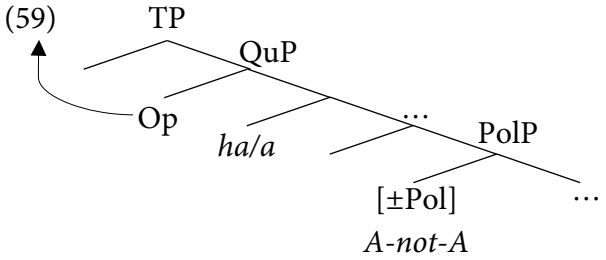
Thus, an adequate theory of yes-no question formation in Jianghuai Mandarin is expected to capture the above two sets of empirical observations: In particular, it should answer the question why it is that various yes-no questions whose surface forms involve categorically distinct elements may show identical properties.

To account for the distributional differences between question particles and an A-not-A string (as well as their co-occurrence), in section 2.4, I have argued that the question particle and the A-not-A string are heads of two distinct TP-internal functional projections, QuP and PolP, and QuP is structurally higher than PolP, both of which are present in Nanjing Mandarin *a* + A-not-A questions.

In this section, I show how a more elaborated version of this proposal can further make sense of the parallelism among these yes-no questions, as well as the variation in their surface forms. In

particular, I argue that all yes-no questions in Wuhu and Nanjing Mandarin share an identical syntactic representation that involves both QuP and PolP. In the syntactic derivation of yes-no questions, a Q-operator undergoes movement from Spec QuP to the C-domain, whereas the open-valued polarity variable ([±Pol]) does not move and is interpreted in-situ (59). Moreover, the variation in the surface form of yes-no questions is the result of merging either overt or null syntactic heads.

(59)




### 2.6.1 QuP in A-not-A questions

Adopting Cole & Lee's (1997) analysis of the Q particle *ka* in Singapore Teochew,[16] I also assume that the observed island-sensitivity in *ha/a* questions and *a* + A-not-A questions in Wuhu and Nanjing Mandarin is caused by the movement of an operator base generated at QuP. The operator movement

Although the derivation in (59) straightforwardly explains the observed island-sensitivity in *ha/a* questions and *a* + A-not-A questions, where an overt question particle indicates the presence

[16] For instance, it is observed that *ka* questions in Singapore Teochew is island-sensitive:

*Le suka [**ka** kih Pakiah] gai nang?
you like Q go Beijing person
Intended 'Do you prefer people who go to Beijing?' (Adapted from Cole & Lee 1997: 198)

of QuP, it is less clear whether it is Q-operator movement that causes the same locality effects in A-not-A questions: Since there is no overt Q particle in A-not-A question, one could argue that there is simply no QuP and hence no operator movement. Meanwhile, along the lines of Huang (1982, 1991), Holmberg (2016) proposes that [±Pol] encoded by the A-not-A string moves at LF to the C-domain and assigns "sentential scope" at its landing site in Standard Mandarin A-not-A questions, and this LF movement of [±Pol] is island-sensitive.

However, if the derivation of yes-no questions involves LF movement of [±Pol] that is motivated for scopal reasons, we would expect [±Pol] to be interpreted at its scope position in the C-domain and thus takes wide scope over the TP-internal universal quantifier, and a narrow scope reading of [±Pol] should be unavailable. On the contrary, if [±Pol] remains in-situ in the derivation, then a narrow scope reading of [±Pol] is expected to be still available in A-not-A questions. To see which approach makes the right prediction, we can check the interpretation of (60) below:

(60) Zangsen **meitin** **qie?-pe?-qie?** liulin?
Z. everyday eat-NEG-eat durian
'Does Zhangsan eat durians everyday?' [±Pol] >>∀
'On each day, does Zhangsan eat durians?' ∀ >> [±Pol]

The sentence in (60) is a perfectly grammatical A-not-A question in both Wuhu and Nanjing Mandarin. Although *meitin* 'everyday' linearly precedes the A-not-A string, as the translation suggests, the question is ambiguous between either the polarity variable or the universal quantifier taking wide scope. The scopal ambiguity of (60) is also reflected in possible answer patterns: a single answer like *qie?* or *pe?-qie?* is possible, as a response to wide scope reading of [±Pol]; crucially, a pair-list answer is also possible, under a distributive reading when the universal

quantifier takes wide scope. For instance, suppose in a context where the hotel staff are making room service plans for Zhangsan's staying during the next week, the speaker asks (60) trying to figure out for each day, whether Zhangsan eats durians or not. Thus, a pair-list answer could be something like "Monday yes, Tuesday yes, Wednesday no, ……"

If, on the other hand, as proposed in Holmberg (2016), the open-valued polarity variable undergoes movement to the C-domain to obtain sentential scope, [±Pol] is expected to be interpreted at its scope position in the C-domain. The existence of a narrow scope interpretation of the A-not-A string in (60) shows that this prediction is not borne out. Hence, the availability of pair-list answers to (60) indicates that [±Pol] is not necessarily interpreted in the C-domain.

A similar argument can be found in A-not-A strings forms with "reflexive verbs" like *zi-ze?* 'lit. self-blame'. The following example shows that *zi-ze?* 'lit. self-blame' must be locally bound: in the following example (61), Zhangsan must be understood as blaming himself, and it cannot mean that Zhangsan is blaming Lisi.

(61) Lisi$_i$ jueʔdeʔ [Zangsen$_j$ zai zi$_{j/*i}$-zeʔ].
L. think Z. PROG self-blame
'Lisi$_i$ thinks that Zhangsan$_j$ is blaming himself$_{j/*i}$'.

Meanwhile, a predicate formed with *zi-ze?* can be fronted, suggesting that the predicate undergoes obligatory reconstruction to its base position to satisfy Condition A.

(62) a. Zangsen$_j$ yin-pe-yingai zi$_j$-zeʔ?
Z. should-NEG-should self-blame
'Should Zhangsan$_j$ blame himself$_j$?'

b. [zi$_j$-zeʔ]$_i$, Zangsen$_j$ yin-pe-yingai t$_i$?
self-blame Z. should-NEG-should
'Should Zhangsan$_j$ blame himself$_j$?'

Interestingly, an A-not-A string can be formed with a reflexive verb, indicating that the A-not-A string is still interpreted in its base position to satisfy Condition A, and it has not undergone LF movement to a position above the antecedent in the subject position.

(63) Zangsen$_j$ zi$_j$-pe?-zi$_j$-ze??
Z. self.blame-NEG-self-blame
'Does Zhangsan$_j$ blame himself$_j$?'

A further argument against a movement analysis of A-not-A comes from the interpretation and answer patterns to embedded A-not-A questions. It has been shown that under bridging verbs like *juede* 'think', an A-not-A question can be embedded yet still have a matrix interrogative reading:

(64) a. Lisi jue?de? [Zangsen **qie?-pe?-qie?** liulin]?
L. think Z. eat-NEG.-eat durian
'Does Lisi think that Zhangsan eats durians or doesn't eat durians?'

b. **qie?** /pe? **qie?**/*jue?de? /*pe? jue?de?
eat NEG eat think NEG think
'(Lisi thinks Zhangsan) eat/doesn't eat (durian).'

As the translation and the forms of the verb echo answer suggest, the [±Pol] seems to only scope within the proposition denoted by the embedded clause where it is overtly realized by the A-not-A string. Informally, under a Hamblin/Karttunen question semantics, the set of propositions denoted by (64a) is (65a), and it roughly corresponds to a simplified LF in (65b).

(65) a. {Lisi thinks that Zhangsan eats durians; Lisi thinks that Zhangsan doesn't eat durians.}

b. Lisi think [$_{CP}$ [$_{TP}$ Zhangsan **[±Pol]** eat durians]].

This is in contrast with a question minimally different from (64a) where the A-not-A string is formed on the matrix verb. As (66) shows, in this case the echoed verb must be the matrix verb but

not the embedded one, which indicates that the set of alternative propositions denoted by (66a) is (67a), and the corresponding LF is roughly (67b):

(66) a. Lisi **jueʔ-peʔ-juedeʔ** [Zangsen qieʔ liulin]?
L. think-NEG-think Z. eat durian
'Does Lisi think Zhangsan eat durians?'

b. **jueʔdeʔ /peʔ jueʔdeʔ** /*qieʔ /*peʔ qieʔ
think NEG think eat NEG eat
'Yes/no (*lit*. think/not think).'

(67) a. {Lisi thinks that Zhangsan eats durians; Lisi doesn't think that Zhangsan eats durians.}

b. [$_{TP}$ Lisi **[±Pol]** think [$_{CP}$ Zhangsan eat durians]].

However, the contrast between (64-65) and (66-67) is not expected under an analysis where the polarity variable moves: if in the derivation of (64a), [±Pol] moves to the matrix clause to derive the matrix question reading, (64a) would end up with an LF more or less similar to (67b) where the [±Pol] is interpreted in the matrix clause, which would in turn lead us to expect that the resulting interpretation and the verb echo answers of (64a) should be identical to (66a). The fact that such expectation is not attested in the data suggests that a [±Pol] movement analysis might not be on the right track.

Therefore, the derivation of A-not-A questions in Wuhu and Nanjing Mandarin does not involve [±Pol] movement. In contrast, despite the lack of overt sentence-internal question particle in A-not-A questions, the robust island-sensitivity and unboundedness indicates the existence of an operator movement similar to what we saw in *ha/a* questions and *a* + A-not-A questions. Hence, A-not-A questions must also involve a QuP and Q-Op movement. Discussions on how exactly [±Pol] is interpreted in-situ and how an in-situ approach can account for the observed intervention

effects across all three types of yes-no questions are given in Appendix A, and I will remain focusing on the syntax of yes-no question in the rest of this chapter.

### 2.6.2 PolP in *ha/a* questions

Adopting Holmberg's (2016) analysis of yes-no questions, I have been assuming the presence of an open-valued polarity variable [±Pol] in *ha/a* questions in Wuhu and Nanjing Mandarin. We have seen empirical evidence that *ha/a* must be categorically distinct from an A-not-A string, and therefore cannot be analyzed as spell-out of [±Pol]. In this subsection, I offer more concrete arguments supporting the existence of [±Pol] and PolP in the representation of *ha/a* questions, in spite of the lack of an overt A-not-A string.

Following Holmberg's argumentation that negation does not necessarily determine the truth/polarity value of a sentence, a strong piece of evidence for the presence of [±Pol] in *ha/a* questions comes from negative *ha/a* questions, suggesting that they also involve an open-valued polarity variable that is distinct from negation.

(68) a. Zangsen pe? jincang qie? liulin.
Z. NEG often eat durian
'Zhangsan doesn't often eat durians.'

b. Zangsen **ha/a** pe? jincang qie? liulin?
Z. Q NEG often eat durian
'Is it the case that Zhangsan doesn't often eat durians?'

Along the lines of our discussions of A-not-A questions in the previous subsection, another way to detect the presence of [±Pol] in *ha/a* questions is to check the interpretations of *ha/a* questions

containing a universal quantifier within the TP but above the question particle. In particular, we would expect a *ha/a* question with a TP-internal universal quantifier like *meitin* to show the same kind of scopal ambiguity as the A-not-A question in (60).

(69) Zangsen **meitin** **ha/a** qie? liulin?
Z. everyday Q eat durian
'Does Zhangsan eat durians everyday?' [±Pol] >>∀
'On each day, does Zhangsan eat durians?' ∀ >> [±Pol]

As the translations in (69) suggest, a *ha/a* question containing a TP-internal universal quantifier *meitin* is ambiguous between a [±Pol] wide scope and a ∀ wide scope reading: A single answer is used under the former reading whereas a pair-list answer is used under the latter reading. Therefore, a *ha/a* question containing *meitin* but without an overt A-not-A string like (69) behaves the same as an A-not-A question like (60) in allowing scopal ambiguity, indicating the presence of [±Pol] and PolP in its underlying representation.

In addition, it is worth mentioning that Nanjing Mandarin *a* + A-not-A questions show the same kind of scopal ambiguity, as expected: both a single answer and a pair-list answer is allowed for answering (70).

(70) Zangsen **meitin** **ha/a** qie?-pe?-qie? liulin?
Z. everyday Q eat-NEG-eat durian
'Does Zhangsan eat durians everyday?' [±Pol] >>∀
'On each day, does Zhangsan eat durians?' ∀ >> [±Pol]

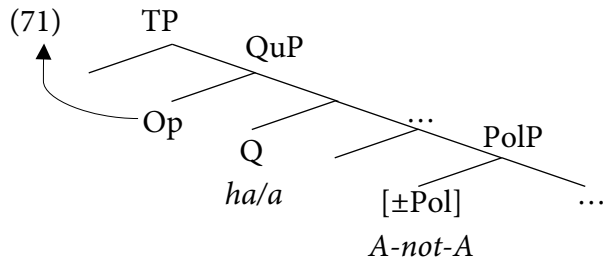
### 2.6.3 A typology of yes-no questions

Having argued that A-not-A questions involve a QuP and *ha/a* questions involve a PolP, now we are in a good position to address the question why different forms of yes-no questions in Wuhu

and Nanjing Mandarin show parallel behaviors, despite that they overtly involve categorically distinct elements that have different distributional properties.

As illustrated in (71), I argue that *ha/a* questions, A-not-A questions, and *a* + A-not-A questions all share an identical underlying syntactic representation that involves two TP-internal functional projections: QuP and PolP.

(71)




The difference in their surface forms is then reduced to the lexicon: Both the Qu head and the Pol head can be overt or null. In particular, in a *ha/a* question, an overt Qu head is merged, whereas [±Pol] is not overtly realized; in an A-not-A question, the situation is reversed: [±Pol] is overtly spelled-out as an A-not-A string whereas a phonologically null Qu head is merged; and finally, when both Qu head and [±Pol] are overtly pronounced, this gives us an *a* + A-not-A question.

Under this analysis, we would further expect a (neutral) yes-no question can still be formed when both the Qu head and [±Pol] are phonologically null. One candidate for such a question is intonational yes-no questions,[17] which morphosyntactically are not distinct from their declarative counterparts and only encode interrogativity with a special intonation pattern.[18] Interestingly, in Wuhu Mandarin, an intonational yes-no question may still allow verb-echo answers.

[17] I thank Harold Torrence for pointing this out to me.

[18] The exact prosodic pattern is still debatable in the literature, although many of them suggest a rising intonation (cf. Gårding 1984, 1987; Shen 1990; Liu & Xu 2005, etc).

(72) a. Q: Zangsen qieʔ liulin↗?
Z. eat durian
'Zhangsan eats durians, right?' or 'Does Zhangsan eat durians?'

b. A: dei /peʔ dei **/qieʔ** /peʔ **qieʔ**
correct NEG correct eat NEG eat

Since neutral yes-no questions like *ha/a* questions, A-not-A questions, and *a* + A-not-A questions all require verb echo answers, whereas biased yes-no questions like SFP *ha/ba* questions require particle answers, the availability of verb echo answers to intonational questions may suggest that not all of them are biased questions. The similarity between intonational questions and other three types of yes-no questions can be further found in the existence of intonational negative yes-no questions:

(73) Zangsen peʔ qieʔ liulin↗?
Z. NEG eat durian
'Zhangsan doesn't eat durians, right?' or 'Does Zhangsan not eat durians?'

In sum, under my analysis, various surface forms of yes-no questions in Wuhu and Nanjing Mandarin now boil down to a typology of externally merging either overt or null heads:

(74) A typology of yes-no questions in Wuhu and Nanjing Mandarin

| | Overt Q | Null Q |
|---|---|---|
| Overt [±Pol] | *a* + A-not-A question | A-not-A question |
| Null [±Pol] | *ha/a* question | Intonational question with echo answer |

## 2.7 Summary

In this chapter, I systematically looked at a type of sentence-internal question particle that is only found in yes-no questions in Jianghuai Mandarin, which provides cross-linguistic evidence for

Bhatt & Dayal's (2020) proposal about the existence of a class of dedicated yes-no question particles in human languages.

I also compared three types of yes-no questions formed with a sentence-internal question particle *ha/a* or/and an A-not-A string in two mutually intelligible varieties of Jianghuai Mandarin. The distributional differences between *ha/a* and A-not-A string are understandable if they are within two separate functional projections, QuP and PolP respectively. Meanwhile, the parallel behaviors of all three types of yes-no questions are taken as evidence that they all share the same underlying structure that involve both QuP and PolP, and the variation in their surface forms is reduced to the lexicon. Therefore, building on Holmberg's (2016) analysis of yes-no questions, I argued that the syntax of yes-no questions in Jianghuai Mandarin not only involves a PolP headed by an open-valued polarity variable [±Pol], but a QuP headed by a dedicated yes-no question particle must also be assumed.

The current proposal may further shed light on constructions beyond yes-no questions. For instance, another piece of evidence that *ha/a* are categorically distinct from A-not-A, and hence cannot be the polarity head [±Pol], can be found in their distribution within "bare unconditionals", i.e., unconditional adverbial clauses without an overt equivalent of English "no matter/regardless of", adopting Rawlins' (2008a) terminology.

(75) a. [Zangsen **qie?-pe?-qie?** liulin], wo dou lijie ta.
Z. eat-NEG.-eat durian 1SG DOU understand 3SG
'Whether Zhangsan eats durians or not, I understand him.'

b.* [Zangsen **ha/a** qie? liulin], wo dou lijie ta.
Z. Q eat durian 1SG DOU understand 3SG
Intended 'Whether Zhangsan eats durians or not, I understand him.'

The bracketed constituents in (75) indicate the adverbial clause in the unconditionals. Here we once again find a contrast between the A-not-A string and *ha/a*: only the former but not the latter is allowed in the unconditional adverbial clause. This is unexpected under any analysis assuming that both *ha* and the A-not-A string are morphological realizations of the same syntactic head [±Pol].

Nevertheless, this distinction is neutralized in "headed unconditionals", i.e., unconditionals with an overt counterpart of English "no matter/regardless of", following Rawlins' (2008) terminology again.

(76) a. [**peʔgun** Zangsen **qieʔ-peʔ-qieʔ** liulin], wo dou lijie ta
no matter Z. eat-NEG.-eat durian 1SG DOU understand 3SG
'No matter whether Zhangsan eats durians or not, I understand him.'

b. [**peʔgun** Zangsen **ha/a** qieʔ liulin], wo dou lijie ta
no matter Z. Q eat durian 1SG DOU understand 3SG
'No matter whether Zhangsan eats durians or not, I understand him.'

Under my analysis of *ha/a* and the A-not-A string, the contrast in (75-76) can be accounted for if we assume that both headed and bare unconditional antecedents necessarily require a variable to introduce disjunction, whereas only headed but not bare antecedents syntactically involve an interrogative.

## Appendix: Interpreting [±Pol] in-situ

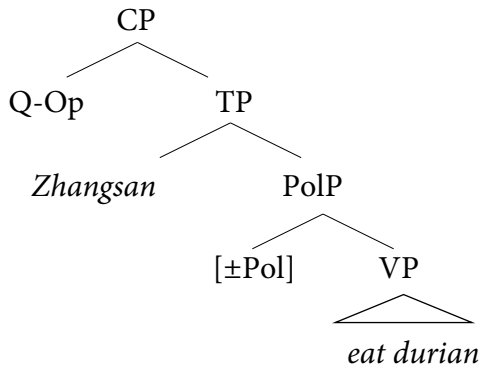
The syntax of I proposed in this chapter accounts for the presence of island effects across various forms of yes-no questions in Jianghuai Mandarin. Nevertheless, I have not addressed the issue of (focus) intervention effects observed in these questions, which have been argued to originate from uninterpretability in semantic computation (Beck 2006, Rawlins 2008a, Kotek 2019, a.o.). In this appendix, I present an analysis of interpreting these questions compositionally by reading off the outcome of the syntactic derivation I proposed, and also capture the focus intervention effects within the Beck & Kim framework.

To begin with, built on the proposed syntax of yes-no question (71), for a *ha/a* question (1a) and an (*a*+) A-not-A question (1b), I assume that they all share a simplified LF (1c), where the [±Pol], as I have argued, is interpreted in-situ, and the moved Q-Op is interpreted in the C-domain.

(1) a. Zangsen **ha/a** qie? liulin?
Z. Q eat durian
'Does Zhangsan eat durians?'

b. Zangsen **(a) qie?-pe?-qie?** liulin?
Z. Q eat-NEG-eat durian
'Does Zhangsan eat durians?'

c.



To define the denotation of the [±Pol], I extend Erlewine's (2014) analysis of Standard Mandarin disjunctor *haishi* 'or', which also exhibits focus intervention effects, to [±Pol], and assume that the polarity variable projects a focus semantic value by creating a Rooth-Hamblin set consisting of a proposition and its negation, and does not have an ordinary semantic value. Moreover, under an in-situ approach to [±Pol], I adopt Yuan & Hara's (2019) denotation of A-not-A as the focus semantic value of [±Pol]:

(2) a. $[\![[\pm\text{Pol}]]\!]^o$ = undefined
b. $[\![[\pm\text{Pol}]]\!]^f = \{\lambda P.\lambda x.\ P(x), \lambda P.\lambda x.\ \neg P(x)\}$

It is worth mentioning that [±Pol] takes a property instead of a proposition as one of its argument. In addition to being compatible with the in-situ interpretation approach, I argue that this property of [±Pol] further predicts that an A-not-A string can be formed on predicates that are not verbal or adjectival, e.g. nominal predicates. This is borne out in (3):

(3) a. maige **libai-yi**.
tomorrow week-one
'Tomorrow is Monday.'

b. maige **li-pe-libai-yi**?
tomorrow week-NEG-week-one
'Is tomorrow Monday?'

I further define the interpretation of moved Q-Qp based on Erlewine's (2014) and Kotek's (2019) proposal that Q-Qp resets the focus semantic value of its complement to its ordinary semantic value, factoring in the assumption that *ha/a* is a dedicated *yes-no* question particle:

(4) $[\![\text{Q-Op } a]\!]^o = [\![a]\!]^f$

A step-by-step derivation of (1c) is illustrated in (5):

(5) a. $[\![\text{VP}]\!]^o = \lambda x$, $x$ eats durians

b. $[\![\text{PolP}]\!]^o$ = undefined
$[\![\text{PolP}]\!]^f = \{\lambda x.\ x \text{ eats durians}, \lambda x.\ \neg\ x \text{ eats durians}\}$

c. $[\![\text{TP}]\!]^o$ = undefined
$[\![\text{TP}]\!]^f = \{$*Zhangsan eats durians*, ¬ *Zhangsan eats durians*$\}$

d. $[\![\text{CP}]\!]^o = [\![\text{TP}]\!]^f = \{$*Zhangsan eats durians*, ¬ *Zhangsan eats durians*$\}$

In particular, (5b) shows that, since [±Pol] does not have an ordinary semantic value (*cf.* 2a), the ordinary semantic value of PolP is thus undefined, which further makes the ordinary semantic value of TP undefined. The focus semantic value of PolP is a disjunctive set of alternative properties. This alternative set is then computed pointwise throughout the rest of the composition, where each alternative of the set composes with the sister, i.e. [[Zhangsan]]. This would give us the alternative set as the focus semantic value of the TP (5c). At the last step of the composition, the Q-Op resets the focus semantic value of its sister to an ordinary semantic value.

Now I turn to the observed focus intervention effects in yes-no questions. Following Beck (2006), Rawlins (2008a) and Kotek (2019), I argue that intervention is an LF phenomenon: when the LF in-situ alternatives are blocked by an intervener from reaching to a higher focus-sensitive operator, i.e. the moved Q-Op in the case of yes-no questions. For instance, the focus particle *jiu* in (6a-b) behaves like an intervener to the in-situ interpreted [±Pol], as illustrated in the corresponding LF in (6c), adopting Beck's (2006) adaptation of Rooth's (1985, 1992) theory of focus interpretation:

(6) a.* **jiu** Zangsen **ha/a** qie? liulin?
only Z. Q eat durian
Intended 'Does only Zhangsan eat durians?'

b.*jiu Zangsen (a) qie?-pe?-qie? liulin?
only Z. Q eat-NEG-eat durian
Intended 'Does only Zhangsan eat durians?'

c. [$_{CP}$ Q-Op$_i$ [$_{TP3}$ [only *ALT*] [$_{TP2}$ ~*ALT* [$_{TP1}$ Zhangsan$_j$ [$_{PolP}$ [±Pol]$_i$ [$_{VP}$ eat durians ]]]]]]

The LF in (6c) is uninterpretable under Beck's (2006) analysis. Since [±Pol] only has focus semantic value but no ordinary semantic value, both PolP and $TP_1$ only have focus semantic values and undefined ordinary semantic values. However, as the focus sensitive operator, i.e. the ~ operator, "makes use of both the ordinary interpretation and the focus semantic interpretation of its sister, and it resets the focus semantics to the ordinary semantics" (Beck 2006: 17), both the ordinary and focus semantic value of $TP_2$ are then undefined: its sister $TP_1$ does not have an ordinary semantic value. Consequently, $TP_3$ is has no defined ordinary or focus semantic value either, which further makes the CP have no defined ordinary semantic value, violating the "Principle of Interpretability":

(7) Principle of Interpretability
An LF must have an ordinary semantic interpretation. (Beck 2006: 16)

Compared to Law's (2006) Q-movement analysis of intervention effects in A-not-A questions, the current approach predicts that focus intervention effects are still found in bare unconditionals. On the contrary, if the movement of Q is responsible for the observed intervention effects, we should not expect intervention effects in bare unconditionals, which in my analysis, do not have interrogative elements. (8) suggests that my approach correctly captures the data:

(8) *[**jiu** Zangsen **qie?-pe?-qie?** liulin], Lisi dou hui mai.
only Z. eat-NEG.-eat durian L. DOU will buy
Intended 'Whether only Zhangsan eats durians or not, Lisi will buy (them).'
(Zhangsan is the only person *x* such that whether *x* eats durians or not, Lisi will buy durians.)

Furthermore, under my analysis that Q-Op movement is sensitive to syntactic islands whereas interpretating [±Pol] in-situ is subject to intervention effects, another prediction we can make is that in Nanjing Mandarin *a* + A-not-A questions, if an intervener follows between a and the A-not-A string, we would still see intervention effects: the intervener is still above the [±Pol] and therefore the LF of the sentence does not have an ordinary semantic interpretation. This is borne out:

(9) * Zangsan **a** zi **qie?-pe?-qie?** liulin?
Z. Q only eat-NEG-eat durian
Intended 'Does Zhangsan only eat durians?'

# Chapter 3 Yes-no questions and Unconditionals

In Mandarin, beyond yes-no questions, another structure that is compatible with a polarity variable with open value is unconditionals, straightforwardly evidenced by the fact that both the A-not-A string and the clause-internal Q particle can occur within an unconditional adverbial clause in different varieties of Mandarin (1), and, as we will see, in other Sinitic languages.

(1) a. [Standard Mandarin]
buguan Zhangsan **chi-bu-chi** liulian, Lisi dou zhi chi lizhi.
no matter Z. eat-NEG-eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

b. [Wuhu and Nanjing Mandarin]
pegun Zangsen **ha/a** qie liulin, Lisi dou zi qie lizi.
no matter Z. Q eat durian L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

Unlike polar questions, the syntax of Mandarin unconditionals has not attracted much attention in the generative literature. Lin (1996) briefly discusses certain syntactic properties of the unconditional adverbial clauses, and focuses on the interactions between the adverbial clause and the morpheme/functional head *dou* within the main clause, a Mandarin-specific phenomenon. Meanwhile, much work has been done on the semantics of a related construction, the so-called "*wh*-conditionals" (Cheng & Huang 1996, Lin 1999, Chierchia 2000, Pan & Jiang 2015, Xiang 2016, Liu 2016, Li 2021, a.o.), the interpretation of which is similar to donkey sentences.

(2) shei shu-le, shei jiu qingke.
who lose-PERF who then pay
'For every person *x*, if *x* is the one losing the bet, *x* is the one paying.' (Li 2021: 402)

In this chapter, against the backdrop of investigating the syntax of adverbial clauses in a comparative perspective, I focus on the syntactic characteristics of Mandarin unconditionals. Presenting properties that are either Mandarin-specific or cross-linguistically attested, I discuss in greater detail the internal structure of *buguan* adverbial clauses as well as their interactions with the main clauses. In particular, I argue that there exist two types of Mandarin unconditional adverbial clauses with distinct internal syntactic representations (contra Lin 1996), supporting one particular approach to the internal syntax of adverbial clauses, i.e., different adverbial clauses may differ from each other in their clause sizes. Regarding their external syntax, I show that these two types of unconditional adverbial clauses also exhibit different patterns interacting with the main clauses.

The rest of this chapter is organized as follows. Building on Lin's (1996) work, section 3.1 introduces some basic properties of Mandarin unconditionals. In section 3.2, I argue for a "truncation" approach (e.g., Haegeman 2003, 2006; Benincà & Poletto 2004; Wei & Li 2018; Endo & Haegeman 2019; Villalba 2019; also see Pan 2019) to the internal syntax of Mandarin unconditional adverbial clauses by distinguishing two types of them: one with a more elaborated internal syntactic representation and the other has a rather impoverished one. Section 3.3 discusses the issue whether they involve embedded (polar) questions or not and argues that only the type with a richer internal structure involves embedded questions. An alternative approach based on intervention (e.g., Roberts 2004; Haegeman 2010a, b, 2012; Abels 2012; Jiménez-Fernández & Miyagawa 2014) is evaluated in section 3.4. Section 3.5 is primarily concerned with the interactions between unconditional adverbial clauses and the morpheme *dou* the main clauses, in which I show

that the two types of unconditional adverbial clauses with distinct internal syntax also differ from each other regarding their external syntax in having separate attachment sites within the main clause. Section 3.6 further explores a possible explanation of such observed correlation between unconditional adverbial clauses' internal syntax and external syntax, where I try to extend a recently proposed three-way division in the syntax and semantics of adverbial clauses in Indo-European languages (cf. German in Frey 2020, 2021; English and Italian in Badan & Haegeman 2022) to Mandarin unconditionals. Section 3.7 briefly concludes this chapter.

## 3.1 Two types of Mandarin unconditionals

This section gives a brief overview of unconditional constructions in Standard Mandarin. As (3) illustrates, descriptively speaking, an unconditional construction is biclausal: it consists of an adverbial clause and a main clause. Following the tradition of the literature (Haegeman 2003; Rawlins 2008a, b; Endo & Haegeman 2019; Šimík 2020; Badan & Haegeman 2021; a.o.), I will call the adverbial clause the ANTECEDENT, and the main clause the CONSEQUENT, as shown in (3). Furthermore, two elements are typically involved in Mandarin unconditional constructions.

*Buguan* or *wulun*,[19] which normally translates into 'no matter', occurs in the clause-initial position in the antecedent.[20] Meanwhile, a morpheme *dou* occurs clause-internally within the consequent.

(3) [ANTECEDENT **buguan** mingtian xia-bu-xiayu],
no matter tomorrow rain-NEG-rain
[CONSEQUENT Zhangsan **dou** hui zhunshi chuxian].
Z. DOU will on.time show.up
'No matter whether it rains or not tomorrow, Zhangsan will show up on time.'

Although the primary concern of this dissertation is the polarity variable, encoded by an A-not-A string in Sinitic languages (Holmberg 2016), it is noteworthy that *wh*-elements like *shenme* 'what' or *duo* 'how' are also equally compatible with unconditionals (cf. Lin 1996).

(4) a. buguan mingtian shi **shenme** tianqi,
no matter tomorrow be what weather
Zhangsan dou hui zhunshi chuxian.
Z. DOU will on.time show.up
'No matter what the weather is tomorrow, Zhangsan will show up on time.'

[19] Although it is not represented in the gloss, morphologically speaking, *buguan* consists of a negation *bu* and a lexical verb *guan* 'be in charge of, manage, mind'. Similarly, *wulun* also consists of a negation *wu* that was more commonly used in classical Chinese, and a lexical verb *lun* 'discuss, debate'. Native speakers' intuition about these two lexical items for 'no matter' is that *buguan* is more colloquial whereas *wulun* is typically used in more formal contexts.

Zhangsan jingchang {**guan** /tan-**lun** bieren de yinsi.
Z. often mind talk-discuss other DE privacy
'Zhangsan often minds/discusses others' private business.'

[20] As observed in Lin (1996), in addition to adverbial clauses, *buguan/wulun* may also co-occur with a *wh*-element in the argument position, a structure he calls "nominal *wulun*-construction". Although a proper analysis of *buguan/wulun* obviously will have to take into consideration such constructions, I will not be concerned with them in this dissertation and leave it for future work.

(**wulun**) **shei** dou biwu zunshou falv.
no matter who DOU must obey law
'No matter who must obey law.' (Lin 1996: 93)

b. buguan mingtian de yu **duo** da,
no matter tomorrow DE rain how big
Zhangsan dou hui zhunshi chuxian.
Z. DOU will on.time show.up
'No matter how heavy tomorrow's rain is, Zhangsan will show up on time.'

As pointed out in the literature (Lin 1996, Cheng & Huang 1996, Huang 2012, a.o.), not every antecedent of a conditional construction involves an overt *buguan/wulun*: the lack of anything that corresponds to English 'no matter' in (4) does not affect its grammaticality or interpretation. A similar pattern is also found in English, and Rawlins (2008a) uses the term "headed unconditionals" to refer to English unconditionals with an overt *no matter* or *regardless of* in *No matter/regardless of who comes to the party, it will be fun*., and "bare unconditionals" for those without it like *Good or bad, we have to fire him*. Adopting Rawlins' terminology, I will use the term HEADED UNCONDITIONALS to refer to Mandarin unconditional constructions involving overt *buguan/wulun* (e.g., (1), (3), (4)) and BARE UNCONDITIONALS (e.g., (5)) for those without overt *buguan/wulun*, and hence, HEADED ANTECEDENT for adverbial clauses like (1), (3) and (4), and BARE ANTECEDENT for adverbial clauses like (5).

(5) a. [ANTECEDENT Zhangsan chi-bu-chi liulian,]
Z. eat-NEG-eat durian
[CONSEQUENT Lisi dou zhi chi lizhi.]
L. DOU only eat lychee
'No matter whether Zhangsan eats durians, Lisi only eats lychees.'

b. [ANTECEDENT mingtian xia-bu-xiayu,]
tomorrow rain-NEG-rain
[CONSEQUENT Zhangsan **dou** hui zhunshi chuxian.]
Z. DOU will on.time show.up
'No matter whether it rains or not tomorrow, Zhangsan will show up on time.'

Note that no matter whether the antecedent is headed or bare, the adverbial clause within an unconditional construction obligatorily involve either a *wh*-element or an A-not-A string, as illustrated in the contrast in (6-7).

(6) a. buguan mingtian xia **duo-da** de yu,
no matter tomorrow fall how-big DE rain
Zhangsan dou hui zhunshi chuxian.
Z. DOU will on.time show.up
'No matter how heavy the rain is tomorrow, Zhangsan will show up on time.'

b.* buguan mingtian xiayu, Zhangsan dou hui zhunshi chuxian.
no matter tomorrow rain Z. DOU will on.time show.up

(7) a. Zhangsan chi **shenme**, Lisi dou zhi chi lizhi.
Z. eat what L. DOU only eat lychee
'No matter what Zhangsan eats, Lisi only eats lychees.'

b.* Zhangsan chi liulian, Lisi dou zhi chi lizhi.
Z. eat durian L. DOU only eat lychee

As reflected in the above examples, one language-specific property of Mandarin unconditionals is that the consequent typically involves a morpheme *dou*. However, it is not always obligatory: The presence of modal adverbs like *yiding* 'definitely' or *kending* 'certainly' within the consequent makes *dou* optional, and this optionality turns out to correlate with the presence/absence of *buguan/wulun* (Note that this contradicts the claim by Lin (1996) that *dou* is obligatory in unconditionals). More specifically, when there is an overt *buguan/wulun* in the antecedent, *dou* in the consequent becomes optional (8a); whereas it is obligatory when there is a bare antecedent (8b). In other words, *dou* is only optional in headed but not bare antecedents.

(8) a. Headed unconditional: (*dou*)
**buguan** mingtian xia-bu-xiayu,
no matter tomorrow rain-NEG-rain
Zhangsan yiding (**dou**) hui zhunshi chuxian.
Z. definitely DOU will on.time show.up
'No matter whether it rains tomorrow, Zhangsan definitely will show up on time.'

b. Bare unconditional: *(*dou*)
mingtian xia-bu-xiayu, Zhangsan yiding */??(**dou**) hui zhunshi chuxian.
tomorrow rain-NEG-rain Z. definitely DOU will on.time show.up

One empirical generalization made in Lin (1996) is that *buguan/wulun* in unconditionals is optional, and he assumes that there is a null counterpart of *buguan/wulun* in bare unconditionals. However, the data in (8) challenges this proposal: we would not expect the contrast between (8a) and (8b) if both headed and bare unconditionals involve essentially identical underlying structure. The correlation between the headed/bare unconditionals and the obligatoriness of *dou* is schematized in (9): In unconditionals, bare antecedents must co-occur with a consequent involving *dou*, whereas headed antecedents does not require the presence of *dou* in the consequent.

(9) a. HEADED UNCONDITIONALS
[$_{\text{ANTECEDENT}}$ ***buguan/wulun*** …A-not-A/*wh*…], [$_{\text{CONSEQUENT}}$ … (***dou***) …]

b. BARE UNCONDITIONALS
[$_{\text{ANTECEDENT}}$ …A-not-A/*wh*…], [$_{\text{CONSEQUENT}}$ … *(***dou***) …]

In the rest of this chapter, I demonstrate that the correlation illustrated in (9) turns out to be crucial in understanding some differences between headed and bare unconditionals with respect to both their internal syntax and external syntax.

In particular, regarding their internal syntax, it will be shown that although both involve variables like A-not-A and *wh*-elements, only headed antecedents but not bare antecedents involve

CPs with (i) a full-fledged left periphery and (ii) a [+q] $C^0$. Regarding their external syntax, I propose that bare antecedents are closely integrated into the consequent and fall under the category of "central adverbial clause (CAC)" (cf. terminology in Haegeman 1991; 2003; 2006a; b; 2010a; b; 2012): They are externally merged at Spec *dou*P above *v*P (à la Lin 1996, Constant & Gu 2010, Tsai 2015, a.o.) within the consequent, and move to the canonical pre-consequent sentence-initial position (cf. the analysis of English *if*-conditionals in Iatridou 1991, Haegeman 2003, Bhatt & Pancheva 2017, a.o.), as illustrated in (10a). In contrast, headed antecedents are independent from *dou* and allow more flexibility in their external syntax: They may behave like CACs, and when they do, they have a lower merge site compared to bare antecedents before moving to the derived pre-consequent position (10b). Furthermore, they can also behave like a "peripheral adverbial clause (PAC)" and a speech-act modifier and are directly merged in the surface pre-consequent position (à la Frey 2020, 2021; Badan & Haegeman 2022).

