

Cantonese *Jihgei*: Subject-object Asymmetry and Non-subject Antecedent Potential

by

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Abstract

Subject orientation is generally viewed to be a cross-linguistic core property of long distance anaphors (LDAs). This property has an important bearing on theories of Chinese LDA which predict only subject antecedents. However, the claim that LDAs are strictly subject-oriented has been discredited in at least Korean, where recent experimental studies have demonstrated that Korean *caki* can potentially take an object as antecedent. The current study explores the non-subject antecedent potential of the Cantonese LDA, which has not been experimentally studied in the Chinese literature. Two experiments involving forced-choice tasks were conducted to investigate if *jihgei* could potentially take a non-subject antecedent. It was found that *jihgei* indeed has non-subject antecedent potential in certain syntactic and logophoric environments, thus greatly weakening syntactic approaches that cannot predict non-subject antecedent potential. It was also found that some amount of competing subject preference remained in cases where a non-subject antecedent was possible. The study concluded that *jihgei*'s subject preference is not categorical, but is modulated by logophoric factors.

Keywords: syntax; reflexives; antecedent; long distance; binding; Cantonese

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Table of Contents

Approval	ii
Ethics Statement	iii
Abstract	iv
Acknowledgements	v
Table of Contents	vii
List of Tables	ix
List of Figures	x
List of Abbreviations	xi
1 Introduction	1
2 Literature Review	4
2.1 LDAs in Mandarin and Cantonese	4
2.1.1 Monomorphemicity	5
2.1.2 Subject orientation	6
2.1.3 Blocking effects	7
2.2 Theoretical background	8
2.2.1 LD <i>ziji</i> and local <i>ziji</i>	8
2.2.2 The syntactic approach	11
2.2.3 The logophoric approach	13
2.2.4 The role of subject orientation in the two approaches	17
2.3 Research questions	19
3 Experiment 1	20

3.1	Method	20
3.1.1	Participants	20
3.1.2	Materials	21
3.1.3	Procedure	27
3.2	Results	29
3.3	Discussion	32
3.4	Summary	32
4	Experiment 2	33
4.1	Method	33
4.1.1	Participants	33
4.1.2	Materials	33
4.1.3	Procedure	36
4.2	Results	38
4.3	Discussion	39
4.4	Summary	42
5	General Discussion and Conclusion	43
5.1	Summary of the findings	43
5.2	Theoretical implication	44
5.3	Future work and conclusion	46
	Bibliography	48
	Appendix A Test sentences from Experiment 1	52
A.1	Condition 1: say/jihgei	52
A.2	Condition 2: say/pronoun	58
A.3	Condition 3: hear/jihgei	63
A.4	Condition 4: hear/pronoun	69
A.5	Filler trials	75
	Appendix B Test sentences from Experiment 2	82
B.1	Condition 1: say/jihgei	82
B.2	Condition 2: say/pronoun	88
B.3	Condition 3: hear/jihgei	94
B.4	Condition 4: hear/pronoun	100
B.5	Filler trials	106

List of Tables

Table 3.1 Experiment 1 design	21
Table 4.1 Experiment 2 design	34

List of Figures

Figure 3.1	Screenshot of a test trial in Experiment 1	28
Figure 3.2	Mean subject selection score of test trials in Experiment 1 . .	29
Figure 3.3	Mean subject selection score of test trials (with the data of three participants removed) in Experiment 1	30
Figure 3.4	Mean response time (in seconds) in test trials (with the data of three participants removed) in Experiment 1	31
Figure 4.1	Screenshot of a test trial in Experiment 2	37
Figure 4.2	Mean subject selection score of test trials in Experiment 2 . .	38
Figure 4.3	Mean response time (in seconds) in test trials in Experiment 2	39
Figure 5.1	Mean subject selection score of <i>jihgei</i> in the embedded subject position (Experiment 1) and in the embedded object position (Experiment 2)	44

List of Abbreviations

1	first person	LDA	long distance anaphor
2	second person	LF	logical form
3	third person	LP	linking particle
ACC	accusative	NEG	negative
AP	adverbial phrase	NOM	nominative
ASP	aspect	NP	noun phrase
BCE	before the Common Era	PERF	perfective
CE	Common Era	PROG	progressive
CL	classifier	PRT	verbal particle
COMP	complementizer	SG	singular
DECL	declarative	SPEC	specifier
EXP	experiential	SVC	serial verb construction
FUT	future tense	TOP	topic
I	inflection	VP	verb phrase
IP	inflectional phrase		
LD	long distance		

Chapter 1

Introduction

Chinese long distance anaphors (henceforth LDAs) can take an antecedent indefinitely far from its local domain (roughly, a clause), as illustrated in (1) below.

(1) a. Mandarin

*Zhangsan_i renwei [Lisi_j zhidao [Wangwu_k xihuan **ziji**_{i/j/k}]]*
Zhangsan think Lisi know Wangwuwu like self

‘Zhangsan_i thinks Lisi_j knows Wangwu_k likes him_{i/j}/himself_k.’

b. Cantonese¹

*Dai-Mahn_i gohkdāk [Siu-Mihng_j j̄idouh [Wah-já_k j̄ongyih **jihgei**_{i/j/k}]]*
Man think Ming know Wah like self

‘Man_i thinks Ming_j knows Wah_k likes him_{i/j}/himself_k.’

In (1a), the Mandarin *ziji* can be locally bound by the subject *Wangwu* which occurs within its local clause. In addition, *ziji* can be long distance (henceforth LD) bound by the subjects *Zhangsan* and *Lisi* which appear in the higher clauses. Similarly, in (1b), the Cantonese *jihgei* can be bound by either the local subject *Wah*, or the subjects *Man* or *Ming* in the higher clauses. In contrast, the English reflexive *himself* in (2) below can only take the local subject *Kevin* as antecedent, but not any of the NPs (*John* or *Peter*) that appear in the higher clauses.

(2) John_i thinks [Peter_j knows [Kevin_k likes himself_{*i/*j/k}]].

¹ Yale romanization (Huang & Kok 1970) is used in the transcription of Cantonese examples throughout this thesis. There are six tones in Cantonese. Given a vowel [a], its six possible tones are represented as: ā (high level), á (high rising), a (mid level), àh (low falling), áh (low rising) and ah (low level). An arbitrary *h* is inserted after a vowel or diphthong for low-register tones. Rising and falling accents are generally omitted in the text for the ease of reading, except when such an omission causes lexical ambiguity.

That the English reflexive *himself* is prohibited from being LD bound by *John* or *Peter* is in compliance with Binding Principle A of the standard Binding Theory (Chomsky 1981), as stated below in (3). However, the Chinese LDAs as illustrated in (1) are a clear violation of the Binding Theory, since *ziji* and *jihgei* can have their antecedents outside their binding domain.

(3) Binding Principle A: An anaphor must be bound in its binding domain.

Various proposals have been put forward to account for the peculiar phenomenon of Chinese LDAs. Two most notable approaches in the Chinese literature are the syntactic approach and the logophoric approach. The former construes the LD binding of *ziji* as consequences of LF movement, where *ziji* is allowed to move across clause boundaries. The latter approach contributes the LD binding of *ziji* to discourse and pragmatics, where the antecedent of an LDA assumes certain discourse roles.

Long distance anaphors are a cross-linguistic phenomenon. The Italian *proprio*, Icelandic *sig*, Korean *caki* and Japanese *zibun* are a few examples. LDAs are the subject of much research in theoretical linguistics, which has come to the general consensus that LDAs across languages share several core properties, one of which being strict subject orientation (Cole & Hermon 2005; Pica 1987)—that an LDA must always take a subject as antecedent. This core property has an important bearing on the syntactic approach in the Mandarin LDA literature, since their proposal of LF movement can predict only subject antecedents for *ziji*. However, the claim that LDAs are strictly subject-oriented has been disproven in at least Korean. In recent research studies, Korean *caki* has been experimentally demonstrated to have non-subject antecedent potential (Han & Storoshenko 2012; Han, Storoshenko, Leung & Kim 2015).

To the best of my knowledge, there has been no experimental studies in the Chinese literature to validate or disprove the claim that *ziji* and *jihgei* are strictly subject-oriented. Such experimental confirmation could be useful in evaluating theories that predict only subject antecedents for Chinese LDAs.

The current study explores the non-subject antecedent potential of the Cantonese LDA *jihgei*, which has received far less syntactic attention than its Mandarin counterpart. To investigate if *jihgei* could potentially take a non-subject antecedent, two experiments involving forced-choice tasks were conducted. It was found that *jihgei* can indeed take a non-subject antecedent in certain environments, thus greatly weakening the syntactic approach, which cannot predict non-subject antecedent potential.

The thesis is organized as follows—this introduction has given a brief overview of the LDA phenomena. Chapter two provides a comprehensive review of the two major approaches towards LDAs in the Chinese literature, and in doing so, identifies the gaps in the literature that motivate the current study. Chapters three and four present two experiments that were conducted to explore the non-subject antecedent potential of *jihgei*, as well as their results and findings. The final chapter gives a general discussion of the current study, outlines relevant future work and provides concluding remarks.

Chapter 2

Literature Review

Languages vary in locality restrictions on reflexives. Syntactically, there are two distinct types of reflexives: those which are locally bound and those which can be long distance (henceforth LD) bound. Reflexives in languages such as English, Dutch and Norwegian must take local antecedents (roughly, within the same clause), while reflexives in languages such as Chinese, Icelandic and Italian can also take antecedents that are not local to the anaphor (Reinhart & Reuland 1993). The current literature review explores previous studies on long distance anaphors (henceforth LDAs), with emphasis on Mandarin *ziji* and Cantonese *jihgei*, which are an interesting phenomenon for their violation of the classic Binding Theory.