(10) a. BARE UNCONDITIONALS
[ANTECEDENT **TP**…] [consequent… [*dou*P _ [*dou*]]…]

b. CAC HEADED UNCONDITIONALS
[ANTECEDENT **CP[+Q]** *buguan* [TP…]] [CONSEQUENT …(*dou*)… _ ]

### 3.2 The internal syntax of Mandarin unconditionals: A truncation approach

In this section, I lay out my analysis of the first aspect of the internal syntax of Mandarin unconditionals: headed and bare antecedents have distinct structural sizes. The primary focus concerns certain main clause phenomena (cf. Emonds 1970, 1976; Hooper & Thompson 1973).

It is well recognized that adverbial clauses are incompatible with certain main clause phenomena (Haegeman 2003, 2010a, b). For instance, English temporal adverbial clauses and conditional clauses may not allow locative inversion (11a), VP topicalization (11b), argument fronting (11c), epistemic modals (11d) or speech act adverbs (11e):

(11) a. *If **upstairs** live his parents things will be much simpler.
b. *If **passed these exams** you had, you would have had the degree.
(Danckaert & Haegeman 2012: 2)

c. *If **these exams** you don't pass, you won't get the degree.
d. *We met John before he **must** have tampered with the tapes.
e. ??*When/if **frankly** he is unable to cope, we 'll have to replace him.
(Haegeman 2010a: 1,2)

Within the generative literature, there are two approaches to the lack of main clause phenomena in adverbial clauses: the "truncation" approach (Haegeman 2003, 2006; Benincà & Poletto 2004; Wei & Li 2018; Villalba 2019; Frey 2020a, b; also see Pan 2019) and the "intervention" approach (Roberts 2004; Bhatt and Pancheva 2002, 2006, 2017; Arsenijević 2009; Tomaszewicz 2009; Haegeman 2010a,b, 2012; Zentz 2011; Abels 2012; Jiménez-Fernández & Miyagawa 2014; Yip 2021, a.o.). On the one hand, the "truncation" approach assumes that these adverbial clauses are structurally reduced compared to root clauses and may lack certain functional projections to host the relevant materials in (11). On the other, the analytical intuition underlying the "intervention" approach is that boldfaced elements in (11) or features associated with them interfere with (operator) movements or some kind of probe-goal relation involved in the derivation of these adverbial clauses.

Based on systematic comparisons, I will show that the differences between headed and bare antecedents regarding their internal syntax is better understood under the truncation approach. In particular, I argue that only headed antecedents have a [+q] complementizer and a full-fledged left periphery, supporting Rawlins's (2008a) claim that unconditional antecedents involve embedded interrogatives; whereas the left periphery of bare antecedents involves an impoverished structural representation and possibly bare antecedents are only TPs. Empirical evidence comes from the (in)compatibility between a headed/bare antecedent and (i) left dislocation, (ii) VP fronting, (iii) evaluative adverbs and epistemic modals, (iv) clause initial *weishenme* 'why', and relatedly, (v) *wh*-ex-situ: The main logic underlying these diagnostics is that these elements are independently argued to be with the left periphery of Mandarin, and if they are systematically ruled out in a type of clause, then one reason is that this type of clause is structurally reduced and do not have relevant projections holding these elements.

### 3.2.1 Left dislocation

The first piece of evidence concerns whether an unconditional antecedent allows left dislocation. (12) shows that *buguan* is optional. This is expected given what we have seen in (3) and (5) when there is no further syntactic operation that targets the left periphery of the antecedent.

(12) (**buguan**) Lisi wei na-ge nvsheng fuchu duoshao,
no matter L. for that-CL girl give how.much
wo dou bu kanhao tamen.
1SG DOU NEG be.optimistic.about 3PL
'No matter how much Lisi does for that girl, I'm not optimistic about them.'

Following Badan & Del Gobbo (2011), I assume that a PP in the sentence initial position is a left dislocated topic. (13) illustrates that once the PP *wei na-ge nvsheng* 'for that girl' is left-dislocated, *buguan* becomes obligatory, i.e., left dislocation is only allowed in headed but not bare antecedents.

(13) a. Headed antecedent: ✓ left dislocation
**buguan** [wei na-ge nvsheng], Lisi fuchu duoshao,
no matter for that-CL girl L. give how.much
wo dou bu kanhao tamen
1SG DOU NEG be.optimistic.about 3PL
'As for/with that girl, no matter how much Lisi does for her, I'm not optimistic about them.'

b. Bare antecedent: ✗ left dislocation
* [wei na-ge nvsheng], Lisi fuchu duoshao,
for that-CL girl L. give how.much
wo dou bu kanhao tamen
1SG DOU NEG be.optimistic.about 3PL

Adopting their analysis that left dislocated topic is above the IP/TP of a clause and within its left periphery, the contrast in (13) receives a straightforward explanation under my proposal that headed antecedents involve a left periphery whereas bare antecedents are structurally reduced.[21]

[21] In addition, it is worth noting that Badan & Del Gobbo (2011) observes that, in *zicong* 'since' temporal adjunct clauses and *yinwei* 'because' reason adverbial clauses, a hanging topic, which is structurally higher than a left-dislocated topic, must precede but not follow the subordinator *zicong* and *yinwei* respectively. The contrast in the following examples shows that a similar restriction extends to headed unconditionals. Therefore, I suspect that *buguan* is low in the C-domain.

a.??/* **buguan** [na-ge nvsheng]$_1$, Lisi wei ta$_1$ fuchu duoshao,
no matter that-CL girl L. for 3SG give how.much
wo dou bu kanhao tamen
1SG DOU NEG be.optimistic.about 3PL

b. [na-ge nvsheng]$_1$, **buguan** Lisi weita$_1$ fuchu duoshao,
that-CL girl no matter L. for 3SGgive how.much
wo dou bu kanhao tamen
1SGDOU NEG be.optimistic.about 3PL

Nevertheless, the ungrammaticality of the below (c) sentence cannot necessarily be a direct argument for my analysis as it is imaginable that bare antecedents involve a null complementizer and (c) is ruled out because the bare DP hanging topic is preceding the null complementizer. However, a counterargument can still be made for my favor: Nothing stops native speakers from construe (c) as a bare antecedent without any complementizer and since hanging topics are structurally higher than left dislocation (cf. Badan & Del Gobbo 2011), a bare antecedent should not be expected to allow hanging topic when it already is incompatible with left dislocation. I will leave this issue open for now and turn to further clearer diagnostics.

c. *[na-ge nvsheng]$_1$, Lisi wei ta$_1$ fuchu duoshao,
that-CL girl L. for 3SG give how.much
wo dou bu kanhao tamen
1SG DOU NEG be.optimistic.about 3PL

### 3.2.2 VP fronting

As observed in Huang (1993) and Tsai (2015), Mandarin allows VP fronting in a declarative sentence in the presence of a modal (14). Furthermore, VP fronting is also possible in a question (15):

(14) piping ziji$_{1/2}$ de pengyou, Zhangsan$_1$ zhidao Lisi$_2$ juedui bu hui.
criticize self DE friend Z. knows L. definitely NEG will
'Criticize his$_{1/2}$ own friends, Zhangsan$_1$ knows Lisi$_2$ definitely will not.'
(Huang 1993: 117)

(15) a. Zhangsan hui-bu-hui [$_{VP}$ youyong]?
Z. can-NEG-can swim
'Can Zhangsan swim?'

b. [$_{VP}$ youyong] Zhangsan hui-bu-hui?
swim Z. can-NEG-can

In (16a), *buguan* is optional when the antecedent does not involve VP fronting. Furthermore, VP fronting is allowed in unconditional antecedents, but only when *buguan* is present (16b-c).

(16) a. (buguan) Zhangsan hui-bu-hui **youyong**,
no matter Z. can-NEG-can swim
ta dou suishi zhunbei jiu ren.
3SG DOU anytime be.ready.to save people
'No matter whether Zhangsan can swim or not, he is ready to save lives anytime.'

b. Headed antecedent: ✓ VP fronting
buguan **youyong** Zhangsan hui-bu-hui,
no matter swim Z. can-NEG-can
ta dou suishi zhunbei jiu ren.
3SG DOU anytime be.ready.to save people

c. Bare antecedent: ✗ VP fronting
* **youyong** Zhangsan hui-bu-hui,
swim Z. can-NEG-can
ta dou suishi zhunbei jiu ren.
3SG DOU anytime be.ready.to save people

The position of the fronted VP can be seen from its interactions with well-studied *even*-focus constructions. Despite recent debate over the derivational history of fronted VP in English (e.g., Ott 2018, Thoms & Walkden 2019), assuming that *even*-focus occupies the lowest projection in the left periphery of Mandarin (Paul 2005; Badan & Del Gobbo 2011, 2015; also cf. Cantonese in Cheung 2015), the word order contrast in (17b-c) illustrates that the fronted VP in Mandarin occupies a position higher than the *even*-focus in the left periphery:

(17) a. Lisi$_1$ bu gan zai ren hen shao de shihou zhaixia ziji$_1$ de kouzhao.
L. NEG dare in people very few DE time take.off self DE mask
'Lisi doesn't dare take off his own mask when there are very few people (around).'

b. fronted VP ≺ *even* focus
zhaixia ziji$_1$ de kouzhao (ne), lian zai ren hen shao de shihou,
take.off self DE mask TOP LIAN in people very few DE time
Lisi$_1$ dou bu gan.
L. DOU NEG dare
'Take off his own mask, even when there are very few people (around), Lisi doesn't dare.'

c. **even* focus ≺ fronted VP
*lian zai ren hen shao de shihou, zhaixia ziji$_1$ de kouzhao (ne),
LIAN in people very few DE time take.off self DE mask TOP
Lisi$_1$ dou bu gan.
L. DOU NEG dare

Hence a truncation approach offers a natural account for the incompatibility between VP fronting and bare antecedents: they are structurally impoverished and simply do not have the relevant structure to host the fronted VP.

### 3.2.3 Evaluative adverbs and epistemic modals

Yang (2015) argues that Mandarin (clause-initial) evaluative adverbs like *pianpian* 'oppositely' and *qishi* 'actually' are merged in the CP domain, in particular, within a functional projection EvalP above the *shi*-clefted focus (18).

(18) {**pianpian**} shi ne-ben-shu {*__pianpian__} Zhangsan mei du-guo.
oppositely SHI that-CL-book oppositely Z. NEG read-EXP
'It is that book that oppositely Zhangsan hasn't read [it] before.' (Yang 2015: 176)

Similar to what we have seen regarding left dislocation and VP fronting, only headed but not bare antecedents allow such evaluative adverbs:

(19) a. (buguan) Lisi yinwei shenme er chidao, jingli dou hen shengqi.
no matter L. because what such.that be.late manager DOU very angry
'No matter because of what Lisi was late, the manager was not happy.'

b. Headed antecedent: ✓ evaluative adverbs
buguan {**juran/qishi/pianpian**} Lisi yinwei shenme er
no matter unexpectedly/actually/oppositely L. because what such.that
chidao, jingli dou hen shengqi.
be.late manager DOU very angry
'No matter because of what, unexpectedly/actually/oppositely, Lisi was late, the manager was not happy.'

c. Bare antecedent: ✗ evaluative adverbs
* {**juran/qishi/pianpian**} Lisi yinwei shenme er chidao,
unexpectedly/actually/oppositely L. because what such.that be.late
jingli dou hen shengqi.
manager DOU very angry

The contrast in (19) makes sense if we assume that bare antecedents lack the structure in the left periphery where these evaluative adverbs would have occupied.

A similar pattern is found in the interactions between unconditional antecedents and epistemic modals. Tsai (2015) proposes that Mandarin epistemic modals like *dagai* 'probably' are located within the CP layer above TP: They are "discourse/knowledge oriented" and associated with information structure. In addition to his arguments, the following example further supports Tsai's claim: Although *dagai* may occur sentence-internally, when the subject cannot be topicalized, *dagai* must precede but not follow the indefinite subject:

(20) a. {**dagai**} Zhangsan {**dagai**} hui qu Beijing.
probably Z. probably will go
'Zhangsan probably will go to Beijing'

b. {**dagai**} shui/meiren/hen-shao ren {*__dagai__} hui qu Beijing.
probably who/nobody/very-few people probably will go
'Probably who/nobody/very few people will go to Beijing.'

Again, the contrast between headed and bare antecedents found in (21) thus is expected under the truncation analysis: Bare antecedents lack the relevant structure to hold CP-layer elements like epistemic modals.

(21) a. Headed antecedent: ✓ epistemic modal
buguan **dagai** Lisi yinwei shenme er chidao,
no matter probably L. because what such.that be.late
jingli dou hen shengqi.
manager DOU very angry
'No matter probably because of what Lisi was late, the manager was not happy.'

b. Bare antecedent: ✗ epistemic modal
* **dagai** Lisi yinwei shenme er chidao,
probably L. because what such.that be.late
jingli dou hen shengqi.
manager DOU very angry

### 3.2.4 Clause-initial *weishenme* 'why'

Tsai (2008) argues that clause-initial reason *weishenme* 'why' can be analyzed as being merged in the left periphery (at Rizzi's (1997) IntP), and this is further evident in the interaction between *weishenme* and *dagai*: *weishenme* must precede but not follow *dagai*.

(22) {**weishenme**} dagai {*__weishenme__} Lisi bu hui lai?
why probably why L. NEG will come
'Why is it that Lisi probably won't come?'

A post-subject *weishenme* is compatible with both headed and bare antecedents (23a), whereas although headed antecedents allow clause-initial *weishenme* (cf. Tsai 2008: 101), bare antecedents do not. Note that the ungrammaticality of (23c) is not due to the possibility that *weishenme* in general is incompatible with bare attendances; instead, the position of *weishenme* within bare antecedents correlates with the grammaticality.

(23) a. (?) (buguan) Lisi **weishenme** hui cizhi, ni dou bu yao lan ta.
no matter L. why will quit 2SG DOU NEG should stop 3SG
'No matter why Lisi will quit, you should not stop him.'

b. Headed antecedent: ✓ clause-initial *weishenme*
bugnan **weishenme** Lisi hui cizhi, ni dou bu yao lan ta.
no matter why L. will quit 2SG DOU NEG should stop 3SG

c. Bare antecedent: ✗ clause-initial *weishenme*
* **weishenme** Lisi hui cizhi, ni dou bu yao lan ta.
why L. will quit 2SG DOU NEG should stop 3SG

In addition, Tsai (1994, 2008) distinguishes two types of *weishenme*: one is concerned with reason and the other purpose. He notices that the latter one sometimes has the form *wei(-le) shenme* and tends to follow modals, which leads to the proposal that purpose *wei(-le) shenme* is

merged at the *v*P periphery. Combining my analysis of bare antecedents and Tsai's proposal about purpose *why*, we would expect that purpose *why* is compatible with both headed and bare antecedents. This is indeed the case:

(24) a. buguan Lisi hui **wei-le** **shenme** cizhi, ni dou bu yao lan ta.
no matter L. will for-PERF what quit 2SG DOU NEG should stop 3SG
'No matter for what purpose Lisi will quit, you should not stop him.'

b. (?)Lisi hui **wei-le** **shenme** cizhi, ni dou bu yao lan ta.
L. will for-PERF what quit 2SG DOU NEG should stop 3SG

### 3.2.5 *Wh*-ex-situ

Relatedly, in addition to *weishenme*, although being a *wh*-in-situ language, it has long been observed that Mandarin also allows various *wh*-elements to occur sentence-initially (Xu & Langendoen 1985, Tang 1988, Hoh & Chiang 1990, Wu 1999, Cheung 2008, Pan 2014, Liu 2019, a.o.; see Cheung 2015 for *wh*-fronting in Cantonese): either as a topic (25a), or as a focus associated with a *shi* cleft construction (25b).

(25) a. "*wh*-topic"
**na-dao** **ti** xuesheng zuo-cuo-le?
which-CL question student do-wrong-PERF
'Which question, the students answered wrong?'

b. "*wh*-clefting"
**shi** **na-dao** **ti** xuesheng zuo-cuo-le?
BE which-CL question student do-wrong-PERF
'It is which question that the students answered wrong?'

Once again, headed and bare antecedents behave differently regarding whether they allow *wh*-ex-situ (26b-c, 27a-b) despite the fact that they are both compatible with the *wh*-in-situ counterpart (26a):

(26) a. (buguan) xuesheng zuo-guo-le **na-dao ti** ,
no matter student do-wrong-PERF which-CL question
laoshi dou hen shengqi.
teacher DOU very angry
'No matter which question the students answered wrong, the teacher is very angry (about it).'

b. Headed antecedent: ✓ *wh*-topic
buguan **na-dao ti** xuesheng zuo-cuo-le,
no matter which-CL question student do-wrong-PERF
laoshi dou hen shengqi.
teacher DOU very angry

c. Bare antecedent: ✗ *wh*-topic
* **na-dao ti** xuesheng zuo-cuo-le, laoshi dou hen shengqi.
which-CL question student do-wrong-PERF teacher DOU very angry

(27) a. Headed antecedent: ✓ *wh*-clefting
buguan **shi na-dao ti** xuesheng zuo-cuo-le,
no matter BE which-CL question student do-wrong-PERF
laoshi dou hen shengqi.
teacher DOU very angry
'No matter it is which question that the students answered wrong, the teacher is very angry (about it).'

b. Bare antecedent: ✗ *wh*-clefting
* **shi na-dao ti** xuesheng zuo-cuo-le, laoshi dou hen shengqi.
BE which-CL question student do-wrong-PERF teacher DOU very angry

Leaving aside the exact details of the proposal, e.g., whether they involve base generation or movement, current analyses of these ex-situ *wh*-elements share a common view that these elements occupy some position related to the information structure in the left periphery of a clause (cf. Pan

2014, Cheung 2015). Therefore, the contrast in (26-27) receives a natural explanation under the truncation approach: bare antecedents are structurally reduced and do not have the relevant functional projections to hold these ex-situ *wh*-elements.

Interestingly, the adverbial clause in (26c) is not in and of itself ungrammatical: Replacing the *dou* in the consequent into *jiu* greatly improves the judgment. As the English translation in (28) shows, the antecedent is now understood as an *if*-conditional clause and the ex-situ *wh*-element receives a free-choice NPI reading. I will leave this issue for now and come back to it when discussing the external syntax of unconditionals, especially the interactions between bare antecedents and *dou*, in section 3.5.1.

(28) (?)**na-dao ti** xuesheng zuo-cuo-le, laoshi jiu hen shengqi.
which-CL question student do-wrong-PERF teacher JIU very angry
'If the students answer any question wrong, the teacher will be very angry (about it).'

### 3.2.6 Interim summary

The data discussed above illustrate that headed, but not bare antecedents, allow elements that are independently argued to be within the CP layer, including left dislocated topics, fronted VP, evaluative adverbs, epistemic modals, clause initial *weishenme*, and ex-situ *wh*-elements in general. I take these empirical observations as evidence that headed but not bare antecedents involve a full-fledged left periphery in their syntactic representations.

In addition to the contrasts we saw in section 3.1, the observed differences in this section further argue against the traditional idea that headed and bare antecedents share the same internal syntax (Lin 1996, Cheng & Huang 1996, Giannakidou & Cheng 2006). Moreover, a truncation approach

offers a straightforward account for the incompatibility between all these elements and bare antecedents.

### 3.3 The internal syntax of Mandarin unconditionals: embedded question or not?

In this section, I turn to another set of elements: interrogative adverb *daodi*, interrogative disjunctor *haishi*, and clause internal yes-no question particles *ha/a/ka* in other Sinitic languages, all of which are compatible with headed but not bare antecedents. Unlike those we have seen in section 3.2, independent evidence has shown that these elements are TP-internal and not within the left periphery of a clause. Thus, the incompatibility between them and bare antecedents cannot be straightforwardly accounted for by an impoverished left peripheral structure of bare antecedents.

As I will show, the explanation lies in the second aspect of my proposal about the internal syntax of Mandarin unconditionals, i.e., whether the antecedent clause involves an embedded interrogative, and I argue that only headed but not bare antecedents involve a [+q] complementizer and involve embedded questions.

This is not a trivial question as we have seen that, on the surface, all unconditional antecedents seem to obligatorily involve some form of *wh*-elements or an A-not-A string (cf. 6-7). Interestingly, unlike *wh*-arguments, which famously can have an existential indefinite reading under certain licensors including epistemic modals, inference *le*, nonfactive verbs like *renwei/yiwei* think' (Huang 1982, Li 1992, Lin 1998, a.o.) in addition to the canonical interrogative reading (29a), an

A-not-A string obligatorily gives rise to an interrogative reading and can never be interpreted existentially under the same licensor (29b).

(29) a. Zhangsan **renwei** Lisi zai man-zhe **sheme**.
Z. think L. PROG hide-PROG what
Existential reading: 'Zhangsan thinks that Lisi is hiding something.'
Interrogative reading: 'What does Zhangsan think that Lisi is hiding?'

b. Zhangsan **renwei** Lisi **zai-bu-zai** man-zhe na-jian shi?
Z. think L. PROG-NEG-PROG hide-PROG that-CL thing
Interrogative reading:
'Does Zhangsan think that Lisi is hiding that or he is not hiding that?'
*Existential reading:
Intended 'Zhangsan thinks that Lisi is either hiding that or not hiding that.'

Unconditional antecedents are thus one of the very few configurations other than a question that allow an A-not-A string and hence a polarity variable with open value. Therefore, it is quite understandable that existing analyses of the internal syntax of Mandarin unconditionals assume that *all* unconditional antecedents involve (embedded) questions (Lin 1996, Cheng & Huang 1996, Huang 2012, a.o., also cf. Tsai 2015, Liu 2016). In contrast, Rawlins (2008a) makes a further distinction between English bare and headed unconditional antecedents: the former must syntactically involve a question whereas the latter only requires a semantic question, or even a concealed question, as the complement of *no matter* or *regardless*.

(30) a. No matter the results of the election, the next president will have a difficult time.
b. *The results of the election, the next president will have a difficult time.
(Rawlins 2008a: 32)

The existing analysis of Mandarin unconditional antecedents as involving syntactically (embedded) questions adequately explains the properties of headed ones. However, I argue that this approach cannot be easily extended to bare antecedents, and the proposed difference in their

internal syntax is reflected in another aspect: Headed antecedents but not bare antecedents involve syntactically embedded interrogatives, a situation that is almost the opposite of their English counterparts. Evidence for my proposal can be found in both Standard Mandarin and non-standard varieties of Mandarin.

### 3.3.1 *wh*-the-hell questions

As mentioned in Chapter 2, Mandarin *wh*-the-hell questions involve an interrogative attitude adverb *daodi*, which usually expresses the speaker's impatience in wanting to know the answer to his/her question. Moreover, *daodi* is claimed to obligatorily occur within the scope of an interrogative clause (Kuo 1996, Huang & Ochi 2004, Law 2008, Chou 2012, a.o.), as illustrated in (31):

(31) a. Lisi xiang zhidao [Zhangsan **daodi** xihuan **shui**].
L. want know Z. DAODI like who
'Lisi wonders who the hell Zhangsan likes.'

b. *Lisi **daodi** xiang zhidao [Zhangssn xihuan **shui**].
L. DAODI want know Z. like who
Intended 'Lisi wonders who the hell Zhangsan likes.' (Adapted from Law 2008: 301)

It has been long recognized that *daodi* is compatible with headed unconditional antecedents (Tsai 2008, Tang 2015). Nevertheless, the contrast in (32) shows that bare antecedents do not allow *daodi*.

(32) a. Headed antecedent: ✓ *daodi*
buguan mingtian **daodi** xia-bu-xiayu, wo dou hui anshi dao.
no matter tomorrow DAODI rain-NEG-rain 1SG DOU will on.time arrive
'No matter whether it rains or not tomorrow, I will arrive on time.'

b.*Bare antecedent: ✗ *daodi*
mingtian **daodi** xia-bu-xiayu, wo dou hui anshi dao.
tomorrow DAODI rain-NEG-rain 1SG DOU will on.time arrive

Meanwhile, an interesting observation made in Tang (2015: 145) is that although *daodi* is allowed in headed antecedents which contains a *wh*-element, it cannot precede *buguan/wulun* (33a). The same restriction applies to headed antecedents containing an A-not-A string (33b):

(33) a.* **daodi** wulun Zhangsan weisheme qu Taibei, wo dou bu zaihu.
DAODI no-matter Z. why go Taipei I DOU NEG care
'No matter why Zhangsan will go to Taipei, I don't care.' (Tang 2015: 145)

b.* **daodi** buguan mingtian xia-bu-xiayu, wo dou hui anshi dao.
DAODI no matter tomorrow rain-NEG-rain 1SG DOU will on.time arrive

Following Law's (2008) analysis of *daodi*, Tang (2015) argues that these examples are ruled out because the locality condition of *daodi* requires that *daodi* has to be within the "local scope" (i.e., "the minimal clause containing *daodi*" (Law 2008: 311)) of *wh*/A-not-A, hence "Int > Attitude > *wh*-associate"; but in examples like (33), the *wh*/A-not-A has scope under *wulun*, hence *daodi* is outside the "local scope" of the *wh*/A-not-A, violating the locality condition of *daodi* ("*Attitude > Int > *wh*-associate").

However, under this approach, it is then unclear why in bare antecedents like (34a), in the absence of an overt *buguan/wulun*, *daodi* is still ruled out and cannot be within the minimal clause as the *wh*/A-not-A. More specifically, this remains a puzzle no matter whether we assume there is a null counterpart of *buguan/wulun* in bare antecedents or not: If there is no null counterpart of *buguan/wulun*, then nothing in principle should prevent the *wh*/A-not-A from scoping over

*buguan/wulun* in (34a); if, on the other hand, there is indeed a null counterpart of *buguan/wulun*, it is still puzzling why speakers must assume that the null *buguan/wulun* is lower than *daodi* (34b), and why is it that they cannot rescue the structure by assuming that the null *buguan/wulun* is in the clause-initial position and is thus higher than *daodi,* so that the A-not-A may still scope *daodi* under *buguan* (34c).

(34) a. *__daodi__ mingtian xia-bu-xiayu, wo dou hui anshi dao.
DAODI tomorrow rain-NEG-rain 1SG DOU will on.time arrive

b. *__daodi__ ~~buguan~~ mingtian xia-bu-xiayu…

c. *~~buguan~~ __daodi__ mingtian xia-bu-xiayu…

On the contrary, adopting Huang & Ochi's (2004) proposal that *daodi* must occur within the scope of a [+q] complementizer, under my analysis that there is no null counterpart of *buguan/wulun* in bare antecedents, the data in (32-34) receive a principled account: (i) *buguan/wulun* in headed antecedents behave like a [+q] complementizer and license the interrogative adverb *daodi* (32a); (ii) *buguan/wulun* must precede but not follow *daodi* to c-command the latter (33); (iii) the lack of such licenser in bare antecedents makes them incompatible with *daodi* in general (32b, 34a).

### 3.3.2 Interrogative disjunctor

It is well recognized that there are two disjunctors in Standard Mandarin: *haishi* and *huozhe*. Between these two, only *haishi* but not *huozhe* is allowed in alternative questions (Huang 1982,

Huang et al. 2009, Tsai 2015, a.o.): the disjunction involving *haishi* must be interpreted as interrogative (35a) whereas the one involves *huozhe* must be interpreted as declarative (35b).

(35) a. Lisi xihuan zuo gaotie **haishi** feiji?
L. like take high-speed.train or plane
'Does Lisi like to take the high-speed train or the plane?'
NOT 'Lisi likes to take the high-speed train or the plane.'

b. Lisi xihuan zuo gaotie **huozhe** feiji
L. like take high-speed.train or plane
'Lisi likes to take the high-speed train or the plane.'
NOT 'Does Lisi like to take the high-speed train or the plane?'

Interestingly, despite the fact that both are allowed in headed unconditional antecedents (36a), only headed but not bare antecedents are compatible with the interrogative *haishi* (36b) (vs. Ito 2015, Erlewine 2017; also cf. Finnish *tai* and *vai* in Lohiniva 2020). Adopting Erlewine's (2014) analysis of *haishi*, which assumes that *haishi* has only focus semantic value but not ordinary semantic value, and it needs to be licensed/interpreted under a Q operator, the contrast in (36) receives a straightforward explanation: only headed but not bare antecedents involve a [+q] complementizer which can license *haishi* and output the ordinary semantic value during the composition.

(36) a. buguan zuo gaotie **haishi/?huozhe** feiji,
no matter take high-speed.train or plane
Lisi dou hui mai tou-deng-cang.
L. DOU will buy first-class-cabin
'No matter whether to take the high-speed train or the plane, Lisi will buy the first-class ticket.'

b. zuo gaotie **huozhe /??haishi** feiji,
take high-speed.train or plane
Lisi dou hui mai tou -deng-cang.
L. DOU will buy first-class -cabin

### 3.3.3 Unconditionals in Jianghuai Mandarin and Mailand China Teochew

In this section, I draw on some cross-dialectal/linguistic evidence from both non-standard varieties of Mandarin and other Sinitic languages like Mainland China Teochew, where clause internal Q particles consistently are only compatible with headed but not bare unconditional antecedents expected under my proposal that headed but not bare antecedents involve embedded interrogatives.

As we saw in Chapter 2, yes-no questions in some non-standard varieties of Mandarin can be formed with a clause-internal particle, spelled-out as *ha* in Wuhu Mandarin and *a* in Nanjing Mandarin (37).

(37) [Wuhu and Nanjing Mandarin]
Lisi **ha/a** xiu-guo zei-men ko?
L. Q take-EXP this-CL class
'Has Lisi taken this class?'

Wuhu and Nanjing Mandarin are similar to Standard Mandarin in that they both allow an A-not-A string to occur within both headed and bare unconditional antecedents, the former of which involves *pe?gun*, the Jianghuai Mandarin cognate of Standard Mandarin *buguan* (38).

(38) [Wuhu and Nanjing Mandarin]
(pe?gun) Lisi xiu-mei-xiu-guo zei-men ko,
no matter L. take-NEG-take-EXP this-CL class
ta dou nen ansi biye?.
3SG DOU can on.time graduate
'No matter whether Lisi has taken this class, he can graduate on time.'

Interestingly, in both dialects, no matter whether independently the Q particle can co-occur with an A-not-A string or not, it is only compatible with a headed but not a bare unconditional antecedent (39): *pe?gun* must be overtly present when the antecedent involves *ha/a*.

(39) [Wuhu and Nanjing Mandarin]

a. pe?gun Lisi **ha/a** xiu-guo zei-men ko,
no matter L. Q take-EXP this-CL class
ta dou nen ansi biye?.
3SG DOU can on.time graduate
'No matter whether Lisi has taken this class, he can graduate on time.'

b.*Lisi **ha/a** xiu-guo zei-men ko, ta dou nen ansi biye?.
L. Q take-EXP this-CL class 3SG DOU can on.time graduate

Meanwhile, another Sinitic language, Mainland China Teochew, also has Q-VP questions (cf. Singapore Teochew in Cole & Lee 1997), where the clause-internal Q particle is pronounced as *ka* (40a). Like Singapore Teochew, Mainland China Teochew *ka* may also optionally co-occur with a sentence final negation in yes-no questions (40b).

(40) [Mainland China Teochew]

a. dang-e gai tin **ka** oi loh-hou?
later this weather Q will rain
'Will it rain later?'

b. dang-e gai tin (**ka**) oi loh-hou a **b**-oi?
later this weather Q will rain or NEG-will
'Will it rain later?' (C. Zheng, p.c.)

Furthermore, *ka* is allowed in headed unconditional antecedents formed with *bho-li* 'no matter (lit. not care)', either with or without a sentence final negation:

(41) [Mainland China Teochew]

bho-li dang-e gai tin **ka** oi loh-hou (a **b**-oi),
no matter later this weather Q will rain or NEG-will
a-dion san long oi lai.
Z. DOU will come
'No matter whether it will rain or not later, Zhangsan will come.' (C. Zheng, p.c.)

Although Teochew is by no means mutually intelligible with Mandarin, one striking parallel between them is found in the interactions between unconditional antecedents and Q particles. In particular, without an overt *bho-li*, *ka* is not allowed in the antecedent, no matter whether there is a sentence final negation or not:

(42) [Mainland China Teochew]

* dang-e gai tin **ka** oi loh-hou (a **b**-oi), a-dion san long oi lai
later this weather Q will rain or NEG-will Z. DOU will come
(C. Zheng, p.c.)

The above cross-linguistic data thus demonstrate that varieties of clause internal Q particle can occur in unconditional antecedents, and crucially, they all consistently require some overt counterpart of *buguan* 'no matter'. This restriction is understandable if we assume that these Q particles must be licensed under the scope of [+q] complementizer, which is only present in headed antecedents but not bare antecedents.

### 3.3.4 Interim summary

In this section, I argued for another aspect of my proposal about the internal syntax of unconditional antecedents: only headed but not bare antecedents have a [+q] complementizer and thus involve syntactically (embedded) questions. I showed that this explains the (in)compatibility between interrogative adverb *daodi* and disjunctors in Standard Mandarin, and clause internal Q

particles in Jianghuai Mandarin and Mainland China Teochew on the one hand, and headed/bare unconditional antecedents on the other: all of these elements must be licensed under a [+q] complementizer.

### 3.4 An alternative: the intervention approach?

So far, I have only focused on how these contrasts between headed and bare antecedents can be handled under the truncation approach and have not seriously explored any alternatives. In this section, I evaluate whether the intervention approach (Roberts 2004; Bhatt and Pancheva 2002, 2006, 2017; Arsenijević 2009; Tomaszewicz 2009; Haegeman 2010a,b, 2012; Zentz 2011; Abels 2012; Jiménez-Fernández & Miyagawa 2014; Yip 2021, a.o.) would be able to adequately explain the same set of empirical contrasts.

The idea of proposing that the derivation of adverbial clauses involves movement originates from the observation that temporal adverbial clauses are ambiguous (Geis 1970, 1975, 1985; Larson 1985, 1987). For instance, (43a) has two readings: I may have seen Mary at the time that she made that claim ("high construal"), or I may have seen her at the time of her presumed departure ("low construal"), whereas the low-construal reading disappears if an island is involved (43b). Furthermore, it is also observed that English conditional clauses are incompatible with the 'high' mood adverbs including evaluative adverbs (44a), epistemic adverbs (44b) and evidential adverbs (44c). It is thus proposed that in conditionals, an operator moves from the specifier position of a functional projection Irrealis Mood Phrase to the left periphery of the conditional antecedent

clause, and since the Irrealis operator shares features with the high modals, the movement will be intervened by the high modals.

(43) a. I saw Mary in New York when [she claimed [that [she would leave]]].
b. I saw Mary in New York when she made [the claim that she would leave].
(Haegeman 2010: 596)

(44) a. *If they **luckily/fortunately** arrived on time, we will be saved.
b. *If George **probably** comes, the party will be a disaster.
c. *If the students **apparently** can't follow the discussion in the third chapter, we'll do the second chapter. (Haegeman 2010: 603)

Although it has been shown that this approach can be extended to some temporal adverbial clauses and conditionals in Mandarin, it is also argued that adverbial clauses are not homogeneous: There are some variations within the class of adverbial clauses and not all of them involve a movement derivation (cf. Yip 2021, Yip & Chen 2022), a pattern also found in Japanese (Endo 2012). In the following, I show that the intervention approach, which crucially relies on the assumption of operator movement, cannot easily explain the observed incompatibility between certain elements and Mandarin bare unconditional antecedents, and there are two reasons for that.

On the one hand, under the intervention approach, it would be argued that the internal syntax of bare antecedents, but not headed antecedents, involves operator movement which would interfere with these elements. One argument against this proposal is that, independently, these elements do not show interactions with operator movement.

Let's first look at left dislocation. The following example illustrates that independently, a left dislocated PP is nevertheless allowed in a matrix A-not-A question (45a), an embedded A-not-A question with matrix scope (45b) and embedded scope (45c).

(45) a. [wei na-ge nvsheng], Lisi fu-mei-fuchu ta de yiqie?
for that-CL girl L. give-NEG-give 3SG DE everything
'For that girl, did Lisi give everything he has?'

b. Zhangsan shuo/juede/renwei [[wei na-ge nvsheng],
Z. say/think/believe for that-CL girl
Lisi fu-mei-fuchu ta de yiqie]?
L. give-NEG-give 3SG DE everything
'Does Zhangsan say/think/believe that for that girl, Lisi gave everything he has or Lisi didn't give everything he has?'

c. Zhangsan hen qingchu [[wei na-ge nvsheng],
Z. very certain for that-CL girl
Lisi fu-mei-fuchu ta de yiqie]
L. give-NEG-give 3SG DE everything
'Zhangsan is very certain about for that girl, whether Lisi gave everything he has.'

The interactions between a fronted PP and *weishenme* 'why' questions, another type of questions that is traditionally believed to involve syntactic movement (Aoun & Li 1993, Tsai 2008), show exactly the same pattern: The fronted PP does *not* interfere with the operator movement associated with the in-situ *weishenme* in a matrix question (46a), an embedded question with matrix scope (46b) and embedded scope (46c).

(46) a. [wei na-ge nvsheng], Lisi weishenme fuchu-le ta de yiqie?
for that-CL girl L. why give-PERF 3SG DE everything
'For that girl, why did Lisi give everything he has?'

b. Zhangsan shuo/juede/renwei [[wei na-ge nvsheng],
Z. say/think/believe for that-CL girl
Lisi weishenme fuchu-le ta de yiqie]?
L. why give-PERF 3SG DE everything
'Why$_1$ does Zhangsan say/think/believe that for that girl, Lisi $t_1$ gave everything he has?'

c. Zhangsan hen qingchu [[wei na-ge nvsheng],
Z. very certain for that-CL girl
Lisi weishenme fuchu-le ta de yiqie]
L. why give-PERF 3SG DE everything
'Zhangsan is very certain about for that girl, why Lisi gave everything he has.'

Let's turn to VP fronting. In section 3.2.2, we have already seen that VP fronting is allowed in a matrix A-not-A question (47a, cf. 15b). Furthermore, embedded A-not-A questions also equally allow VP fronting, no matter whether the Q operator has matrix (47b) or embedded scope (47c). In addition, VP fronting is also consistently compatible with both matrix (48a) and embedded *weishenme* questions (48b-c).

(47) a. [piping ziji$_1$ de laoban] Lisi$_1$ gan-bu-gan?
criticize SELF DE boss L. dare-NEG-dare
'Dare Lisi criticize his own boss?'

b. Zhangsan shuo/juede/renwei [[piping ziji$_1$ de laoban] Lisi$_1$ gan-bu-gan]?
Z. say/think/believe criticize SELF DE boss L. dare-NEG-dare
'Does Zhangsan say/think/believe that Lisi dares criticize his own boss or doesn't dare?'

c. Zhangsan hen qingchu [[piping ziji$_1$ de laoban] Lisi$_1$ gan-bu-gan]
Z. very certain criticize SELF DE boss L. dare-NEG-dare
'Zhangsan is very certain about whether Lisi dares criticize his own boss.'

(48) a. [piping ziji$_1$ de laoban] Lisi$_1$ weishenme bu-gan?
criticize SELF DE boss L. why NEG-dare
'Why is it that Lisi dare not criticize his own boss?'

b. Zhangsan shuo/juede/renwei
Z. say/think/believe
[[piping ziji$_1$ de laoban] Lisi$_1$ weishenme bu-gan]?
criticize SELF DE boss L. why NEG-dare
'Why$_1$ does Zhangsan say/think/believe that Lisi t$_1$ dare not criticize his own boss?'

c. Zhangsan hen qingchu
Z. very certain
[[piping ziji$_1$ de laoban] Lisi$_1$ weishenme bu-gan]
criticize SELF DE boss L. why NEG-dare
'Zhangsan is very certain about why Lisi dare not criticize his own boss.'

Moreover, the interaction between clause-initial evaluative adverb *qishi* 'actually' and A-not-A/*weishenme* questions illustrates the same pattern: *qishi* is compatible with A-not-A and *weishenme* questions no matter whether it is in the matrix (49a, 50a) clause or the embedded clause (49b-c, 50b-c).

(49) a. qishi Lisi xi-bu-xihuan ta?
actually L. like-NEG-like 3SG
'Actually, does Lisi like him?'

b. Zhangsan shuo/juede/renwei [qishi Lisi xi-bu-xihuan ta]?
Z. say/think/believe actually L. like-NEG-like 3SG
'Does Zhangsan say/think/believe that actually Lisi likes him or doesn't like him?'

c. Zhangsan hen qingchu [qishi Lisi xi-bu-xihuan ta].
Z. very certain actually L. like-NEG-like 3SG
'Zhangsan is very certain about whether actually Lisi likes him or not.'

(50) a. qishi Lisi weishenme xihuan ta?
actually L. why like 3SG
'Actually, why does Lisi like him?'

b. Zhangsan shuo/juede/renwei [qishi Lisi weishenme xihuan ta]?
Z. say/think/believe actually L. why like 3SG
'Why$_1$ does Zhangsan say/think/believe that actually Lisi t$_1$ likes him?'

c. Zhangsan hen qingchu [qishi Lisi xihuan ta].
Z. very certain actually L. like 3SG
'Zhangsan is very certain about why actually Lisi likes him.'

Therefore, it is odd to assume that operator movement associated with A-not-A and *weishenme* rules out evaluative adverbs like *qishi* in bare antecedents, whereas *qishi* is systematically allowed in A-not-A and *weishenme* questions, the standard analysis of which assumes operator movement. Lastly, we can take a look at the interrogative attitude adverb *daodi*: once again, it is consistently compatible with A-not-A and *weishenme* across both matrix (51a, 52a) and embedded contexts (51b-c, 52b-c), an unexpected pattern if *daodi* somehow interfered with operator movement associated with A-not-A and *weishenme* in bare antecedents.

(51) a. {daodi} Lisi {daodi} xi-bu-xihuan ta?
DAODI L. DAODI like-NEG-like 3SG
'Really, does Lisi like him?'

b. Zhangsan shuo/juede/renwei [{(?)daodi} Lisi {daodi} xi-bu-xihuan ta]?
Z. say/think/believe DAODI L. DAODI like-NEG-like 3SG
'Does Zhangsan say/think/believe that Lisi likes him or doesn't like him?'

c. Zhangsan hen qingchu [{daodi} Lisi {daodi} xi-bu-xihuan ta].
Z. very certain DAODI L. DAODI like-NEG-like 3SG
'Zhangsan is very certain about whether Lisi likes him or not.'

(52) a. {daodi} Lisi {daodi} weishenme xihuan ta?
DAODI L. DAODI why like 3SG
'Why the hell does Lisi like him?'

b. Zhangsan shuo/juede/renwei [{daodi} Lisi {daodi} weishenme xihuan ta]?
Z. say/think/believe DAODI L. DAODI why like 3SG
'Why the hell$_1$ does Zhangsan say/think/believe that Lisi $t_1$ likes him?'

c. Zhangsan hen qingchu [{daodi} Lisi {daodi} weishenme xihuan ta].
Z. very certain DAODI L. DAODI why like 3SG
'Zhangsan is very certain about why the hell Lisi likes him.'

On the other hand, the intervention approach crucially relies on the existence of operator movement in the derivation of adverbial clauses. Regarding unconditional antecedents, a natural candidate for such operator would be the A-not-A string (or more specifically, the null Q operator as proposed in Chapter 2) and various *wh*-elements. One of the most well-known properties of Mandarin A-not-A/wh-questions is that certain *wh*-arguments like *shenme* 'what', *shei* 'who', and D-linked *wh*-nominals like *na-ge xuesheng* 'which student' are insensitive to syntactic islands; whereas A-not-A, and *wh*-adverbials like *weishenme* 'why', and *zenme* 'how', are island-sensitive, indicating the existence of syntactic movement in *wh*-adverbials, but not *wh*-nominals (cf. Tsai 1994, 1999, 2008; Cole & Hermon 1998; Fujii & Takita 2007;Yang 2007; Fujii et al. 2014; Murphy 2017; a.o.).

However, interestingly, these two types of *wh*-elements show identical behaviors regarding whether they are compatible with certain elements in headed/bare unconditional antecedents. In other words, we find no correlation between (a) whether a particular *wh*-element is independently associated with operator movement or not, and (b) whether it is compatible with the elements we discussed in previous sections within bare unconditional antecedents. For instance, in (16) we saw that a bare antecedent involving A-not-A does not allow VP-fronting (repeated in 53), such incompatibility does not improve if we instead have a wh-argument *shei*, which supposedly does not involve syntactic movement, in the antecedent (54):

(53) (= 16)

a. buguan youyong Zhangsan **hui-bu-hui**,
no matter swim Z. can-NEG-can
ta dou suishi zhunbei jiu ren.
3SG DOU anytime be.ready.to save people
'No matter whether Zhangsan can swim or not, he is ready to save lives anytime.'

b. *youyong Zhangsan **hui-bu-hui**, ta dou suishi zhunbei jiu ren.
swim Z. can-NEG-can 3SG DOU anytime be.ready.to save people

(54) a. buguan youyong **shei** bu hui,
no matter swim who NEG can
suoyou ren dou bixu wancheng tierensanxiang.
all people DOU must complete triathlon
'No matter who cannot swim, all people must complete the triathlon.'

b. *youyong **shei** bu hui, suoyou ren dou bixu wancheng tierensanxiang.
swim who NEG can all people DOU must complete triathlon

Meanwhile, (19) showed that *yinwei shenme* 'because of what' is incompatible with certain evaluative adverbs in bare antecedents (repeated in 55). However, this cannot be due to any kind of operator movement associated with *yinwei shenme*, as already pointed out, it is insensitive to islands (Jin 2015, 2016), illustrated in (56):

(55) (= 19)

a. buguan juran/qishi/pianpian Lisi **yinwei** **shenme**
no matter unexpectedly/actually/oppositely L. because what
er chidao, jingli dou hen shengqi.
such.that be.late manager DOU very angry
'No matter because of what, unexpectedly/actually/oppositely, Lisi was late, the manager was not happy.'

b. *juran/qishi/pianpian Lisi **yinwei** **shenme** er chidao,
unexpectedly/actually/oppositely L. because what such.that be.late
jingli dou hen shengqi.
manager DOU very angry

(56) ni xihuan [ta **yinwei** **shenme** xie] de shu?
2SG like 3SG because.of what write DE book
'Which reason$_i$ do you like the book(s) that he wrote for that reason$_i$?' (Jin 2015: 2)

In addition, we saw in (36) that the interrogative disjunctor *haishi* is much degraded in bare unconditional antecedents (repeated in 57). Similarly, this cannot be explained by hypotheses involving operator movement, as already observed in the literature (J. Huang 1991, R. Huang 2010, Erlewine 2014, a.o.), alternative *haishi* questions are not sensitive to islands (58) (but also see R. Huang 2020 for an LF movement analysis for *haishi* being sensitive to *wh*-islands).

(57) (= 36)

a. buguan zuo gaotie **haishi/?huozhe** feiji,
no matter take high-speed.train or plane
Lisi dou hui mai tou -deng-cang.
L. DOU will buy first-class -cabin
'No matter whether to take the high-speed train or the plane, Lisi will buy the first-class ticket.'

b. zuo gaotie **huozhe /?? haishi** feiji,
take high-speed.train or plane
Lisi dou hui mai tou -deng-cang.
L. DOU will buy first-class -cabin

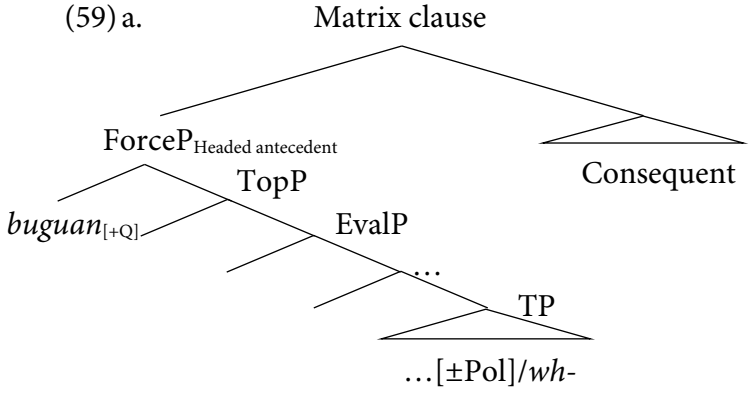
(58) a. [Lisi zuo gaotie **haishi** feiji] bijiao hao?
L. take high-speed.train or plane comparatively good
'It is better for Lisi to take the high-speed train or to take the plane?'

b. Zhangsan yao jian
Z. be.about.to meet
[zuo gaotie **haishi** feiji lai] de kehu?
take high-speed.train or plane come DE client
'Is Zhangsan about to meet the client who took the high-speed train to come (here) or the one who took the plane to come (here)?'

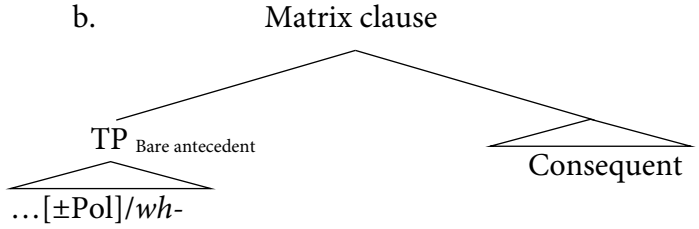
Therefore, I conclude that the intervention approach cannot account for the distributional differences between headed and bare antecedents in Mandarin Chinese. Instead, headed and bare

antecedents must differ in their syntactic representations: Headed antecedents involve a more articulated left periphery (59a);[22] whereas bare antecedents are structurally impoverished and may lack a CP layer (59b).

(59) a.




b.




### 3.5 The external syntax of Mandarin unconditionals and *dou*

In this section, I turn to the external syntax of unconditional antecedents and discuss the interactions between the antecedent and the consequent. I show that canonical bare and headed antecedents also have distinct attachment sites within the consequent, mainly based on the interactions between bare/headed antecedents and a language-specific component of unconditionals in Mandarin: the morpheme *dou* in the consequent.

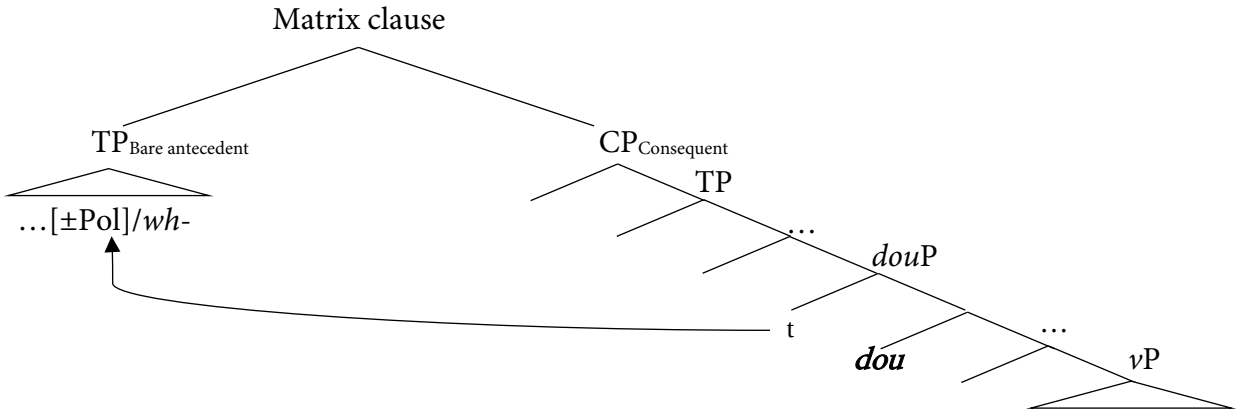
[22] Here I adopt Tsai's (2008) proposal of *buguan/wulun* being a functional head in the CP domain.

It has been argued that Mandarin unconditionals obligatorily involve *dou* in their consequents (Lin 1996). For instance, the ungrammaticality of (60) is due to the lack of *dou* in the consequent.

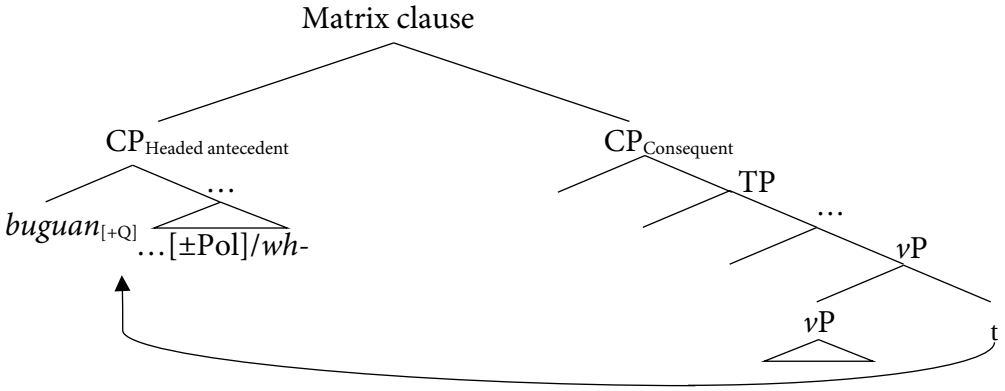
(60) *wulun ni yaoqing shei, wo huanying ta
no matter 2SG invite who I welcome 3SG
'No matter whom you invite, I will welcome him/her.' (Lin 1996: 77)

Capitalizing on Lin's empirical observation, I show that bare antecedents are base-generated at the specifier position of a functional projection headed by *dou*, hence Spec *dou*P (à la Lin 1996, Constant & Gu 2010, Tsai 2015, a.o.), above the *v*P of the consequent (61a). In contrast, I argue that headed antecedents have a lower merger site that is preceded/c-commanded by the main predicate of the consequent, for instance, as an adjunct of the *v*P of the consequent (61b). Furthermore, the canonical sentence-initial pre-consequent position of both headed and bare antecedents is the result of overt movement, similar to the external syntax of conditional clauses (cf. Iatridou 1991; Haegeman 2003; Bhatt & Pancheva 2006, 2017; Valmala 2009; Chen 2021; a.o.). Evidence supporting my proposal includes (i) the presence and absence of *dou* in the consequent; (ii) the interactions between the presence/absence of *dou* and the surface positions of the antecedents; and (iii) the availability of backward ellipsis in antecedents and related reconstruction effects.

(61) a. The external syntax of bare antecedents




b. The external syntax of headed antecedents[23]




### 3.5.1 The presence/absence of *dou*

Despite of Lin's (1996) empirical generalization that all unconditionals obligatorily requires *dou* in their consequents, the following data set casts doubts on Lin's claim. More specifically, the proposed restriction holds true for only bare antecedents (62b, 63b), whereas headed antecedents do not necessarily require *dou* in the consequent (62a, 63a).

[23] As will be further elaborated in section 3.6, the structure/derivation illustrated in (61a) also applies to one subtype of headed antecedents, i.e., those that realize as "central adverbial clauses".

(62) a. **buguan/wulun** ni yaoqing shei, wo (**dou**) hui haohao huanying ta.
no matter 2SG invite who I DOU will well welcome 3SG
'No matter whom you invite, I will welcome him/her well.'

b. ni yaoqing shei, wo *(**dou**) hui haohao huanying ta.
2SG invite who I DOU will well welcome 3SG

(63) a. **buguan/wulun** mingtian xia-bu-xiayu,
no matter tomorrow rain-NEG-rain
Zhangsan dagai (**dou**) bu hui lai-le.
Z. probably DOU NEG will come-LE
'No matter whether it rains tomorrow, it has become the case that Zhangsan probably will not come.'

b. mingtian xia-bu-xiayu, Zhangsan dagai *(**dou**) bu hui lai-le.
tomorrow rain-NEG-rain Z. probably DOU NEG will come-LE

As we can see, *dou* is optional when there is an overt *buguan/wulun*, i.e., a headed antecedent (62a, 63a). In contrast, *dou* is only obligatory when there is no overt *buguan/wulun*, i.e., a bare antecedent (62b, 63b). Therefore, Lin's empirical generalization is revised: Bare but not headed unconditional antecedents obligatorily require *dou* in the consequent.

Under the analysis illustrated in (61), the contrast in the obligatoriness/optionality of *dou* is understandable: The functional projection headed by *dou* is necessary for the external merger of a bare antecedent; whereas since a headed antecedent is not necessarily merged at Spec *dou*P, *dou* is not a prerequisite in such cases.

### 3.5.2 *dou* and the surface positions of antecedents

Before diving into more details on the interactions between *dou* and antecedents, I should mention one particular property of *dou* in Mandarin: Elements associated with *dou* must occur to its left, observing the "Leftness Condition" (cf. Lee 1986, Cheng 1995, Lin 1998, Tomioka & Tsai 2005, Tsai 2015, a.o.). For instance, Xiang (2019) discusses multiple functions of *dou*, which can be used as a "quantifier-distributor", a "scalar marker", or a "free choice item licensor", and all elements associated with *dou* must obligatorily precede *dou*. The following examples in (64-66) respectively illustrate the use of *dou* as a quantifier-distributor, as a scalar marker, and as a free choice item licensor, in each of which the internal argument associated with it must surface in a pre-*dou* position. Traditionally, *dou*'s Leftness Condition is assumed to be related to an EPP feature associated with *dou* (Shyu 1995, Lin 1998, Wu 1999, Dong 2009, Liao 2011, Xiang 2019, a.o.)

(64) Quantifier-distributor *dou*

a.* Zhangsan dou kan-le **naxie shu**.
Z. DOU read-PERF those book
Intended 'Zhangsan has read all of those books.'

b. Zhangsan **naxie shu** dou kan-le.
Z. those book DOU read-PERF

c. **naxie shu** Zhangsan dou kan-le.
those book Z. DOU read-PERF

(65) Scalar marker *dou*

a.* Zhangsan dou chi **lian liulian**.
Z. DOU eat even durian
Intended 'Zhangsan eats even durians.'

b. Zhangsan **lian** **liulian** dou chi.
Z. even durian DOU eat

c. **lian** **liulian** Zhangsan dou chi.
even durian Z. DOU eat

(66) Free choice item licensor *dou*

a.* Zhangsan dou chi **renhe** **shuiguo**.
Z. DOU eat any fruit
Intended 'Zhangsan eats any fruit.'

b. Zhangsan **renhe** **shuiguo** dou chi.
Z. any fruit DOU eat

c. **renhe** **shuiguo** Zhangsan dou chi.
any fruit Z. DOU eat

With the Leftness Condition of *dou* in mind, let's take a closer look at the surface positions of unconditional antecedents. (67a) shows that a bare antecedent may occur in different surface positions: the most canonical sentence-initial pre-consequent position; and various within-consequent positions, e.g., either pre- or post-adverbial positions. Nevertheless, the ungrammaticality of (67b) exemplifies a restriction on the surface position of a bare antecedent: It must precede but cannot follow *dou*. This contrast illustrates a close relation between a bare antecedent and *dou*: The "Leftness Condition" of *dou* also applies to bare antecedents in Mandarin unconditionals. The variation and restriction of bare antecedents' surface positions thus make sense if we assume a Spec-Head relation between bare antecedents and *dou*, which is comparable with other elements associated with *dou* (à la Lin 1996, Constant & Gu 2010, Tsai 2015, a.o.).

(67) a. {**xia-bu-xiayu**}, Zhangsan {**xia-bu-xiayu**} pingshi {**xia-bu-xiayu**} dou
rain-NEG-rain Z. rain-NEG-rain usually rain-NEG-rain DOU
gan wan huaxiangsan
dare play paragliding
'No matter whether it rains or not, Zhangsan usually dare to paraglide.'

b.*Zhangsan pingshi dou {**xia-bu-xiayu**} gan {**xia-bu-xiayu**}
Z. usually DOU rain-NEG-rain dare rain-NEG-rain
wan {**xia-bu-xiayu**} huaxiangsan {**xia-bu-xiayu**}.
play rain-NEG-rain paragliding rain-NEG-rain

In addition, note that in (67a), the alternation of bare antecedents' surface position between the clause-internal post-subject positions and the clause-peripheral pre-subject position cannot be the result of the subject moving around a fixed-positioned bare antecedent, e.g., topicalization of the subject *Zhangsan*. First, as (67a) has already shown, other than subjects, adverbs like *pingshi* 'usually' can precede a bare antecedent as well. Furthermore, subjects like *dajia* 'everyone', which cannot be topicalized as evident in the lack of long-distance dependency (68a), may nevertheless precede bare antecedents (68b).

(68) a. *dajia$_i$, Lisi juede, [$t_i$ dou hui zhunshi dao].
everyone L. believe DOU will on.time arrive
Intended 'Everyone, Lisi believes, will arrive on time.'

b. {**xia-bu-xiayu**} dajia {**xia-bu-xiayu**} mingtian {**xia-bu-xiayu**}
rain-NEG-rain everyone rain-NEG-rain tomorrow rain-NEG-rain
dou hui zhunshi dao.
DOU will on.time arrive
'No matter whether it rains or not, everyone will arrive on time tomorrow.'

Furthermore, it is pointed out that Mandarin sentence-initial locative DPs or postpositional phrases are true subjects and not topics (Paul & Whitman 2017; Paul et al. 2020). For instance,

declaratives with sentence-initial locative DPs or postpositional phrases like (69) can be answers to *where* questions like (70a) while *where* itself cannot be in the topic position (70b):

(69) [$_{DP}$ **jiali**] lai-le keren.
home come-PERF guest
'There arrived guests at home.'

(70) a. [$_{TP}$ **nali** lai-le keren]?
where come-PERF guest
'Where did guests arrive?'

b. *[$_{TopP}$ **nali** [$_{TP}$ keren lai-le ]]?
where guest come-PERF (Paul et al. 2020: 20)

Yet these subjects allow bare antecedents to follow them (71). Therefore, if the clause-internal post-subject or pre-*dou* position of bare antecedents were the result of topicalizing the subject, we would not expect bare antecedents to follow a PostP subject. Instead, the alternation between the bare antecedent's clause-peripheral and clause-internal position should be the result of overtly moving the bare antecedent.

(71) a. [$_{PostP}$ men wai] jingchang zhan-zhe yi-ge bao'an.
door outside often stand-PROG one-CL security.guard
'A security guard is often standing outside the door.'

b. {xia-bu-xiayu}, [$_{PostP}$ men wai] {xia-bu-xiayu} dou jingchang zhan-zhe
rain-NEG-rain door outside rain-NEG-rain DOU often stand-PROG
yi-ge bao'an.
one-CL security.guard
'No matter whether it rains or not, a security guard is often standing outside the door.'

In addition to adverbs like *pingshi* 'usually' (67), other traditionally assumed TP-internal elements like modal verb *hui* and negation may precede a bare antecedent as well (72).

(72) a. [$_{PostP}$ yinhang li] bu hui fang hen duo xianjin.
bank inside NEG will store very many cash
'The bank will not store a lot of cash.'

b. {an-bu-anquan,} [$_{PostP}$ yinhang li] bu hui {an-bu-anquan,}
safe-NEG-safe bank inside NEG will safe-NEG-safe
dou fang hen duo xianjin
DOU store very many cash
'No matter whether it is safe or not, the bank will not store a lot of cash.'

In contrast, since headed antecedents do not obligatorily require *dou* in the consequent, the Leftness Condition becomes irrelevant in determining the surface position of headed antecedents. Hence, headed antecedents exhibit more flexibility regarding their surface position. In particular, they may follow the consequent:

(73) {**buguan xia-bu-xiayu**}, [$_{PostP}$ men wai] {**buguan xia-bu-xiayu**} jingchang
no matter rain-NEG-rain door outside no matter rain-NEG-rain often
{**buguan xia-bu-xiayu**} zhan-zhe yi-ge bao'an
no matter rain-NEG-rain stand-PROG one-CL security.guard
{(,) **buguan xia-bu-xiayu**}
no matter rain-NEG-rain
'No matter whether it rains or not, a security guard is often standing outside the door.'

The contrast between (67b) and (73), i.e., whether an antecedent may follow the entire consequent, once again argues that bare and headed antecedents must involve distinct external syntax.

Meanwhile, it is worth mentioning that *dou* is nevertheless compatible with headed antecedents, as we have seen in previous sections. Interestingly, its occurrence within the consequent determines the available surface positions of headed antecedents. (74) is minimally different from (73) in having *dou* in its consequent, and several positions that are otherwise available in (73), including those on both sides of *jingchang*, and the post-consequent one, i.e., all post-*dou* positions,

become ungrammatical for the headed antecedent, showing that the Leftness Condition of *dou* holds for headed antecedents as well.

(74) {**buguan xia-bu-xiayu**}, [$_{PostP}$ men wai] {**buguan xia-bu-xiayu**} dou
no matter rain-NEG-rain door outside no matter rain-NEG-rain DOU
{*__buguan xia-bu-xiayu__} jingchang {*__buguan xia-bu-xiayu__} zhan-zhe
no matter rain-NEG-rain often no matter rain-NEG-rain stand-PROG
yi-ge bao'an {*__buguan xia-bu-xiayu__}
one-CL security.guard no matter rain-NEG-rain
'No matter whether it rains or not, a security guard is often standing outside the door.'

However, I argue that this is not a property of headed antecedents themselves, and instead, such restriction is actually posed by *dou*. This can be seen clearly in the following examples where *dou* is already associated with elements other than unconditional antecedents.

(75) mei-shan men wai dou {**buguan xia-bu-xiayu**} jingchang
every-CL door outside DOU no matter rain-NEG-rain often
{**buguan xia-bu-xiayu**} zhan-zhe yi-ge bao'an
no matter rain-NEG-rain stand-PROG one-CL security.guard
{(,) **buguan xia-bu-xiayu**}
no matter rain-NEG-rain
'No matter whether it rains or not, a security guard is often standing outside every door.'

As (75) illustrates, once *dou* is already associated with a universal quantifier *mei-shan men wai* 'outside every door', all ungrammatical positions in (74) becomes available again for the headed antecedent (cf. 73). Conversely, the same strategy does not make any of such positions available for a bare antecedent.

(76) * mei-shan men wai dou {**xia-bu-xiayu**} jingchang
every-CL door outside DOU rain-NEG-rain often
{**xia-bu-xiayu**} zhan-zhe yi-ge bao'an {**xia-bu-xiayu**}
rain-NEG-rain stand-PROG one-CL security.guard rain-NEG-rain
Intended 'No matter whether it rains or not, a security guard is often standing outside every door.'

The contrast between (75) and (76) is understandable under my proposal that a bare antecedent but not a headed one is base-generated at Spec *dou*P: Once this position is already occupied in (76), a bare antecedent cannot enter into the derivation. In contrast, in (75) since the EPP feature of *dou* is already independently satisfied by the universal quantifier, the headed antecedent may surface in all available positions.

### 3.5.3 Backward ellipsis and reconstruction effects

So far, I have only provided evidence showing that bare antecedents are dependent on *dou* whereas headed antecedents are not. However, further evidence is still needed for the proposal that bare antecedents are merged at Spec *dou*P within the consequent whereas headed antecedents are merged at a lower position.

On the one hand, it has been argued that Mandarin adverbial clauses following the main host clause is the result of right dislocation and afterthought (Wei & Li 2018). Considering that a post-consequent headed antecedent is preferred to follow a prosodic break (cf. 73, 75), this word order may not be used as direct evidence for a low merger position for headed antecedents.[24] On the other hand, internal arguments associated with *dou* indeed surface at some pre-*dou* position, but it should be noncontroversial that they originate low. Hence, a priori, we cannot rule out the

[24] Nevertheless, there is still evidence showing that post-consequent headed antecedents may still be within the scope of the consequent, despite the prosodic break. For instance, the yes-no question SFP *ma* follows the post-consequent headed antecedent in the following example:

Zhangsan kending hui anshi dao (*/??**ma**), [buguan xia-bu-xiayu] **ma**?
Z. definitely will on.time arrive SFP no matter rain-NEG-rain SFP
'Will Zhangsan arrive on time regardless of whether it rains or not?'

possibility that bare antecedents may also originate low and obligatorily move to some pre-*dou* position.

To address these issues, I suggest that we look at the availability of backward ellipsis. It has been long noticed that backward ellipsis is more restricted than forward ellipsis (cf. Ross's (1967) condition on Backwards Pronominalization), e.g., ellipsis is possible when the ellipsis site linearly follows its antecedent ("forward ellipsis", 77a) but it is ruled out when the ellipsis site linearly precedes its antecedent ("backward ellipsis", 77b) (elided material is represented as Δ). Backward ellipsis becomes possible if the pre-antecedent ellipsis site is derived by movement. For instance, as observed in Barros and Vicente (2009), backward VP ellipsis is not allowed in the main clause when the *because*-clause follows it, but it becomes available when the ellipsis site is within the fronted *because*-clause (78b-c). And similarly, backward NP ellipsis within the internal argument is only possible when the VP containing it is fronted (79b-c).

(77) a. [If I can Δ], I will work on it.
b.*I will Δ, if I can work on it. (Ross 1967: 369)

(78) VP ellipsis
a. I didn't drink wine because Steve told me not to Δ.
b.*I didn't Δ because Steve told me not to drink wine.
c. [Because Steve told me not to Δ], I didn't drink wine.

(79) NP ellipsis
a. Bill Gates's fortune surpasses Donald Trump's Δ.
b.*Bill Gates's Δ surpasses Donald Trump's fortune.
c. [Surpass Donald Trump's Δ], Bill Gates's fortune certainly does.
(Barros & Vicente 2009: 1)

More specifically, analyzing ellipsis in adverbial clauses, Ha (2008) assumes that the adverbial CP is base-generated as a *v*P adjunct in the main clause and undergoes dislocation to sentence-

initial position. For instance, before dislocation applies, in (80a), the VP *go to church last Sunday* in the main clause precedes the ellipsis site within the adverbial clause and behaves like an antecedent to license VP ellipsis. Hence, the seeming backwardness is just an epiphenomenon of the adverbial clause undergoing overt movement (80b):

(80) a. His children had to go to church last Sunday
[$_{CP}$ because Jeff did *v*[$_{E}$] <~~go to church last Sunday~~>].

b. [$_{CP}$ Because Jeff did *v*[$_{E}$] <~~go to church last Sunday~~>],
his children had to go to church last Sunday. (Ha 2008: 131)

With these discussions on English backward ellipsis in mind, we can turn to Mandarin. First, the examples in (81) show that backward VP ellipsis is also more restricted than forward VP ellipsis in two conjoined sentences in Mandarin.

(81) a. Zhangsan yuanyi jiaban, Lisi ye yuanyi Δ.
Z. be.willing.to work.overtime L. also be.willing.to
'Zhangsan is willing to work overtime, Lisi is willing to as well.'

b.* Zhangsan yuanyi Δ, Lisi ye yuanyi jiaban.
Z. be.willing.to L. also be.willing.to work.overtime
Intended 'Zhangsan is willing to, Lisi is also willing to work overtime.'

Interestingly, backward VP ellipsis is attested in Mandrin unconditional adverbial clauses. As shown in the following examples, a bare VP *jiaban* 'work overtime' (82a), a VP with temporal PP adjunct *zai zhoumo jiaban* 'work overtime over the weekend' (82b), or a VP with an applicative PP adjunct *wei gongsi jiaban* 'work overtime for the company' (82c) may be elided in the pre-consequent adverbial clause.

(82) a. **buguan** Zhangsan yuan-bu-yuanyi Δ,
no matter Z. be.willing.to-NEG-be.willing.to
Lisi feichang yuanyi jiaban.
L. very be.willing.to work.overtime
'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime.'

b. **buguan** Zhangsan yuan-bu-yuanyi Δ,
no matter Z. be.willing.to-NEG-be.willing.to
Lisi feichang yuanyi zai zhoumo jiaban
L. very be.willing.to in weekend work.overtime
'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime over the weekend.'

c. **buguan** Zhangsan yuan-bu-yuanyi Δ,
no matter Z. be.willing.to-NEG-be.willing.to
Lisi feichang yuanyi wei gongsi jiaban
L. very be.willing.to for company work.overtime
'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime for the company.'

Furthermore, backward ellipsis is consistently ruled out in bare antecedents:

(83) a.* Zhangsan yuan-bu-yuanyi Δ,
Z. be.willing.to-NEG-be.willing.to
Lisi dou feichang yuanyi jiaban.
L. DOU very be.willing.to work.overtime
Intended 'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime.'

b.* Zhangsan yuan-bu-yuanyi Δ,
Z. be.willing.to-NEG-be.willing.to
Lisi dou feichang yuanyi zai zhoumo jiaban.
L. DOU very be.willing.to in weekend work.overtime
Intended 'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime over the weekend.'

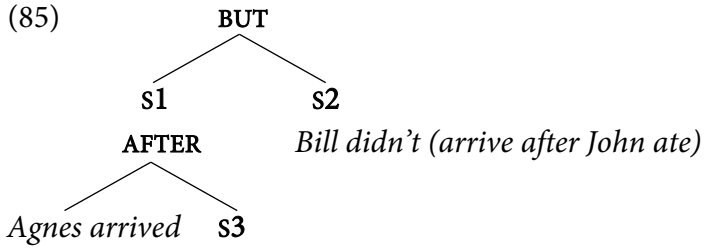
c.* Zhangsan yuan-bu-yuanyi Δ,
Z. be.willing.to-NEG-be.willing.to
Lisi feichang yuan yi wei gongsi jiaban
L. very be.willing.to for company work.overtime
Intended 'No matter whether Zhangsan is willing to or not, Lisi is very willing to work overtime for the company.'

Note that this contrast is not predicted under Hardt & Romero's (2004) proposal that (forward) ellipsis is licensed when the clause containing the antecedent for ellipsis ("A-clause") locally c-commands the clause containing the ellipsis site ("E-clause") in the discourse tree. For instance, the elided VP in the second conjunct in (84) can be only understood as *arrive after John ate*, but not the embedded VP *ate* in the first conjunct.

(84) [Agnes arrived after [John ate.] $_{S3}$]$_{S1}$ (But) [Bill didn't (arrive after John ate)/*(eat)]$_{S2}$
(Hardt & Romero 2004: 384)

In the proposed discourse tree (85), S1 but not S3 locally c-commands the E-clause S2, therefore only the VP in S1 but not the one in S3 can be the antecedent for the elided VP in S2.

(85)




(Hardt & Romero 2004: 385)

Nevertheless, Hardt & Romero's (2004) analysis does not seem to be able to capture the distinction between Manadrin headed and bare unconditional adverbial clauses/antecedents regarding backward ellipsis in (78): Since both involve the same discourse relations with the host main clause ("indifference implication", using Rawlin's (2008) term, i.e., the choice of alternative in the

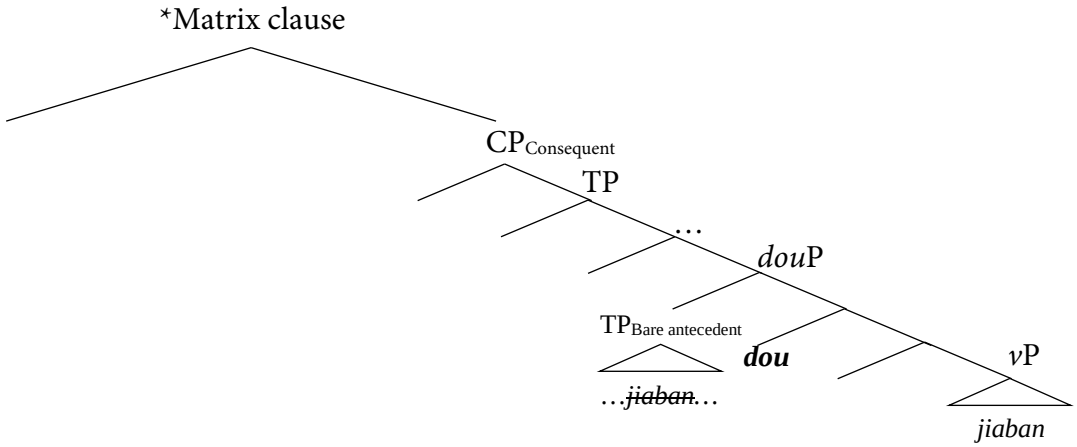
unconditional adverbial clauses doesn't matter for the host main clause) and both would be c-commanded by the main clause/consequent, therefore both are expected to allow backward ellipsis.

However, my proposal can make sense of the contrast between bare and headed antecedents regarding their (in)compatibility with backward ellipsis, in a way similar to Ha's (2008) analysis of backward ellipsis in English adverbial clauses.