2.1 LDAs in Mandarin and Cantonese

Chinese is well known to have LDAs (Anand 2006; Anand & Hsieh 2005, Cole & Wang 1996; Huang 1982; Huang & Liu 2001; Matthews & Yip 2011; Mohanan 1982; Pan 1997; Tang 1989; Xue, Pollard & Sag 1994). Late Archaic Chinese (5th-3rd centuries BCE) had two reflexive pronouns—*zi* and *ji* (Aldridge 2009, 2016). *Zi* was always locally bound while *ji* could be either locally bound or LD bound. In terms of distribution, *zi* was always adjoined to the left of a verb, while *ji* could appear in various argument positions. In Middle Chinese (no later than the 4th century CE), the bisyllabification of the lexicon prompted the replacement of the monosyllabic reflexives by the modern disyllabic compound (Aldridge 2016; Wei 2004). The LDAs in modern Mandarin and modern Cantonese are *ziji* and *jihgei* respectively, which, despite their different phonological realizations, bear the same Chinese orthography.

The Cantonese LDA *jihgei*, the phenomenon of interest in this thesis, has received far less attention than its Mandarin counterpart *ziji*. As such, the current literature review mostly draws upon research on the Mandarin LDA, and makes reference to the Cantonese LDA where the poverty of the literature allows for it. While Mandarin and Cantonese have stark contrasts in their phonology and vocabulary, their grammars present more commonalities. That being said, there are still notable differences between Mandarin and Cantonese grammars (Yue-Hashimoto 1993; Matthews 1999). Thus the readers are cautioned against taking descriptions of Mandarin *ziji* below and directly applying them to Cantonese *jihgei*, unless otherwise specified.

Cole and Hermon (2005) summarized the core properties of cross-linguistic LDAs as listed in (4).

- (4) i. LD reflexives are monomorphemic (Pica, 1987).
 ii. LD reflexives are subject oriented.
 iii. In languages without subject-verb agreement, LD reflexives manifest the Blocking Effect, the blocking of a reflexive-antecedent relation due to the presence of an intervening subject with person features different from those of the local subject. (p. 628)

The following subsections illustrate the manifestation of these core properties in Mandarin *ziji* and Cantonese *jihgei*.

2.1.1 Monomorphemicity

Literature on Mandarin LDAs makes a distinction between a monomorphemic anaphor *ziji* and a polymorphemic anaphor [pronoun + *ziji*] (Huang & Liu 2001; Yu 2000). Likewise, Cantonese also has a monomorphemic anaphor *jihgei* and a polymorphemic anaphor [pronoun + *jihgei*] (Matthews & Yip 2011). In both Chinese languages, the polymorphemic anaphors are locally bound when used as a genuine reflexive anaphor (Cole, Hermon & Huang 2001a; Pan 1997; Yip & Tang 1998). In each pair of examples below in (5) and (6), where the polymorphemic anaphor is contrasted with the monomorphemic anaphor, *ta-ziji/keuih-jihgei* can only be locally bound while *ziji/jihgei* can be LD bound as well.

(5) Mandarin

- a. *John_i zhidao Bill_j xihuan ta-ziji_{*i/j}*
 John know Bill like 3SG-self

‘John_i knows that Bill_j likes *him_i/himself_j.’ (Pan 1997: 14(9))

- b. *John_i zhīdao Bill_j xīhuan zìjī_{i/j}*
 John know Bill like self
 ‘John_i knows that Bill_j likes him_i/himself_j.’ (Pan 1997: 14(8))

(6) Cantonese

- a. *Síu-Mìhng_i jīdóuh Dái-Màhn_j jōngyi kéwih-jihgēi_{*i/j}*
 Ming know Man like 3SG-self
 ‘Ming_i knows that Man_j likes *him_i/himself_j.’
- b. *Síu-Mìhng_i jīdóuh Dái-Màhn_j jōngyi jihgēi_{i/j}*
 Ming know Man like self
 ‘Ming_i knows that Man_j likes him_i/himself_j.’

LD binding is only permitted if the potential local antecedent of the polymorphic anaphor is an inanimate NP (Pan 1997: 14), as in (7a) and (7b). Since the polymorphic anaphors [pronoun + *ziji/jihgei*] do not normally behave like an LDA, they will not be discussed in the current review.

(7) a. Mandarin

- John_i shuo [naben shu_j hai -le ta-zìjī_{i/*j}]*
 John say that book hurt PERF 3SG-self
 ‘John_i said that that book hurt him_i.’ (Pan 1997: 14(10))

b. Cantonese

- Síu-Mìhng_i wah [gó bún syū_j gáu haam kéwih-jihgēi_{i/*j}]*
 Ming say that CL book make cry 3SG-self
 ‘Ming_i says the book makes him_i cry.’

2.1.2 Subject orientation

Mandarin (Cole & Wang 1996; Huang & Liu 2001; Mohanan 1982; Tang 1989) and Cantonese (Matthews & Yip 2011; Yip & Tang 1998) LDAs are generally thought to have subject orientation. The Mandarin *ziji* in (8) and the Cantonese *jihgei* in (9) select the matrix subject but not the matrix object as antecedent.

- (8) *Zhangsan_i gaosu Lisi_j [zìjī_{i/*j} zài wēnxi]*
 Zhangsan tell Lisi self PROG study
 ‘Zhangsan_i tells Lisi_j that self_{i/*j} is studying.’
- (9) *Dái-Màhn_i tūngjī Síu-Mìhng_j [jihgēi_{i/*j} tīngyat chihjīk]*
 Man inform Ming self tomorrow quit
 ‘Man_i informs Ming_j that self_{i/*j} is quitting his job tomorrow.’

In (8), *ziji* takes the matrix subject *Zhangsan* but not the matrix object *Lisi* as antecedent. Similarly, in (9), *jihgei* takes the matrix subject *Dai-Mahn* but not the matrix object *Siu-Mihng* as antecedent.

2.1.3 Blocking effects

Blocking effects, as exemplified in the Mandarin example in (10) and the Cantonese example in (11) below, are observed when an embedded LDA is unable to take an LD subject as antecedent due to an intervening local first or second person subject that does not match with the LD subject in person. Note that both *ziji* and *jihgei* are unspecified for person.¹

- (10) *Zhangsan_i renwei [ni_j hen **ziji**_{*i/j}]*
 Zhangsan think 2SG hate self
 ‘Zhangsan_i thinks you_j hate *him_i/yourself_j.’ (Huang & Liu 2001: 142(3d))
- (11) *Mahn-jái_i gokdāk [léih_j jāng **jihgéi**_{*i/j}]*
 Man think 2SG hate self
 ‘Man_i thinks you_j hate *him_i/yourself_j.’

In (10), the LD subject *Zhangsan* is in third person, while the local subject *ni* ‘you’ is in second person. In (11), the LD subject *Mahn-jai* is in third person, while the local subject *leih* ‘you’ is again in second person. The blocking effect takes place, prohibiting the embedded LDA from referring to the remote matrix subject. While an intervening local first/second person subject triggers blocking, a third person local subject does not induce blocking. In the Mandarin example in (12) and the Cantonese example in (13) below, where a first person LD subject is intervened by a local third person subject, the blocking effect does not take place.

- (12) *Wo_i juede [Lisi_j zai piping **ziji**_{i/j}]*
 1SG think Lisi at criticize self
 ‘I_i think that Lisi_j is criticizing me_i/himself_j.’ (Huang & Liu 2001: 162(52))
- (13) *Ngóh_i gokdāk [Mihng-jái_j pāipihng gán **jihgéi**_{i/j}]*
 1SG think Ming criticize PROG self
 ‘I_i think that Ming_j is criticizing me_i/himself_j.’

¹*Ziji* and *jihgei* are also unspecified for number. Blocking effects are also observed when a plural LD subject is intervened by a singular local subject. A plural local subject, on the other hand, does not block a singular LD antecedent (Huang & Liu 2001).

2.2 Theoretical background

Ziji can be locally bound or LD bound.² The locally bound *ziji*, similar to local reflexives in other languages, is mostly treated as an anaphor, in compliance with the classic Binding Theory (Chomsky 1981) or other similar syntactic frameworks. LD bound *ziji*, however, challenge such theories as their antecedents are outside their local domain. Various theories have been put forward to explain the binding of *ziji* outside its local domain, which cannot be accounted for by the Binding Theory. This section reviews two major approaches, the syntactic approach and the logophoric approach. However, before delving into the LDA literature, there is a need to define the distinction between the locally bound *ziji* and the LDA *ziji*.

2.2.1 LD *ziji* and local *ziji*

Pan (1997) and Huang and Liu (2001) agree that LD *ziji* is obligatorily a “*de se* anaphor” (as opposed to a “*de re* anaphor”), while local *ziji* is only optionally a *de se* anaphor. Huang and Liu (2001) also observe that LD *ziji* exhibits the blocking effect as described in §1.3, while local *ziji* does not.

The distinction between *de re* belief and *de se* belief can be illustrated with the Italian examples (Chierchia 1989: 24) in (14), where the Italian pronoun *suoi* is contrasted with the LD possessive reflexive *proprio*. In each case, the anaphor is bound by the matrix subject *Pavarotti* while the matrix verb *crede* ‘believe’ is an attitude verb.