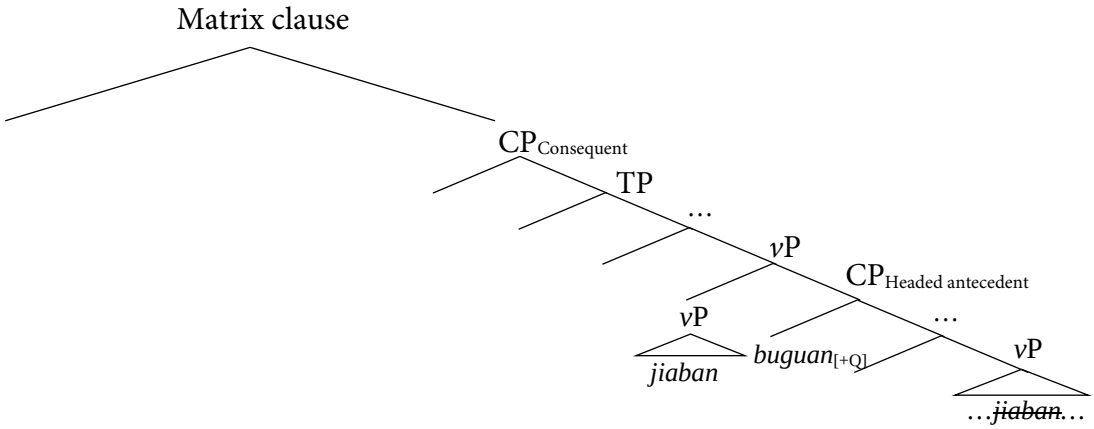
In particular, assuming that a bare antecedent is base-generated at Spec *dou*P, its incompatibility with backward VP ellipsis is exactly what we would expect: As *dou* linearly precedes the main predicate, the surface word order leads to the assumption that *dou*P is hierarchically higher than *v*P (cf. Cheng 1995, Lin 1996, Constant & Gu 2010, Tsai 2015, a.o.). Therefore, when bare antecedents like (83) reconstruct to their base position within the consequent, they are always higher than the *v*P in the consequent, as illustrated in (86a). Conversely, headed antecedents like (82) allow for backwards ellipsis and therefore, headed antecedents must be c-commanded by the main clause *v*/VP at some point. Hence, headed antecedents can reconstruct into the c-command domain of the main clause *v*/VP (86b). We can make sense of this if headed antecedents originate lower than *v*/VP.

Although I leave the issue concerning the exact constituency of the consequent in (86b) for future discussions, the (in)compatibility between backward VP ellipsis and bare/headed antecedents suffices to support my claim that bare antecedents are merged at Spec *dou*P where they are not preceded/c-commanded by the *v*P of the consequent, whereas headed antecedents are merged lower where they can be preceded/c-commanded by the *v*P of the consequent.

(86) a. Reconstruction of bare antecedents




b. Reconstruction of headed antecedents




Moreover, the structures in (86) further predict that subjects of the consequent can bind into both headed and bare antecedents. This is borne out:

(87) a. (ta-)ziji$_i$ de jiaren zhi-bu-zhichi, Zhangsan$_i$ dou hui cizhi.
3SG-SELF DE family support-NEG-support Z. DOU will quit
'No matter whether himself$_i$'s family is supportive or not, Zhangsan$_i$ will quit.'

b. **buguan** (ta-)ziji$_i$ de jiaren zhi-bu-zhichi,
no matter 3SG-SELF DE family support-NEG-support
Zhangsan$_i$ yiding hui cizhi.
Z. definitely will quit
'No matter whether himself$_i$'s family is supportive or not, Zhangsan$_i$ will quit.'

Both bare antecedent (87a) and headed antecedent (87b) allow the subject of the consequent to bind the reflexive subject *taziji* 'himself' or the logophoric subject *ziji* 'self' within the adverbial clause. Given (86), this is understandable since both headed and bare antecedents are base-generated within the consequent, and c-commanded by the subject of the consequent when they reconstruct into their base positions, as illustrated in (88).

(88) a. $[_{\text{antecedent}}$ *(ta-)ziji*$_i$…$]_j$ $[_{\text{consequent}}$ *Zhangsan*$_i$ $[_{douP}$ t$_j$ $[$*dou* $[_{vP}$ …$]]]$
b. $[_{\text{antecedent}}$ *buguan (ta-)ziji*$_i$…$]_j$ $[_{\text{consequent}}$ *Zhangsan*$_i$ $[_{vP}$ … t$_j$ …$]]]$

Relatedly, we might also expect Condition C connectivity. However, this is only partially borne out: Only bare but not headed unconditional antecedents show Condition C effects (89), similar to the lack of Condition C connectivity in other adverbial clauses in Mandarin (90).

(89) a.*/?? Zhangsan$_i$ de jiaren zhi-bu-zhichi, ta$_i$ dou hui cizhi.
Z. DE family support-NEG-support 3SG DOU will quit
Intended 'No matter whether Zhangsan$_i$'s family is supportive or not, he$_i$ will quit.'

b. **buguan** Zhangsan$_i$ de jiaren zhi-bu-zhichi,
no matter Z. DE family support-NEG-support
ta$_i$ yiding hui cizhi.
3SG definitely will quit
'No matter whether Zhangsan$_i$'s family is supportive or not, he$_i$ will quit.'

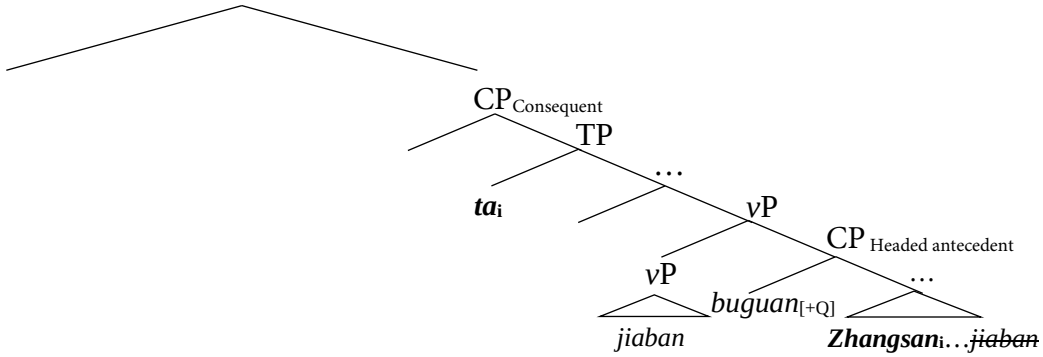
(90) ruguo Zhangsan$_i$ hen youqian, ta$_i$ kending hui bangzhu qiongren de.
if Z. very rich 3SG certainly will help poor.people DE
'If Zhangsan$_i$ were rich, he$_i$ would certainly help the poor.' (Pan & Paul 2018: 22)

Remember that earlier we saw that headed antecedents undergo reconstruction into a post-*v*P position within the consequent, hence we may expect Condition C connectivity emerges in such cases where reconstruction is forced. This is indeed what we find: When the antecedent containing both the R-expression *Zhangsan* and the ellipsis site undergoes reconstruction into a post-*v*P

position within the consequent, the pronominal subject in the consequent c-commands the entire antecedent adverbial clause and hence the R-expression, violating Condition C (91b). Hence the contrast between (89b) and (91a) suggests that a headed antecedent does not necessarily undergo reconstruction and may be interpreted at its surface position.

(91) a.* **buguan** Zhangsan$_i$ de tongshi yuan-bu-yuanyi Δ,
no matter Z. DE colleague be.willing.to-NEG-be.willing.to
ta$_i$ yuan yi jiaban.
3SG be.willing.to work.overtime
Intended 'No matter whether Zhangsan$_i$'s colleague is willing to or not, he$_i$ is willing to work overtime.

b. * Matrix clause




### 3.5.4 The recursion of *dou*

In section 3.5.2, we saw that when *dou* in the consequent is already associated with a universal quantifier, a bare antecedent is not allowed (76). Further examples are given in (92): When there is only one *dou* in the consequent and it is associated with an *even*-focus, a bare antecedent is not allowed but a headed antecedent can still enter the derivation.

(92) a.* xia-bu-xiayu, Zhangsan lian huaxiangsan **dou** gan wan.
rain-NEG-rain Z. even paragliding DOU dare play
Intended 'No matter whether it rains or not, Zhangsan dares to even paraglide.'

b. **buguan** xia-bu-xiayu, Zhangsan lian huaxiangsan **dou** gan wan.
no matter rain-NEG-rain Z. even paragliding DOU dare play
'No matter whether it rains or not, Zhangsan dares to even paraglide.'

However, a related empirical observation is that independently Mandarin does allow the recursion of *dou*. For example, (93) involves two instances of *dou*, one is used as a free choice item licenser that is associated with a *wh*-argument and the other is a scalar marker that is associated with *even*-focus:

(93) shui **dou** lian huaxiangsan **dou** gan wan.
who DOU even paragliding DOU dare play
'Anyone dares to even paraglide.'

This leads us to expect that, although bare antecedents are ruled out when only one *dou* is already associated with some element other than an unconditional antecedent, adding a second *dou* in the consequent may license a bare antecedent. This turns out to be true: (94) is minimally distinct from (92a) in that a second *dou* is added in the consequent, and a bare antecedent becomes available again.

(94) xia-bu-xiayu, Zhangsan **dou** lian huaxiangsan **dou** gan wan.
rain-NEG-rain Z. DOU even paragliding DOU dare play
'No matter whether it rains or not, Zhangsan dares to even paraglide.'

Examples like (94) with multiple instances of *dou* thus raise interesting follow-up questions regarding the analysis of *dou* as well as the fine structure of the low periphery in Mandarin. For instance, in the literature on the semantics *dou*, there has been an effort to unify different uses of *dou* and derive its various functions from its presumed primary function(s) (Tsai 2015, Xiang 2019, a.o.). If this is on the right track, one piece of syntactic evidence could be that when multiple

instances of *dou* with different functions co-occur, the relative order among these *dou*s is rather flexible. In contrast, a more rigid hierarchical order among *dou*s with different functions may suggest that these uses of *dou* are associated with certain functional projections, the heads of which happen to be homophonous. To address this issue, we can look at unconditional consequents involving temporal adjuncts. (95a) and (96a) illustrate that these temporal adjuncts can be associated with a quantifier-distributor *dou* and a scalar marker *dou* respectively. (95b) and (96b) show that when they co-occur with a bare unconditional antecedent and the unconditional *dou* clause-internally, they tend to follow but not precede the bare antecedent and the unconditional *dou*.

(95) a. Zhangsan **sanshi nian** dou mei chidao.
Z. thirty year DOU NEG late
'Zhangsan has not been late for thirty years.'

b. Zhangsan {***sanshi nian** dou} **xia-bu-xiayu**
Z. thirty year DOU rain-NEG-rain
dou {**sanshi nian** dou} mei chidao.
DOU thirty year DOU NEG late
'No matter whether it rains or not, Zhangsan has not been late for thirty years.'

(96) a. Zhangsan **lian** shengbing de shihou dou bu hui chidao.
Z. even be.sick DE time DOU NEG will late
'Zhangsan will not been late even when he is sick.'

b. Zhangsan {??**lian** shengbing de shihou dou} **xia-bu-xiayu** dou
Z. even be.sick DE time DOU rain-NEG-rain DOU
{**lian** shengbing de shihou dou} bu hui chidao.
even be.sick DE time DOU NEG will late
'No matter whether it rains or not, Zhangsan will not been late even when he is sick.'

In addition, the unconditional *dou* co-occurs with a scalar marker *dou* that is associated with the *even*-focused internal argument in (97a) and with a quantifier-distributor *dou* that is associated with a plural internal argument in (97b). A similar order restriction is found: the bare antecedent and the associated unconditional *dou* tend to precede but not follow other *dou*s and their associated constituents.

(97) a. Zhangsan {??**lian** huaxiangsan dou} **xia-bu-xiayu** dou
Z. even paragliding DOU rain-NEG-rain DOU
{**lian** huaxiangsan dou} gan wan.
even paragliding DOU dare play
'No matter whether it rains or not, Zhangsan dares to even paraglide.'

b. Zhangsan {***naxie** **gongyuan** dou} **xia-bu-xiayu** dou
Z. those park DOU rain-NEG-rain DOU
{**naxie** **gongyuan** dou} xiang qu.
those park DOU want go
'No matter whether it rains or not, Zhangsan wants to visit all those parks.'

Nevertheless, we cannot jump to the conclusion that the functional projection headed by the unconditional *dou* must be structurally higher than projections headed by the quantifier-distributor or scalar marker *dou*. A counterargument can be found in cases where the subject of the consequent is associated with a quantifier-distributor or scalar marker *dou*, and a clause-internal bare unconditional antecedent is allowed (98). I leave the issues concerning the recursion of *dou* for future research.

(98) a. **lian** Zhangsan dou **xia-bu-xiayu** dou bu hui chidao.
even Z. DOU rain-NEG-rain DOU NEG will late
'No matter whether it rains or not, even Zhangsan won't be late.'

b. **zheng-ge gongsi de yuangong** dou **xia-bu-xiayu** dou bu hui chidao.
entire-CL company DE employee DOU rain-NEG-rain DOU NEG will late
'No matter whether it rains or not, all employees of the company won't be late.'

Having shown that headed and bare antecedents differ from each other in both their internal and external syntax, in the next section, based on more complex distributional properties of unconditional antecedents, I offer an exploratory account for the correlation between the internal and external syntax in headed/bare unconditionals by comparing them against a recently proposed ternary typology of adverbial clauses.

### 3.6 Typology of adverbial clauses and Mandarin unconditionals

In a series of work by Haegeman (1991; 2003; 2006a; b; 2010a; b; 2012), based on their varying degrees of integration with the host main clause as well as their semantic effects, adverbial clauses are categorized into two groups: ***central adverbial clause*** **(CAC)** and ***peripheral adverbial clauses*** **(PAC)**. Meanwhile, this distinction in their external syntax is argued to correlate with the internal syntax, e.g., PACs but not CACs allow certain main clause phenomena (Haegeman 2003, 2010a, b, 2012; Frey 2012; Frey & Truckenbrodt 2015; Endo & Haegeman 2019; a.o.). The proposed dichotomy and correlation are claimed to be also found in Mandarin adverbial clauses including conditional and temporal adverbial clauses (Wei & Li 2018, Yip 2021, a.o.).

Recent developments in the literature further propose a more fine-grained three-way division in the degree of integration and interpretive properties of adverbial clauses in German, English and Italian (Frey 2020, 2021; Badan & Haegeman 2022): Being the most tightly integrated adverbial clauses, CACs modify the event encoded by the host clause; PACs introduces a background

proposition related to the host proposition; In addition to these two, ***non-integrated dependent clauses*** **(NonICs)** are claimed to modify the overarching speech act of the host main clause and involve even less integration into the host main clause than PACs are.

In this section, trying to offer an account for the correlation between the internal and external syntax in headed/bare unconditional antecedents, I explore the possibility of extending this three-way division to Mandarin unconditionals.

More specifically, in section 3.6.1, I first introduce the proposed ternary typology of adverbial clauses based on Indo-European languages. Building on the proposed external syntax of antecedents laid out in section 3.5, in sections 3.6.2 – 3.6.4, I show that being base-generated at Spec *dou*P within the consequent, all bare antecedents consistently exhibit properties of CACs; meanwhile, I offer a more fine-grained analysis of headed antecedents: Since the merger of headed antecedents is independent from *dou*, they allow more flexibility regarding the degree of integration with the main host clause and may realize as any of the three types of adverbial clauses: CACs, PACs, or speech-act modifiers. Therefore, the recently proposed ternary typology of adverbial clauses receive cross-linguistic support from Mandarin unconditionals.

### 3.6.1 Background: A three-way division in adverbial clauses

In a series of work on the syntax and semantics of adverbial clauses in English (Haegeman 2002, 2004, 2006, 2010a, 2010b, 2012) and German (Frey 2012; Frey & Truckenbrodt 2015), it is proposed that there exist two classes of adverbial clauses that differ in both their internal syntax and external syntax: *central adverbial clauses* (CACs) and *peripheral adverbial clauses* (PACs).

Regarding the internal syntax, it is argued that PACs but not CACs are compatible with main clause phenomena. In terms of the external syntax, PACs are assumed to be base-generated above the TP level of the main clause as a CP adjunct, whereas CACs are merged within the TP of the main clause as a *v*P/TP adjunct.

Meanwhile, PACs and CACs also differ in their semantic integration into the main clause. For instance, as discussed in Haegeman (2012), the *if*-clause in (99a) is a CAC that describes a condition for the event encoded by the main clause to be true, and it does not allow argument fronting; whereas the *if*-clause in (99b) is a PAC that introduces some background information into the context that is in a way contradictory to the proposition encoded by the main clause, and it does allow argument fronting.

(99) a.* If **these exams** you don't pass, you won't get the degree.
b. If **some precautions** they did indeed take, many other possible measures they neglected. (Haegeman 2012: 156, 159)

The syntactic and semantic distinctions between CACs and PACs can be further exemplified by English *while*-clauses. Haegeman (2012) observes that, in (100), the sentence-initial *while*-clause is a PAC expressing a concessive meaning about the contextual background, and it is not within the scope of the matrix tense, hence the futurity is independently encoded by the modal *won't* and cannot be subordinated to the matrix future tense. In addition, the concessive *while*-clause also allows a high adverb *probably*. In contrast, the sentence-final *while*-clause expresses a temporal meaning and modifies the event encoded by the main clause. Thus, it falls under the category of CAC and is within the scope of the matrix tense: Despite the present tense form of the

lexical verb *decides*, the temporal *while*-clause is subordinated to the matrix future tense and interpreted as describing a future event.

(100) [While the lawsuit challenging the legitimacy of lethal injection **probably won't** stop the use of lethal injection altogether], it will certainly delay its use [while the Supreme Court **decides** what to do]. (Haegeman 2012: 167)

It is argued that this kind of dichotomy in the syntax and semantics of adverbial clauses is attested in Mandarin as well (Wei & Li 2018, Yip 2021, a.o.). For example, Wei & Li (2018: 197-198) notices that Mandarin discourse particles express the speaker's attitude, e.g., *you* only occurs in negative root clauses and expresses "the speaker's forceful refuting attitude and conveys unsatisfied or upset emotions". They find that one distinction between PACs and CACs in their internal syntax is that these discourse particles are only allowed in PACs but not CACs. For instance, attitude *you* may occur within an inferential *jiran*-clause (101a) but not an event conditional *ruguo*-clause (101b).

(101) a. jiran Zhangsan **you** bu shi guyi de,
since Z. ATTITUDE NEG BE intentional DE
ni jiu yuanliang ta ba.
2SG then forgive 3SG SFP
'Since Zhangsan obviously is not (in doing something), you might as well forgive him.'

b. ruguo Zhangsan (*__you__) bu shi guyi de,
if Z. ATTITUDE NEG BE intentional DE
ni jiu yuanliang ta ba.
2SG then forgive 3SG SFP
'You might as well forgive Zhangsan if he (*obviously) is not intentional (in doing something).' (Wei & Li 2018: 210)

Meanwhile, regarding their external syntax, one property of Mandarin CACs like event conditional *ruguo*-clauses is that they can fall under the scope of A-not-A questions and SFP *ma* questions (102a), whereas PACs like concessive *suiran*-clauses cannot (102b).

(102) *I know that you are coming to the party. But since you don't like Mary, …'*

a. ruguo Zhangsan yaoqing Mali, ni lai-bu-lai?
if Z. invite Mary 2SG come-NEG-come
'Will you come if Zhangsan invites Mary?'

b.* suiran Zhangsan yaoqing-le Mali, ni lai-bu-lai?
although Z. invite-PERF Mary 2SG come-NEG-come
Intended: 'Will you come in spite of the fact that Zhangsan has invited Mary?'

(Wei & Li 2018: 223-224)

Building on these findings, recent literature has proposed a more fine-grained three-way division in the syntax and semantics of adverbial clauses. Adopting Krifka's (2018, 2021) layers of speech acts, Frey (2018, 2020) argue that, in out-of-the-blue contexts, a German *obwohl*-concessive clause is standardly used as a PAC. One property of the internal syntax of PAC *obwohl*-concessive clauses is that they allow weak root phenomena including sentence adverbials and modal particles like *ja* (103a), which are incompatible with canonical CACs like temporal *während*-clause (103b). Meanwhile, a property of the external syntax of PAC *obwohl*-clauses is that binding into these clauses is impossible, since they are attached higher than the TP of the main host clause and hence the subject quantifier *keiner* 'no one' in the host clause cannot c-command the high PAC *obwohl*-clause (103c).

(103) [German]

a. Obwohl Max **ja** häufig unterbrochen wurde, blieb er ruhig.
although Max MP frequently interrupted was stayed he calm
'Although Max was frequently interrupted, he remained calm.'

b. Während Max (*ja) vorgetragen hat, wurde er unterbrochen.
while Max MP presented has was he interrupted
'While Max was presenting, he was interrupted.'

c.* **Keiner$_i$** wurde bleich, obwohl **er$_i$** erschrocken ist.
no-one got pale although he frightened got
Intended 'No-one turned pale, although he got frightened.' (Frey 2020: 3, 6, 8)

Interestingly, Frey notices that when a particular context is given, an *obwohl*-concessive clause ($p$) contradicts a context-salient conditional ("if $p$, then not $q$") and realizes as a CAC expressing "although $p$, $q$". For instance, after one interlocutor utters (104a), this conditional becomes salient in the context: "if every person $x$ got a nice room (i.e., if $p$), then $x$ is not dissatisfied with the hotel (i.e., then not $q$)"; and the addressee may utter (104b) to contradict that conditional, i.e., "although every person $x$ got a nice room (i.e., if $p$), $x$ is dissatisfied with the hotel (i.e., $q$)". Being a CAC, this use of *obwohl*-concessive clauses allows binding from the host clause (104b). Meanwhile, once a modal particle *schon* occurs within the *obwohl*-clause, suggesting that the property of being a PAC and not a CAC regarding its internal syntax, it correlates with the external syntax of the *obwohl*-clause: Binding from the host clause becomes impossible again once (104c).

(104) [German]
a. Wenn Hans ein schönes Zimmer bekam,
if Hans a nice room got
dann ist er mit dem Hotel zufrieden.
then is he with the hotel satisfied
'If Hans got a nice room, then he is satisfied with the hotel.'

b. Nein, **jeder$_i$** ist mit dem Hotel unzufrieden,
no everyone is with the hotel dissatisfied
obwohl **er$_i$** ein schönes Zimmer bekam.
although he a nice room got
'No, everyone is dissatisfied with the hotel although he got a nice room.'

c.* Nein, **jeder$_i$** ist mit dem Hotel unzufrieden,
no everyone is with the hotel dissatisfied
obwohl **er$_i$** schon ein schönes Zimmer bekam.
although he MP a nice room got (ibid. 6, 10)

Frey identifies a third type of concessive clause, one with a clause-initial verb, and such V1 concessive clause "encodes a speech act performed by a speaker". It is categorized as a non-integrated dependent adverbial clauses (NonIC), as evident in properties of their external syntax: For instance, they cannot occupy the prefield as PACs or CACs do (105). Regarding its internal syntax, a V1 clause is assumed to involve a speech act phrase, as it is compatible with strong root phenomena like interjections and tags (106).

(105) [German]
a. Maria hat nicht schnell promoviert, [ist sie auch sehr begabt].
Maria has not quickly graduated is she MP very talented
'Maria hasn't graduated quickly although she is very talented.'

b.* [Ist sie auch sehr begabt], hat Maria nicht schnell promoviert.
is she MP very talented has Maria not quickly graduated (ibid. 11)

(106) Maria hat nicht schnell promoviert,
Maria has not quickly graduated
[ist sie auch sehr begabt, **hab ich recht**?]
is she MP very talented has I right
'Maria hasn't graduated quickly although she is very talented, am I right?' (ibid. 12)

This ternary typology of adverbial clause receives cross-linguistic support from the interpretations and behaviors of English *while*-clauses discussed in Badan & Haegeman (2022). For example, the CAC temporal *while*-clause in (107a) modifies the event encoded by the host main clause; in (107b), the PAC adversative *while*-clause introduces a proposition that serves as the background information of the proposition of the host main clause; furthermore, a temporal

*while*-clause may be "recycled" as a modifier of the main speech event like (107c). It is also pointed out that a speech-act modifier *while*-clause do not necessarily show all properties of an independent speech act like German verb-first concessive clauses, and instead it is integrated with the "FrameP" (Haegeman & Greco 2018, Greco & Haegeman 2020) of the host main clause at the discourse level. In addition to *while*-clauses, a similar three-way division is found in English (108) and Italian conditionals.

(107) a. While we were talking about Theresa May, the BBC announced her resignation.
b. While Theresa May may be viewed as a conservative, some of her proposals are innovative.
c. While we are talking about Theresa May, some of her proposals were innovative.
(Badan & Haegeman 2022: 2)

(108) a. If you get very tired, you will be at a higher risk of back problems.
b. If I'm no longer going to be allowed to visit my mother, should I encourage her to install Skype?
c. If you remember, the first cases were reported in Italy only a month ago.
(ibid. 3)

In the remainder of this section, I show that this proposed three-way division in adverbial clauses can be extended to explain the complex behaviors of Mandarin unconditionals. In particular, it will be argued that bare antecedents are always CACs, whereas headed antecedents can be realized as one of the *three* different subtypes: CACs, PACs and speech-act modifiers, which explain properties of headed antecedents that are otherwise seemingly contradictory.

### 3.6.2 Mandarin unconditional CACs

Under my analysis that bare antecedents are base generated at Spec *dou*P inside the consequent (cf. 61a), all bare antecedents are predicted to be always CACs. Following Wei & Li's (2018) diagnostic

(cf. 102), we can begin by taking a quick look at SFP *ma* questions and A-not-A questions involving an unconditional adverbial clause. The following examples suggest that bare antecedents behave like CACs but not PACs, since they are also interpreted within the domain of yes-no questions:

(109) '*I know that if it rains tomorrow, it will slow down the traffic and hence Zhangsan will be late, but since Zhangsan has an important meeting with his clients and he needs to arrive on time, …*'

a. xia-bu-xiayu, Zhangsan dou neng zhunshi dao ma?
rain-NEG-rain Z. DOU can on.time arrive MA
'Can Zhangsan arrive on time regardless of whether it rains or not?'

b. xia-bu-xiayu, Zhangsan shi-bu-shi dou neng zhunshi dao?
rain-NEG-rain Z. BE-NEG-BE DOU can on.time arrive
'Is it the case that Zhangsan can arrive on time regardless of whether it rains or not?'

Meanwhile, as headed antecedents allow backward ellipsis, they are assumed to be merged in a position lower within the consequent, e.g., as a *v*P adjunct (cf. 61b), thus headed antecedents are expected to be able to behave like CACs as well. This turns out to be true: Headed antecedents can also fall under the scope of a matrix yes-no question when there is an overt *dou* involved in the consequent.[25]

[25] Note that the presence of *dou* does not seem to interfere with the availability of backward ellipsis in headed antecedents. In the following example, there is a *dou* in the consequent, and backward ellipsis is still possible. Thus, it is clear that in the presence of *dou* in the consequent, the restriction against a headed antecedent surfacing in a post-*dou* position (cf. 74) has nothing to do with the merger site of the headed antecedent, and this restriction is only related to the EPP feature/Leftness Condition of *dou*.

buguan Zhangsan yun-bu-yuanyi Δ, Lisi dou yuanyi jiaban ma?
no matter Z. be.willing.to-NEG-be.willing.to L. DOU be.willing.to work.overtime SFP
'Is Lisi willing to work overtime regardless of whether Zhangsan is willing to or not?'

(110) '*I know that if it rains tomorrow, it will slow down the traffic and hence Zhangsan will be late, but since Zhangsan has an important meeting with his clients and he needs to arrive on time, …*'

a. buguan xia-bu-xiayu, Zhangsan ??(dou) neng zhunshi dao ma?
no matter rain-NEG-rain Z. DOU can on.time arrive MA
'Can Zhangsan arrive on time regardless whether it rains or not?'

b. buguan xia-bu-xiayu, Zhangsan shi-bu-shi ??(dou) neng zhunshi dao?
no matter rain-NEG-rain Z. BE-NEG-BE DOU can on.time arrive
'Is it the case that Zhangsan can arrive on time regardless whether it rains or not?'

A further piece of evidence that both bare and headed antecedents are within the scope of the consequent is that binding from the consequent into antecedents is possible, as already seen in (87), similar to a CAC *obwohl*-clause in German (cf. 104b). A further example is given below:

(111) (buguan) ta-ziji$_i$ de xuesheng (dao na shihou) bi-mei-biye,
no matter 3SG-SELF DE student at that time graduate-NEG-graduate
Zhang jiaoshou$_i$ mingnian dou hui tuixiu.
Z. professor next.year DOU will retire
'No matter whether himself$_i$'s students will have graduated or not (at that time), Prof. Zhang$_i$ will retire next year.'

In (111), regardless of whether there is *buguan* in the antecedent, the reflexive subject in the adverbial clause can be bound by the matrix subject. Furthermore, with or without *buguan*, the antecedent in (111) is temporally subordinated to the matrix clause, which involves a future modal *hui*: The predicate in the antecedent is therefore interpreted as future perfect, as it is compatible with future-referring temporal adjuncts like *dao na shihou* "at that time".

### 3.6.3 Mandarin unconditional PACs

As discussed in section 3.5, under my analysis that bare antecedents are base-generated at Spec *dou*P within the consequent, whereas merging headed antecedents is independent from *dou*, it is expected that bare antecedents can never be used as PACs, but headed antecedents may allow more flexibility in their external syntax and thus can be used as PACs, since a defining feature of PACs is that they are merged above TP of the main clause (i.e., the consequent in unconditionals). This subsection discusses two pieces of evidence to show that this is indeed what I find.

The first piece of evidence concerns Condition C connectivity. As already been discussed in the previous section, Condition C connectivity obligatorily shows up for bare antecedents but not for headed antecedents. This is understandable if we assume that CAC bare antecedents always undergo reconstruction to their base-generated position (i.e., Spec *dou*P), but since PAC headed antecedents have a higher merger site that is above the TP of the consequent, the matrix subject do not bind into PAC headed antecedents.

(112) (=89)

a.*/?? Zhangsan$_i$ de jiaren zhi-bu-zhichi, ta$_i$ dou hui cizhi.
Z. DE family support-NEG-support 3SG DOU will quit
Intended 'No matter whether Zhangsan$_i$'s family is supportive or not, he$_i$ will quit.'

b. **buguan** Zhangsan$_i$ de jiaren zhi-bu-zhichi,
no matter Z. DE family support-NEG-support
ta$_i$ yiding hui cizhi.
3SG definitely will quit
'No matter whether Zhangsan$_i$'s family is supportive or not, he$_i$ will quit.'

The second piece of evidence supporting the hypothesis that headed antecedents can be PACs comes from a set of otherwise unexpected distributional behaviors of *daodi* within headed

antecedents, and I will show how *daodi* can be used as a Mandarin-specific diagnostic for PAC unconditional antecedents.

To demonstrate how *daodi* correlates with the PAC status of headed antecedents, we can first take a look at Chou's (2012) analysis of *daodi*. Chou argues that, in addition to the requirement of being licensed under a [+q] complementizer, *daodi* carries a "logophoric property of the negative attitudes", which is formally realized as a Point-of-View feature that needs to be valued by a c-commanding Point-of-View operator. He speculates that this Point-of-View operator is situated at Cinque's (1999) Evaluative Mood Phrase. Meanwhile, Frey (2020) argues that the standard use of a PAC *obwohl*-concessive clause (e.g., 103a) conceptually involves a judgement that is "due to a conception of an expected course of events that is associated as an implicature with the concessive relation", and syntactically it involves a judgement phrase (JP) that "encodes the private assessment of a proposition by a judge".

Therefore, combining Chou's (2012) analysis of *daodi* and Frey's (2020) proposal of PACs being JPs, and assuming that Frey's JP is where Chou's Point-of-View operator is hosted, we could have a better understanding of why the attitude adverb *daodi* is only allowed in Mandarin headed antecedents (cf. 3.3.1): Under the proposed truncation approach to the internal syntax of unconditional antecedents, the articulated left periphery of a headed antecedent involves a JP with the Point-of-View operator to license *daodi* (113a), whereas the structurally impoverished bare antecedents simply lack the left-peripheral JP and hence the Point-of-View operator, and thus fail to license *daodi* (113b).

(113) a. Headed antecedent: ✓*daodi*
[$_{JP}$ POV-op [*buguan* [*daodi*$_{[POV]}$…[$_{TP}$ *...wh-/A-not-A*…]]]]

b. Bare antecedent: ✗*daodi*
*[$_{TP}$ *daod*$_{[POV]}$*...wh-/A-not-A*…]

In other words, the presence of *daodi* inside a headed antecedent indicates that this unconditional adverbial clause must syntactically involve a JP, hence this headed antecedent is syntactically represented as a PAC, not a CAC. If this is on the right track, we might expect that *daodi*'s compatibility with headed antecedents is restricted: *daodi* is predicted to be only allowed in PAC headed antecedents but not CAC headed antecedents.

To test that, we can first look at the surface position of headed antecedents with *daodi*. If they are indeed PACs and merged above TP of the consequent, they should not surface within the consequent. This is indeed what we find: although independently (i) headed antecedents allow interrogative adverbs like *daodi* (32a), and (ii) a headed antecedent may follow locative subjects and occur inside the consequent (cf. 73), *daodi* is ruled out in such consequent-internal post-subject headed antecedents.[26] Hence the presence of *daodi* indicates the PAC status of a headed antecedent.

[26] The heterogeneity of headed antecedents discussed in this subsection by no means falsifies any empirical observations regarding them made in subsection 3.5. Instead, a closer look at various seemingly contradictory patterns enables us to develop a better understanding of the complexity of headed antecedents. For instance, the compatibility with *daodi* indicates that they may realize as PACs, whereas the possibility of allowing backward ellipsis and surfacing within the consequent indicates that they may alternatively realize as CACs.

(114) [$_{PostP}$ men wai] [buguan (*/??**daodi**) xia-bu-xiayu]
door outside no matter DAODI rain-NEG-rain
jingchang zhan-zhe yi-ge bao'an.
often stand-PROG one-CL security.guard
'No matter whether it (*truly) rains or not, a security guard is often standing outside the door.'

Secondly, if the proposed correlation between the presence of *daodi* in a headed unconditional antecedent and the syntactic status of such an adverbial clause (i.e., PAC) is on the right track, we may make a further prediction: we would expect a negative correlation between the presence of *daodi* and the availability of backward ellipsis. In particular, since PACs are externally merged above the TP of their host main clauses, the *v*P of the consequent clause thus can never behave like the antecedent for the intended ellipsis site inside a PAC headed unconditional antecedent. Therefore, *daodi* is predicted to be incompatible with backward ellipsis.[27]

This is borne out: *daodi* is ruled out once the antecedent involves backward VP ellipsis (115a). In contrast, *daodi* is allowed as long as no backward VP ellipsis is involved (115b), as expected.

(115) a. buguan Zhangsan (*__daodi__) yuan-bu-yuanyi Δ,
no matter Z. DAODI be.willing.to-NEG-be.willing.to
Lisi yuan yi jiaban.
L. be.willing.to work.overtime
'No matter whether Zhangsan (*truly/actually) is willing to or not, Lisi is willing to work overtime.'

[27] The resistance of PAC headed antecedents containing *daodi* against reconstruction may lead us to expect that binding into such antecedents becomes impossible. However, this is not borne out. I leave the unexpected pattern of reconstruction observed in PAC headed antecedents containing *daodi* to future research.

**buguan** (ta-)ziji$_i$ de jiaren daodi zhi-bu-zhichi, Zhangsan$_i$ yiding hui cizhi.
no matter 3SG-SELF DE family DAODI support-NEG-support Z. definitely will quit
'No matter whether himself$_i$'s family is supportive or not, Zhangsan$_i$ will quit.'

b. buguan Zhangsan **daodi** yuan-bu-yuanyi jiaban,
no matter Z. DAODI be.willing.to-NEG-be.willing.to work.overtime
Lisi yuan yi jiaban.
L. be.willing.to work.overtime
'No matter whether Zhangsan truly/actually is willing to work overtime or not, Lisi is willing to work overtime.'

A third pieced of evidence supporting *daodi*'s correlation with PAC headed antecedents concerns the scope of yes-no question in the consequent. Although we have already seen that headed antecedents may fall under the scope of A-not-A question or SFP *ma* question in the consequent (110), the following example shows that *daodi* is unexpectedly ruled out when the headed antecedents are within the domain of a question encoded by the consequent:

(116) '*I know that if it rains tomorrow, it will slow down the traffic and hence Zhangsan will be late, but since Zhangsan has an important meeting with his one of his clients and he needs to arrive on time*, …'

a. buguan (***daodi**) xia-bu-xiayu, Zhangsan dou neng zhunshi dao ma?
no matter DAODI rain-NEG-rain Z. DOU can on.time arrive MA
'Can Zhangsan arrive on time regardless of whether it rains or not?'

b. buguan (??**daodi**) xia-bu-xiayu,
no matter DAODI rain-NEG-rain
Zhangsan shi-bu-shi dou neng zhunshi dao?
Z. BE-NEG-BE DOU can on.time arrive
'Is it the case that Zhangsan can arrive on time regardless of whether it rains or not?'

Under the proposal that *daodi* indicates the presence of a JP, this restriction is understandable: Since headed antecedents with *daodi*/JP are PACs, given Wei & Li's (2018) observation that Mandarin PACs cannot be within the scope of SFP *ma* or A-not-A questions in the host clause, it

makes sense that *daodi* are ruled out in (116) where the antecedent is intended to be interpreted under the consequent.

Related to the scopal interactions between the headed antecedent and the consequent, the final piece of evidence that headed antecedents with *daodi* are PACs comes from temporal subordination. As Haegeman (2012) observes, a sentence-initial PAC concessive *while*-clause is not temporally subordinated to the matrix tense, indicated by the presence of future modal *won't* in (117), whereas a sentence-final CAC temporal *while*-clause is.

(117) (=100)
[While the lawsuit challenging the legitimacy of lethal injection **probably won't** stop the use of lethal injection altogether], it will certainly delay its use [while the Supreme Court **decides** what to do]. (Haegeman 2012: 167)

Turning back to Mandarin unconditionals, since bare antecedents are licensed by *dou* and base-generated at Spec *dou*P, they cannot be used as PACs that are merged above TP of the consequent, and they are expected to always fall under the scope of the consequent and thus are temporally subordinated to the consequent. This turns out to be true:

(118) a. (*__xianzai__) gao-bu-gaoxing, Zhangsan mingtian dou __hui__ lai.
now happy-NEG-happy Z. tomorrow DOU will come
'No matter whether he will be happy or not (*now), Zhangsan will come tomorrow.'

b. buguan (__xianzai__) __daodi__ gao-bu-gaoxing,
no matter now DAODI happy-NEG-happy
Zhangsan mingtian dou __hui__ lai.
Z. tomorrow DOU will come
'No matter whether he is truly happy or not (now), Zhangsan will come tomorrow.'

Both the bare and headed antecedents in (118) involve a stative predicate that is not overtly marked for tense, which can be interpreted as non-past without specifying whether it is referring

to a present time or a future time. In addition, both consequents involve a future modal *hui*. Crucially, the bare antecedent in (118a) must be subordinated to the matrix future modal and refer to a future time, as indicated by the incompatibility with a temporal adverb *xianzai* 'now'.[28] However, similar to English PACs discussed by Haegeman (2012), as a PAC, the headed antecedent with *daodi* in (118b) is not necessarily subordinated to the matrix future modal, and it may independently refer to the present time as it is compatible with the present tense adverb *xianzai*.

### 3.6.4 Mandarin unconditional speech act modifiers

In the previous two subsections, I have shown that, in Mandarin, bare unconditional antecedents are CACs, whereas headed unconditional antecedents can realize as either CACs or PACs. In this subsection, I further show that headed unconditional antecedents, but not bare antecedents, can correspond to a third type of adverbial clauses, i.e., "speech act modifiers" (à la Frey 2020, Badan & Haegeman 2022). This is supported by both the semantic and syntactic properties of headed antecedents.

We can begin with the interpretive properties of speech act modifying adverbial clauses. Similar to NonIC German V1 adverbial clauses discussed in Frey (2020) (cf. 105-106), and English "recycled" *while*-temporals and *if*-conditionals in Badan & Haegeman (2022) (cf. 107c,

[28] Note that independently temporal adverbs like *xianzai* are allowed in bare antecedents:

xianzai you-mei-you qian, Zhangsan dou xiang mai fangzi.
now have-NEG-have money Z. DOU want buy house
'Whether he has money or not now, Zhangsan wants to buy a house.'

108c), a headed unconditional antecedent in Mandarin can also be interpreted as modifying the overarching speech act of the consequent. For instance, what the antecedent in (119a) expresses is that the addressor's performing the immediately following speech act, i.e., making a statement encoded by the consequent, is independent from whether the addressee wants to hear the truth or not. This is further supported by the overtly occurring performative predicate *wo gaosu ni* 'I tell you', which embeds the consequent clause, i.e., whether addressor informing the addreesee with a statement about the address's performance is independent of the addressee's own willingness (119b).

(119) a. buguan ni yuan-bu-yuanyi ting shihua,
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
ni zuijin de biaoxian hen zaogao.
2SG recent DE performance very terrible
'No matter whether you want to hear the truth or not, your recent performance is terrible.'

b. buguan ni yuan-bu-yuanyi ting shihua,
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
**wo gaosu ni**, ni zuijin de biaoxian hen zaogao.
1SG tell 2SG 2SG recent DE performance very terrible
'No matter whether you want to hear the truth or not, I tell you that your recent performance is terrible.'

Abstracting away from the technical details of their proposals, Frey (2018, 2020) and Badan & Haegeman (2022) share the same analytical intuition that speech-act modifiers are base generated at the highest position of the main clause. Extending this to Mandarin, since bare antecedents are all base generated at Spec *dou*P inside the consequent, we would never expect them to behave like speech-act modifiers. This is true as shown in the following examples: With or without the overt

performative predicate, a bare antecedent cannot be used as an adverbial clause modifying the overarching speech act of the main host consequent clause.

(120) * ni yuan-bu-yuanyi ting shihua, (**wo gaosu ni**,)
2SG be.willing.to-NEG-be.willing.to hear honest.words 1SG tell 2SG
ni zuijin de biaoxian hen zaogao.
2SG recent DE performance very terrible
Intended 'No matter whether you want to hear the truth or not, I tell you that your recent performance is terrible.'

As pointed out in Csipak (2018) (her "Discourse Structing Conditionals", cf. Guha 2022), another interpretive property/restriction of speech-act modifying adverbial clauses concerns the temporal interpretation: If a conditional adverbial clause is modifying the speech act of the consequent, it does not allow reference to a time prior to the utterance time. For instance, in English, it is fine for a speech-act modifying *if*-conditional to refer to the present utterance time (121a, b), but it becomes infelicitous once the adverbial clause refers to a time prior to the present utterance time (121a', b'). The same restriction is attested in speech-act modifying *jõdi*-clauses in Bangla: A past temporal reference is also ruled out (122).

(121) a. If I am being frank, you look awful.
a'. #If I was being frank yesterday, you looked awful.
b. If you ask me, Alex is getting ready to leave.
b'. #If you asked me yesterday, Alex was getting ready to leave.
(Csipak 2018: 303)

(122) [Bangla]
a. jõdi amae jigeš kɔro (*tahole), Rina cakri-ta chere debe
if I.DAT ask do.HAB.PRS.2, then Rina job-CLF leave give.FUT.3
'If you ask me, Rina will quit the job.'

b. # jɵ̃di amae gɔtokal jigeš kɔre thako
if I.DAT yesterday ask do be.HAB.PST.2,
Alok cakri-ta chere debar cešta korchilo
Alok job-CLF leave give.GEN.GEN try do.PROG.BE.PST.3
'If you asked me yesterday, Aloke was trying to quit the job.'
(Guha 2022: 3-4)

The following example shows that, like English and Bangla conditionals used as speech-act modifiers, Mandarin unconditionals modifying speech acts cannot refer to a past time either: the past temporal adverb *dangshi* 'then' is incompatible with the antecedent (123a), and note that CAC or PAC unconditional antecedents are independently compatible with a past tense reference (123b):

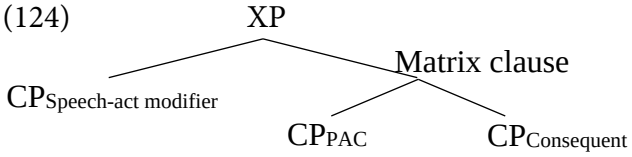
(123) a.* buguan ni (**dangshi**) yuan-mei-yuanyi ting
no matter 2SG then be.willing.to-NEG.PERF-be.willing.to hear
shihua, ni qunian de biaoxian hen zaogao.
honest.words, 2SG last.year DE performance very terrible
Intended 'No matter whether you wanted to hear the truth or not at that time, your last year's performance was terrible.'

b. buguan ni (**dangshi**) (daodi) yuan-mei-yuanyi ting
no matter 2SG then DAODI be.willing.to-NEG.PERF-be.willing.to hear
shihua, jingli haishi gongbu-le ni de shiji biaoxian.
honest.words manager still announce-PERF 2SG DE actual performance
'No matter whether you wanted to hear the truth or not at that time, the manager nevertheless announced your actual performance.'

Having seen the interpretive properties of speech-act modifying headed antecedents, in the rest of this subsection, we can turn to their unique properties in both external and internal syntax. Regarding their external syntax, as mentioned earlier, speech-act modifiers are assumed to base generate at the highest position of the main clause (Frey 2018, 2020; Badan & Haegeman 2022). Since PACs are part of the propositional content of a statement uttered in a speech act, we may

expect them to be able to co-occur with overarching speech-act modifying adverbial clauses. And more specifically, it is predicted that when they do co-occur, PACs should be closer to the consequent than speech-act modifiers are, as roughly schematized in the following structure:

(124)




Therefore, at the canonical pre-consequent position of unconditional adverbial clauses, speech-act modifiers like the headed antecedent in (125a) are expected to precede but not follow PACs like the headed antecedent in (125b). This prediction is borne out in (126):

(125) a. [buguan ni yuan-bu-yuanyi ting shihua],
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotion DE
'No matter whether you want to hear the truth or not, the company will not give you a promotion.'

b. [buguan ni jianglai daodi jiaban duoshao-ge xiaoshi]
no matter 2SG in.the.future DAODI work.overtime how.many-CL hour
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotion DE
'No matter how many hours of overtime you will truly work in the future, the company will not give you a promotion.'

(126) a. ✓ Speech-act modifier ≺ PAC
[buguan ni yuan-bu-yuanyi ting shihua],
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
[buguan ni jianglai daodi jiaban duoshao ge xiaoshi],
no matter 2SG in.the.future truly work.overtime how.many CL hour
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotion DE
'No matter whether you want to hear the truth or not, no matter how many hours of overtime you will truly work in the future, the company will not give you a promotion.'

b. ✗ PAC ≺ Speech-act modifier

*[buguan ni jianglai daodi jiaban duoshao ge xiaoshi],
no matter 2SG in.the.future truly work.overtime how.many CL hour
[buguan ni yuan-bu-yuanyi ting shihua],
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotionn DE

Meanwhile, despite the co-occurrence illustrated in (126a), under the traditional assumption that only syntactic constituents of the same category can be coordinated, a speech-act modifier is not expected to be coordinated with a categorically distinct PAC. This turns out to be true in Mandarin:

(127) * [buguan ni yuan-bu-yuanyi ting shihua], **bingqie**
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words and
[buguan ni jianglai daodi jiaban duoshao-ge xiaoshi]
no matter 2SG in.the.future DAODI work.overtime how.many-CL hour
gongsi shi bu hui gei ni shenzhi de.
company BE NEG will give 2SG promotion DE
Intended 'No matter whether you want to hear the truth or not, and no matter how many hours of overtime you will truly work in the future, the company will not give you a promotion.'

Furthermore, Frey (2020) points out that adverbial clauses that modify the overarching speech event show special properties regarding their external syntax. For instance, one distinction between PACs and NonICs in German regarding their external syntax is that while *obwohl*-concessive PACs can be coordinated (128a), V1 NonICs cannot (128b).[29]

[29] As noted in Badan & Haegeman (2022), not all speech-act modifying adverbial clauses disallow coordination. For instance, CACs recycled as speech-act modifiers in English and Italian can coordinate.

(128) [German]

a. Wir gehen spazieren, [obwohl wir etwas müde sind] **und**
we go for-a-walk although we a-little tired are and
[obwohl es bald regnen wird].
although it soon rain will
'We are going for a walk although we are a little tired and although it's going to rain soon.'

b.* Wir gehen spazieren, [sind wir auch etwas müde] **und**
we go for-a-walk are we MP a-little tired and
[will it MP soon rain]
wird es auch bald regnen.
Intended: 'We are going for a walk even though we are a little tired and it's going to rain soon.' (Frey 2020: 26)

Frey (2020) also notices that although a PAC allows embedding, a V1 NonIC cannot be embedded (129). Therefore, adopting Progovac's (2003) approach to coordination that (at least) the second conjunct in a coordinated structure involves syntactic embedding, Frey reduces German NonICs' resistance against coordination to their unembeddability.

(129) a. Hans denkt, [dass Maria nicht schnell promovieren wird,
Hans thinks that Maria not quickly graduate will
obwohl sie sehr begabt ist]
although she very talented is
'Hans thinks that Maria won't graduate quickly although she's very talented.'

b.* Hans denkt, [dass Maria nicht schnell promovieren wird,
Hans thinks that Maria not quickly graduate will
ist sie auch sehr begabt].
is she MP very talented (Frey 2020: 11)

Interestingly, a parallel contrast is attested in Mandarin unconditionals: Although PAC unconditionals antecedents allow coordination (130a), speech-act modifiers do not (130b).

(130) a. [buguan daodi xia-bu-xiayu], **bingqie** [buguan qishi du-bu-duche],
no matter truly rain-NEG-rain and no matter actually jam-NEG-jam
Zhangsan zongshi tiqian wu fenzhong dao gongsi.
Z. always in.advance five minutes arrive company
'No matter whether it rains or not, and no matter whether there is traffic jam or not, Zhangsan always arrives at the company five minutes early.'

b.* [buguan ni yuan-bu-yuanyi ting shihua],
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words
**bingqie** [buguan ni you-mei-you yishi-dao],
and no matter 2SG have-NEG.PERF-have realize-PERF
ni zuijin de biaoxian hen zaogao.
2SG recent DE performance very terrible
Intended 'No matter whether you want to hear the truth or not, and no matter whether you have realized it or not, your recent performance is terrible.'

Meanwhile, PAC headed unconditional antecedents can be embedded (131a) but speech-act modifiers cannot (131b):

(131) a. jingli gaosu Lisi [buguan ta jianglai daodi jiaban
manager tell L. no matter 3SG in.the.future DAODI work.overtime
duoshao-ge xiaoshi, gongsi shi bu hui gei ni shenzhi de].
how.many-CL hour company BE NEG will give 2SG promotion DE
'The manager told Lisi that no matter how many hours of overtime he will truly work in the future, the company will not give him a promotion.'

b.* jingli gaosu Lisi [buguan ta yuan-bu-yuanyi ting
manager tell L. no matter 3SG be.willing.to-NEG-be.willing.to hear
shihua, gongsi shi bu hui gei ni shenzhi de].
honest.words company BE NEG will give 2SG promotion DE
Intended 'The manager told Lisi that no matter whether he wants to hear the truth or not, the company will not give him a promotion.'

Lastly, we can turn to the internal syntax of speech-act modifying headed antecedents. Badan & Haegeman (2022) further note that, unlike German V1 adverbial clauses, which allow strong root phenomena (cf. 106), temporal *while*-clauses "recycled" as speech event modifiers in English

are not compatible with strong root phenomena like tags or hanging topics (132), suggesting that not all speech-act modifying adverbial clauses form independent speech acts on their own.

(132) a. *While we are talking about John, **aren't we**, do you remember his talk about Expressionism?
b. *While **John**, we are talking about him, do you remember his talk about Expressionism? (Badan & Haegeman 2022: 35)

Similar to English speech-act-modifying *while*-clauses but unlike German V1 concessives, Mandarin headed unconditional antecedents are incompatible with root phenomena identified in Pan (2019). For instance, he shows that one interpretation of sentence final *laizhe* in *wh*-questions is "reminding of something forgotten" and hence translated as "by the way" (133a), and *laizhe* with this meaning cannot be embedded (133b), showing that it falls under the category of (strong) root phenomena.

(133) a. tamen lia shenme shihou jiehun **laizhe**?
3PL two what time marry LAIZHE
'By the way, when will they get married?'

b. *[tamen lia shenme shihou jiehun **laizhe**] de wenti bing bu qingchu.
3PL two what time marry LAIZHE DE question really NEG clear
'The question [(*by the way,) when they will get married] is not really clear.'
(Pan 2019: 109)

What is crucial for our discussion here is that, as a type of root phenomena, *laizhe* is incompatible with unconditional antecedents, no matter whether it is a PAC (134b) or a speech-act modifier (135b), supporting Badan & Haegeman (2022)'s claim.

(134) a. tamen lia (daodi) jie-mei-jiehun **laizhe**?
3PL two DAODI marry-NEG.PERF-marry LAIZHE
'By the way, have they (truly) got married?'

b. buguan tamen lia daodi jie-mei-jiehun (*laizhe),
no matter 3PL two DAODI marry-NEG.PERF-marry LAIZHE
tamen de tuishui dou hen shao.
3PL DE tax.return DOU very little
'No matter whether (*by the way) they truly are married or not, their tax return is very little.'

(135) a. ni yuan-bu-yuanyi ting shihua laizhe?
2SG be.willing.to-NEG-be.willing.to hear honest.words LAIZHE
'By the way, do you want to hear the truth?'

b. buguan ni yuan-bu-yuanyi ting shihua (*laizhe),
no matter 2SG be.willing.to-NEG-be.willing.to hear honest.words LAIZHE
ni zuijin de biaoxian hen zaogao.
2SG recent DE performance very terrible
'No matter whether (*by the way) you want to hear the truth or not, your last year's performance was terrible.'

In addition, although as we saw earlier, German V1 adverbial clauses and Mandarin speech-act modifying headed unconditional antecedents resist coordination, Badan & Haegeman (2022) notice that English speech-act-modifying *while*-clauses allow it (136). Therefore, although a German V1 adverbial clause is assumed to be independent speech acts and syntactically is adjoined to the highest speech act phrase (ActP) of the host main clause (Frey 2018, 2020), Badan & Haegeman (2022) argues that English speech-act modifying adverbial clauses encode a "secondary" speech act of "frame setting", and they are parasitic on and a part of the speech act of the main host clause. Syntactically, they are base generated at the specifier of the FrameP of the main clause.

(136) [While I may be prejudiced in this area] **and** [while I actually do not have systematic evidence to support this], students nowadays seem to spend more time on Facebook than on reading. (ibid. 34)

On the other hand, similar to German and Mandarin speech-act modifying adverbial clauses, a temporal *while*-clause modifying the speech act time cannot be embedded either. For example,

(137a) has two interpretations: the *while*-clause could be modifying the host clause event time, where the present tense of the *while*-clause is subordinate to the host clause tense and has a future interpretation; alternatively, the *while*-clause could be modifying the speech event and does not have a future interpretation. In contrast, once embedded, the *while*-clause in (137b) must be understood as modifying the event time of the embedded host clause and cannot have the other reading, suggesting that speech-act modifiers cannot be embedded.[30]

(137) a. While we are talking about Theresa May, five cabinet ministers will be voting with the opposition.
b. The secretary of state will announce [that [while they are talking about Theresa May], five cabinet ministers will be voting with the opposition].
(Badan & Haegeman 2022: 28)

Therefore, despite of similar interpretive properties, comparisons in the external and internal syntax of speech-act modifying adverbial clauses in German, English, and Mandarin support Badan & Haegeman's (2022) proposal that "non-integrated finite adverbial clauses" do not necessarily form a homogeneous set of syntactic category (138). Instead, there seems to exist a continuum regarding whether or not a speech-act modifying adverbial clause behaves like an independent speech act on its own, and/or the degree of integration of the adverbial clause with the host main clause. Towards one end of the continuum lies German, where V1 adverbial clauses consistently show properties of being an independent speech act in both internal and external

[30] The unembeddability of speech-act modifiers observed across German, Mandarin, and English suggests that it may be one defining syntactic property of such class of adverbial clauses, in addition to the shared interpretive properties. Frey (2020) argues that speech-act modifiers are unembeddable because they form independent speech acts. As already mentioned, the incompatibility between strong root phenomena and speech-act modifying adverbial clauses in Mandarin and English suggest that not all speech-act modifiers are independent speech acts, and there might be other reason(s) for the unembeddability of speech-act modifiers. I leave this issue for future work.

syntax. English recycled temporal *while*-clauses, which share more properties with canonical integrated PACs and CACs (regarding their external syntax, e.g., allow coordination), exemplify members towards the other end of the continuum, with Mandarin headed unconditional antecedents lying somewhere in between (139).

(138) Typology of speech-act modifying adverbial clauses

| | Internal syntax | External syntax | |
|---|---|---|---|
| | Root phenomena | Coordination | Embedding |
| German V1 adverbial clause | ✓ | ✗ | ✗ |
| Mandarin headed unconditional antecedent | ✗ | ✗ | ✗ |
| English recycled temporal *while*-clause | ✗ | ✓ | ✗ |

(139) A continuum of integration of speech-act modifying adverbial clauses


## 3.7 Summary

In this chapter, I discussed another structure involving the polarity variable (or a *wh*-element), unconditional adverbial clauses, which had not attracted much attention in the literature on Mandarin syntax.

I showed that there exist two distinct types of unconditional adverbial clauses in Mandarin: Headed antecedents and bare antecedents consistently differ from each other in both their internal and external syntax.

Regarding the internal syntax, bare antecedents involve an impoverished structure: They are TPs without a left periphery; whereas headed antecedents involve a full-fledged CP-domain.

Contrary to the traditional assumption, I argued that only headed but not bare antecedents involve an embedded interrogative.

In terms of the external syntax, bare antecedents are base generated at Spec *dou*P within the consequent and then overtly move to their canonical pre-consequent position, hence they all fall under the category of CACs. In contrast, the merger of headed antecedents is independent from *dou* and they exhibit more flexibility in their attachment sites and varying degree of integration with the consequent. It was argued that they can realize as any of the three types of adverbial clauses: CACs, PACs, and speech-act modifiers, each of which show distinct properties in their external syntax (and internal syntax). This provides cross-linguistic evidence for the recently proposed three-way division in adverbial clauses.

# Chapter 4 Verb Echo Answers in Mandarin

In this chapter, I describe and analyze a third structure that is related to yes-no questions and involves the polarity variable: answers to yes-no questions, which assign either a positive or a negative value to the polarity variable under Holmberg's (2016) analysis of yes-no question-answer pairs. As shown in the following example (1), in Mandarin, answering neutral yes-no questions typically requires repeating the verb in the yes-no question.[31]

(1) a. Q1: Zhangsan **chi** liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. Q2: Zhangsan **chi-bu-chi** liulian?
Z. eat-NEG-eat durian
'Does Zhangsan eat durians?'

c. A: **chi** /bu **chi**
eat NEG eat
'Yes./No.'

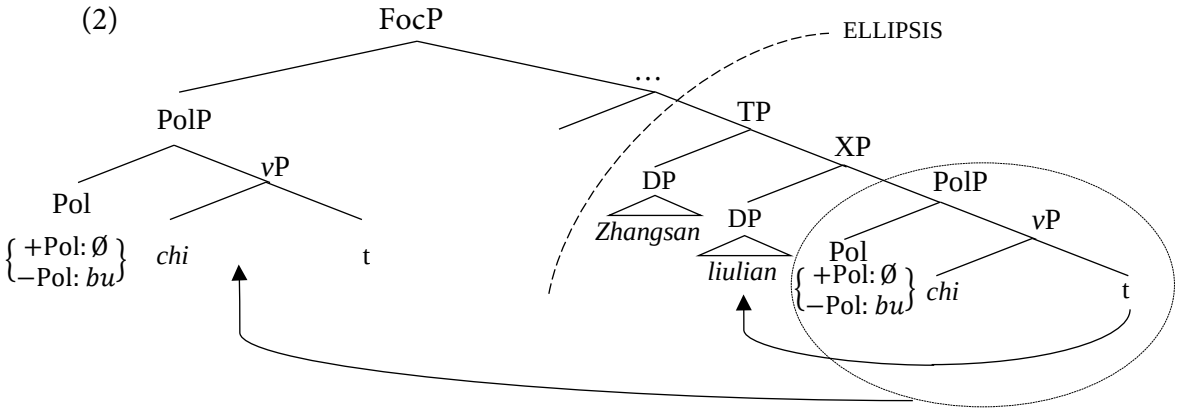
Following Holmberg (2016), I use the term "verb echo answers" to refer to answers like (1c). The existence of verb echo answers (henceforth, VEA) in Mandarin has already been acknowledged in the generative literature by Liu (2014), Simpson (2015), Holmberg (2016), and Wei (2016, 2019). What their analytical intuitions have in common is the assumption that VEA

[31] Responses to biased questions involve a lexical item *dui*, which literally means "correct". For instance, an intonational question *Zhangsan chi liulian* ↗? 'Zhangsan eats durians, right?' is usually answered by *dui* (but they can be answered with verb echo answers as well in certain contexts). But crucially, A-not-A questions and *ha/a* questions never allow particle answers.

involve an underlying sentential structure and then ellipsis is responsible for spelling-out only the surface string consisting of the echoed verb.

Building on their proposals, I analyze Mandarin like (1c) as involving: (i) a Polarity Phrase (PolP) above *v*P whose head encodes the polarity of the clause; (ii) the internal argument (and external argument) move out of *v*P to positions higher than PolP; (iii) the remnant PolP raises to the left periphery; and (iv) TP ellipsis applies, leaving only PolP pronounced. The proposal is illustrated in (2):

(2)




It should be noted that VEA is by no means a Mandarin-specific phenomenon and they have been noted to exist in various genetically and geographically unrelated languages. An incomplete list of such languages include Indo-European languages (Irish in McCloskey 1991; Romance in Martins 1994, Kato 2016, Santos 2009, Mendes 2020; Welsh in Jones 1999; Scottish Gaelic in Thoms 2016; Greek in Merchant 2018; Russian in Gribanova 2013; Polish in Ruda 2014, 2021), Uralic languages (Finnish in Holmberg 2001, 2005, 2007; Hungarian in Lipták 2012, 2013), Afro-Asiatic languages (Hebrew in Doron 1999, Landau 2018), Niger-Congo languages (Swahili in Ngonyani 1996, Kikuyu and Chingoni in Ngonyani & Peter Githinji 2006), Altaic languages

(Japanese in Sato & Hayashi 2018, Sato & Maeda 2021; Korean in Park & Park 2018; Mongolian in Sakamoto & Bao 2019), Tai–Kadai languages (Thai in Yaisomanang 2012), and Austronesian languages (Javanese in Vander Klok 2021). In Holmberg's (2016) sample, it is reported that 62 out of 130 languages have VEA as responses to yes-no questions.

The organization of this chapter is the following. Section 4.1 presents some empirical facts about VEAs in Mandarin, focusing on their basic distributional properties that will play an important role in the analysis in (2). In section 4.2, I evaluate seriously the approach of "what you see is what you get", and show that only assuming an underlying sentential structure for Mandarin VEAs can we make sense of a group of seemingly unrelated empirical observations, many of which have not been systematically discussed in previous studies. Section 4.3 lays out the motivations for my analysis of the syntax of Mandarin VEAs. In particular, I provide evidence against existing analyses that involve pro-drop and/or head movement. Section 4.4 briefly summarizes this chapter.

## 4.1 Basic properties of Mandarin Verb Echo Answers

In this section, I draw the basic empirical picture of VEAs by discussing various materials that are either optional or obligatory in VEAs. It should be noted that "verb echo answer" might be an oversimplified term for responses to Mandarin yes-no questions, as we will see, in addition to the verb, various other elements in the yes-no question may also surface in the corresponding answer. But following the tradition of the literature on this phenomenon, I will keep using this term without necessarily committing myself to saying that these elements are "verbs".

To begin with, among lexical verbs, in addition to transitives, intransitives, including both unergatives (3) and unaccusatives (4), and ditransitives (5) can all be echoed:

(3) a. Q: mao kesou ma?
cat cough SFP
'Do cats cough?'

b. A: **kesou**.
cough
'Yes.'

(4) a. Q: Zhangsan lai ma?
Z. come SFP
'Will Zhangsan come?'

b. A: **lai**.
come
'Yes.'

(5) a. Q: Zhangsan qian yinhang daikuan ma?
Z. owe bank loan SFP
'Does Zhangsan owe loans to the bank?'

b. A: **qian**.
owe
'Yes.'

Not only lexical verbs, but also various additional elements may occur in the echoed answer. We can begin by looking at the post-verbal domain. Post-verbal internal arguments may optionally occur in VEAs. This is true for transitive verbs (6), ditransitive verbs (7), and intransitive unergative verbs with a cognate object (8):

(6) a. Q: Zhangsan chi liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. A: chi (**liulian**).
eat durian
'Yes.'

(7) a. Q: Zhangsan qian yinhang daikuan ma?
Z. owe bank loan SFP
'Does Zhangsan own loans to the bank?'

b. A: qian (**yinhang daikuan**).
owe bank loan
'Yes.'

(8) a. Q: jingyu shui-jiao ma?
whale sleep(*v.*)-sleep(*n.*) SFP
'Do whales sleep?'

b. A: shui(-**jiao**).
sleep(*v.*)-sleep(*n.*)
'Yes.'

In addition, VEAs may also optionally include post-verbal frequency phrases:

(9) a. Q: Zhangsan jiancha-guo liang-bian ma?
Z. examine-EXP two-time SFP
'Did Zhangsan examine (it) twice?'

b. A: jiancha-guo (**liang-bian**)
examine-EXP two-time
'Yes.'

Like postverbal elements, in the preverbal area, different elements may optionally occur in the VEA. For instance, temporal adverbs (10), locative PPs (11), or benefactive PPs (12) are all possible optional elements in the VEAs.

(10) a. Q: Zhangsan mingtian lai ma?
Z. tomorrow come SFP
'Will Zhangsan come tomorrow?'

b. A: (**mingtian**) lai.
tomorrow come
'Yes.'

(11) a. Q: Zhangsan zai xuexiao chi ma?
Z. in school eat SFP
'Does Zhangsan have meals on campus?'

b. A: (**zai xuexiao**) chi.
in school eat
'Yes.'

(12) a. Q: Zhangsan {gei/wei} Lisi zuo fan ma?
Z. for L. cook meal SFP
'Does Zhangsan cook meals for Lisi?'

b. A: ({**gei/wei**} **Lisi**) zuo
for L. cook
'Yes.'

Similar to post-verbal internal arguments, echoing external arguments is possible as well:

(13) a. Q: Zhangsan chi liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. A: (**ta**) chi.
3SG eat
'Yes.'

Furthermore, it is possible for multiple optional elements to co-occur within the VEA. For instance, as shown in the following example, both the preverbal locative PP and the postverbal internal argument are allowed in the VEA.

(14) a. Q: Zhangsan zai jia chi wanfan ma?
Z. in home eat dinner SFP
'Does Zhangsan have dinners at home?'

b. A: (**zai jia**) chi (**wanfan**)
in home eat dinner
'Yes.'

Hence it is not surprising to see that in (15), a yes-no question may very well be responded with a full sentential answer where all arguments (and adjuncts) are present:

(15) a. Q: Zhangsan mingtian zai jia chi fan ma?
Z. tomorrow in home eat meal SFP
'Will Zhangsan have dinner at home tomorrow?'

b. A: ta mingtian zai jia chi wanfan
3SG tomorrow in home eat dinner
'Yes.'

Beyond the abovementioned elements that are optionally allowed in VEAs, there are also elements that are obligatorily required in the VEAs. The following examples show that in the postverbal domain, as already pointed out in Wei (2019), if there are bound aspectual markers like *-le* or *-guo* following the lexical verb in the yes-no question, then bare lexical verbs are ruled out in VEA. Instead, the entire verbal complex containing both the lexical verb and the bound aspectual marker must be echoed.

(16) a. Q: Zhangsan chi-**le**/-**guo** liulian ma?
Z. eat-PERF/-EXP durian SFP
'Did Zhangsan eat durians/Has Zhangsan eaten durians?'

b. A: chi*(-**le**/-**guo**)
eat-PERF/-EXP
'Yes.'

Regarding the preverbal elements, modals (17) and progressive marker (18) are obligatory in answers to yes-no questions, and the lexical verb becomes optional:

(17) a. Q: Zhangsan **hui** chi liulian ma?
Z. will eat durian SFP
'Will Zhangsan eat durians?'

b. A: **hui** (chi)
will eat
'Yes.'

c. A2: *__chi__

(18) a. Q: Zhangsan **zai** chi liulian ma?
Z. PROG eat durian SFP
'Is Zhangsan eating durians?'

b. A1: **zai** (chi)
PROG eat
'Yes'

c. A2: *__chi__

The examples in (17) and (18) illustrate that elements other than lexical verbs can independently form an echo answer. This is further exemplified by yes-no question-answer pairs involving non-verbal predicates. For instance, other than lexical verbs, Mandarin allows adjectival (19) and nominal (20) predicates without an overt copula *shi*, and these non-verbal predicates can be echoed as well in responding yes-no questions:

(19) a. Zhangsan (hen) congming.
Z. very clever
'Zhangsan is (very) clever.'

b. Q: Zhangsan **congming** ma?
Z. clever SFP
'Is Zhangsan clever?'

c. A: **congming**
clever
'Yes.'

(20) a. Zhangsan Shanghai-ren.
Z. S.-person
'Zhangsan is Shanghainese.'

b. Q: Zhangsan **Shanghai-ren** ma?
Z. S.-person SFP
'Is Zhangsan Shanghainese?'

b. A: **Shanghai-ren**.
S.-person
'Yes.'

Relatedly, not only predicates are possible candidates for echo answers, as pointed out in Wei (2019), adverbial adjuncts are also acceptable echo answers.[32]

(21) a. Q: Zhangsan **jingchang** chi liulian ma?
Z. often eat durian SFP
'Does Zhangsan often eat durians?'

b. A: **jingchang** (chi)
often eat
'Yes.'

So far, we have only looked at positive VEAs. Next, we can turn to negative VEAs. One noticeable property of Mandarin negation is that it is subject to the so-called "aspectual selection", i.e., there is a correlation between the aspectual property of the predicate and the choice of negation morpheme (Huang 1988, Ernst 1995, Lee & Pan 2001, Lin 2003, a.o.). For instance, bare predicates without aspectual markers are usually interpreted habitually, and they can be only negated by *bu*

[32] It should be pointed out that there seems to be some cross-speaker variations regarding the availability of echo answers formed with only adverbs: judgements reported in Simpson (2015) claim that echo answers cannot be formed with adverbials in Mandarin. Furthermore, thanks to Harold Torrence for pointing this out, there seems to be a correlation between the possibility of forming an A-not-A string and the possibility of forming an echo answer for adverbs. For instance, *jingchang* can form an A-not-A string in *Zhangsan jing-bu-jingchang chi liulian*? 'Does Zhangsan often eat durians?', and it can form an echo answer in (21b). In contrast, manner adverbs like *gaoxing-de* 'happily' cannot form an A-not-A string and cannot form an echo answer either.

but not *mei* (22); whereas *mei* but not *bu* must be used in the presence of aspectual markers like -*guo* (23).

(22) a. Zhangsan (pingshi) chi liulian.
Z. usually eat durian
'Zhangsan (usually) eats durians.'

b. Zhangsan (pingshi) **bu**/*__mei__ chi liulian.
Z. usually NEG eat durian
'Zhangsan (usually) does not eat durians.'

(23) a. Zhangsan (yiqian) chi-guo liulian.
Z. before eat-EXP durian
'Zhangsan has eaten durians (before).'

b. Zhangsan (yiqian) **mei**/*__bu__ chi-guo liulian.
Z. before NEG eat-EXP durian
'Zhangsan has not eaten durians (before).'

Meanwhile, the following example illustrates that aspectual selection is also strictly observed in negative VEAs in Mandarin: when the yes-no question involves a bare predicate, the negative VEA must be formed with bu (24); whereas when there is a perfective *-le* in the yes-no question, the negative VEA must involve *mei* (25).

(24) a. Q: Zhangsan (pingshi) chi liulian ma?
Z. usually eat durian SFP
'Does Zhangsan (usually) eat durians?'

b. A: **bu** chi /#**mei** chi.
NEG eat NEG eat
'No'

(25) a. Q: Zhangsan (zuotian) chi-**le** liulian ma?
Z. yesterday eat-PERF durian SFP
'Did Zhangsan eat durians (yesterday)?'

b. A: **mei** chi /#**bu** chi.
NEG eat NEG eat
'No'

As mentioned in Chapter 2, Mandarin allows an embedded A-not-A string to have matrix scope. The following examples illustrate that VEAs remain the default strategy in responding to embedded A-not-A and questions. Notice that the VEA (i) must be formed with the embedded verb but not the matrix verb, and (ii) is still interpreted under the matrix predicate, as it is felicitous to follow (27b) with "but in reality, Zhangsan does not (eat durians)" (cf. Thoms' (2016: 361-362) discussion of verb answers to "long-distance questions" in Scottish Gaelic).

(26) Lisi juede/renwei/shuo [Zhangsan chi liulian].
L. think/believe/say Z. eat durian
'Lisi thinks/believes/says that Zhangsan eats durians.'

(27) a. Q: Lisi juede/renwei/shuo [Zhangsan **chi-bu-chi** liulian]?
L. think/believe/say Z. eat-NEG-eat durian
'Does Lisi think/believe/say Zhangsan eat durians?'

b. A: **chi** /*juede /*renwei /*shuo
eat /think /believe /say
'Yes.'

This concludes the basic empirical picture of Mandarin VEAs in this section, and the table in (28) summarizes the kinds of elements that are allowed in VEAs. It seems, at first glance, that heads on the clausal spine are obligatory in VEAs whereas phrasal categories are optional. I will show that this pattern can be made sense of under my analysis of the syntax of VEAs.

Before ending this section, one property of Mandarin VEAs is that the lexical item in an VEA should be identical to the verb in the preceding question, reminiscent of Goldberg's (2005) "Verbal Identity Requirement" on ellipsis. The following examples clearly illustrate that the identical lexical

verb must be used in VEAs, and even synonymous lexical items are consistently ruled out. Furthermore, note that in (29), *zebei* and *zenan* are not only synonyms of each other, but these two disyllabic/bimorphemic words also share the identical initial syllable/morpheme *ze*. Yet the identity requirement holds so robustly for Mandarin VEAs that even this alternative lexical item is impossible to answer (29a). Hence there exists a strong correlation between the lexical items in the yes-no questions and the lexical items available in corresponding VEAs.[33]

(28) a. Q: Zhangsan **tongyi** zhe-ge guandian ma?
Z. agree this-CL viewpoint SFP
'Does Zhangsan agree with this idea?'

b. A: **tongyi** /***zancheng**
agree /agree
'Yes.'

(29) a. Q: Zhangsan **zebei**-guo Lisi ma?
Z. blame-EXP L. SFP
'Has Zhangsan blamed Lisi?'

b. A: **zebei**-guo /***zeguai**-guo
blame-EXP /blame-EXP
'Yes.'

[33] Note that such correlation is by no means a Mandarin-specific phenomenon: A parallel pattern is found in Thom's (2016) discussion of Scottish Gaelic VEAs, where the lexical verb in the answer must be exactly the same one as the verb occurring in the preceding question.

a. Q: An **dh'ith** Iain an cèic?
C-INTERR eat-PAST-DEP Iain the cake
'Did Iain eat the cake?'

b: A1: **Dh'ith**
eat.PAST
'Yes' or "he did" (lit. "ate")

c: A2:***Shluig**
scoff-PAST
'He scoffed it' (lit. "scoffed") (Thoms 2016: 363)

In the next section, I first turn to an important question underlying my proposal: whether they involve a larger underlying structure that is not pronounced. In previous studies on Mandarin VEAs (Liu 2014; Simpson 2015; Holmberg 2016; Wei 2016, 2019; a.o.), the answer to this question is assumed to be positive without providing systematic empirical evidence, and most of the attention has been put on the exact nature of deriving the surface strings of VEAs from the assumed underlying structure. Although my proposal shares the same analytical intuition, more systematic evidence is needed for the existence of such silent underlying structure.

(30) Elements allowed in VEAs

| Optionally allowed | | | | | Obligatorily required | |
|---|---|---|---|---|---|---|
| Postverbal | | Preverbal | | | Postverbal | Postverbal |
| Internal arguments | Frequency phrases | External argument | Adverbs (Temporal) | PPs(locative/ benefactive) | Modals, prog *zai* | Aspectual suffixes |

## 4.2 VEAs: What you see is not what you get

In this section, I provide evidence for the first component of my analysis of VEAs and argue that Mandarin VEAs must involve an underlying full sentential structure, which explains the mismatch between the surface form of VEAs and their interpretations.

Other than in yes-no question answer-pairs, imperatives are another rare scenario where a lexical verb can form an utterance independently: In Mandarin out-of-the-blue contexts, uttering a bare lexical verb is typically interpreted as using an imperative sentence to make a request/command, which does not involve a proposition and hence does not have a polarity/truth value (31). In contrast, at this stage, it should be quite clear that responding to a yes-no question

(32a) with a bare lexical verb (32b) is never understood as an imperative with no polarity/truth value. In contrast, it does the exact opposite: Uttering the bare lexical verb in (32b) must be understood as making a statement, hence the bare lexical verb in (32b) must denote a proposition in the same way as a full declarative sentence like (32c) does.

(31) he!
drink
'Drink!' NOT 'Someone drinks something.'

(32) a. Q: Zhangsan he liang-cha ma?
Z. drink herbal-tea SFP
'Does Zhangsan drink herbal tea?'

b. A1: he
drink
'Yes (i.e., Zhangsan drinks herbal tea).'

c. A2: Zhangsan/ta he liang-cha.
Z./3SG drink herbal-tea
'Zhangsan/he drinks herbal tea.'