- (14) a. Pavarotti crede che i **suoi** pantaloni siano in fiamme.
‘Pavarotti believes that his pants are on fire.’ (*de re* reading)
- b. Pavarotti crede che i **proprio** pantaloni siano in fiamme.
‘Pavarotti believes that self’s pants are on fire.’ (*de se* reading)

Imagine a situation where Pavarotti’s pants have just caught fire and he catches sight of the burning pants. A speaker can report on this event in two ways, depending on Pavarotti’s belief. In one scenario, Pavarotti does not realize it is actually his own pants that are on fire, as described in (14a); in a second scenario, Pavarotti is aware that it is his own pants that are on fire, as described in (14b). In (14a), Pavarotti is said to have a *de re* belief, while in (14b) Pavarotti is said to have a *de se* belief.

²*Ziji* and *jihgei* also have an emphatic use. In the case where *ziji* and *jihgei* do not have a syntactic antecedent (e.g. in a sentence-initial position), they refer to the speaker.

The *de se* interpretation thus involves Pavarotti's self-consciousness. The important contrast between (14a) and (14b) is that the LD bound *proprio* is accepted only under the *de se* (non-*de re*) interpretation. The pronoun *suoi* allows both the *de re* and the *de se* reading, and thus is ambiguous.

Huang and Liu (2001 :158) observe that the LD bound *ziji* and the third person pronoun *ta* have a *de re/de se* distinction as well, as illustrated in (15).

- (15) a. *Zhangsan shuo [pashou tou-le ta-de pibao]*
 Zhangsan shuo pickpocket steal-PERF his purse
 'Zhangsan said that the pickpocket stole his purse.' (*de re* reading)
- b. *Zhangsan shuo [pashou tou-le ziji-de pibao]*
 Zhangsan shuo pickpocket steal-PERF self's purse
 'Zhangsan said that the pickpocket stole self's purse.' (*de se* reading)

In (15a), Zhangsan saw a pickpocket commit a crime, but it is possible that he did not realize that the purse stolen was his own, hence the *de re* (and *de se*) reading. In (15b), Zhangsan again witnessed a pickpocket in action, but the interpretation must be that he realized it was his own purse that was stolen, due to the *de se* reading. Similar to the Italian pronoun *suoi* and the Italian LDA *proprio*, the Mandarin pronoun *ta* is ambiguous between a *de se* and a *de re* reading, while the Mandarin LDA *ziji* strictly allows only a *de se* reading.

In addition to the *de se/de re* distinction, Huang and Liu (2001) observe that while the LD bound *ziji* is subject to the blocking effect, as described in §1.3, the local *ziji* does not exhibit such effects, as in (16) below.

- (16) *Ta_i zheng-tian dui-zhe wo chuipeng ziji_i*
 he whole-day to-ASP me boast self
 'He boasted about himself in front of me all day long.'
 (Huang & Liu 2001: 167(68))

In (16), the intervening first person pronoun *wo* does not inducing blocking. The local *ziji* is bound within its local domain (the clause) by the matrix subject *ta* 'he'.

Another example of local *ziji* not exhibiting the blocking effect is given in (17).

- (17) *Zhangsan_i gaosu wo Lisi_k hen ziji_{*i/j}*
 Zhangsan tell me Lisi hate self
 'Zhangsan_i told me that Lisi hated *him_i/himself.'
 (Huang & Liu 2001: 162(54))

Huang and Liu (2001: 172) have made the following summary of the environments in which *ziji* appears as a locally bound anaphor, as given in (18). The only exception is (18e), where *ziji* may be locally or LD bound.

- (18) a. When it is bound by a co-argument subject.

Zhangsan_i piping-le ziji_i
Zhangsan criticize-ASP self

‘Zhangsan criticized himself.’ (p. 166(62))

- b. When it is contained in an argument NP and bound by a co-argument of that NP.

Zhangsan_i piping-le [_{NP} ziji_i de pengyou]
Zhangsan criticize-ASP self de friend

‘Zhangsan_i criticized his_i own friend.’ (p. 166(63))

- c. When it is contained in an adjunct and locally bound by an argument outside.

Zhangsan_i [_{AP} cong ziji_i de jiaodu] pinggu zhe-jian shi de
Zhangsan from self de angle assess this-CL matter de
libi

pro-and-con

‘Zhangsan_i assessed the pros and cons of this matter from his_i own point of view.’ (p. 168(70))

- d. When it is locally bound by a sub-commanding NP.

[_{NP} Zhangsan_i-de jiaobao] hai-le ziji_i
Zhangsan-’s arrogance hurt-ASP self

‘Zhangsan_i’s arrogance harmed him_i.’ (p. 170(76))

- e. When it is the subject of an embedded clause, or contained in the subject of an embedded clause, and is bound in the matrix clause.

Zhangsan_i gaosu wo [ziji_i de erzi zui congming]
Zhangsan tell me self de son most clever

‘Zhangsan_i told me that his_i son was the cleverest.’ (p. 169(73))

According to Huang and Liu (2001), *ziji* in (18e) exhibits characteristics of both a local anaphor and an LD anaphor—(i) the sentence must have a *de se* (non-*de re*) reading, indicating that the anaphor must be LD bound; (ii) the intervening first person pronoun *wo* does not induce the blocking effect, indicating that the anaphor

must be local.³ The same sentence translated to Cantonese, as in (19), demonstrates the same dual properties. In (19), *jihgei* behaves like a local anaphor and an LD anaphor at the same time—*jihgei* must have a *de se* reading, and *jihgei* is able to take the LD subject *Dai-Mahn* as antecedent, despite the intervening first person pronoun *ngoh*. Therefore, the property of *ziji* as described in (18e) should extend to Cantonese *jihgei* as well.

- (19) *Dai-Màhn_i wah béi ngóh tēng [jihgéi_i go jái jeuih chōngmìhng]*
 Man say to 1SG listen self CL son most clever
 ‘Man_i told me that his_i son was the cleverest.’

The following subsections summarize two major approaches towards LDAs in the literature: (i) the strict syntactic approach (Cole, Hermon & Sung 1990; Cole & Sung 1994; Cole & Wang 1996) and (ii) the logophoric approach (Kuno 1972; Sells 1987).

2.2.2 The syntactic approach

The strict syntactic approach interprets the core properties of *ziji* as illustrated in §1 as derivable from grammatical requirements. Recall that *ziji* is monomorphemic, is said to be strictly subject-oriented, and exhibits the blocking effect. Under the syntactic approach, *ziji* is notably proposed to undergo successive cyclic head movement in the LF across clause boundaries (Cole, Hermon & Sung 1990; Cole & Sung 1994; Cole & Wang 1996). The syntactic process of LF I⁰-to-I⁰ movement involves a number of successive steps, allowing local binding at each step and accounting for the LD binding and subject orientation of *ziji*.

- (20) a. *Zhangsan zhidao Lisi zai pian ziji*
 Zhangsan know Lisi PROG lie self
 ‘Zhangsan knows Lisi is lying to self.’
 b. [_{IP} Zhangsan [_I ziji_i] [_{VP} zhidao [_{IP} Lisi [_I t’_i] [_{VP} zai pian t_i]]]]
 Zhangsan self know Lisi PROG lie
 ‘Zhangsan knows Lisi is lying to self.’

As can be seen in (20b), which illustrates an LF movement derived from (20a), the embedded *ziji* moves in LF to I⁰ of the minimal IP containing it. *Ziji* is now

³ In Anand’s account (2006), the Mandarin LD *ziji* is a shifting indexical, the reference of which can vary under certain attitude predicates, based on its mandatory *de se* interpretation. The blocking effect is induced since person indexicals (first/second person elements) block LD binding of *ziji*s within their scope. In (18e), the first person pronoun *wo* and *ziji* do not appear in the same clause, and so the blocking effect should not be expected. Thus, that the matrix object *wo* does not induce blocking for the embedded *ziji* in (18e) is a weak argument for *ziji* being a local anaphor.

locally bound by the subject *Lisi* in the minimal IP and is taking a local subject as antecedent. From here on, *ziji* can optionally undergo I⁰-to-I⁰ movement to the higher IP. In this case, *ziji* is locally bound by the matrix subject *Zhangsan* and takes a LD subject as antecedent, in reference to *ziji*'s underlying position. This successive cyclic head movement in the LF implies that the apparent LD binding of *ziji* is actually covertly local in nature. Subject orientation also follows naturally as *ziji* is c-commanded by a subject whether in the lower or higher I⁰.

Cole and Sung (1994) observe that, unlike Italian *proprio* or Icelandic *sig*, which are not subject-oriented when taking local antecedents, *ziji* displays subject orientation even when its antecedent is local. Compare the Icelandic example in (21) and the Mandarin example in (22). The Icelandic LDA *sig* in (21) is able to select the indirect object as antecedent, whereas the Mandarin LDA *ziji* in (22) cannot refer to the indirect object. Cole and Sung (1994) take this as evidence that movement to I⁰ in the minimal IP is obligatory in Chinese but not in Italian or Icelandic, since movement to I⁰ puts the LDA within the c-command of only the subject.

- (21) *Ég sendi Harald_i föt á sjálfan sig_i*
 I sent Harald clothes for self self
 'I sent Harald clothes for himself.' (Cole & Sung 1994: 359(11b))

- (22) *Zhangsan_i zengsong gei Lisi_j yipian guanyu ziji_{i/*j} de wenzhang*
 Zhangsan give to Lisi one about self LP article
 'Zhangsan gave an article about himself to Lisi.'

(Adapted from Cole & Sung 1994: 360(13))

I⁰-to-I⁰ movement also explains why only the monomorphemic *ziji* but not the polymorphemic *ta-ziji* can be LD bound. Cole & Sung (1994) make a distinction between the syntactic structures of *ta-ziji* and *ziji*—the former is a maximal projection (X^{max}) while the latter is a head (X^0). Since only a head is qualified to undergo LF head movement, *ta-ziji* can never move to I⁰ of its local clause and of higher clauses. Thus, *ta-ziji* cannot normally be LD bound.

The syntactic approach accounts for the blocking effect through ϕ -features agreement. Cole, Hermon and Sung (1993) note that I⁰ has no base generated ϕ -features in Chinese. As *ziji* moves from a lower I⁰ to a higher I⁰ in the LF, *ziji* in the higher I⁰ and its trace in the lower I⁰ must agree with their respective SpecIPs in ϕ -features, and so the lower and higher SpecIPs (subjects) must also be non-distinct in regard to ϕ -features. Now, consider the following example in (23), where the subjects in IP₁, IP₂ and IP₃ have conflicting ϕ -features, with the first person pronoun *wo* intervening

between the LD subject *Zhangsan* and the local subject *Wangwu*, both of which are in third person.

- (23) [_{IP₁} *Zhangsan_i renwei* [_{IP₂} *wo_j zhidao* [_{IP₃} *Wangwu_k xihuan ziji_{*i/*j/k}*]]]
 Zhangsan think 1SG know Wangwu like self
 ‘Zhangsan thinks that I know that Wangwu likes himself.’
 (Cole & Sung 1994: 372(20))

In (23), *ziji* moves from the object position in IP₃ to I₃ in the LF. Feature checking checks that SpecIP₃ and I₃ do not have conflicting ϕ -features. *Wangwu* can be a potential antecedent of *ziji*. However, problems arise as *ziji* moves up to I₂, where its [+3] person feature is percolated to. Since SpecIP₂ has a [+1] person feature, SpecIP₂ and I₂ do not agree in person feature. *Ziji* cannot take the subject of IP₂ *wo* ‘I’ as antecedent. *Ziji* also fails to move to IP₁, since successive cyclic head movement requires *ziji* to stop at every intermediate IPs. Thus, *ziji* cannot take the subjects in IP₁ and IP₂ as antecedents.

2.2.3 The logophoric approach

The logophoric approach contributes the licensing of LDAs to the role of discourse and pragmatics, as opposed to syntax. Clements (1975: 141) defines the antecedent of ‘logophoric pronouns’ (coined by Hagège (1974)) as an “individual whose speech, thoughts, or feelings are reported or reflected in a given linguistic context”. Kuno’s direct discourse analysis (1972) and Sells’ three primitive roles in discourse (1987) share the central theme of ‘point of view’ or ‘perspective’. Kuno (1972) proposes that for certain sentences in which the main verb takes a sentential complement, as in (24a), the sentential complement can be represented by a direct discourse of the matrix subject, as in (24b).

- (24) a. John_i expects that he_i will be elected. (p. 162(6a))
 b. John expects, ‘I will be elected.’ (p. 163(10a))

Kuno (1972) suggests that (24b) is actually the deep structure of (24a), where the complement clause represents John’s direct internal feeling, and the third-person pronoun *he* is derived from the first person pronoun *I* in (24b). Kuno then extends his direct discourse analysis to Japanese reflexive *zibun*, which, like Mandarin *ziji* and Cantonese *jihgei*, can be locally or LD bound. In the place where English has the third-person pronoun *he* in (24a), Japanese would have *zibun* instead, as in (25). LD binding in Japanese *zibun* is thus made possible by the speaker’s perspective.

- (25) *John_i wa zibun_i ga toosensuru koto o kitaisite iru*
 John NOM self NOM be-elected that ACC expecting is
 ‘John_i expects that he_i will be elected.’ (p.193)

Sells (1987) contends that LDAs usually demonstrate sensitivity to logophoric factors. He defines three primitive roles of the antecedent of a logophor, as in (26).

- (26) a. Source: one who is the intentional agent of the communication.
 b. Self: one whose mental state or attitude the content of the proposition describes.
 c. Pivot: one with respect to whose (space-time) location the content of the proposition is evaluated. (p. 457)

Put in another way, a logophor can refer to an individual whose (i) speech, (ii) attitude, or (iii) point of view is reported. This individual could be either in the sentence (an internal protagonist) or outside the sentence (the external speaker). As such, a discourse role can be either internal or external. Huang and Liu (2001) illustrate the distinction between the three roles through the following Mandarin examples in (27).

- (27) a. *Lisi_i shuo [Zhangsan chang piping ziji_i]*
 Lisi say Zhangsan often criticize self
 ‘Lisi_i says that Zhangsan often criticizes him_i.’
 b. *[Ziji_i-de xiaohai mei de jiang] de xiaoxi shi Lisi_i hen shangxin*
 Self’s child not get prize DE news make Lisi very sad
 ‘The news that his_i child didn’t win the prize made Lisi_i very sad.’
 c. *? [Zhangsan lai kan ziji_i] de shihou, Lisi_i zheng zai kan shu*
 Zhangsan come see self DE moment Lisi now at read book
 ‘Lisi_i was reading when Zhangsan came to visit him_i.’ (p. 156(35))

In (27a), *Lisi* is an internal protagonist (as he is inside the sentence) and he assumes the discourse role of Source (since he said something). *Lisi* is therefore the internal Source in (27a). In (27b), *Lisi* did not make any speech, therefore he cannot be the internal Source. He is, however, the internal Self, as his mental state is being reported on (*hen shangxin* ‘very sad’). In (27c), *Lisi* is neither the internal Source nor the internal Self, as he did not say anything, nor was his mental state described. He is, however, the internal Pivot as the report was made from his perspective.

Huang and Liu (2001) note that the acceptability of (27c) ranges from acceptable to somewhat marginal. They conclude that while the LD *ziji* takes a Source or Self

antecedent readily, as in (27a) and (27b), a Pivot-only discourse environment prompts the infelicity of *Lisi*, the Pivot, as *ziji*'s reference.

Chinese languages seem to vary in their restrictions on the logophoric conditions on LDAs. As mentioned above, a Pivot-only environment is infelicitous for LD binding of *ziji* in Mandarin (Huang and Liu (2001) did not specify in their work the variety of Mandarin they were investigating, except that it is not Singapore Mandarin (p. 186, note 10)). Cole, Hermon and Lee (2001b) compare LDAs in two Chinese languages—Singapore Mandarin *ziji* and Teochew *kaki*. They find that unlike the variety of Mandarin that Huang and Liu (2001) reported on, Pivot is an obligatory requirement for the antecedent of Singapore Mandarin *ziji* and Teochew *kaki*. Regarding the two other discourse roles, Source and Self, the two languages exhibit different behaviours. In Singapore Mandarin, neither Source nor Self is a requirement for LD binding of *ziji*. In Teochew, however, the antecedent of *kaki* must be either Source or Self.

As described in §2.1, Pan (1997) and Huang and Liu (2001) recognize that LD *ziji* is a *de se* anaphor. Pan (1997) suggests that this *de se* property of *ziji* is constrained by “self-ascription” (p. 145).⁴ Pan proposes that in a sentence containing a clausal complement such as (28), there exists three parts—an *ascriber*, an *ascribee* and a *property*. An ascribee is ascribed a property by an ascriber. In (28), *John* is the ascriber, *Bill* is the ascribee and *likes Mary* is the property. Thus, *John* ascribes the property of *liking Mary* to *Bill*.

(28) John thinks [Bill likes Mary].

Self-ascription occurs when an ascriber consciously attributes a property to oneself. Since *ziji* is a *de se* anaphor and *de se* belief involves self-consciousness, Pan (1997) argues that *ziji*'s antecedent must be a self-ascriber.

As mentioned in §1.3, an intervening first/second person pronoun between a remote LD third person subject NP and an embedded *ziji* induces the blocking effect. Pan's explanation (1997) rests on the contrast that first/second person NPs are “obligatory self-ascribers”, while third person NPs are “optional self-ascribers”, as exemplified in the sentences below.

- (29) a. I think I am smart.
b. You think you are smart.
c. John thinks that he is smart. (Pan 1997: 158(24))

⁴ The idea of “self-ascription” goes back to Lewis (1979) and Chierchia (1989).

In (29c), *John* the ascriber could ascribe either a *de se* belief or a *de re* belief to himself. This makes him a self-ascriber in the former scenario and not a self-ascriber in the latter scenario. On the other hand, the *de re* interpretation is impossible for (29a) and (29b), since *I* and *you* must have *de se* beliefs about themselves, which makes both of them self-ascribers. Therefore, the first and second person NPs in (29a) and (29b) are obligatory self-ascribers, while the third person NP in (29c) is an optional self-ascriber. Pan accounts for the blocking effect by proposing that LD binding to a remote optional self-ascriber (LD third person subject NP) can be blocked when there exists an obligatory self-ascriber (a first/second person NP) closer to the embedded *ziji*. Given Pan's proposition, he would account for the absence of the blocking effect in (12) by noting that a local optional self-ascriber cannot block a remote obligatory self-ascriber.

Huang and Liu (2001) contend that the blocking effect induced by an intervening first/second person pronoun can be explained through perspective conflicts. Appealing to Kuno (1972), Huang and Liu assume that the LD *ziji* is underlyingly the first person pronoun *wo* in a direct discourse. In (30) below, *ziji* in the complement clause in (30a) is underlyingly the first person pronoun *wo* in the direct discourse in (30b).

- (30) a. *Zhangsan_i juede wo_j zai piping ziji_{*i/j}*
 Zhangsan think 1SG PROG criticize self
 'Zhangsan_i thinks that I_j am criticizing self_{*i/j}.'
 (Intended: 'Zhangsan_i thinks that I am criticizing self_i.')
- b. *Zhangsan juede, "wo zai piping wo"*
 Zhangsan think 1SG PROG criticize 1SG
 'Zhangsan thinks, "I am criticizing me."' (Huang & Liu 2001: 161(49))

There are two occurrences of *wo* in (30b). The first *wo* refers to the external speaker (the external Source), while the second *wo*, under the intended interpretation, refers to *Zhangsan* (the internal Source). However, it is impossible for the first person pronoun *wo* to refer to two different individuals within the same direct discourse. In the case where the intervening pronoun is in second person, as in (31) below, again, perspective conflicts induce the blocking effect.