Another piece of direct evidence that VEAs cannot be related to imperatives is that stative predicates such as *xihuan* 'like' usually cannot occur in imperatives (33), but they can perfectly occur in VEAs (34b).

(33) */?? Xihuan!
like
Intended 'Like!'

(34) a. Q: Zhangsan xihuan yuyanxue ma?
Z. like Linguistics SFP
'Does Zhangsan like Linguistics?'

b. A: xihuan
like
'Yes (Zhangsan likes Linguistics).'

Therefore, the mismatch between the surface string in VEA and its propositional denotation raises a nontrivial issue, parallel to the issue regarding short answers (or "fragment answers" in Merchant's (2004) term) to *wh*-questions: the DP *liangcha* in (35b) as an answer to the *wh*-question in (35a) must be understood as having a propositional content in the same way as a full declarative sentence in (35c).

(35) a. Q: Zhangsan he shenme?
Z. drink what
'What does Zhangsan drink?'

b. A1: liang-cha.
Herbal-tea
'Herbal tea'

c. A2: Zhangsan/ta he liang-cha.
Z./3SG drink herbal-tea
'Zhangsan/he drinks herbal tea.'

In the literature, there have been two alternative approaches to fragment answers. On the one hand, it is assumed that "what you see is what you get". More specifically, fragment answers like (35b) are claimed to consist of only a single DP/NP there is no additional structure involved. The propositional content is either derived pragmatically (Carston 2002, Culicover & Jackendoff 2005) or via a particular grammatical structure dedicated to question-answer pairs that is called Qu-Ans schema (Groenendijk & Stokhof 1984, Ginzburg & Sag 2000, Jacobson 2013). On the other hand, it is believed that fragment answers like (33b) involve an underlying full sentential structure, which is unpronounced as a result of ellipsis (Morgan 1973; Hankamer 1979; Stanley 2000; Merchant 2004; Thoms 2016; a.o.).

Existing analyses of Mandarin VEAs all share the same analytical intuition with the latter approach by assuming that VEAs involve an underlying sentential structure that is not overtly pronounced (Liu 2014; Simpson 2015; Holmberg 2016; Wei 2016, 2019). Yet their proposals differ regarding whether there are phonologically null elements, i.e., pro, involved in the underlying structure.

In particular, Holmberg (2016) proposes several strategies for deriving VEAs cross-linguistically. One is the combination of pro-drop and verb-stranding VP ellipsis (VPE), found in languages like Georgian and Tunisian Arabic. The second strategy involves movement of a constituent containing the verb followed by ellipsis of some large structure containing the subject (hence, "big ellipsis"), used in languages like Finnish, Welsh, and Thai with one distinction among them: the moved constituent is a verb or modal head in Finnish and Welsh, but in Thai a remnant PolP moves.

In a footnote, Holmberg (2016: 92) briefly mentions that the derivation of Mandarin VEAs involves subject pro-drop followed by V standing VP ellipsis. In contrast, under Liu (2014) and Simpson (2015), no silent pro is involved in the unpronounced sentential structure, and they both assume a "big ellipsis" approach involving head movement of V and TP ellipsis. Meanwhile, both of these strategies (i.e., subject pro-drop + VPE, and big ellipsis) are argued to co-exist in Mandarin under Wei's (2019) analysis.

Building on these proposals, I also assume that Mandarin VEAs must involve underlying sentential structures. Systematic evidence will be provided to show that VEAs must involve a full-

fledged CP structure containing a middle clausal structure larger than *v*P/VP, and a complete argument structure.

### 4.2.1 Evidence for lower clausal structure

In the previous section, we have seen that VEAs may also optionally allow the occurrence of both internal and external arguments. Hence, it cannot be the case that VEAs only involve a bare lexical verb. Instead, at least the argument structure should be present at some point of the derivation. This is further supported by at least three pieces of evidence.

The first one comes from Mandarin VO idioms. Deng (2013) discusses a group of VO idioms, e.g., *bao fo-jiao* 'to make a hasty last-minute effort (lit. to clasp the feet of a Buddha statue)', *tong mafeng-wo* 'to offend a person not to be trifled with; to invite disaster (lit. to poke a/the hornet-nest)', etc. It is proposed that in sentences like (36), such VO idioms are used as real predicates, since, for instance, they are compatible with "event quantifiers" like *san hui* 'three times', and both literal and idiomatic interpretations are available.

(36) ta **tong**-le **mafeng-wo** san hui.
3SG poke-PERF hornet-nest three time
'S/he poked a hornet-nest three times' Literal meaning
Or 'S/he offended someone not to be trifled with three times.' Idiomatic meaning
(Deng 2013: 65)

Following the traditional assumption of idioms, Deng (2013) argues that a Mandarin VO idiom must form a constituent at some point of the derivation and such constituent is responsible for the idiomatic meaning (also cf. Yang & Wei 2017 for a similar assumption about Mandarin VO idioms).

Therefore, assuming an underlying sentential structure for VEAs, one predicts that a VEA consisting of the verb from a VO idiom would allow the idiomatic meaning, as at some point of the derivation the V forms a constituent with the unpronounced object. In contrast, if the VEA only involves a base-generated verb or VP, we would not expect the idiomatic meaning to be available, since at no point of the derivation is there an object which forms a constituent with the verb. The following examples illustrate that the former prediction is borne out: the idiomatic meaning is consistently available for VEAs, no matter whether the VEA is formed with a bare verb form (37) or a verbal complex (38).

(37) a. Q: na-ge qishou pingshi **pai** **ma-pi** ma?
that-CL horseman usually pat horse-buttock SFP
'Does that horseman usually pat horse buttock?' Literal meaning
Or 'Does that horseman usually flatter others?' Idiomatic meaning

b. A: **pai**
pat
'Yes (he does usually pat horse buttock).' Literal meaning
Or 'Yes (he does usually flatter others).' Idiomatic meaning

(38) a. Q: Zhangsan zuotian **bao**-le **fo-jiao** ma?
Z. yesterday clasp-PERF Buddha.statue-feet SFP
'Did Zhangsan clasp the feet of a Buddha statue yesterday?' Literal meaning
Or 'Did Zhangsan make a hasty last-minute effort yesterday?' Idiomatic meaning

b. A: **bao**-le
clasp-PERF
'Yes (he did clasp the feet of a Buddha statue yesterday).' Literal meaning
'Yes (he did make a hasty last-minute effort yesterday).' Idiomatic meaning

The other piece of evidence for the existence of an argument structure in VEAs can be found in a group of reflexive and reciprocal verbs. As noted in a series of work (Tang 1992, Chief 1998, Wu 2010, Wong 2017), there exists a class of reflexive verbs in Mandarin. Morphologically speaking,

they are claimed to be bimorphemic, which involve a "prefix" *zi-* 'self'. One example is *zi-sha* 'to commit suicide (lit. self-kill)':

(39) a. Zhangsan sha-le ziji.
Z. kill-PERF SELF
'Zhangsan killed himself'

b. Zhangsan **zi-sha**-le.
Z. SELF-kill-PERF
'Zhangsan committed suicide.' (Chief 1998: 48)

Like nominal reflexives, reflexive verbs like *zi-lian* 'narcissistic (lit. self-like)' must be locally bound: in the following example (40), Zhangsan must be understood as narcissistic, and it cannot mean that Zhangsan likes Lisi.

(40) Lisi$_i$ juede [Zhangsan$_j$ hen **zi$_{j/*i}$-lian**].
L. think Z. very self-like
'Lisi thinks that Zhangsan is very narcissistic'.

One interesting property of these reflexive verbs is that they cannot be uttered as an imperative. Instead, an overt second person pronoun is highly preferred to occur. This contrast suggests that the reflexive prefix *zi-* needs an overt linguistic antecedent in the structure, as having an overt subject referring to the addressee makes *zi-zhong* 'lit. self-respect' grammatical in an imperative.

(41) a. */??zi-zhong!
self-respect
Intended 'Respect yourself!'

b. qing **ni** zi-zhong!
please 2SG self-respect
'Please respect yourself!'

In contrast, it is perfectly fine for a reflexive verb like *zi-lian* to serve as a VEA, suggesting that in addition to the pronounced lexical verb, a DP antecedent for the reflexive prefix *zi-* must be present at a certain point of the derivation.

(42) a. Q: Zhangsan **zi-lian** ma?
Z. self-like SFP
'Is Zhangsan narcissistic?'

b. A: **zi-lian**
self-like
'Yes.'

Meanwhile, Wu (2003) notices that Mandarin also has a group of reciprocal verbs, which are morphologically parallel to the abovementioned reflexive verbs: they are bimorphemic and consist of a reciprocal prefix hu that originally is the first morpheme of the adverb *huxiang* 'mutually', as in *hu-ti* 'kick each other (lit. mutually kick)'. In addition to Wu's (2003) examples, reciprocal verbs like these can also be formed with the second morpheme in *huxiang* 'mutually' *xiang*, e.g., *xiang-ai* 'love each other (lit. mutually love)'.

Similar to reflexive verbs, reciprocal verbs also require a local antecedent. For instance, the complement clause in (43) must be interpreted as Zhangsan and Lisi love each other, but not Zhangsan loves John, Lisi loves Mary, or Zhangsan loves Mary, Lisi loves John, etc.

(43) Yuehan he Mali juede [Zhangsan he Lisi hen **xiang-ai**]
John and Mary think Z. and L. very mutual-love
'John and Mary think that Zhangsan and Lisi love each other.'

What is crucial for our purpose here is that these reciprocal verbs behave just like reflexive verbs regarding their distributions in imperatives and VEAs: In imperatives, uttering *xiang-ai* alone is

ungrammatical whereas a surface subject antecedent improves the grammaticality (44). In contrast, it is perfectly fine for *xiang-ai* to form a VEA on its own (45), suggesting the existence of an antecedent at some point of the derivation.

(44) a. *xiang-ai!
mutually-love
Intended 'Love each other!'

b. qing **ni-men** (haohao) xiang-ai!
please 2SG-PL well mutually-love
'Please love each other (well)!'

(45) a. ta-men **xiang-ai** ma?
3SG-PL mutually-love SFP
'Do they love each other?'

b. **xiang-ai**
mutually-love
'Yes.'

Moreover, another property of reciprocal verbs like *xiang-ai* is illustrated in the exchange in (46): subject pro-drop is allowed when no reciprocal verb is involved in B's response (46b); whereas subject pro-drop becomes impossible when a reciprocal verb is present and instead an overt subject is required (46c). This contrast is understandable if we assume that reciprocal verbs cannot take a pro subject as an antecedent, and they require overt linguistic antecedents. This in turn shows that the VEA *xiang-ai* in (45b) must not involve a phonologically null pro subject, arguing against Holmberg's (2016) (and part of Wei's (2019)) proposal that Mandarin VEAs are derived through

subject pro-drop and V-stranding VP ellipsis; and instead, the pronoun *ta-men* must be present at some point of the derivation. [34]

(46) a. A: Zhangsan he Lisi zai yiqi hen duo nian le.
Z. and L. in together very many year LE
'Zhangsan and Lisi have been together for many years.'

b. B1: dui, {**ta-men/pro**} zhen shi yi dui mofan fuqi.
correct 3SG-PL really be one pair model couple
'Right, they really are a model couple.'

c. B2: dui, {**ta-men/*pro**} hen **xiang-ai**.
correct 3SG-PL very mutually-love
'Right, they love each other very much.'

A third piece of evidence for the existence of phrasal projection *v*P/VP can be found in echo answers to yes-no questions involving preverbal *v*P/VP-level adjuncts. Following Aoun & Li (2008), Simpson (2015) examines a group of yes-no questions containing predicate-level adjunct including manner, frequency, and location etc., and he points out that the corresponding VAEs are consistently interpreted as containing these adjuncts. For instance, the VEA in (47b) must be understood as the doctor not only examined the patient, but also did so carefully; similarly, the

[34] I thank Harold Torrence for pointing this out to me. In addition, it should be noted that reflexive verbs behave differently from reciprocal ones in that they seem to allow silent pro antecedents, as shown in the following exchange:

a. A: Zhangsan hen shuai.
Z. very handsome
'Zhangsan is very handsome.'

b. B1: dui, suoyi {**ta/pro**} jiao-le hen duo nv-pengyou.
correct so 3SG have-PERF very many girl-friend
'Right, so he had many girlfriends.'

c. B2: dui, suoyi {**ta/pro**} hen **zi-lian**.
correct so 3SG have self-like
'Right, so he is very narcissistic.'

VEA in (48b) is interpreted as the plane took off from L.A. and not from any other place. Therefore, Mandarin VAEs allow the so-called "adjunct-inclusive interpretation". [35]

(47) a. Q: yisheng **zixi** kan-le bingren ma?
doctor carefully look-PERF patient SFP
'Did the doctor carefully examine the patient'

b. A: kan-le
look-PERF
'Yes.'

(48) a. Q: feiji **cong luoshanji** qifei-le ma?
plane from L.A. take.off-PERF SFP
'Did the plane take off from L.A.?'

b. A: qifei-le
take.off-PERF
'Yes.' (Simpson 2015: 310, 311)

[35] A similar phenomenon is found in Japanese (Sato & Hayashi 2018, Sato & Maeda 2021), Korean (Park 2018) and Mongolian (Sakamoto & Bao 2020). The following example illustrates the adjunct-inclusive interpretation in Japanese VEAs, where the VEA *Ukat-ta-yo* 'passed' must be interpreted as Hanako passed the exam in her own way:

a. Q: Hanako-wa zibun-no yarikatade toodai-ni ukat-ta-no?
hanako-TOP self-GEN way University.of.Tokyo-to pass-PAST-Q
'Did Hanako pass the entrance exam to the University of Tokyo in her own way?'

b. A: Ukat-ta-yo. Bekkaku-da-yo-ne.
pass-PAST-PRT special-COP-PRT-PRT
Lit. 'Passed. Truly special.' (Sato & Maeda 2021: 363)

I thank Hilda Koopman for pointing out to me that although the exact term "adjunct-inclusive interpretation" is used in recent literature, the relevant empirical observation was discussed much earlier. For instance, in Ngonyani's (1996) discussion of VP ellipsis in Swahili, it is found that PP adjuncts are "recoverable" in English VP ellipsis, whereas Swahili does not allow PP adjuncts to be recoverable under VP ellipsis. See also (Koopman 2005) footnote 2 for relevant discussions on VP ellipsis in Korean and Japanese.

c. The old man kept goats in the house and the son did (keep goats in the house) too.

d. [Swahili]
wa-zee wa-li-fug-a mbuzi katika nyumba, na vijana wa-li-fug-a pia
2-old 2SA-PST-keep animal-FV 2goat in 10house and 2young 2SA-PST-keep animal-FV too
'The old folks kept goats in the house and the young people did (keep goats) too.' (Ngonyani 1996: 94)

Moreover, as we have already seen in (12), when there is an benefactive, i.e., a beneficiary introduced by a PP in the yes-no question, the bare-verb echo answer *zuo* is still available. In particular, the VEA must be interpreted as Zhangsan cooks meals for Lisi, as it would be infelicitous to follow the VEA with "but he does not cook for anyone besides himself" (49b).

(49) a. Q: Zhangsan **wei Lisi** zuo fan ma?
Z. for L. do meal SFP
'Does Zhangsan cook for Lisi?'

b. A: zuo (#danshi ta bu gei chule ta-ziji zhiwai de ren zuo)
do but he NEG for except 3SG-SELF besides DE person do
'Yes (#but he does not cook for anyone besides himself).'

### 4.2.2 Evidence for middle clausal structure

Having shown that VEAs must minimally involve a complete argument structure, and subject pro cannot be responsible for at least some of the VEAs, in this subsection I provide empirical evidence to argue for the existence of a structure larger than *v*P/VP within VEAs.

One direct argument comes from VEAs to yes-no questions with a preverbal modal. As already shown in (17), in the presence of a preverbal modal *hui* in a yes-no question, the corresponding VEA must be formed with the modal and the lexical verb cannot be echoed independently. Further such examples are found in (50), suggesting that the functional projection hosting these modals, e.g., ModP (cf. Tsai 2015), which is structurally higher than *v*P/VP, must be present in VEAs.

(50) a. Q: Zhangsan [$_{\text{ModP}}$ {**neng/bixu/yinggai**} [$_{v\text{P}}$ chi liulian]] ma?
Z. can/must/should eat durian SFP
'Can/must/should Zhangsan eat durians?'

b. A: {**neng/bixu/yinggai**} (chi)
can/must/should eat
'Yes.'

Meanwhile, as mentioned in the previous section (e.g., 16), in the presence of post-verbal bound aspectual markers like *-le/-guo*, bare verb echo answers are systematically ruled out and instead the entire verbal complex including both the verb and the aspectual marker must be echoed, an observation also made in Wei (2019). The obligatoriness of these aspectual suffixes in the verbal complex in VEAs indicates that VEAs must involve an underlying structure larger than a *v*P/VP, e.g., Aspectual Phrase, given the traditional assumption that these aspectual markers are heads of AspP (Gu 1995, Ernst 1995, Lin 2003a, a.o.) (51).

(51) a. Q: Zhangsan zai meiguo [$_{AspP}$ [$_{vP}$ zi-sha]-**le**] ma?
Z. in US SELF-kill-PERF SFP
'Did committed suicide in the US?'

b. A: zisha-*(**le**)
SELF-kill-PERF
'Yes.'

Beyond these aspectual suffixes, we can take a further look at the progressive aspectual marker *zai*, which is a free morpheme. As already shown in (18), preverbal progressive *zai* must be part of the VEA, whereas the lexical verb becomes optional. (52) further illustrates this observation: *zai* is obligatory in the VEA, and either the verb, or the verb together with the internal argument can be optionally echoed.

(52) a. Q: xianyiren **zai** yinman shishi ma?
suspect PROG hide truth SFP
'Is the suspect hiding the truth?'

b. A: **zai** ({yinman /yinman shishi})
PROG hide hide truth
'Yes.'

An interesting cross-dialectal variation regarding the surface position of progressive *zai* is pointed out in Pan's (2019): It is observed that in some nonstandard varieties of Mandarin, the cognate of Standard Mandarin progressive marker *zai* occurs sentence-finally following the internal argument(also cf. *təʔ* in Dalad Chinese discussed in Hu & Liu 2021). The exact same phenomenon is found in Wuhu Mandarin (53). Importantly, in yes-no question answer pairs[36] involving such sentence final progressive *zai*, the VEA must contain both the verb and *zai*, and neither the verb nor *zai* can form an echo answer on its own in such cases (54).[37]

(53) [Wuhu Mandarin]
Xinyiren yinman sise? **zai**.
suspect hide truth ZAI
'The suspect is hiding the truth.'

(54) [Wuhu Mandarin]
a. Q: Xinyiren ha yinman sise? **zai**?
suspect Q hide truth ZAI
'Is the suspect hiding the truth?'

b. A: yinman (sise?) **zai** /*yinman /*zai
hide truth ZAI hide ZAI
'Yes.'

[36] See Chapter 2 for the discussion on yes-no questions formed with clause-internal question particle *ha* in Wuhu Mandarin.

[37] A syntactic analysis of sentence-final *zai* is independently needed. For instance, one question that needs to be answered is whether it is derivationally related to preverbal *zai* or not, but it is beyond the scope of the current discussion on VEAs and I leave this issue to future research.

Meanwhile, Wuhu Mandarin also has the more familiar use of preverbal *zai*, just like its Standard Mandarin counterpart illustrated in (52). Of particular interest here is that in Wuhu Mandarin yes-no question-answer pairs involving preverbal *zai*, the form of the VEAs is quite distinct from what we see in (55b) with sentence-final *zai*.

(55) [Wuhu Mandarin]

a. Q: Zangsen ha **zai** yinman sise? ?
Z. Q ZAI hide truth
'Is the suspect hiding the truth?'

b. A: **zai** ({yinman /yinman sise?) /*yinman (sise?) **zai**
ZAI hide hide truth hide truth ZAI
'Yes.'

More specifically, the two yes-no questions in (54) and (55) consist of identical lexical items, and they effectively mean the same thing and denote the exact same two alternative propositions, i.e., {The suspect is hiding the truth; The suspect is not hiding the truth}. Nevertheless, although the string *yinman (sise?) zai* is independently available as a grammatical VEA to a question with sentence-final *zai* in (54), it is not a viable answer to another question with preverbal *zai* in (55), and vice versa.

Therefore, the obligatoriness of progressive *zai* in both Standard Mandarin and Wuhu Mandarin VEAs argues that VEAs cannot consist of only a *v*P/VP, and instead, a structure larger than *v*P/VP must be involved in VEAs.

Moreover, the close correlation between the surface structure of the yes-no question and the form of the corresponding VEA strongly suggests that the VEAs cannot be a base-generated head/phrase on its own. In contrast, there must be an underlying unpronounced structure that is

closely related to the structure of the preceding yes-no question. As Holmberg (2016) puts it, VEAs "inherit" TPs of the corresponding yes-no question. Otherwise, we would have expected that at least one form of the VEAs in (54b) and (55b) would be a grammatical response to *both* of the yes-no questions in (54a) and (55a).

### 4.2.3 Evidence for high clausal structure

Having shown that VEAs minimally involve AspPs, in this subsection, I further argue for the existence of a full sentential structure underlying VEAs. In particular, I provide empirical evidence showing that elements associated with projections high in the clausal structure either obligatorily or optionally occur in VEAs.

Before diving into more Mandarin data, we can briefly visit Holmberg's (2016) arguments for the presence of sentential structure in Finnish VEAs. Holmberg points out that the echoed verbs are inflected for sentential categories like (past) tense and (conditional) mood, illustrated in (56b) and (57b) respectively. The morphological forms of the VEAs are taken to be a strong argument for the existence of an underlying sentential structure for VEAs, since "sentences, not verbs, have tense or mood".

(56) a. Q: Ost-i-Ø -ko Jussi sen kirjan?
buy-PST-3SG Q Jussi that book
'Did Jussi buy that book?'

b. A: Ost-**i**-Ø
buy-PST-3SG
'Yes.' (Holmberg 2016: 72)

(57) a. Q: Osta-isi-t -ko sen kirjan?
buy-CON-2SG Q that book
'Would you buy that book?'

b. A: Osta-**isi**-n.
buy-CON-2SG
'Yes.' (lit. 'I would buy.') (ibid. 73)

Being a typical analytic language, Mandarin verbs do not show rich morphological inflections and the argumentation for Finnish does not directly extend to Mandarin VEAs. However, we can make a parallel argument by looking at question-answer pairs involving a sentence final particle *le*, which is traditionally assumed to be associated with some aspectual interpretation (Li & Tompson 1981, Zhu 1982, Soh 2009, a.o.).[38] In (58), the SFP *le* follows both the internal argument and the optional post-verbal frequency phrase. As observed in Li & Thompson (1981), SFP *le* in (58) conveys an inchoative aspectual interpretation and (58) is understood as there has been a "change of state" and it now has become true that Zhangsan has been to the Shanghai (twice).

(58) Zhangsan qu-guo Shanghai (liang-ci) **le**.
Z. go-EXP two-time SFP
'Zhangsan have been to Shanghai (twice).'

In recent cartographic work on the right periphery of Mandarin sentences, SFP *le* is assumed to be a functional head occupying a low position within the CP domain, where it scopes over the entire clause or TP (Paul 2015, Pan 2019, a.o., but also see Erlewine 2017 for a TP-internal proposal

[38] Note that SFP *le* is distinct from aspectual *le.* As shown in (58), SFP *le* occurs sentence finally; whereas aspectual *le* is a verbal suffix. These two may co-occur:

Zhangsan chi-**le** pingguo **le**.
Z. eat-PERF apple SFP
'It has become true that Zhangsan ate apples.'

for sentence final *le*). (59) illustrate a yes-no question answer pair involving the SFP *le*. Crucially, (59b) shows that not only the immediately post-verbal experiential aspectual marker *-guo* is required, but the CP-domain SFP *le* is also obligatory in the VEA. This is understandable under my analysis that VEAs involve an underlying sentential structure with a CP layer.

(59) a. Q: tamen zai meiguo xiang-jian-guo bici **le** ma?
3pl in US each other-see-EXP each other SFP SFP
'Has Zhangsan been to Shanghai?'

b. A: xiang-jian-*(guo) *(**le**)
each other-see-EXP SFP
'Yes.'

Furthermore, beyond aspectual meanings, various SFPs may indicates speaker's attitude in declarative sentences, including exclamative *a, ya* (cf. Pan 2019), "assertion weakening" *ba* (cf. Hu 1981, Paul 2015), etc. Abstracting away from these SFPs' subtle semantic effects on the interpretation, what previous research generally agrees on is their syntactic properties: these attitude-related SFPs are functional heads in the CP domain (Paul 2015, Pan 2019, a.o.). Interestingly, these SFPs are allowed in VEAs (61), and they affect the interpretation of the answer just as they do in full declarative sentences like (60). Therefore, the compatibility between VEAs and these CP-level functional heads clearly show that a sentential structure is present in VEAs.

(60) a. Zhangsan chi liulian **a/ya**.
Z. eat durian SFP
'Don't forget, Zhangsan eats durians.' (Adapted from Pan 2019: 67-68)

b. Zhangsan chi liulian **ba**.
Z. eat durian SFP
'(I'm not 100% sure, probably) Zhangsan eat durians.'

(61) a. Q: Zhangsan chi liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. A1: chi **a/ya**!
eat SFP
'(Of course) yes!'

c. A2: chi **ba**.
eat SFP
'(Probably) yes (but I'm not 100% sure)'

Relatedly, the existence of underlying sentential structure in VEAs receive support by other types of sentential level elements, such as speaker-oriented evaluative adverbs (also cf. Liu 2014: 65 for a similar observation). The following examples illustrate that these evaluative adverbs can surface in the sentence initial position, which are assumed to occur within a functional projection EvalP in the CP-domain (Liu 2015).

(62) a. **{kexi/xianran}** ta bu chi liulian
unfortunately/obviously 3SG NEG eat durian
'Unfortunately/obviously, he does not eat durians.'

b. **{yexu/dagai}** ta chi liulian
perhaps/probably 3SG eat durian
'Perhaps/probably he eats durians.'

The examples in (63b-c) show that these evaluative adverbs are also allowed in VEAs. The parallel between VEAs (63b-c) and full sentences (62) regarding the availability of such adverbial elements receives a straightforward account if we assume the VEAs involve underlying sentential structures with a full-fledged left periphery. In contrast, explaining the presence of such elements would be challenging for analyses assuming an impoverished structure for VEAs.

(63) a. Q: Zhangsan chi liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. A1: **{kexi/xianran}** bu chi
unfortunately/obviously NEG eat
'Unfortunately/obviously, no'

d. A2: **{yexu/dagai}** chi
perhaps/probably eat
'Perhaps/probably yes.'

### 4.2.4 Interim summary

In this section, based on novel data, I showed that the mismatch between an impoverished surface string of VEA and its propositional content can be made sense of by assuming that VEAs involve an underlying full sentential structure, Hence, what you see is *not* what you get when it comes to Mandarin VEAs.

I provided systematic evidence supporting such analytical intuition, which has been implicitly assumed in previous studied of Mandarin VEAs. The arguments were made from the following three perspectives:

(i) Reflexive/reciprocal verbs disallow pro subject antecedents but they can form VEAs, indicating the existence of full subjects that are not phonologically null pro in the underlying structure; whereas VEAs formed with V from VO idioms still allow idiomatic meanings, suggest the presence of objects at some point of the derivation. Both support that VEAs must minimally involve a complete argument structure.

(ii) The obligatoriness of aspectual suffixes in VEAs demonstrates that the structure of VEAs must not be limited to *v*P/VPs and instead should at least include AspP; whereas the requirement on modals in VEAs shows that ModP is also minimally present within the underlying structure of VEAs.

(iii) The compatibility between independently motivated CP-domain elements in VEAs, including SFPs and speaker-oriented evaluative adverbs, shows that a full-fledged left peripheral structure must be present in VEAs.

## 4.3 Deriving VEAs

Having provided systematic evidence for a sentential structure underlying Mandarin VEAs, in the rest of this chapter I focus on how the surface string of VEA can be derived from such a sentential structure.

More specifically, I first argue that Mandarin VEAs do not involve subject or object pro-drop/argument drop, then show that a head movement account faces certain empirical challenges. Instead, I propose that Mandarin VEAs are derived through remnant PolP movement followed by TP ellipsis (cf. Holmberg's (2001) analysis of Finnish VEAs and his (2016) analysis of Thai VEAs).

### 4.3.1 Do VEAs involve pro-drop?

One of the most well-known syntactic properties of Mandarin is that it allows null arguments in both subject (64) and object (65b) positions.

(64) Zhangsan shuo [*ec* bu renshi Lisi].
Z. way NEG know L.
'Zhangsan said that he does not know Lisi.' (Huang 1984)

(65) a. A: Yuehan zuotian kanjian-le ziji-de laoshi.
John yesterday see-PERF SELF-DE teacher
'John saw his own teacher yesterday.'

b. B: Mali ye kanjian-le *ec*.
Mary also see-PERF
Literally: 'Mary also saw *ec*.' (Liu 2014: 4)

Therefore, it is not surprising that previous analyses have argued that Mandarin VEAs involve (subject) pro-drop (Holmberg 2016, Wei 2019). For instance, the VEA in (66b) is claimed to involve a phonologically null subject pronoun and V stranding VP ellipsis:

(66) a. Q: ta pao-bu le ma?
3SG run-step LE SFP
'Has he run?'

b. A: [$_{CP}$ [$_{IP}$ pro [$_{SFPP}$ [$_{vP}$ pao$_i$ ~~[$_{VP}$ t$_i$ bu]~~] le]]]
run step LE
'Yes.' (Wei 2019: 202)

Nevertheless, I argue that (subject) pro-drop cannot be part of the syntactic derivation of VEAs. The data concerning reciprocal verbs (45-46) have already shown that they need to be licensed by a local antecedent, but a phonologically null pro cannot be their antecedent. The fact that reciprocal verbs are still consistently allowed in VEAs suggests that the underlying unpronounced antecedent cannot be a pro.

Furthermore, in the following, I will provide two additional arguments against a (subject) pro-based approach to Mandarin VEAs. First, I show that various elements that are not pro-droppable are nevertheless not required in VEAs. Hence, the omission of these elements from VEAs cannot

be the result of pro-drop. Secondly, I also discuss cases involving pro-droppable subjects that allow extraction out of them, since under standard assumptions a pro subject does not have any internal structure and hence there is nothing to be extracted. This further strengthens the conclusion that the derivation does not involve pro drop.

#### 4.3.1.1 Omission of non-pro-droppable elements

We can begin with the first type of evidence: elements that independently do not undergo pro-drop. In particular, if they turn out to be obligatory in VEAs, then it is consistent with analyses based on pro-drop. Conversely, under a pro-drop-based analysis, it is unexpected if these elements nevertheless can still be absent from VEAs.

First of all, in Mandarin, free-choice subjects like *renhe yi-ge jiaoshou* 'any professor' cannot be pro-dropped in coordinated sentences, where the restrictors of the two free-choice subjects are distinct from each other (67a). Yet yes-no questions containing free-choice subjects like *renhe yi-*

*ge jiaoshou* are perfectly compatible with VEAs (67b-c).[39] [40] Hence, the contrast between (67a) and (67c) is very unexpected if a VEA like (67c) involves subject pro-drop. Instead, a different mechanism must be responsible for the unpronounced subject in (67c).

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[39] As mentioned in Holmberg (2016) and Mendes (2020), a similar pattern is found in languages like Finnish and Brazilian Portuguese, an existential indefinite or a free-choice subject cannot be pro-dropped, yet yes-no questions in which the subject is an existential indefinite, or a free-choice subject, still consistently allow VEAs. Holmberg (2016) argues that one crucial distinction between these two types of languages is the availability of VEAs when the subject in the yes-no question is an existential indefinite, as "an indefinite pronoun cannot be pro-dropped". For instance, Georgian does not allow VEAs when a yes-no question has an indefinite subject *vinme* 'anyone'; whereas there is no such restriction in Finnish.

[Georgian]

| | | | | | |
|---|---|---|---|---|---|
| a. Q: | Gushin | vano | movida? | b. A: (xo) | movida |
| | yesterday | Vano-NOM | came-AOR | (yes) | came |
| | 'Did Vano come yesterday?' | | | 'Yes.' | |
| c. Q: | Gushin | vinme | movida ? | d. A: xo | (*movida) |
| | yesterday | anyone-NOM | came-AOR | yes | (*came) |
| | 'Did anyone come yesterday?' | | | 'Yes.' | (Holmberg 2016: 84) |

[Finnish]

| | | | | | |
|---|---|---|---|---|---|
| a. Q: | Tuli-ko | joku | eilen? | b. A: Tuli. | (Meitä oli ainakin kymmenen.) |
| | came.3SG-Q | someone | yesterday | came.3SG | of.us were at.least ten |
| | 'Did anyone turn up yesterday?' | | | 'Yes.' '(There were at least ten of us.)' | |
| | | | | | (Holmberg 2016: 81) |

Moreover, Mendes (2020) notices that Brazilian Portuguese allows VEAs when the yes-no question has a free-choice subject (b-c), which cannot be pro-dropped (a). Note that (a) is constructed in a way such that the set of individuals denoted by the two subjects in the coordinated sentences do not overlap.

[Brazilian Portuguese]

| | | | | | | |
|---|---|---|---|---|---|---|
| a. Qualquer | professor | rejeitaria | o | João | no | MIT, |
| Any | professor | would.reject-3SG | the | John | in-the | MIT |
| mas | *(qualquer | professor) | aceitaria | | ele em | Stanford. |
| but | *(any | professor) | would.accept-3SG | | him in-the | Stanford |

'Any professor would reject John at MIT, but any professor would accept him at Stanford.'

| | | | | | |
|---|---|---|---|---|---|
| b. Q: | Qualquer | professor | aceitaria | o | João? |
| | any | professor | would.accept-3SG | the | John |

'Would any professor accept John?'

c: A: Aceitaria.
would.accept-3SG
'Yes.' (Mendes 2020: 117)

(67) a. zai zhongwen xi, **renhe yi-ge jiaoshou** dou neng jiao jufaxue.
in Chinese department any one-CL professor DOUbe.able.to teach Syntax
er zai yuyanxue xi, *(**renhe yi-ge jiaoshou**) dou neng
whereas in Linguistics department any one-CL professor DOU be.able.to
jiao yuyixue.
teach Semantics
'In the Chinese Department, any professor can teach Syntax; whereas in the Linguistics Department, any professor can teach Semantics.'

b. Q: **renhe yi-ge jiaoshou** dou neng jiao jufaxue ma?
any one-CL professor DOUbe.able.to teach Syntax SFP
'Can any professor teach Syntax?'

c. A: neng.
be.able.to
'Yes.'

Another kind of elements that resist pro-dropping is preverbal adverbials. For instance, we notice that (68) is only felicitous when Zhangsan did not conduct any experiment at all yesterday, and crucially, (68) would be false in a scenario where Zhangsan wrote papers at home and did in fact conduct experiments somewhere else. If, however, a locative PP like *zai jia* 'at home' can

[40] It has long been observed that Mandarin *wh*-arguments have a non-interrogative existential reading in certain contexts, for instance, within a yes-no question or embedded under entensional verbs like *yiwei* 'think' (Huang 1982; Cheng 1991; Li 1992; Lin 1996, 1998; a.o.). Similar to Japanese and Korean examples discussed in Mendes (2020: 109), subject indefinite *wh*-elements seem to be pro-droppable as well in Mandarin, and VEAs are also available for yes-no questions with indefinite *wh*-subjects. Note that this is in contrast against Holmberg's claim about Mandarin VEAs not allowing indefinite subjects (Holmberg 2016: 92 footnote).

a. wo yiwei [zuotian **shenme ren** gei ta song-le hua, mingtian you yao song qiaokeli]
1SG think yesterday what people for 3SG give-PERF flower tomorrow again will give chocolate
'I think that yesterday someone sent him flowers, and tomorrow (someone/this person) will send him chocolate.'

b. Q: **shenme ren** lai-guo ma?
what people come-EXP SFP
'Has anyone come?'

c. A: lai-guo
come-EXP
'Yes.'

undergo ellipsis or pro-drop, we would expect (68) to be compatible with the latter scenario. Therefore, similar to Japanese (Sato & Hayashi 2018, Sato & Maeda 2021),[41] adjuncts themselves like a locative PP *zai jia* 'at home' cannot undergo ellipsis or pro-drop in Mandarin.

(68) zuotian Zhangsan **zai jia** xie-le lunwen,
yesterday Z. in home write-PERF paper
dan ta mei zuo shiyan.
but 3SG NEG conduct experiment
'Yesterday Zhangsan wrote papers at home, but he did not conduct any experiment.'

Meanwhile, the VEA to a yes-no question involving preverbal locative PP consistently allows the adjunct-inclusive interpretation: It would be contradictory to follow the VEA in (69b) with "but he only writes papers in the library". Hence, the locative PP must be syntactically present and semantically interpreted at some point of the derivation. Since the locative PP *zai jia* independently cannot be pro-dropped, the disappearance of preverbal PP locative from the VEA in (69b) should involve a derivation different from pro-drop.

(69) a. Q: (zuotian) Zhangsan **zai jia** xie-le lunwen ma?
yesterday Z. in home write-PERF paper SFP
'Did Zhangsan write any paper at home (yesterday)?'

b. A: xie-le (#danshi ta zhi zai tushuguan xie lunwen)
write-PERF but he only in library write paper
'Yes (#but he only writes papers in the library).'

[41] Citing Oku (1998), Sato & Hayashi (2018) and Sato & Maeda (2021) mention that adjuncts cannot undergo ellipsis in Japanese. For instance, the second clause below is felicitous only when no player was mending gloves, and it would be infelicitous if other players were mending gloves even not in a careful way as Taro was mending his mitt.

Sono hi-no siai-go Taroo-wa mitto-o **teineini** teiresi-te-ita-kedo,
that day-GEN game-after Taro-TOP mitt-ACC carefully mend-CONT-PROG.PAST-but
daremo guroobu-o teiresi-te-inakatta.
nobody glove-ACC mend-CONT-PROG.NEG.PAST
'After the baseball game on that day, Taro was mending his mitt carefully, but nobody was mending his glove.'
(Sato & Maeda 2021: 362)

Wei (2019) argues that VEAs to yes-no questions with sentence final aspectual particle *le* is derived through subject pro-drop. Given that PP adjuncts cannot be dropped, Wei's analysis would predict that, for yes-no questions like (70a), which involve both a PP adjunct and a SFP *le*, either a VEA with only the verb complex but not the PP adjunct would not be available, or, even if such a VEA is allowed, the adjunct-inclusive reading would not be available. This is, however, not borne out: The VEA in (70b) must be understood as Zhangsan had written papers at home and not anywhere else, since it is infelicitous to continue (70b) with 'but it was in the library where he had written papers'.

(70) a. Q: [[Zhangsan **zai** **jia** xie-guo lunwen] **le**] ma?
Z. in home write-EXP paper LE SFP
'Had Zhangsan written papers at home?'

b. A: [[xie-guo] **le**].
write-EXP LE
'Yes.'

Moreover, the same argument extends to postverbal adjuncts. It is well known that Mandarin adverbial elements may follow V(P) as well.[42] For instance, frequency adverbials like *liang-ci* 'twice' may follow the verbal complex in the first clause in (71), and interestingly, without an overt *liang-ci*, the second clause does not necessarily mean that Lisi tried twice as well, as it is felicitous to continue the sentence with 'actually, he only tried once'. This suggests that, similar to what we saw with preverbal adjuncts, post VP adverbial elements like *liang-ci* cannot be pro-dropped either.

(71) Zhangsan shi-le **liang-ci**, Lisi ye shi-le.
Z. try-PERF two-time L. also try-PERF
'Zhangsan tried twice, (and) Lisi also tried.'

[42] See Ernst (2014) for a more complete review.

Related to constructions like (71), Simpson (2015: 310) observes that yes-no questions with these post VP adverbials allow VEAs formed with only verbal complexes without necessarily echoing the adverbials. And crucially, similar to the judgement discussed in Liu (2014: 63), the answer in (72b) is understood as Zhangsan tried twice, since it would be infelicitous to continue (72b) with 'actually, he only tried once'.[43] Therefore, it is clear that VEAs like (72b) also allow the adjunct-inclusive interpretation, and it cannot be the result of pro-dropping post-verbal elements.

(72) a. Q: Zhangsan shi-le liang-ci ma?
Z. try-PERF two-time SFP
'Did Zhangsan try twice?'

b. A: shi-le ~~liang ci~~
try-PERF two-time
'Yes.'

So far, we have only looked at phrasal elements (e.g., free-choice subjects, preverbal and postverbal adjuncts) that are not pro-droppable. Next, we can turn to heads that otherwise cannot be independently elided. For instance, it is impossible to drop/elide a modal like *hui*: the second clause in (73) can never be understood as "Lisi will have already bought durians".

(73) Zhangsan **hui** yijing mai-le lizhi, Lisi yijing mai-le liulian.
Z. will already buy-PERF lychee L. already buy-PERF durian
'Zhangsan will have already bought lychee, Lisi has already bought durians.'

[43] In a context where Zhangsan did only try once, a more natural response would be the following, where the lexical verb surfaces twice, a phenomenon that is worth investigating but beyond the scope of this chapter.

shi (dao)-shi shi-le, dan ta zhi shi-le yi-ci.
try oppositely-be try-PERF but 3SG only try-PERF one-time
'(He) indeed tried, buy he only tried once.'

Although we have seen that when no embedding is involved, modal *hui* is typically required in an VEA (17, repeated in 74), the VEA to an embedded A-not-A question with matrix scope must be formed with the embedded verb rather than any element from the matrix clause (75), despite that there is a modal *hui* in the matrix clause.

(74) a. Q: Zhangsan **hui** chi liulian ma?
Z. will eat durian SFP
'Will Zhangsan eat durians?'

b. A: **hui** (chi)
will eat
'Yes.'

(75) a. Q: Zhangsan **hui** juede shuo [Lisi **zun-bu-zunzhong** Wangwu]?
Z. will think COMP L. respect-NEG-respect W.
'Will Zhangsan think Lisi respects or does not respect Wangwu?'

b. A1: **zunzhong** /*hui (juede)
respect will think
'Yes.'

c. A2: Zhangsan **hui** **juede** **shuo** [Lisi zunzhong Wangwu].
Z. will think COMP L. respect W.
'Zhangsan will think Lisi respects Wangwu.'

In spite of the absence of multiple heads, including the modal *hui*, the matrix verb *juede* and the complementizer *shuo*, from the VEA,[44] (75b) is nevertheless interpreted the same as the full sentential answer in (75c). This cannot be straightforwardly explained under any analysis based on pro-drop, which would have to assume either that a non-constituent (i.e., *Zhangsan hui juede shuo*

[44] See N. Huang (2018), J. Huang (2021) for *shuo* being a complementizer.

*Lisi* 'Zhangsan will think that Lisi') can be pro-dropped as a whole, or that multiple syntactic heads can be realized as silent pros. [45]

#### 4.3.1.2 Extraction out of pro-droppable elements

The second type of evidence against a pro-drop-based analysis concerns sentential subjects in Mandarin. More specifically, inspired by Takahashi (2020),[46] I focus on whether extraction out of

[45] A similar argumentation is made in Thom's (2016) analysis of Scottish Gaelic verbal answers, formed with an initial verb and a regular fragment answer (b), to "long-distance questions" like (a). As shown in (b-c), Thoms (2016) points out that one obvious reason to reject a pro-drop analysis of Scottish Gaelic verbal answers is that, in full sentential answers, elements preceding the relevant answer *bicycle*, including verb nouns like *smaointinn* and *iarraidh*, complementizers like *a*, preverbal particles like *a'* and *ag*, etc. are not usually droppable independently, yet they may all disappear from the verbal answer.

a. Q: Dè tha mam a' smaointinn a tha mi ag iarraidh airson na nollaig?
what be-PRES mum PRT think-VN C-REL be-PRES I PRT want-VN for the Christmas
'What does mum think that I want for Christmas?'

b. A1: Tha bicycle.
be-PRES bicycle
"A bicycle"

c. A2: Tha i **a'** **smaointinn** **a** **tha** thu **ag** **iarraidh** bicycle airson na Nollaig
be-PRES she PRT think-VN C-REL be-PRES you PRT want-VN bicycle for the Christmas
(Thoms 2016: 370)

[46] Takahashi (2020) observes that, in the following example, the focused PP *ano biru kara* 'from that building' is associated with the embedded predicate *detekuru* 'come out', showing that PP extraction out of a silent object is possible, suggesting that the silent object in (b) cannot be an instance of pro and instead it must have internal structure.

[Japanese]
a. [Harry-ga [Ginny-ga $t_{PP}$ detekuru no]-o mokugekisita no]-wa [$_{PP}$ kono biru kara] da.
Harry-NOM Ginny-NOM come.out that-ACC witnessed that-TOP this building from be
'It was from this building that Harry witnessed Ginny coming out.'

b. [Ron-ga e mokugekisita no]-wa [$_{PP}$ ano biru kara] da.
Ron-NOM witnessed that-TOP that building from be
'lit. It was from that building that Ron witnessed *e*.' (Takahashi 2020: 55)

Note that the example in (b) can be interpreted as it was from that building that Ron witnessed Ginny coming out, therefore the sentence final PP is an adjunct originating from the null complement clause

an unpronounced argument is possible in VEAs. A pro-drop approach would not predict this to be possible as there is no internal structure associated with a *pro*. In contrast, analyses that do not assume pro-drop, say, Holmberg's big ellipsis, would predict such extraction to be possible since the full internal structure of an unpronounced argument is present before ellipsis applies.

We can begin by looking at yes-no questions with a sentential subject. The following example illustrates that VEA remains the default response to a yes-no question with a sentential subject:

(76) a. Q: [Zhangsan zai jiaoshi li chi liulian ] heshi ma?
Z. in classroom inside eat durian appropriate SFP
'Is it appropriate that Zhangsan ate durians in the classroom?'

b. A: bu heshi.
NEG appropriate
'No.'

Interestingly, unlike the elements we have discussed so far in this subsection, e.g., phrasal elements like free-choice subjects and preverbal/postverbal adjuncts, and heads like modals, sentential subjects in Mandarin do seem to be droppable. For example, in the second clause in (77), the predicate *fasheng* 'happen' makes sure that it is the sentential subject 'That Zhangsan ate durians in the classroom' that is understood as the silent subject, since subjects denoting individuals like *Zhangsan* or *ta* 'he' are simply incompatible with *fasheng*: **Zhangsan/ta fasheng-guo yi-ci* '*Zhangsan/he happened once'.

(77) [Zhangsan zai jiaoshi li chi liulian] bu tai heshi,
Z. in classroom inside eat durian NEG quite appropriate
dan bijing zhi fasheng-guo yi-ci.
but after.all only happen-EXP one-time
'That Zhangsan ate durians in the classroom is not quite appropriate, but after all (it) only happened once.'

Therefore, arguing that the VEA in (76b) is the result of dropping the sentential subject at least remains an analytical possibility, since independently sentential subjects can undergo pro-drop as seen in (77).

However, as I show in the following, one direct argument against a (subject) pro-drop approach to (76b) comes from the observation that extraction out of an unpronounced sentential subject is possible, which would be puzzling if there was only one pro without internal structure in the underlying syntactic representation of VEAs like (76b). Hence, this, as Takahashi (2020) puts it, "constitutes the most compelling evidence for the involvement of ellipsis in null arguments".

One peculiar property of Mandarin sentential subjects is that they seem to be transparent for A-bar dependencies like relativization and topicalization (Huang 1982, Ning 1993, Tsai 1997, a.o.). As illustrated in the following example, the locative PP *zai jiaoshi li* 'in the classroom' is an adjunct of the VP within a sentential subject (78a), which in turn is embedded in a complement clause under the matrix verb *juede* 'think'; and crucially, the PP may occur sentence initially in the main clause together with a topic marker (78b).[47] In addition, note that extraposition of the PP is impossible (78c).

(78) a. Lisi juede [[Zhangsan [**zai jiaoshi li**] chi liulian] bu heshi]
L. think Z. in classroom inside eat durian NEG appropriate
'Lisi think that it is inappropriate for Zhangsan to eat durians in the classroom.'

[47] Under Djamouri et al.'s (2013) analysis of Mandarin PPs, the prenominal *zai* is treated as a preposition and the postnominal *li* is a postposition. Syntactically, *li* first selects *jiaoshi*, forming a postpositional phrase, which is further selected by *zai*, projecting a prepositional phrase, i.e., [$_{PreP}$ *zai* [$_{PostP}$ *jiaoshi li*]].

b. [**zai jiaoshi li**]$_i$ (ne), [Lisi juede,
in classroom inside TOP L. think
[[Zhangsan $t_i$ chi liulian] bu heshi]].
Z. eat durian NEG appropriate
'In the classroom, Lisi thinks it is inappropriate for Zhangsan to eat durians.'
(Based on Tsai 1997: 9)

c.* Lisi juede [[Zhangsan $t_i$ chi liulian] bu heshi] [**zai jiaoshi li**]$_i$
L. think Z. eat durian NEG appropriate in classroom inside
Intended 'Lisi thinks it is inappropriate for Zhangsan to eat durians, in the classroom.'

With this empirical observation about Mandarin sentential subjects in mind, we are now in a good position to evaluate whether (75b) involves dropping the sentential subject. The examples below show that, in VEAs, extraction out of an unpronounced sentential subject is possible, unexpected under analyses assuming pro-drop.

In the embedded A-not-A question in (79a), the PP associated with the embedded predicate is extracted, and crucially, the extracted PP is allowed in the VEA (79b), supporting the hypothesis that the unpronounced sentential subjects must have a more elaborated internal structure. (80) further illustrates that, in the VEA, PP extraction out of a sentential subject is still possible when there is no extraction in the question itself.

(79) a. Q: [**zai jiaoshi li**]$_i$ (ne),
in classroom inside TOP
[Lisi juede, [[Zhangsan $t_i$ chi liulian] he-bu-heshi]]?
L. think Z. eat durian appropriate-NEG-appropriate
'In the classroom$_i$, Does Lisi think it is appropriate that Zhangsan ate durians $t_i$?'

b. A: [**zai jiaoshi li** (ne),] bu heshi.
in classroom inside TOP NEG appropriate
'(As for in the classroom,) No.'

(80) a. Q: Lisi juede [$_{CP1}$ [$_{CP2}$ Zhangsan zai jiaoshi li chi liulian ]
L. think Z. in classroom inside eat durian
he-bu-heshi]?
appropriate -NEG- appropriate
'Does Lisi think it is appropriate that Zhangsan ate durians in the classroom?'

b. A: [**zai jiaoshi li** (ne),] bu heshi.
in classroom inside TOP NEG appropriate
'(As for in the classroom,) No.'

A parallel argument can be made regarding VEAs to yes-no questions involving a complement clause like (80a), in which an benefactive PP occurs in the embedded clause, and this PP can undergo A-bar movement like topicalization (81b).

(81) a. Wangwu shuo-guo [Lisi jingchang **gei Zhangsan** zuo fan ]
W. say-EXP L. often for Z. cook meal
'Wangwu said [that Lisi often cooks for Zhangsan].'

b. [**gei Zhangsan**] $_i$ ne, Wangwu shuo-guo [Lisi jingchang $t_i$ zuo fan ]
for Z. TOP W. say-EXP L. often cook meal
'[For Zhangsan]$_i$, Wangwu said that Lisi often cooks $t_i$.'

Crucially, (82b-c) show that similar to (80b), extraction of PP from a complement clause is also possible in VEAs: *gei Zhangsan* 'for Zhangsan' can occur optionally with the matrix verbal complex.

(82) a. Q: Wangwu shuo-guo [Lisi jingchang **gei Zhangsan** zuo fan ] ma?
W. say-EXP L. often for Z. cook meal SFP
'Did Wangwu say [that Lisi often cooks for Zhangsan]?'

b. A1: shuo-guo.
say-EXP
'Yes.'

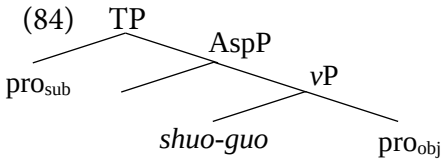
c. A2: **gei Zhangsan** ne, shuo-guo.
for Z. TOP say-EXP
'For Zhangsan, yes.'

Meanwhile, similar to sentential subjects (77), a clausal complement is independently droppable in declarative sentences: the second conjunct in (83) must be understood as John said that Lisi often cooks for Zhangsan.

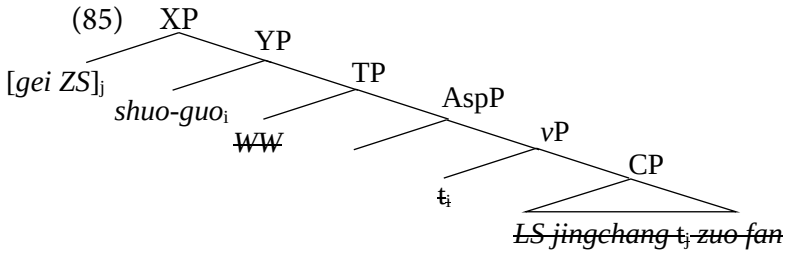
(83) Wangwu shuo-guo [Lisi jingchang **gei** **Zhangsan** zuo fan],
W. say-EXP L. often for Z. cook meal
Yuehan ye shuo-guo.
John also say-EXP
'Wangwu said that Lisi often cooks for Zhangsan, John also said (that).'

Therefore, under analyses assuming pro-drop, the structure of the verbal complex-only VEA *shuo-guo* in (82b) is very straightforward: both the proper name subject and the clausal complement are silent pros, as illustrated in the simplified tree in (84).

(84)




However, the occurrence of extracted benefactive PP in (82c) is unexpected under (84), especially when the benefactive can never be interpreted as associated with the matrix predicate *shuo-guo*: it never means that the event of Wangwu's saying was done for Zhangsan. Instead, it must mean that Lisi's cooking is done for Zhangsan, which indicates that the PP is associated with and extracted from the embedded predicate. Since there is no internal structure associated with a silent pro under (84), the availability and interpretation of the extracted PP would be puzzling if the missing object in (82c) were just a pro. In contrast, under an analysis that assumes a complete structure followed by ellipsis, VEAs with an extracted PP like (82c) are understandable: extraction applies prior to ellipsis, schematized in the simplified tree in (85).




Nevertheless, a caveat related to is PP extraction/topicalization illustrated in (78-82) is that, independently, Mandarin is argued to allow base-generated topics (Huang 1984; Xu and Langendoen 1985; Xu 2006; Huang and Yang 2013; Pan 2014, a.o.). Therefore, a pro-drop approach could still argue that the above cases of "extraction" only involve base-generation but not syntactic movement, especially when the "extraction" seems to cross a sentential subject; hence the "extracted" PP is not necessarily a counterargument against pro-drop.

However, this argument can be shown to have no independent support. On the contrary, since PP extraction/topicalization is indeed sensitive to islands, a movement account seems well supported. It is noticed that PP extraction is sensitive to islands in Mandarin (Paul and Whitman 2008; 2017), a hallmark of A-bar dependencies. For instance, the following example shows that PP extraction out of an NP complement clause is not possible.

(86) a. Wangwu tingshuo-le
W. hear-PERF
[NP[CP Lisi jingchang **gei** **Zhangsan** zuo fan] de chuanyan]
L. often for Z. cook meal DE rumor
'Wangwu heard the rumor that Lisi often cooks for Zhangsan.'

b.*[**gei** **Zhangsan**]i Wangwu tingshuo-le
for Z. W. hear-PERF
[NP[CP Lisi jingchang ti zuo fan] de chuanyan]
L. often cook meal DE rumor
Intended 'For Zhangsani, Wangwu heard the rumor that [Lisi often cooks ti].'

Importantly, (87) further illustrates that the benefactive PP is also ruled out in the VEA if the intended dependency crosses the boundary of an NP complement. Hence, the presence of the benefactive PP in the VEA in (82c) must involve A-bar movement, i.e. internal merge, out of a large constituent and not base-generation.

(87) a. Wangwu tingshuo-le
W. hear-PERF
[$_{NP}$[$_{CP}$ Lisi jingchang **gei** **Zhangsan** zuo fan] de chuanyan] ma?
L. often for Z. cook meal DE rumor SFP
'Did Wangwu hear the rumor that Lisi often cooks for Zhangsan?'

b. (*__gei__ __Zhangsan__ ne), tingshuo-le.
for Z. TOP hear-PERF
'Yes.'

#### 4.3.1.3 Interim summary

In sum, despite Mandarin being a radical pro-drop language, there are at least two types of evidence against analyzing VEAs as the result of pro-drop. On the one hand, we saw that elements including free-choice subjects, PP adjuncts, and modals independently resist dropping/eliding, yet VEAs are perfectly fine to occur without them (while allow the adjunct-inclusive interpretation in the case of missing PP adjuncts). On the other hand, we saw that extraction out of unpronounced sentential subjects or clausal complements is also allowed in VEAs, suggesting the existence of an internal structure much more elaborated than a single pro.

### 4.3.2 VEAs: (Remnant) PolP movement + TP ellipsis

Having argued that, in Mandarin VEAs, the unpronounced/missing elements including the subjects and objects cannot be the result of pro-drop, in this subsection I propose that Holmberg (2016)'s "big ellipsis" approach to Finnish VEAs, which involves movement followed by TP ellipsis, can be extended to Mandarin VEAs as well, supporting the analytical intuition of Liu (2014), Simpson (2015), and Wei (2019)'s work on Mandarin VEAs.

In particular, I provide novel evidence showing that the constituent of Mandarin VEAs is not in the canonical predicate position, and instead, it is in a derived position in the left periphery as a result of overt phrasal movement. If this is on the right track, one might expect semantic effects of such movement. I show that this is borne out. More specifically, inspired by Sato & Maeda's (2021) discussion of Japanese VEAs, I argue that VEAs scope over TP-internal quantificational elements, including disjunction focus, and universal quantifiers.

Meanwhile, Holmberg's (2016) "big ellipsis" involves head movement of the verb, an assumption that is also shared among Liu (2014), Simpson (2015) and Wei (2019). However, as also acknowledged in Liu (2014) and Simpson (2015), this head movement hypothesis is not uncontroversial as the traditional assumption about Mandarin verbs is that independently they do not move to high positions. To address this issue, I provide evidence showing that the constituent containing a VEA should be of phrasal category, and the derivation involves a three-step process: PolP undergoes remnant phrasal movement (88b) after what I call "object fronting", where the internal argument first raises outside PolP (88a), followed by TP ellipsis (88c), which is illustrated in the tree structure in (89).

(88) a. STEP I: OBJECT FRONTING

$[_{CP}\ [_{TP}\ DP_{SUB}\ [_{XP}\ DP_{OBJ}\ [_{PolP}\ [+Pol]\ [_{vP}\ V\ \_\_\ ]]]]]$

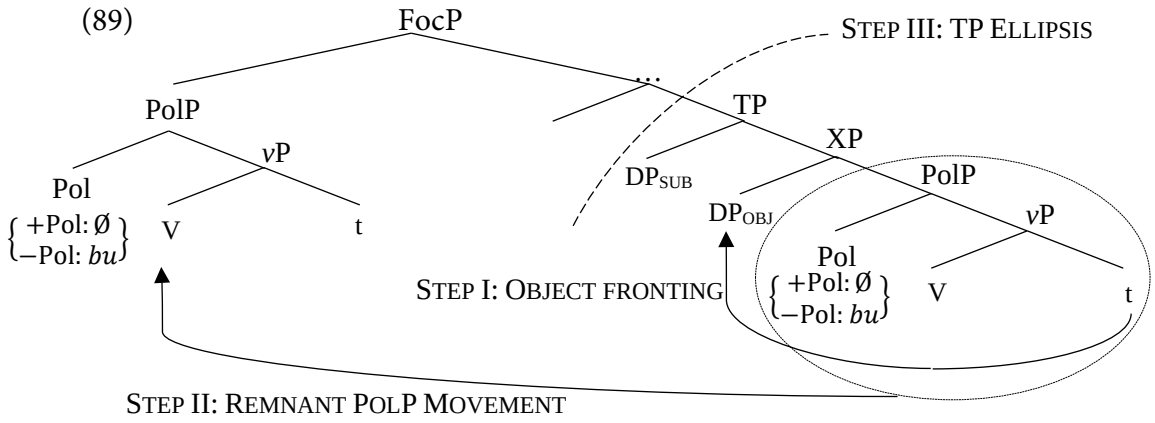
b. STEP II: REMNANT POLP MOVEMENT

$[_{CP}\ [_{PolP}\ [+Pol]\ [_{vP}\ V\ \_\_\ ]]\ [_{TP}\ DP_{SUB}\ [_{XP}\ DP_{OBJ}\ \_\_\ ]]]$

c. STEP III: TP ELLIPSIS

$[_{CP}\ [_{PolP}\ [+Pol]\ [_{vP}\ V\ \_\_\ ]]\ [\sout{_{TP}\ DP_{SUB}\ [_{XP}\ DP_{OBJ}\ \_\_\ ]}]]$

(89)




#### 4.3.2.1 A phrasal movement account

While a head movement analysis at first sight may seem to be supported by the bare nature of the modal/lexical verb in VEAs, there are different arguments against this analysis. In fact, as I show, bare modal/lexical verb is only one of a number of possible answers.

This fact is directly handled by the analysis I propose in this subsection, where I provide evidence that the derivation of Mandarin VEAs must involve phrasal movement. In contrast, there are at least two empirical facts about VEAs that would be puzzling under a head movement approach.

To begin with, the phrasal category of Mandarin VEAs is straightforwardly demonstrated in VEAs to yes-no questions with adjuncts. As we have seen in section 4.1, VEAs allow various phrasal elements to occur within. The following example illustrates that the frequentative adverb *jingchang* 'often' itself must occur in the VEA to a yes-no question involving *jingchang*, in addition to the lexical verb.

(90) a. Q: Zhangsan **jingchang** chi liulian ma?
Z. often eat durian SFP
'Does Zhangsan often eat durians?'

b. A: *(**jingchang**) (chi)
often eat
'Yes.'

Similarly, under the normal assumption that people eat dinners, a natural interpretation of (91a) is that a locative PP *zai jia* 'at home' receives (narrow) focus: the speaker wants to know whether it is at home where the addressee has dinner today. And importantly, the VEA must consist of both the PP obligatorily and the lexical verb.

(91) a. Q: ni jintian **zai jia** chi wanfan ma?
2SG today in home eat dinner SFP
'Will you have dinner at home today?'

b. A: *(**zai jia**) chi
in home eat
'Yes.'

Therefore, VEAs like (90b) and (91b) are immediately compatible with a phrasal movement approach, whereas a head movement approach cannot predict such instances of VEAs without serious modifications.

A further reason to reject a head movement analysis concerns the non-local nature of the process, i.e. Head Movement Constraint (Travis 1984, Baker 1985), which requires head movement to proceed in a local way and effectively disallows head movement to skip any intervening head between the launching site and landing site. We have seen that embedded yes-no questions with matrix scope allow VEAs formed with embedded verbs, as illustrated below:

(92) a. Q: Zhangsan$_i$ **hui juede shuo** [Lisi$_j$ xi-bu-xihuan ziji$_{i/j}$]?
Z. will think COMP L. like-NEG-like SELF
'Will Zhangsan$_i$ think Lisi$_j$ likes self$_{i/j}$?'

b. A: xihuan /***hui juede shuo** xihuan /*xihuan **shuo juede hui**
like will think COMP like like COMP think will
'Yes.'

More specifically, a phrasal movement approach correctly predicates the VEA in (92b), where embedding heads, including the modal *hui* 'will', the matrix verb *juede* 'think', and the complementizer *shuo*, are consistently excluded from VEAs, regardless of respective linear word orders. The embedded clause in (92a) cannot be analyzed as direct quotation, as the logophor *ziji* in the embedded object position can be long-distance bound by the matrix subject *Zhangsan*, an interpretation that is available with the VEA *xihuan* 'lit. like'.

The following example further illustrates that VEA is also available for a doubly embedded A-not-A question with matrix scope like (93a). Crucially, the VEA obligatorily requires a phrasal element from the most embedded clause (93b), where the unbounded movement exemplifies a property of phrasal but not head movement. Additionally, no element in the intermediate clause is allowed in the VEA, showing that no pied piping is possible either (93c).

(93) a. Q: Zhangsan shuo [yisheng gaosu ta
Z. say doctor tell 3SG
[Lisi **jing-bu-jingchang** chi liulian]]?
L. often-NEG-often eat durian
'Did Zhangsan say that the doctor told him Lisi often eats durians?'

b. A1: *(**jingchang**) chi
often eat
'Yes.'

c. A2: *gaosu jingchang chi.
tell often eat

d. A3: *shuo gaosu jingchang chi
say tell often eat

It is worth mentioning that not only an unambiguously phrasal element like *jingchang chi* 'lit. often eat' can form a VEA to a doubly embedded A-not-A question like (94a), but a bare verb can also form a VEA to such a question (94). Note that pied piping of higher V head is also consistently ruled out, regardless of what the order among them is, unexpected under a head movement approach.

(94) a. Q: Zhangsan shuo [yisheng gaosu ta [Lisi **chi-bu-chi** liulian ]]?
Z. say doctor tell 3SG L. eat-NEG-eat durian
'Did Zhangsan say that the doctor told him Lisi eats durians?'

b. A: **chi** /*gaosu chi /*chi gaosu /*shuo gaosu chi /*chi gaosu shuo
eat tell eat eat tell say tell eat eat tell say
'Yes.'

#### 4.3.2.2 A derived position for VEAs

Inspired by Sato & Maeda's (2021),[48] based on the interactions between VEA and TP-internal quantificational elements, I argue that Mandarin VEAs are in a derived surface position scoping over the TP, supporting the analytical intuition shared by Liu (2014), Simpson (2015), and (one strategy in) Wei (2019) that the element in the VEA has moved out of the TP.

[48] Sato & Maeda's (2021) mention that, in Japanese declarative sentences, focus-sensitive particles like *dake* 'only' and disjunctive marker *ka* 'or' in either subject or object position must scope over negation.

a. Sono toki kyoositu-ni-wa Taroo-dake-ga inak-atta. ONLY > NEG, *NEG > ONLY
that time classroom-in-TOP Taro-only-NOM be-NEG-PAST
'At that time, only Taro was not in the classroom.'

b. Sono toki kyoositu-ni-wa Taroo ka Hanako-ga i-nak-atta-yo. OR > NEG, *NEG > OR
that time classroom-in-TOP Taro or Hanako-NOM be-NEG-PAST-PRT
'Taro didn't buy bread or rice.' (Sato & Maeda 2021: 368)

Interestingly, the scopal relation between negation and these elements are consistently reversed in VEAs (c-f), suggesting that the verbal complex in the VEA has undergone movement to the left periphery. In particular, adopting Shibata's (2015) proposal, Sato & Maeda (2021) assumes that quantificational elements like focus or disjunction move obligatorily from their canonical position to the TP domain, where they can scope over negation in declarative sentences like (a-b). However, in VEAs like (d) and (f), the verbal complex containing the negation move to a derived position in the CP domain, scoping over TP-internal focus or disjunction.

c. Q: Sono toki kyoositu-ni-wa Taroo-dake-ga ita-no?
that time classroom-in-TOP Taro-only-NOM be.PAST-Q
'At that time, was only Taro in the classroom?'

d. A: I-nak-atta-yo.
be-NEG-PAST-PRT
Lit. 'Wasn't.' NEG > ONLY, ??ONLY > NEG (ibid. 368)

e. Q: Sono toki kyoositu-ni-wa Taroo ka Hanako-ga ita-no?
that time classroom-in-TOP Taro or Hanako-NOM be.PAST-Q
'At that time, was either Taro or Hanako in the classroom?'

f. A: I-nak-atta-yo.
be-NEG-PAST-PRT
Lit. 'Wasn't.' NEG > OR, ??OR > NEG (ibid. 368)

It is well known that Mandarin is a scope-rigid language, where the linear order directly reflects scopal relations (Huang 1982, Lee 1986, Aoun & Li 1989, a.o.). For instance, the disjoined DP subject linearly precedes the negation in (95a), and it only allows a surface scope reading: among Zhangsan and Lisi, one of them didn't come. (96a) is a yes-no question based on the declarative in (96a). Crucially, the negative VEA in (96b) is only felicitous when both of them didn't show up. Hence, the negation must take wide scope over the disjunction, and some constituent containing the negation must have moved to a position higher than the disjunction (96c). [49]

(95) a. Zhangsan **huozhe** Lisi **mei** lai.
Z. or L. NEG come
'Zhangsan or Lisi didn't come.' OR > NEG, *NEG > OR

[49] A similar pattern is found in the interactions between universal quantifier and negation. *Meitian* 'every day' linearly precedes *bu* in (a) and it is only true when Zhangsan never comes to campus, hence the universal quantifier scopes over negation. In contrast, the linear order between *meitian* and *bu* is reversed in (b), which is only felicitous in a scenario where Zhangsan does come to campus from time to time but just does not do so on a daily basis, hence negation takes wide scope.

a. *meitian* ≺ *bu*
Zhangsan **mei-tian** **bu** lai xuexiao.
Z. everyday NEG come school
'Every day, Zhangsan does not come to campus.' ∀ > NEG, *NEG > ∀

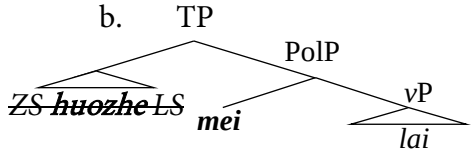
b. *bu* ≺ *meitian*
Zhangsan **bu** **mei-tian** lai xuexiao.
Z. NEG everyday come school
'Zhangsan does not come to campus every day.' NEG > ∀, *∀ > NEG

Turning to yes-no question-answer pairs, the negative VEA to a yes-no question based on (d) is interpreted as negation taking wide scope over the universal quantifier, as it can be used when Zhangsan does sometimes come to campus but not every day.

c. Q: Zhangsan **meitian** **lai** xuexiao ma?
Z. everyday come school SFP
'Does Zhangsan come to campus every day?'

d. A: bu lai.
NEG come
'Lit. Not come.' NEG > ∀, *∀ > NEG

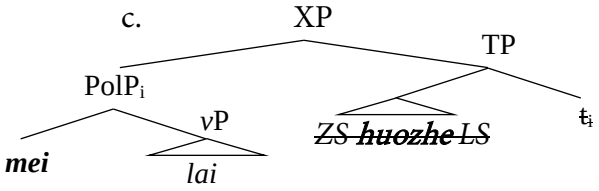
b.




(96) a. Q: Zhangsan huozhe Lisi lai-le ma?
Z. or L. come-PERF SFP
'Did Zhangsan or Lisi come?'

b. A: mei lai.
NEG come
'Lit. Not came.' NEG > OR, *OR > NEG

c.

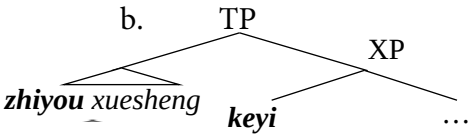



The above example is concerned with the scopal interaction between a negative VEA and a quantificational element within the TP. In addition, we can look at another type of scopal interaction between a positive VEA and a TP-internal quantificational element, which is not discussed in Sato & Maeda (2021).

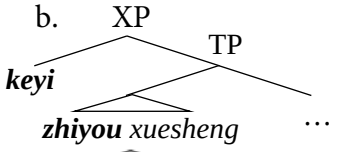
The following two examples are the baseline declaratives illustrating interactions between modals like *keyi* 'can' and focus *zhiyou* 'only'. In (97a), focus linearly precedes modal and takes wide scope (97b), as it is felicitous in a context where no one else other than students (e.g., teachers and staff) are allowed to use gym for free, and it is infelicitous to follow (97a) with 'And also only teachers are allowed to use gym for free'. The linear word order and scopal relation is reversed in (97a), which is compatible with a scenario where only students are allowed to use gym for free, as

it is still felicitous to continue (98a) with 'And it can also be the case that only teachers use gym for free'.[50]

(97) a. *zhiyou* ≺ *keyi*
**zhiyou** xuesheng **keyi** mianfei shiyong jianshenfang.
only student can for.free use gym
'Only students are allowed to use gym for free.' ONLY > KEYI

b.



(98) a. *keyi* ≺ *zhiyou*
**keyi** **zhiyou** xuesheng mianfei shiyong jianshenfang.
can only student for.free use gym
'It can be the case that only students use gym for free.' KEYI > ONLY

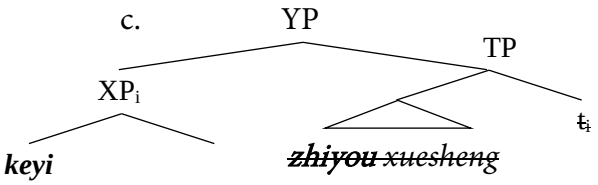
b.



Therefore, under my analysis that the constituent consisting of the echoed verb undergoes phrasal movement above TP, it is expected that a VEA to a yes-no question based on (97a) would be interpreted as modal taking wide scope in a way similar to (98). This is borne out in (99).

(99) a. Q: **zhiyou** xuesheng **keyi** mianfei shiyong jianshenfang ma?
only students can for.free use gym SFP
'Are only students allowed to use gym for free?'

b. A: %keyi
can
'Lit. can' KEYI > ONLY

[50] Also see Yip & Lee's (2020) discussion on the scopal interactions between only focus and *keyi*.




In particular, some native speakers allow a VEA formed with *keyi* (99b) as a possible answer to (99a), and more importantly, the modal is understood as taking wide scope: (99b) means that it can be the case that students is the only group of people who may use gym for free, and the VEA can be followed by 'Alternatively, it can also be the case that only teachers use gym for free.' Therefore, the reversed scopal relation between the modal and the focus in the VEA indicates that some constituent containing the modal must be in a position higher than the TP-internal focused subject, as roughly illustrated in (99c).

The presence/absence of semantic effects is traditionally believed to be one distinction between phrasal and head movement. However, in recent years, a growing body of literature has been arguing for the semantic effects of head movement (Takahashi 2002; Lechner 2007; Kishimoto 2007; Szabolcsi 2010, 2011; Iatridou & Zeijlstra 2013; Keine & Bhatt 2016; Matyiku 2017; Landau 2020; Sato & Maeda 2021; Lee 2021; a.o.). The empirical facts we saw in subsections 4.3.2.1 and 4.3.2.2 show that at least in the case of Mandarin VEAs, the semantic effects are still associated with phrasal movement but not head movement. In the next subsection, I argue that the unpronounced internal arguments are a result of remnant phrasal movement (à la Koopman 1997; Koopman & Szabolcsi 2000; Rackowski & Travis 2000; Mahajan 2003; Müller 2004; a.o., also cf. Kayme 1994, 1998).

#### 4.3.2.3 (Remnant) PolP movement

Having argued that Mandarin VEAs involve movement of a phrasal constituent containing the overtly pronounced elements (typically a lexical verb), next I argue that (i) the moved phrasal constituent is a PolP (following Holmberg 2001, 2016; Bailey 2012), and (ii) the missing object in VEAs is understandable if we assume that it has first moved out of PolP.

Following Holmberg (2016), I assume that an answer to a yes-no question essentially shares the same clausal structure with the corresponding yes-no question. Both the yes-no question and its answer involve a functional projection PolP headed by a polarity variable, whose value is open ([±Pol]) in the question and is either positive ([+Pol]) or negative ([−Pol]) in the answer.

Moreover, along the line of Holmberg's (2001) analysis of Finnish VEAs and Holmberg's (2016) proposal about Thai VEAs, I also assume that the moved phrasal element is PolP, which undergoes A-bar movement to a focus position in the CP-domain. One direct piece of empirical evidence supporting PolP movement is that there is a strict identity requirement on the lexical item forming an A-not-A string and the lexical item occurring in the corresponding VEA: For instance, when a lexical verb *lai* forms the A-not-A string, the lexical verb is echoed in the answer (100). In contrast, when a modal *neng* forms the A-not-A string, it is the modal itself that is echoed (101).

(100) a. Q: Zhangsan [$_{PolP}$ **lai-bu-lai**]?
Z. come-NEG-come
'Will Zhangsan come?'

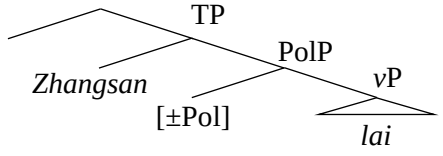
b. A: **lai**.
come
'Yes.'

(101) a. Q: Zhangsan [$_{PolP}$ **neng-bu-neng** lai]?
Z. can-NEG-can come
'Can Zhangsan come?'

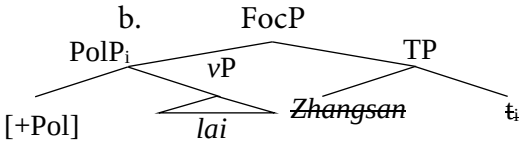
b. A: **neng** /*lai
can come
'Yes.'

Under Holmberg's (2016) proposal that an A-not-A string is the overt realization of a polarity variable with open value in a yes-no question, the identity requirement on the form of the A-not-A string and the form of VEA illustrated in (100-101) is understandable if we assume that the moved phrasal element in the derivation of VEA is the PolP, roughly illustrated in (102).

(102) a.




b.