- (31) a. *Zhangsan_i juede ni_j zai piping ziji_{*i/j}*
 Zhangsan think 2SG PROG criticize self
 'Zhangsan_i thinks that you_j are criticizing self_{*i/j}.'
 (Intended: 'Zhangsan_i thinks that you are criticizing self_i.')

- b. *Zhangsan juede*, “*ni zai piping wo*”
 Zhangsan think 2SG PROG criticize 1SG
 ‘Zhangsan thinks, “you are criticizing me.” (Huang & Liu 2001: 162(50))

In (31b), *ni* ‘you’ refers to an addressee in the perspective of the external Source’s. However, *wo* refers to the internal Source *Zhangsan* under the intended reading. This again results in perspective conflicts as the pronouns within a direct discourse are anchored to different Sources.

Recall in §1 that *ziji* has three core properties—monomorphemicity, subject orientation and blocking effects. The syntactic approach accounts for each of the three properties through I⁰-to-I⁰ movement, as detailed in the previous subsection. The logophoric approach, however, makes no claims about monomorphemicity of LD *ziji*. Subject orientation is generally assumed in the Mandarin literature under the logophoric approach, although Anand (2006: 123) does recognize the possibility of a non-subject antecedent for *ziji*, if the attitude holder of an attitude predicate is not the subject.

2.2.4 The role of subject orientation in the two approaches

In the formulation of their theories, the syntactic approach and the logophoric approach contrast sharply in their dependence on *ziji*’s subject orientation. The syntactic approach proposes successive cyclic I⁰-to-I⁰ head movement in the LF across clause boundaries. The landing site for *ziji* at each IP layer is always I⁰, a position which is c-commanded by SpecIP, where the subject occupies. This predicts antecedents of *ziji* can only be subjects. The theory cannot predict any non-subject antecedents. That *ziji* lands in I⁰ is also crucial for explaining the blocking effect, which follows from ϕ -features disagreement between I⁰ and SpecIP. This account seems problematic since, as Pan (1997) and Huang and Liu (2001) have observed, blocking effects may be triggered by intervening non-subjects which do not occupy SpecIP, as illustrated in (32).

- (32) *Baoyu_i yiwei* [[_{NP} *wo_j -de xuesheng_k*] *bu xihuan ziji_{*i/*j/k}*]
 Baoyu think 1SG ’s student not like self
 ‘Baoyu_i thinks that my_j student_k does not like self_{*i/*j/k}.’ (Pan 1997: 167(55))

In (32), the first person possessor *wo* in the embedded clause does not c-command I⁰, the purported landing site for *ziji*. *Wo-de xuesheng* ‘my student’, which is in third person, c-commands I⁰. However, the embedded *ziji* is prohibited from being

LD bound by the matrix subject *Baoyu*. The blocking effect exhibited cannot be explained by ϕ -features disagreement between I^0 and SpecIP, since the NPs occupying SpecIPs have non-distinct ϕ -features.

While subject orientation plays a crucial role in the syntactic approach, it appears to have no bearing in the logophoric approach. Huang and Liu (2001) note that a logophoric antecedent can be any arguments of a sentence. Unlike the syntactic approach, the logophoric approach predicts non-subject antecedent potential. However, this non-subject antecedent potential of *ziji* has not received any in-depth discussion in the extant literature on Chinese LDAs.

Given this contrast between the syntactic and the logophoric approach, it then becomes obvious that the (in)validity of subject orientation ties closely to the superiority of one of the two approaches. If the putative subject orientation of *ziji* does not hold, the logophoric approach is naturally the superior theory, since the syntactic approach cannot predict non-subject antecedents. If the putative subject orientation of *ziji* holds, the syntactic approach would be superior, since the logophoric approach predicts non-subject antecedents.

As it turns out, some Chinese literature (Chou 1992; Xu 1993; Pan 1997) has pointed out that *ziji* can take arguments other than subjects as antecedent, as illustrated in (33) and (34).

- (33) [*John_i de hua*]_{*j*} *gaosu* *Bill_k* [_{*S*} *ziji_{*i/*j/k}* *de jihua xingbutong*]
 John DE words tell Bill self DE plan carry-not-through
 ‘John’s words tell Bill that his own plan won’t work.’ (Pan 1997: 20(31))

- (34) *Wo wen guo ta_i ji bian [ziji_j de mingzi]*
 I ask ASP he several time self GEN name
 ‘I asked him his name several times.’ (Xu 1993: 118)

Recall in §1.2 that subject orientation is said to be a cross-linguistic property of LDAs. Korean *caki* is another LDA that has been traditionally described to have subject orientation (Lee 1973; Chang 1977). However, recent experimental results have shown that *caki* has non-subject antecedent potential (Han & Storoshenko 2012; Han et al. 2015). In their studies, Han et al. (2015) demonstrate that by manipulating the main predicate as in (35), the object has the potential of becoming the antecedent of *caki* when it is the source of information, as in (35b).

- (35) a. *Yuli_i-nun Swuni_j-eykey [caki_{i/*j}-ka iki-lke-lako] malha-yess-ta*
 Yuli-TOP Swuni-to self-NOM win-FUT-comp say-PAST-DECL
 ‘Yuli_{*i*} said to Wuni_{*j*} that self_{*i/*j*} would win the race.’

- b. *Yuli_i-nun Swuni_j-lopwuthe [caki_{i/?j}-ka iki-lke-lako] tul-ess-ta*
 Yuli-TOP Swunii-from self-NOM win-FUT-comp hear-PAST-DECL
 ‘Yuli_i heard from Swuni_j that self_{i/?j} would win the race.’

2.3 Research questions

To the best of my knowledge, the current literature does not contain any experimental studies to validate the subject orientation of *ziji* or *jihgei*. Although subject orientation has been claimed to be a general property of LDAs, experimental studies of Korean *caki* have proven otherwise. Given that the confirmation/rejection of *ziji*’s subject orientation is potentially the deciding factor for a superior theory between two competing approaches, experimental studies are needed to confirm Chinese LDAs’ putative subject orientation.

The current study thus aims to explore the non-subject antecedent potential of the Cantonese LDA *jihgei*, which is much less studied than its Mandarin counterpart. Two syntactic positions are of interest in the current study—the embedded subject position and the embedded object position. *Ziji* in the former position is argued to be ambiguously locally/LD bound (Huang & Liu 2001), while such an ambiguity disappears in the latter position. Thus, two research questions drive the present study, as stated in (36).

- (36) I. Can *jihgei* take a non-subject antecedent?
 II. Is there any difference in antecedent selection when *jihgei* is in the embedded subject/object positions?

Chapter 3

Experiment 1

Experiment 1 tested bi-clausal samples containing *jihgei* in the embedded subject position and examined how participants interpreted the antecedent of these embedded *jihgei*. A forced-choice task was employed to restrict participants' choices to either matrix subject antecedent or matrix object antecedent. If the putative subject orientation of *jihgei* holds, high subject selection scores across the board should be observed. However, if *jihgei* has the potential for non-subject antecedents, lower subject selection scores would be registered. Experiment 1 answers two questions—(i) can *jihgei* take a non-subject antecedent? And (ii) how does *jihgei* in the embedded subject position select its antecedent?

3.1 Method

3.1.1 Participants

Thirty-two native Cantonese speakers born and raised in Hong Kong participated in the study. At the time of the study, four of them were residing in Vancouver, Canada, while the remainder were residing in Hong Kong. Each participant was tested in a 20 minute session and each received 5CAD or 30HKD, depending on the location of the study.

3.1.2 Materials

Design

The experiment had two within-subjects factors with two levels each: PREDICATE (*say* vs. *hear*) and ANAPHOR (*self* vs. *pronoun*). Crossing the factors thus gives four conditions, as summarized in Table 3.1.

Condition	Description
<i>Say/self</i>	Main predicate is a <i>say</i> -verb while the embedded subject position contains the self anaphor <i>jihgei</i> .
<i>Say/pronoun</i>	Main predicate is a <i>say</i> -verb while the embedded subject position contains the third person pronoun <i>keuih</i> .
<i>Hear/self</i>	Main predicate is a <i>hear</i> -verb while the embedded subject position contains the self anaphor <i>jihgei</i> .
<i>Hear/pronoun</i>	Main predicate is a <i>hear</i> -verb while the embedded subject position contains the third person pronoun <i>keuih</i> .

Table 3.1: Experiment 1 design

The third person pronoun *keuih* is tested against the LDA *jihgei*, offering a base-line of subject selection scores within the test conditions. The main predicate was manipulated to be either *say*-verb or *hear*-verb such that the logophoric centre alternated between the matrix subject and the matrix object respectively.

A logophoric centre, or the source of information, refers to the person whose speech or thought is reported in a given communication. The English examples in (37) illustrate how *say*-verbs and *hear*-verbs shift the position of a logophoric centre.

- (37) a. John said to Mary that the weather was beautiful.
b. John heard from Mary that the weather was beautiful.

In (37a), the main predicate is a *say*-verb, while in (37b), it is a *hear*-verb. The embedded proposition *that the weather was beautiful* is communicated by a different speaker in each example—*John* the matrix subject in (37a), and *Mary* the matrix object in (37b). Thus, by manipulating the main predicate to be a *say*-verb or a *hear*-verb, the source of information would alternate between the matrix subject, as in (37a), and the matrix object, as in (37b).