The proposal that Mandarin VEAs involve PolP movement receives further support from the form of negation in negative VEAs, as shown in VEAs (cf. 22-25). Aspectual selection is strictly obeyed: *bu* is used in negative VEAs with imperfect predicates whereas *mei* is used in negative VEAs with perfective predicates.

(103) a. Q: Zhangsan (pingshi) youyong ma?
Z. usually swim SFP
'Does Zhangsan (usually) swim?'

b. A: {**bu** /***mei**} (*shi) youyong
NEG be swim
'No.'

(104) a. Q: Zhangsan (zuotian) youyong-le ma?
Z. yesterday swim-PERF SFP
'Did Zhangsan swim yesterday?'

b. A: {**mei**/*__bu__ } (*shi) youyong
NEG be swim
'No.'

Under a PolP movement analysis, the negation morpheme realizing the [−Pol] polarity head in negative VEAs is part of the PolP moving from a TP-internal position. Alternatively, Holmberg (2016) argues that a [−Pol] polarity head is externally merged with FocP in the left periphery. However, I next show that, in Mandarin, a negation merged in the left periphery of a sentence does not obey aspectual selection, which is only understandable if we assume that the negation in negative VEAs is not externally merged in the left periphery and instead originates from a lower position.

Let us assume a context where the conversation participants both know that Zhangsan loves swimming so much that he has been going to swim every single day for many years. When they are talking about something unexpectedly happened to Zhangsan yesterday, one speaker A invites the other speaker B to guess what that thing was. Speaker B could guess by uttering (105a). Since, as a matter of fact, Zhangsan did still swim yesterday, speaker A corrects B by uttering (105b).

(105) a. A: Zhangsan (zuotian) **mei** youyong.
Z. yesterday NEG swim
'Zhangsan didn't swim (yesterday).'

b. B: {**bu**/*__mei__} *(shi) [Zhangsan (zuotian) **mei** youyong].
NEG be Z. yesterday NEG swim
'It's not the case that Zhangsan didn't swim (yesterday).'

Crucially, although (105b) is referring to a past event and negating a(n) (embedded) negative sentence (i.e., 105a), the negation merged in the sentence-initial position in (105b) must be *bu* and cannot be *mei*, which may suggest that aspectual selection only affects the choice of negation morpheme in the sentence-internal position on the predicate level.

Meanwhile, it is imaginable that one could argue that *mei* is ruled out (105b) for some reason (e.g., haplology) two *mei*s cannot co-occur. To see whether that can be supported, we can check another scenario where Zhangsan is well-known for his fear of water. When two friends are talking about something unexpectedly happened to Zhangsan yesterday, one speaker A invites the other speaker B to guess what that thing might be. Speaker B could guess by uttering (106a). Since, it turned out that Zhangsan still didn't swim yesterday, speaker A corrects B by uttering (106b). Note that in this case, although (106b) is referring to a past time and there is no *mei* in B's sentence, the sentence-initial negation used to object B still must be *bu* and cannot be *mei*.

(106) a. A: Zhangsan (zuotian) youyong-**le**.
Z. yesterday swim-LE
'Zhangsan swam yesterday.'

b. B: {**bu**/***mei**} *(shi) Zhangsan (zuotian) youyong-**le**.
NEG be Z. yesterday swim-LE
'It's not the case that Zhangsan swam yesterday.'

Hence, it is clear that the choice between *bu* and *mei* imposed by aspectual selection is only effective clause-internally, and aspectual selection does not affect the use of (sentential negation) *bu* in the sentence-initial left peripheral position. The difference between sentence-initial negation and sentence-internal negation is further supported by absence/presence of the copula *shi* in these

negative answers: copula *shi* obligatorily co-occurs with an aspectual-insensitive sentential negation *bu* in (105a) and (106b), but it is disallowed in the presence of aspectual-sensitive predicate-level negation *bu/mei* in (103a) and (104b).

Therefore, the alternation between *bu* and *mei* in negative VEAs and its correlation with the aspectual properties of the predicate in the yes-no questions (103-104) shows that the negation in negative VEAs cannot be merged directly at the sentence-initial position of the answer. Under Holmberg's (2016) analysis of negative VEAs that negation is externally merged in the left periphery, since Mandarin sentence-initial negation must be *bu* and *mei* is never allowed (105-106), it is unexpected to see the alternation between *bu* and *mei* in negative VEAs (103-104). In contrast, under my proposal of PolP movement, the attested alternation in negative VEAs follows naturally from aspectual selection in negative declaratives: It is simply the result of aspectual selection operating on the predicate level in the underlying sentential structure of negative VEAs. The derivations of *bu chi* in (103b) and *mei chi* in (104b) are roughly illustrated in (107b) and (108b) respectively:

(107) a. Underlying negative declarative
[$_{CP}$ [$_{TP}$ *Zhangsan* [$_{PolP}$ ***bu***$_{[-Pol]}$ [$_{AspP}$ IMPERF [*v*P *youyong*]]]]]

b. PolP movement
[$_{CP}$ [$_{PolP}$ ***bu***$_{[-Pol]}$ [$_{AspP}$ IMPERF [$_{vP}$ *youyong* ]]]$_i$ [$_{TP}$ ~~*Zhangsan* ___ $_i$~~]]

(108) a. Underlying negative declarative
[$_{CP}$ [$_{TP}$ *Zhangsan* [$_{PolP}$ ***mei***$_{[-Pol]}$ [$_{AspP}$ PERF [*v*P *youyong*]]]]]

b. PolP movement
[$_{CP}$ [$_{PolP}$ ***mei***$_{[-Pol]}$ [$_{AspP}$ PERF [$_{vP}$ *youyong* ]]]$_i$ [$_{TP}$ ~~*Zhangsan* ___ $_i$~~]]

So far, in the above discussion of PolP movement in deriving VEAs, we have only looked at yes-no questions with intransitive verbs. Next, we can turn to the issue of unpronounced object in VEAs with a bare transitive verb (complex), where the moved PolP landing in the left periphery must then contain only the verb but not the internal argument.

(109) a. Zhangsan [$_{PolP}$ chi-bu-chi liulian]?
Z. eat-NEG-eat durian
'Does Zhangsan eat durians?'

b. [$_{FocP}$ [$_{PolP}$ chi ]~~[$_{TP}$ […]]~~]
eat
'Yes.'

I argue that a PolP analysis can be extended to these VEAs as well, but with an additional operation. More specifically, prior to PolP movement, the post-verbal internal argument has raised outside the PolP to a position above it. Hence, in VEAs like (109b), the moved phrasal constituent is a remnant PolP.

One candidate for the landing site of object movement is the TP-internal topic position, an independently motivated position in Mandarin derived by "object preposing" (110) (cf. Shyu 1995; Ernst & Wang 1995; Paul 2002, 2005; Badan 2008; a.o.). As seen in chapter 2, the linear order between a preposed object and the A-not-A string indicates that such TP-internal topic position is above PolP (110).

(110) a. Zhangsan chi-guo **liulian**.
Z. eat-EXP durian
'Zhangsan ate durians.'

b. Zhangsan **liulian** chi-guo.
Z. durian eat-EXP
'Zhangsan ate durians.'

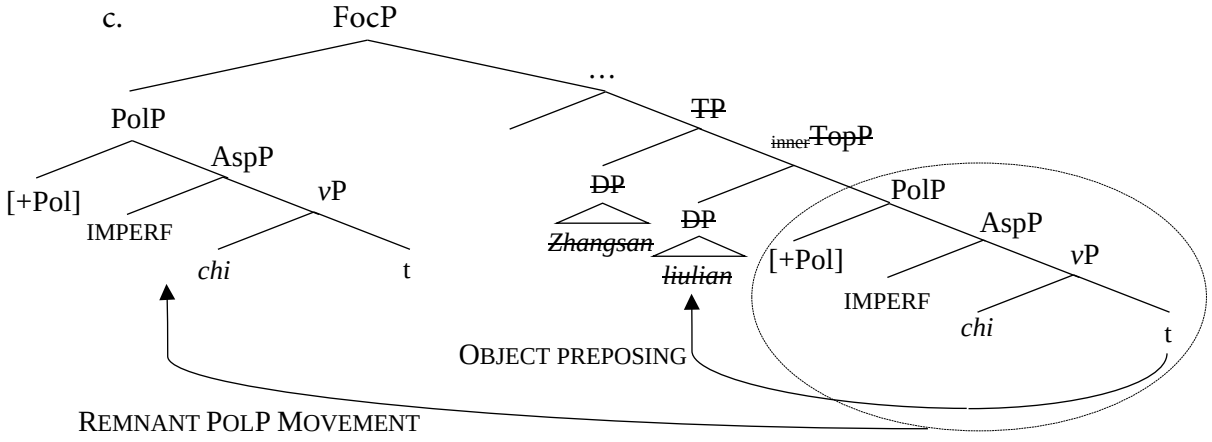
(111) Preposed object ≺ A-not-A
Zhangsan [$_{TopP}$ [**liulian**]$_i$ [$_{PolP}$ chi-bu-chi $t_i$]]?
Z. durian eat-NEG-eat
'Does Zhangsan eat durians?'

Therefore, beginning with an underlying sentential structure, after the internal argument has raised to a PolP-external position, the remnant PolP undergoes phrasal movement to the CP domain, followed by TP ellipsis, deriving the surface string of VEAs. A sample derivation for a VEA like (112b) is given in (112c):

(112) a. Q: Zhangsan chi-bu-chi liulian?
Z. eat-NEG-eat durian
'Does Zhangsan eat durians?'

b. A: chi.
eat
'Yes.'

c.




Nevertheless, an object preposing/topicalization analysis undergenerates. For instance, indefinite objects like *ji-ge liulian* 'a few durians' typically cannot undergo topicalization (113). Hence, if the derivation of VEAs involve internal topicalization of the object, it is expected that a yes-no question based on (113a) should not allow a VEA formed with a bare verb (complex) to the

exclusion of the indefinite object. In other words, indefinite objects are predicted to occur obligatorily in VEAs. However, this is not borne out: The indefinite object can still be omitted from the VEA in (114b).

(113) a. zuotian Zhangsan chi-guo **ji-ge** **liulian**.
yesterday Z. eat-EXP some-CL durian
'Yesterday Zhangsan ate a few durians.'

b.*zuotian Zhangsan **ji-ge** **liulian** chi-guo.
yesterday Z. some-CL durian eat-EXP
Intended 'Yesterday Zhangsan ate a few durians.'

(114) a. Q: zuotian Zhangsan chi-mei-chi-guo **ji-ge** **liulian**.
yesterday Z. eat-NEG-eat-EXP some-CL durian
'Did Zhangsan eat a few durians yesterday?'

b. A: chi-guo.
eat-EXP
'Yes.'

Therefore, although it is tempting to assume that the derivation of VEAs involve TP-internal topicalization of the object, which is an operation independently motivated in the literature, it cannot be extended to all kinds of objects. As discussed in Koopman (to appear), another motivation for object movement case related, which explains why essentially all kinds of objects can be omitted in VEAs. For now, I leave the question open regarding the exact nature of the movement of object, and generally assume the process of "object fronting" as a descriptive term.

#### 4.3.2.4 TP-ellipsis

The final component of my proposal concerns TP ellipsis, an assumption that is also shared by Liu (2014), Simpson (2015), and (one strategy in) Wei (2019) of Mandarin VEAs, and also proposed for languages like Finnish, i.e., "big ellipsis", (Holmberg 2016).

The existence of TP-ellipsis in the derivation of Mandarin VEAs receives direct support from the fact that no voice mismatch is allowed between a yes-no question and the corresponding VEA, similar to Japanese VEAs discussed in Sato & Maeda (2021), who notices that no voice mismatch is allowed in either sluicing or VEAs in Japanese.[51]

Adams & Tomioka (2012) observe that, similar to English sluicing (another instance of TP ellipsis, cf. Merchant 2001, 2008, 2013), Mandarin sluicing does not allow voice mismatch between the antecedent clause and the sluiced clause:

(115) * mouren da ku le Lisi, danshi wo bu zhidao shi **bei** shei.
someone hit cry LE L. but 1SG NEG know be PASS who
Intended '*Someone hit Lisi and made her cry, but I don't know by whom'.
(Adams & Tomioka 2012: 222)

[51] In discussing the derivation of VEAs in Japanese, Sato & Maeda (2021) notices that, similar to sluicing, no voice mismatch is disallowed in yes-no question answer pairs:

a. Q: Anata-no kaisya-wa kotosi gonin-izyoo-no gakusei-o
you-GEN company-TOP this.year five-more.than-GEN student-ACC
konede saiyoosi-masi-ta-ne?
through.personal.connection recruit-POL-PAST-PRT
'Did your company recruit more than five students this year through personal connections?'

b. A1: Saiyoosi-masi-ta-yo.
recruit-POL-PAST-PRT
Lit. 'Recruited.'

c. A2:* Saiyoos-**are**-masi-ta-yo.
recruit-PASS-POL-PAST-PRT
Lit. 'Was recruited.' (Sato & Maeda 2021: 364)

Under the TP ellipsis analysis, since the underlying TP of the VEA should be identical to the TP in the yes-no question, which behaves like an antecedent licensing the ellipsis in the VEA, it is expected that there should be no voice mismatch between the yes-no question and the corresponding VEA either. This is, indeed, borne out. For instance, the yes-no question in (116a) involves active voice and hence only active but not passive voice is allowed in the VEA (116b).

(116) a. Q: Zhangsan da-guo Lisi ma?
Z. hit-EXP L. SFP
'Has Zhangsan hit Lisi?'
b. A: da-guo /***bei** da-guo
hit-EXP PASS hit-EXP
'Yes.'

One argument for the existence of TP ellipsis in Mandarin VEAs provided by Liu (2014) concerns an interesting asymmetry regarding the omission of subjects and objects VEAs. More specifically, it is observed that, (in Liu's Mandarin), the subject can only be null when the object also disappears from the VEAs (117), and it is impossible to only pronounce the object while omit the subject (118):

(117) a. Yuehan$_i$ kanjian Bier$_j$ le ma?
John see Bill LE SFP
'Did John see Bill?'

b. e$_i$ kanjian e$_j$ le.
see SFP
'[John] saw [Bill].' (Liu 2014: 58)

(118) a. Yuehan$_i$ kanjian Bier$_j$ le ma?
John see Bill LE SFP
'Did John see Bill?'

b. ??/* $e_i$ kanjian Bier/$ta_j$ le.
see Bill/3SG SFP
'[John] saw Bill/him.' (Liu 2014: 59)

Liu (2014) takes such asymmetry as evidence for the existence of TP-ellipsis following head movement of V in deriding VEAs, which explains why VEAs are incompatible with TP-internal elements like internal arguments. As shown in the following derivation, if the V head moves to the CP-domain and then TP elides, the subject is necessarily deleted together with the object.

(119) $[_{CP}$ V $[\sout{_{TP}\ DP_{SUB}\ [_{vP}\ \_\_\ DP_{OBJ}]]}]$

Although my proposal also assumes TP-ellipsis, there seems to be some cross-speaker variation in elements allowed in VEAs between the data I have presented and those discussed in Liu (2014). For instance, as mentioned in (21), TP-internal adjuncts like a frequentative adverb can form an echo answer independently, and the lexical verb becomes optional in such case. Another example is given below:

(120) a. Q1: Zhangsan **jing-bu-jingchang** youyong?
Z. often-NEG-often swim
'Does Zhangsan often swim?'

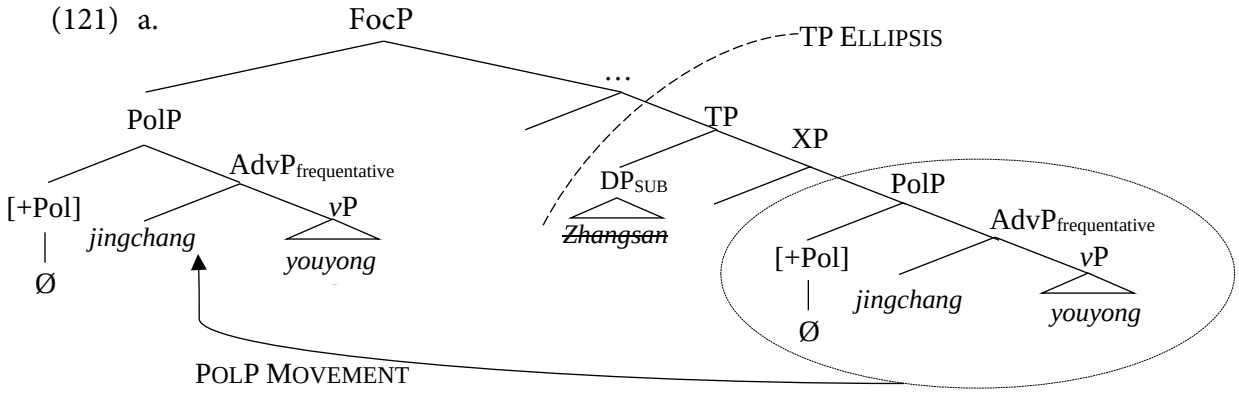
b. Q2: Zhangsan **jingchang** youyong ma?
Z. often swim SFP
'Does Zhangsan often swim?'

c. A: **jingchang** (youyong)
often swim
'Yes.'

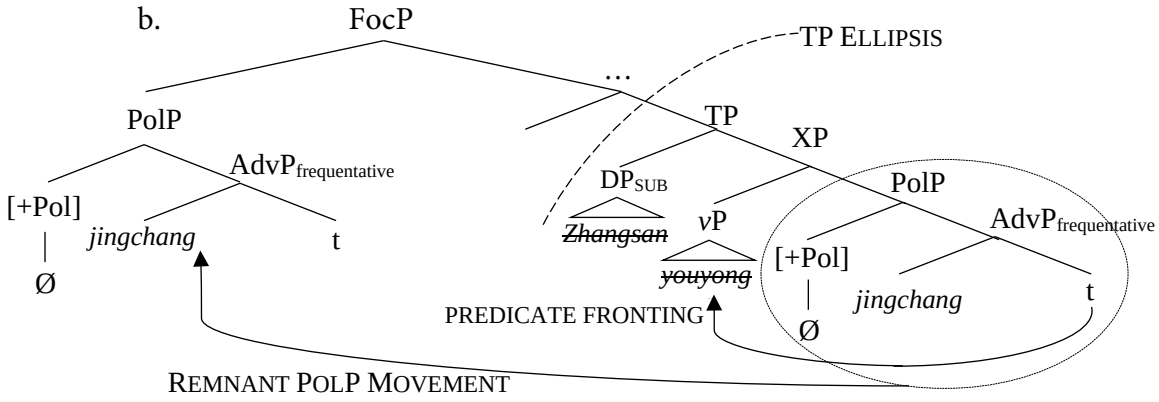
Under my proposal, the obligatoriness of *jingchang* and the optionality of *youyong* can be easily handled. On the one hand, as indicated by the form of the A-not-A string in (120a), the adverb is the highest lexical item within the PolP, hence it will be obligatorily pronounced in the echo answer

as a result of PolP movement. On the other hand, similar to object preposing, assuming optional predicate fronting[52] prior to PolP movement can account for the absence/presence of lexical verb: When there is no predicate fronting, the VEA has the surface form "Adv + V" (121a); and when there is predicate fronting (121b), the VEA is formed with only the adverb.

(121) a.




b.




[52] Note that fronting the predicate to a clause-internal position is also independently available in Mandarin, as seen in the following example, where the *v*P *chi zaofan* may either follow or precede the A-not-A string, suggesting *v*P that can move to a position above PolP:

a. Zhangsan [$_{PolP}$ an-bu-anshi [$_{vP}$ **chi zaofan**]]?
Z. timely-NEG-timely eat breakfast
'Does Zhangsan eat breakfast timely?'

b. Zhangsan [$_{XP}$ [$_{vP}$ **chi zaofan**]$_i$ [$_{PolP}$ an-bu-anshi $t_i$]]?
Z. eat breakfast timely-NEG-timely
'Does Zhangsan eat breakfast timely?'

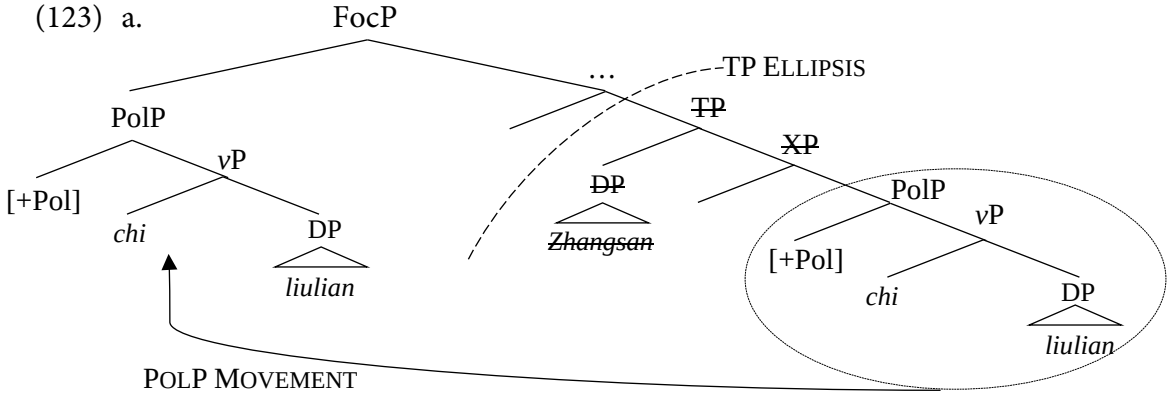
Meanwhile, as mentioned in (6), repeated below in (122), among the speakers that I have consulted with, different from the reported judgements in Liu's (2014), it seems that the object may optionally surface within a VEA.

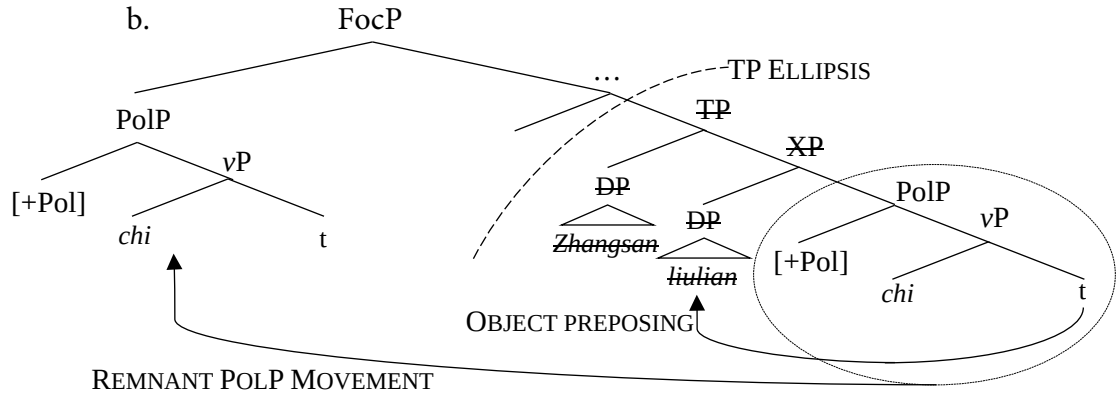
(122) a. Q: Zhangsan chi liulian ma?
Z. eat durian SFP
'Does Zhangsan eat durians?'

b. A: chi (**liulian**).
eat durian
'Yes.'

Under my analysis, the optionality of the internal argument in VEAs is also explained by the optionality of object fronting. For example, *a priori*, definite object preposing as an instance of TP-internal topicalization is an optional operation. Hence the object may remain in-situ and do not raise outside PolP, and then gets pronounced together with the lexical verb in the VEA at the end of the derivation (123a). In contrast, when the object does raise out of the PolP and then the remnant PolP moves, the VEA consists of only the lexical verb (123b).

(123) a.






Moreover, a TP-ellipsis analysis further predicts that the subject cannot be present in the VEA if the object is omitted: Under my proposal, the unpronounced object is the result of object fronting followed by TP-ellipsis. Hence, whenever the object is absent from the VEA, it is expected that the subject is also elided under TP-ellipsis. This is borne out, no matter what the linear order is between the lexical verb and the subject:

(124) a. Q: Zhangsan xihuan yuyanxue ma?
Z. like linguistics SFP
'Does Zhangsan like Linguistics?'

b. A: (??Zhangsan/ta) xihuan (*Zhangsan/ta)
Z./3SG like Z./3SG
'Yes.'

#### 4.3.2.5 More variations in VEAs

Before concluding this section, next I show how the currently proposed analysis can account for at least two other types of variations found in the form of VEAs.

The first one concerns yes-no questions with both a TP-internal adverb and a transitive verb. As seen in (125), a question like this allows three forms of echo answers: "Adv only", "Adv + V", "Adv + V + O":

(125) a. Q: Zhangsan jing-bu-jingchang chi liulian?
Z. often-NEG-often eat durian
'Does Zhangsan often eat durians?'

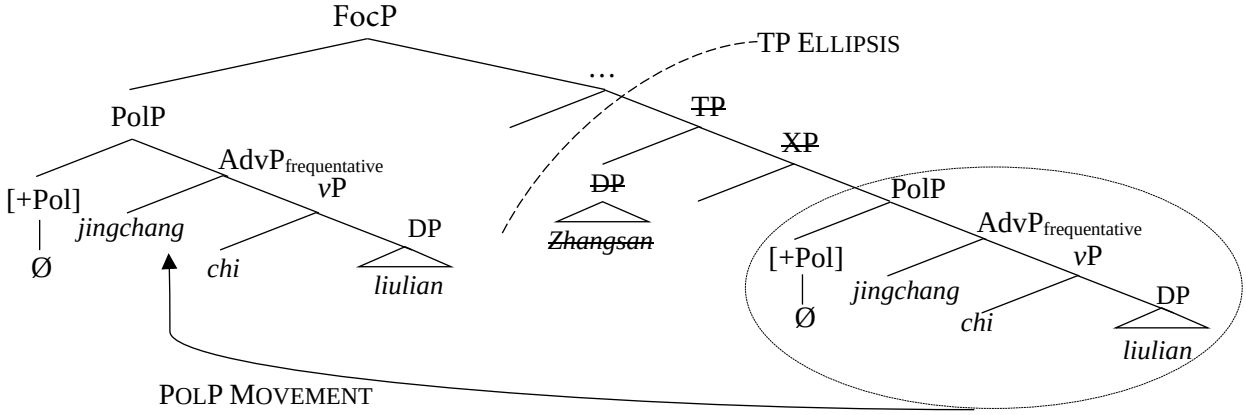
b. A1: jingchang.
often
'Yes.'

c. A2: jingchang chi.
often eat
'Yes.'

d. A3: jingchang chi liulian.
often eat durian
'Yes.'

The variation observed in (125b-d) can be straightforwardly captured by (remnant) PolP movement. Beginning with "Adv + V + O" in (125d): If there is no movement out of PolP, then the VEA consists of everything inside the PolP.

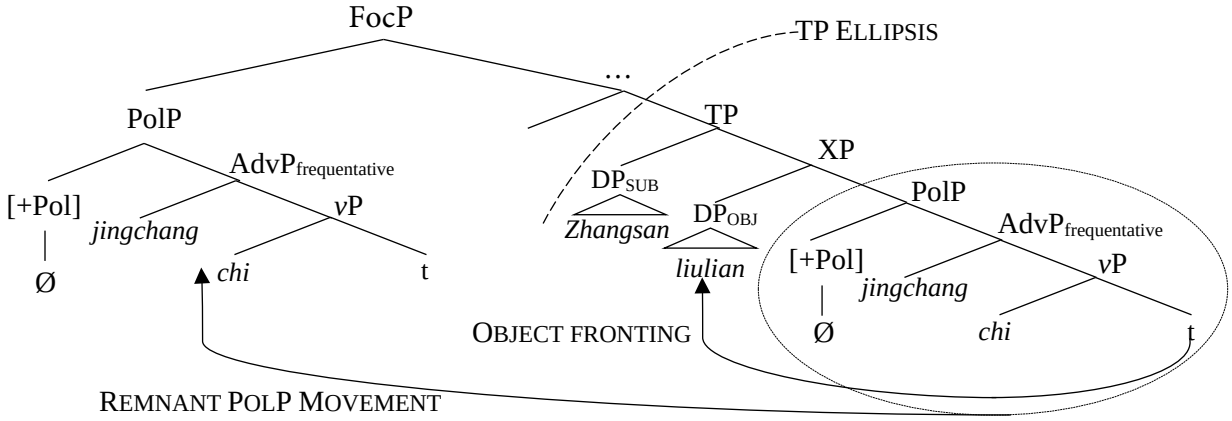
(126) VEA: Adv + V + O



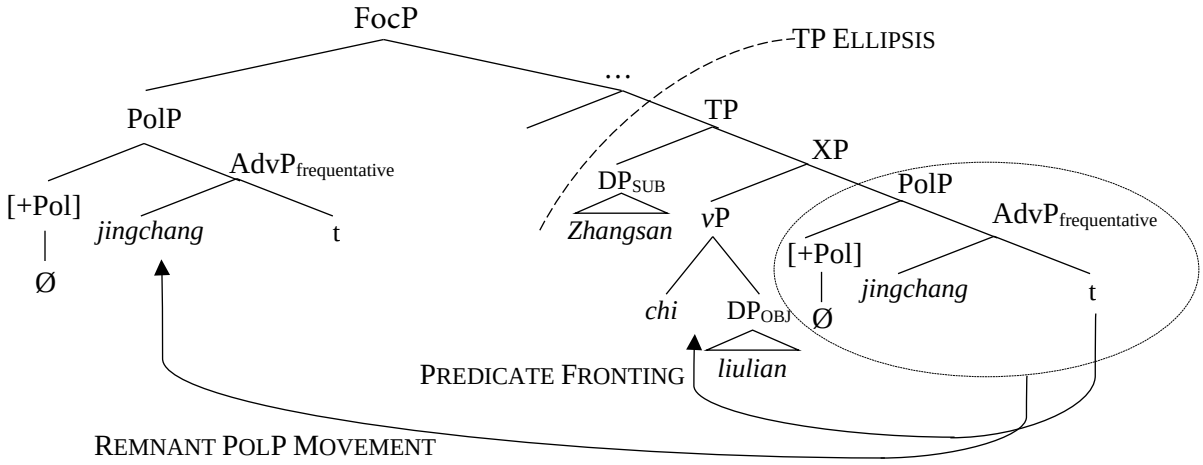

Meanwhile, the other two types of VEA must involve remnant PolP movement and the variation is explained by the size of the constituent moving out of the PolP: if object fronting

applies, then the VEA will be "Adv + V" (127a); if predicate fronting applies, then the VEA will be "Adv only" (127b).

(127) a. VEA: Adv + V




b. VEA: Adv only




The second type of variation involves yes-no questions with a preverbal modal like (128a). (128b) shows that the corresponding VEA can consist of (i) both a modal and a lexical verb (128b), or (ii) just the modal (128c), but never (iii) a single lexical verb without the higher modal (128d).

(128) a. Q: Zhangsan neng jiao yuyixue ma?
Z. can teach Semantics SFP
'Can Zhangsan teach Semantics?'

b. A1: neng jiao
can teach
'Yes.'

c. A2: neng
can
'Yes.'

d. A3: *jiao
teach
Intended 'Yes.'

On the surface, such variation seems to favor a head movement account. In particular, it is imaginable that the combination of modal and lexical verb in (128b) may be analyzed as the result of some kind of "roll-up" head movement of the lexical verb and the higher modal head, whereas the obligatory presence of modal may be viewed as the derivation observing the Head Movement Constraint: The modal *neng* 'can' as a higher head may move upwards without concerning lower heads like the lexical verb *jiao* 'teach', but the lower head, i.e., the lexical verb *jiao*, cannot move upwards without taking the higher intervening modal head together with it.

Such a head movement approach to 'Modal + V' type VEA in (128b) faces an immediate challenge by the observation that the object may still optionally occur within the VEA:

(129) neng jiao (yuyixue)
can teach Semantics
'Yes.'

Meanwhile, it is also puzzling why the Head Movement Constraint is strictly observed in (128b-d) but not in embedded question with matrix scope (130a), to which this type of 'Modal + V' type

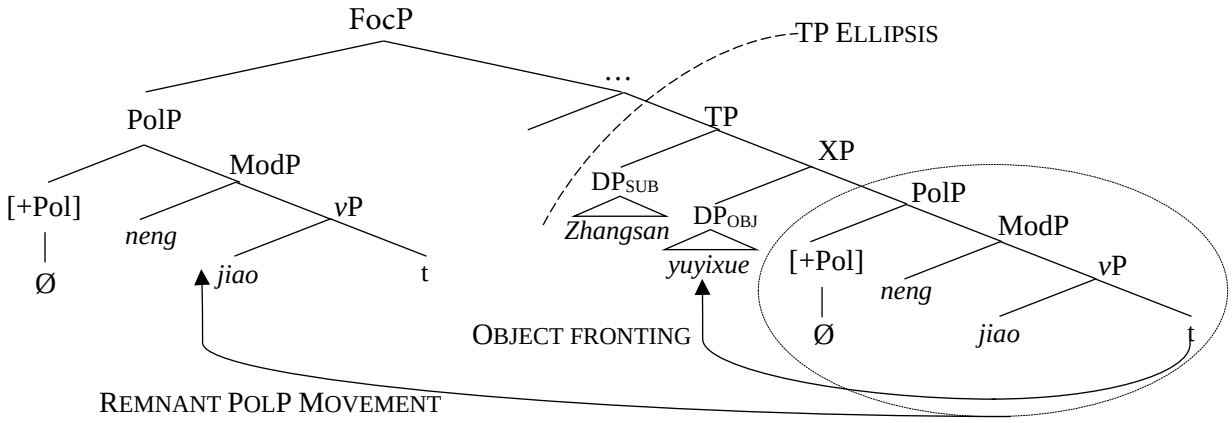
VEA is also available (130b). But crucially, higher heads in the matrix clause are robustly excluded from the VEA.

(130) a. Q: (biye hou,) tamen$_i$ **hui juede** [ziji$_i$ neng-bu-neng jiao yuyixue]?
graduation after 3PL will think SELF can-NEG-can teach Semantics
'(After graduation,) will they think that they can teach Semantics?'

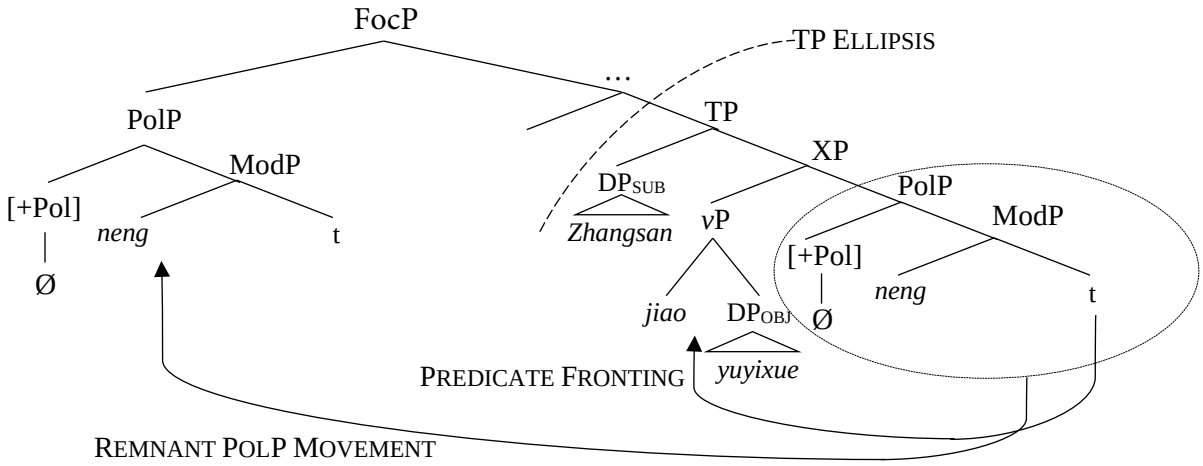
b. A: neng jiao /*__hui__ __juede__ neng jiao
can teach will think can teach
'Yes.'

In contrast, both grammatical and ungrammatical forms of VEAs in (128b-d) are exactly predicted by my analysis of PolP movement. On the one hand, if the internal argument raises above PolP (131a), moving the remnant PolP and then applying TP ellipsis will give us the 'Modal + V' answer *neng jiao* (90b). On the other hand, like what we saw about the variation between 'Adv + V' answer and 'Adv only' answer in (125-127), if the entire *v*P raises outside PolP, then the remnant PolP is only left with a stranded modal, hence deriving the "Modal only" answer *neng* (131b). Meanwhile, a PolP movement approach built on phrasal movement can never derive a "V only" answer since the modal is the highest element within PolP and it is the one that provides the phonological matrix for pronouncing the polarity head (à la Holmberg 2016) , and hence the moved (remnant) PolP necessarily contains the modal.

(131) a. VEA: Modal + V




b. VEA: Modal only




## 4.4 Summary

In this chapter, built on existing studies (Liu 2014, Simpson 2015, Holmberg 2016, Wei 2019, a.o.) I focused on another structure that involves the (valued) polarity variable: verb echo answers to yes-no questions in Mandarin. In particular, I provided converging empirical evidence showing that VEAs must not only involve a base-generated verb or a VP, and there must be an underlying sentential structure. I showed that analyses involving pro-drop face two kinds of empirical

challenges. On the one hand, elements that cannot be pro-dropped are nevertheless omitted from VEAs. On the other, elements that can be dropped still allow elements extracted from them to surface in VEAs. Furthermore, a head movement approach cannot account for (i) variations in VEAs, especially various kinds of phrasal elements occurring in VEAs; and (ii) VEAs to embedded questions with matrix scope. To address these issues, I instead argued that Mandarin VEAs are derived through (remnant) PolP movement followed by TP ellipsis.

Of course, this chapter cannot solve all issues related to Mandarin VEAs. For instance, as already mentioned, in the case of indefinite objects that cannot be topicalized, since they can still be absent from VEAs, it remains unclear what the nature of object fronting in deriving these VEAs.

Furthermore, VEAs formed with reflexive and reciprocal verbs seem to indicate that VEAs may undergo reconstruction and interpreted in their base predicate position, where they can be bound by subject antecedents. In contrast, we have also seen that VEAs may reverse the scopal relation, indicating they are interpreted in the surface position in the left periphery. The opposite behaviors regarding reconstruction may lead us to predict that in a case of conflicting requirements in reconstruction, either a VEA formed with a reflexive/reciprocal verb is ruled out, or a non-reversed scopal relation is forced. However, this is not borne out: In (132), the negative VEA formed with *zi-lian* is interpreted as negation scoping over disjunction, i.e., (132b) is true when neither Zhangsan nor Lisi is narcissistic.

(132) a. Q: Zhangsan **huozhe** Lisi **zi**-lian ma?
Z. or L. self-like SFP
'Is Zhangsan or Lisi narcissistic?'

b. A: bu **zi**-lian
NEG self-like
'No.'

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