Test sentences

Sixteen test item sets were created, resulting in a total of 64 test sentences. (38) exemplifies one such set.

(38) a. *Say/self* condition

A-Yān wah béi Méi-lìhng tēng jìhgéi jèui lēk jyú hóisìn
Yan say give Meiling listen self most clever cook seafood
'Yan tells Meiling that self is best at cooking seafood.'

b. *Say/pronoun* condition

A-Yān wah béi Méi-lìhng tēng kéuih jèui lēk jyú hóisìn
Yan say give Meiling listen 3SG most clever cook seafood
'Yan tells Meiling that she is best at cooking seafood.'

c. *Hear/self* condition

A-Yān tēng Méi-lìhng góng wah jìhgéi jèui lēk jyú hóisìn
Yan listen Meiling talk say self most clever cook seafood
'Yan hears from Meiling that self is best at cooking seafood.'

d. *Hear/pronoun* condition

A-Yān tēng Méi-lìhng góng wah kéuih jèui lēk jyú hóisìn
Yan listen Meiling talk say 3SG most clever cook seafood
'Yan hears from Meiling that she is best at cooking seafood.'

In each of the test sentences, the two characters are of the same gender. The embedded 3SG pronoun *keuih* is gender neutral. Half of the test sentences contained only male characters while the other half contained only female characters. The test sentences were not independently controlled for plausibility of the matrix subject/object being the agent/theme of the embedded clause.

Say-verbs and *hear*-verbs are expressed by a sequence of verbs instead of a single predicate in Cantonese and they can have multiple representations.¹ In Experiment 1, the sequence *wah bei...teng* 'say give...listen' denotes a *say*-verb, while the sequence *teng...gong wah* 'listen...talk say' denotes a *hear*-verb. This construction is known as Serial Verb Construction (SVC; Aikhenvald 2006; Stewart 2013). Despite consisting of two or more verbs, SVC is essentially a monoclausal construction. The discussion

¹The serial *say*-verbs can be represented in eight ways: (i) *wah béi...tēng* 'say give...listen', (ii) *góng béi...tēng* 'talk give...listen', (iii) *wah béi...jī* 'say give...know', (iv) *góng béi...jī* 'talk give...know', (v) *wah...tēng* 'say...listen', (vi) *góng...tēng* 'talk...listen', (vii) *wah...jī* 'say...know' and (viii) *góng...jī* 'talk...know'. The serial *hear*-verbs can be represented in two ways: (i) *tēng...góng wah* 'listen...talk say' and (ii) *tēng...góng* 'listen...talk'.

below revolves around the forms *góng...tēng* ‘talk...listen’ for *say* and *tēng...góng* for *hear*, given their parallelism in form with each other. Note that the discussion of these two forms applies to all their variants (as given in the footnote).

Given the linear structure ‘NP₁ V₁ NP₂ V₂’ for both *góng...tēng* ‘talk...listen’ and *tēng...góng* ‘listen...talk’, the clause structure of the Cantonese serial *say*- and *hear*-verbs can be one of the following:

- (39) i Monoclausal. ([_{IP} NP₁ V₁ NP₂ V₂])
 ii Bi-clausal. ([_{IP1} NP₁ V₁ [_{IP2} NP₂ V₂]])

The two different clause structures have different implications for the argument status of NP₁ and NP₂, as stated in (40) below.

- (40) i **Monoclausal**: NP₁ is subject and NP₂ is object.
 ii **Bi-clausal**: NP₁ and NP₂ are subjects of the clause they appear in.

The discussion below provides four diagnostics to demonstrate that the Cantonese serial *say*- and *hear*-verbs have a monoclausal structure, which in turn implies that NP₁ and NP₂ are subject and object respectively.

The first diagnostics involves the insertion of an auxiliary. A bi-clausal structure allows the insertion of an auxiliary for each of its clauses, as in (41) below.

- (41) [_{IP1} *Síu-Mìhng wuih syūnbou* [_{IP2} *Dai-Màn hóyi tewihyāu*]]
 Ming will announce Man can retire
 ‘Ming will announce that Man can retire.’

Applying the same test to the serial *say*- and *hear*-verbs, one can find out if the construction has a monoclausal or bi-clausal structure. As it turns out, an auxiliary is only allowed to be inserted before V₁ for both serial *say*-verbs and *hear*-verbs, as illustrated in (42a) and (42b) below.

- (42) Auxiliary
 a. *Síu-Mìhng wuih góng Dai-Màn *hóyi tēng* [*tīngyat lok yúh*]
 Ming will talk Man can listen tomorrow fall rain
 ‘Ming will tell Man that it is going to rain tomorrow.’
 b. *Síu-Mìhng wuih tēng Dai-Màn *hóyi góng* [*tīngyat lok yúh*]
 Ming will listen Man can talk tomorrow fall rain
 ‘Ming will hear from Man that it is going to rain tomorrow.’

In (42a) and (42b), a second auxiliary is not allowed to appear before V_2 . Each of the sentences in (42a) and (42b) contains only one slot for a single auxiliary. This suggests that the serial *say-* and *hear-*verbs both have a monoclausal structure.

The second diagnostics involves the insertion of an aspect marker. A bi-clausal structure allows the attachment of an aspect marker to the verb of each of its clauses, as in (43) below. Note that an aspect marker attaches to the right of a verb.

- (43) [IP_1 *Síu-Mìhng syūnbou gán* [IP_2 *Dai-Màn chih jō jīk*]]
 Ming announce PROG Man quit PFV job
 ‘Ming is announcing that Man has quit (his job).’

One can determine if the serial *say-* and *hear-*verbs have a monoclausal or bi-clausal structure by applying the same test to them. As can be seen in (44a) and (44b) below, an aspect marker is only allowed to be inserted after V_1 for both serial verbs.

(44) Aspect

- a. *Síu-Mìhng góng gán Dai-Màn tēng *jō* [*tīngyat lok yúh*]
 Ming talk PROG Man listen PFV tomorrow fall rain
 ‘Ming is telling Man that it is going to rain tomorrow.’
- b. *Síu-Mìhng tēng gán Dai-Màn góng *jō* [*tīngyat lok yúh*]
 3SG listen PROG Man talk PFV tomorrow fall rain
 ‘Ming is hearing from Man that it is going to rain tomorrow.’

In (44a) and (44b), a second aspect marker is not allowed to appear after V_2 . This suggests that the serial *say-* and *hear-*verbs both have a monoclausal structure, since each of the sentences in (44a) and (44b) contains only one slot for a single aspect marker.

The third diagnostics involves polarity. A bi-clausal structure allows the insertion of a negative marker for each of its clauses, since each clause contains its own NegP, as in (45) below.

- (45) [IP_1 *Síu-Mìhng móu syūnbou* [IP_2 *Dai-Màn móu chih jīk*]]
 Ming NEG announce Man NEG quit job
 ‘Ming did not announce that Man did not quit (his job).’

On the other hand, a monoclausal structure would only allow the insertion of a single negative marker. As can be seen in (46a) and (46b), a negative marker is only allowed to be inserted before V_1 for both serial verbs.

(46) Polarity

- a. *Síu-Mìhng mǒu góng Dai-Màn *mǒu tēng* [*tīngyat lok yúh*]
 Ming NEG talk Man NEG listen tomorrow fall rain
 ‘Ming didn’t tell Man that it is going to rain tomorrow.’
- b. *Síu-Mìhng mǒu tēng Dai-Màn *mǒu góng* [*tīngyat lok yúh*]
 Ming NEG listen Man NEG talk tomorrow fall rain
 ‘Ming didn’t hear from Man that it is going to rain tomorrow.’

In (46a) and (46b), a second negative marker is prohibited from appearing before V_2 , suggesting that both sentences have a monoclausal structure.

The fourth and last diagnostics involves subject ellipsis. A subject can undergo ellipsis in the second of two conjoined clauses, as in (47) below.

- (47) [_{IP} *Síu-Mìhng chòuhséng Dai-Màn*] *tùhngmài* [_{IP} \emptyset *gīklāu Mách-Leih*]
 Ming wake Man and \emptyset anger Mary
 ‘Ming woke Man up and (Ming/*Man) angered Mary.’

Note that in (47), the elided NP, which is the subject of the second clause, can only refer to the subject Ming in the first clause but not the object Man. When a clause containing an elided subject can conjoin with multiple clauses, ambiguity arises, as in (48) and (49) below.

- (48) [_{IP} *Síu-Mìhng_i jīdou* [_{IP} *Dai-Màn tāusihk*]] *tùhngmài* [_{IP} \emptyset_i [*beihōi kéuih*
 Ming know Man cheat and \emptyset avoid his
lóupòh]]
 wife
 ‘Ming knows that Man cheated (on his wife) and (Ming) is avoiding his wife.’²
- (49) [_{IP} *Síu-Mìhng jīdou* [_{IP} *Dai-Màn_j tāusihk*]] *tùhngmài* [_{IP} \emptyset_j [*beihōi kéuih*
 Ming know Man cheat and \emptyset avoid his
lóupòh]]
 wife
 ‘Ming knows that Man cheated (on his wife) and (Man) is avoiding his wife.’

In (48), the clause containing an elided subject is conjoined with the matrix *know*-clause, which has *Ming* as the subject. In (49), the clause containing an elided subject is conjoined with the embedded *cheat*-clause, which has *Man* as the subject. As can be seen in (48) and (49), the elided subject can refer to either *Ming* or *Man*, depending on the target of coordination.

²This interpretation is more readily available if one imagines a situation where the wife suspects that Ming knows something about the cheating and so she wants to talk to him.

If the serial *say-* and *hear-*verbs do have a bi-clausal structure, conjoining clauses containing serial *say-*verbs and *hear-*verbs to a clause with an elided subject should produce ambiguous readings such as in (48) and (49). As illustrated in (50a) and (50b) below, an elided subject can only refer to NP₁.

(50) Subject ellipsis

- a. *Síu-Mihng_i góng Dai-Màn_j tēng gāmyaht lohkyú tùhngmai Ø_{i/*j} máai*
Ming talk Man listen today rain and buy
jó bá jē
PFV CL umbrella
‘Ming tells Man that it is going to rain today and (Ming/*Man) bought an umbrella.’
- b. *Síu-Mihng_i tēng Dai-Màn_j góng gāmyaht lohkyú tùhngmai Ø_{i/*j} máai*
Ming listen Man talk today rain and buy
jó bá jē
PFV CL umbrella
‘Ming hears from Man that it is going to rain today and (Ming/*Man) bought an umbrella.’

That the elided subject in (50a) and (50b) can never refer to NP₂ suggests that NP₂ must be an object argument.

In sum, that a sentence containing serial *say-* or *hear-*verbs has only one slot for a single auxiliary, a single aspect marker and a single negative marker suggests that such a sentence has a monoclausal structure. Also, that an elided subject contained in a conjoined clause can only refer to NP₁ but never NP₂ suggests that only the former is a subject, while the latter is an object. Given these arguments, the current research assumes that the Cantonese serial *say-*verbs and *hear-*verbs do not have complex structures that involve multiple embeddings.³

Fillers

In addition to test sentences, sixteen filler trials were also created for the experiment. (51) below details the three types of fillers created.

³Given the discussion that Cantonese *say-* and *hear-*verbs are monoclausal SVCs, one must postulate a VP shell structure (see Larson 1988) to accommodate the sequence of verbs. A postulation of the syntactic structure for serial *say-* and *hear-*verbs is as follows: under a *vP* tree, the first verb of the series is the head of a *vP*, while the second verb of the series is the head of a VP. NP₁ is in *specvP*, while NP₂ occupies *specVP*.

- (51) a. Five bi-clausal sentences where the main predicate is a *say*-verb. Embedded subject is a proper noun which repeats either the matrix subject or the matrix object.

Gā-Yān wah béi A-Hàh tēng A-Hàh hahchī̄ dap dīksí
 Ga-Yan say give Ha listen Ha next-time take cab

‘Ga Yan tells Ha that Ha will take a cab next time.’

- b. Five bi-clausal sentences where the main predicate is a *hear*-verb. Embedded subject is a proper noun which repeats either the matrix subject or the matrix object.

Ji-Mìhng tēng Hou-Yìhn góng wah Ji-Mìhng wúih mái bún sīusyuk
 Jee-Ming listen Ho-Yeen talk say Jee-Ming will buy CL novel

‘Jee Ming hears from Ho Yeen that Jee Ming will buy a novel.’

- c. Six bi-clausal sentences where the main predicate is an *ask*-verb. The agent of the embedded infinitival clause must be the matrix object.

Síu-Sī̄ giu Méi-Hàh hahn mahn dī̄
 Si ask Mei-Ha walk slow a-bit

‘Si asks Mei Ha to walk a bit slower.’

3.1.3 Procedure

Four separate lists were prepared in a Latin Square design—each participant read only one condition of each test item set but all conditions were seen equally. The same fillers were used in all of the lists. Each participant received 16 test trials (four trials per condition) and 16 filler trials. Experimental trial ordering was fully randomized and a unique order was generated for each participant. PsychoPy (Peirce 2007) was used to run the experiment.

Each test trial and filler trial displayed a context sentence, a target sentence, a comprehension question and two answer choices on a computer screen, with a delay between each line. Participants were first presented with a sentence that described a particular scene. The target sentence then automatically appeared underneath the context sentence after a two-second delay. Upon another delay of two seconds, a comprehension question was presented, asking the participants to identify the agent, theme or experiencer of the embedded clause. Finally, after a delay of another two seconds, two answer choices appeared, restricting the participants’ response to either the matrix subject or the matrix object. The participants had to click on either of the answer choices with the mouse. The positions of the answer choices were

counterbalanced. A screenshot of a test trial is given in Figure 3.1, while translations are given in (52).

阿欣同美玲喺廚房，佢哋傾緊今晚煮咩。

阿欣話俾美玲聽自己最叻煮海鮮。

阿欣話邊個最叻煮海鮮？

阿欣 美玲



Figure 3.1: Screenshot of a test trial in Experiment 1

- (52) i. *A-Yān tūhng Méi-lìhng hái ch̀ehfóng kéuih-dei k̄ng gán*
 Yan and Meiling at kitchen they discuss PROG
gāmmāan jéui mē
 tonight cook what
 ‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’
- ii. *A-Yān wah béi Méi-lìhng tēng jihgái jeui lēk jéui h́ois̄n*
 Yan say give Meiling listen self most clever cook seafood
 ‘Yan tells Meiling that self is best at cooking seafood.’
- iii. *A-Yān wah b̄ingo jeui lēk jéui h́ois̄n?*
 Yan say who most clever cook seafood
 ‘Who did Yan say is best at cooking seafood?’
- iv. *A-Yān / Méi-lìhng*
 Yan / Meiling
 ‘Yan / Meiling’

The computer then recorded participants’ responses. For the test trials, for each response that selected the matrix subject as antecedent, a subject selection score of one was rewarded. For each response that selected the matrix object as antecedent, a subject selection score of zero was rewarded. For the filler trials, the computer

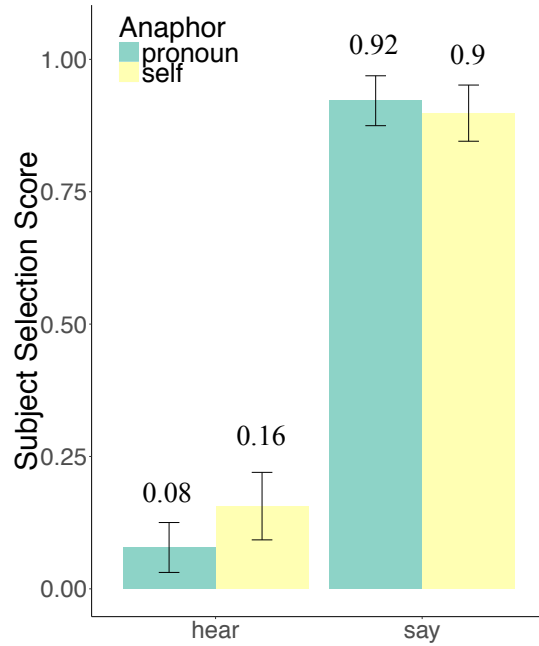


Figure 3.2: Mean subject selection score of test trials in Experiment 1

registered whether a response was accurate or inaccurate. An accurate response is one that matched the proper noun in the embedded subject position in the *say*- and *hear*-fillers, or one that matched the proper noun in the matrix object position in the *ask*-sentences.

3.2 Results

The mean subject selection score for the test trials ranged between zero and one. The closer the average was to one, the greater the tendency was to select a subject antecedent. Conversely, the closer the average was to zero, the greater the tendency was to select an object antecedent. Figure 3.2 gives the mean subject selection score for each of the four conditions in Experiment 1.

A generalized linear mixed model (Bates, Mächler, Bolker & Walker 2015) was fit in R (R Core Team 2016) with PREDICATE and ANAPHOR as fixed factors, and item and participant as random factors. Main effects of PREDICATE (Est.=6.53, SE=.66, $z=9.92$, $p<.001$) and ANAPHOR (Est.=.92, SE=.45, $z=2.07$, $p=.04$) were found. There was a marginal interaction (Est.=-1.32, SE=.69, $z=-1.02$, $p=.05$).

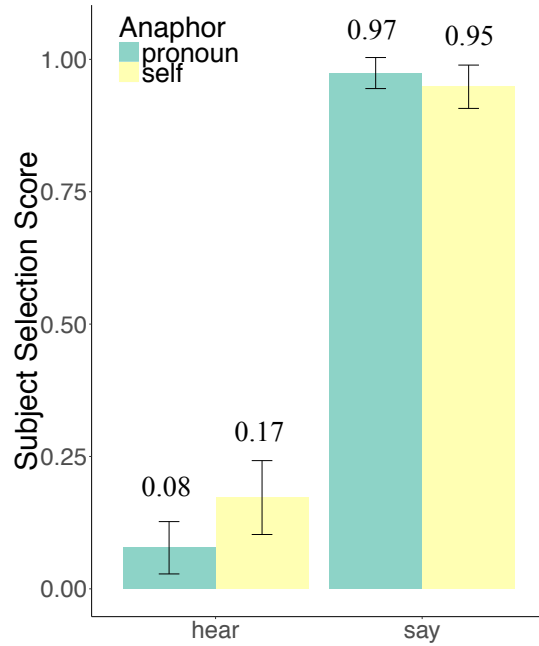


Figure 3.3: Mean subject selection score of test trials (with the data of three participants removed) in Experiment 1

Pairwise comparison (TukeyHSD) of *hear/self* and *hear/pronoun* was not significant ($p=.17$), neither was the pairwise comparison of *say/self* and *say/pronoun* ($p=.927$).

Participants’ responses for the filler trials were then examined.⁴ It was found that three participants scored less than 70% in accuracy. All of their data for the test trials were subsequently discarded. Figure 3.3 gives the mean subject selection score for each condition in Experiment 1 with three participants’ data removed.

Comparing Figure 3.3 to Figure 3.2, discarding the data of the three participants who had low accuracy resulted in an increase in subject selection scores in three out of the four conditions. The subject selection score for the *hear/pronoun* condition remained unchanged. With the cleaned up data, a mixed model was again fit in R with PREDICATE and ANAPHOR as fixed factors, and item and participant as random factors. Main effects of PREDICATE (Est.=6.6387, SE=.7598, $z=8.74$, $p<.001$) and ANAPHOR (Est.=.97, SE=.44, $z=2.2$, $p=.03$) were found. There was

⁴The average filler score of all participants was 91%. After excluding the three participants who scored less than 70% in accuracy, the new average filler score became 94%. The fillers were designed as a control for the accuracy and attentiveness of participants’ performance. The high average accuracy score suggests that the method of the experiment was appropriate and that it tested what it aimed to test.

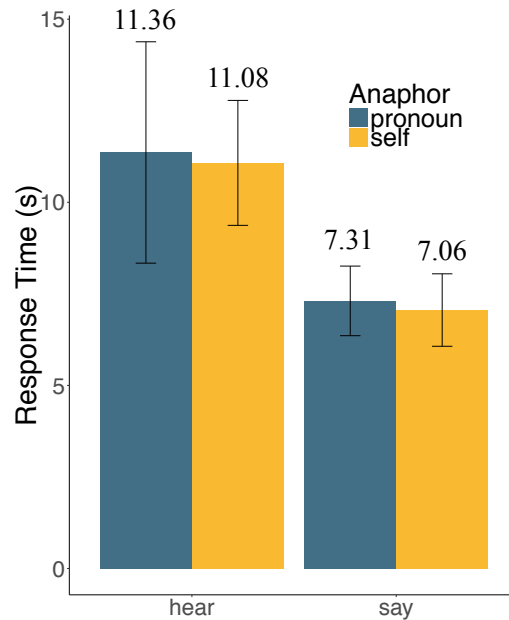


Figure 3.4: Mean response time (in seconds) in test trials (with the data of three participants removed) in Experiment 1

also an interaction between PREDICATE and ANAPHOR (Est.=-1.71, SE=.85, $z=-2.01$, $p=.045$). Pairwise comparison (TukeyHSD) was significant between *hear/self* and *hear/pronoun* ($p=.04$), but not significant between *say/self* and *say/pronoun* ($p=.89$).⁵

Response time was also recorded. During each trial, the time interval between the onset of the display of the answer choices and a participant’s mouse click (to select an answer) was recorded and stored. Figure 3.4 gives the mean response time in test trials in Experiment 1, with the data of the three participants who scored less than 70% in accuracy in the filler trials excluded. A linear mixed model (Bates et al. 2015) was fit in R (R Core Team 2016) with RESPONSE TIME as the dependent variable, PREDICATE and ANAPHOR as fixed factors, and item and participant as random factors. Only main effect of PREDICATE (Est.=-3.98, SE=1.17, $t=-3.41$, $p<.001$) was found.

⁵Given the postulation of VP shells for the Cantonese serial *say*-verbs and *hear*-verbs, and that the second NP occupies specVP, one might suggest that the object NP of these serial verbs might have subject-like properties for being arguments in the VP shells. If this was the case, experimental results should reveal similar object selection scores for both *say*-verb and *hear*-verb. As can be seen in §3.2 and §4.2, this is not the case.

3.3 Discussion

The findings in Experiment 1 revealed that in the embedded subject position, participants had a strong preference to select the logophoric centre as antecedent for embedded anaphors. In the *say*-conditions, participants predominantly selected the matrix subject as antecedent, which was the source of information. In the *hear*-conditions, participants predominantly selected the matrix object as antecedent, which again was the source of information. In addition, although *jihgei* and the pronoun both preferred an object antecedent in the *hear*-conditions (compared to the *say*-conditions), a slightly higher subject selection score (which was statistically significant) was registered in test sentences containing *jihgei* than those containing the pronoun within the *hear*-conditions. In other words, within the *hear*-conditions, the LDA exhibited a stronger subject preference when compared to the pronoun.

The mean response time revealed that participants were significantly slower when responding to *hear*-sentences than to *say*-sentences. Recall that participants preferred object antecedent in the former and subject antecedent in the latter. The response time data seems to suggest that, regardless of anaphor type, participants encountered more difficulties (hence longer response time) when going for an object antecedent than a subject antecedent. In other words, participants found it easier to go for a subject antecedent than an object antecedent during antecedent resolution.

3.4 Summary

Experiment 1 investigated the antecedent potential of the LDA *jihgei* in the embedded subject position. In an experiment that involved a forced-choice task, it was found that *jihgei*'s antecedent selection was strongly influenced by the logophoric centre. Thus, non-subject antecedent is possible (or even preferred) when the logophoric centre is not in the subject position. The experiment also revealed that when the logophoric centre was in the object position, *jihgei* displayed a greater subject preference than the pronoun.

Experiment 1 demonstrated that *jihgei* does have non-subject antecedent potential. It also captured *jihgei*'s subject preference compared to the pronoun in certain environments. In a follow-up experiment reported in the next chapter, *jihgei* was placed in the embedded object position instead to investigate whether any effects of logophoric constraints on *jihgei* would be more prominent, and to identify any difference in the antecedent potential of embedded subject and object *jihgei*.

Chapter 4

Experiment 2

Experiment 2 investigated the antecedent potential of the LDA *jihgei* in the embedded object position. Bi-clausal samples containing *jihgei* in the embedded object position were tested. In a forced-choice task where antecedent choices were restricted to either the marix subject or matrix object, participants were asked to interpret these embedded *jihgei*. Similar to Experiment 1, high subject selection scores across the board would be evidence of the putative subject orientation of *jihgei*, while lower subject selection scores would be registered if *jihgei* has non-subject antecedent potential. Experiment 2 answers two questions—(i) can *jihgei* take a non-subject antecedent? And (ii) how does *jihgei* in the embedded object position select its antecedent?

4.1 Method

4.1.1 Participants

Thirty-two native Cantonese speakers who were born and raised in Hong Kong participated in Experiment 2. These participants were different from those in Experiment 1. At the time of the study, all of these participants were residing in Vancouver, Canada. Each participant was tested in a 20 minute session and each received 5CAD.

4.1.2 Materials

Design

The test conditions in Experiment 2 were identical to the four in Experiment 1. Two within-subjects factors with two levels each were crossed to give four conditions:

PREDICATE (*say* vs. *hear*) and ANAPHOR (*self* vs. *pronoun*). Table 4.1 summarizes these conditions.

Condition	Description
<i>Say/self</i>	Main predicate is a <i>say</i> -verb while the embedded object position contains the self anaphor <i>jihgei</i> .
<i>Say/pronoun</i>	Main predicate is a <i>say</i> -verb while the embedded object position contains the third person pronoun <i>keuih</i> .
<i>Hear/self</i>	Main predicate is a <i>hear</i> -verb while the embedded object position contains the self anaphor <i>jihgei</i> .
<i>Hear/pronoun</i>	Main predicate is a <i>hear</i> -verb while the embedded object position contains the third person pronoun <i>keuih</i> .

Table 4.1: Experiment 2 design

Test sentences

Sixteen test item sets were created, resulting in a total of 64 test sentences. (53) exemplifies one such set.

(53) a. *Say/self* condition

Síu-Làhm wah béi A-Lìhng tēng Síu-Lei chái dóu jihgéi
 Lum say give Ling listen Lei step PRT self
 ‘Lum tells Ling that Lei stepped on self.’

b. *Say/pronoun* condition

Síu-Làhm wah béi A-Lìhng tēng Síu-Lei chái dóu kéuih
 Lum say give Ling listen Lei step PRT 3SG
 ‘Lum tells Ling that Lei stepped on her.’

c. *Hear/self* condition

Síu-Làhm tēng A-Lìhng góng wah Síu-Lei chái dóu jihgéi
 Lum listen Ling talk say Lei step PRT self
 ‘Lum hears from Ling that Lei stepped on self.’

d. *Hear/pronoun* condition

Síu-Làhm tēng A-Lìhng góng wah Síu-Lei chái dóu kéuih
 Lum listen Ling talk say Lei step PRT 3SG
 ‘Lum hears from Ling that Lei stepped on her.’

Each of the test sentences contained three characters, which occupied the matrix subject, matrix object and embedded subject positions. The three characters in each of the test sentences were of the same gender. The 3SG pronoun *keuih* is gender neutral.

The embedded predicates used in Experiment 2 were different from those in Experiment 1 except for one test trial. In Experiment 1, the embedded clauses in 15 out of the 16 test trials were transitive, while the remaining one was intransitive. In Experiment 2, the embedded clauses in 12 out of the 16 test trials were transitive, while the remaining four were ditransitive. In each of the test sentences in Experiment 2, the anaphor in the embedded object position was an internal argument of the embedded verb.

In Experiment 1, most of the embedded predicates chosen could only take inanimate internal arguments. In Experiment 2, embedded verbs must be able to take animated internal arguments, due to the design of having an anaphor in the embedded object position. Thus, using the same embedded predicates in the two experiments would be problematic, since the verbs required internal arguments of different animacy. In hindsight, both experiments should have used embedded predicates which could only take animate internal arguments.

Fillers

In addition to test sentences, sixteen filler trials were also created for the experiment. (54) below details the three types of fillers created.

- (54) a. Five bi-clausal sentences where the main predicate is a *say*-verb. Embedded object is a proper noun which repeats either the matrix subject or the matrix object.

Gā-Yān wah béi A-Hàh tēng Ngá-Tìhng hahchi gao A-Hàh dap
 Ga-Yan say give Ha listen Nga-Ting next-time teach Ha take
bāsí
 bus

‘Ga Yan tells Ha that Nga Ting will teach Ha how to take the bus next time.’

- b. Five bi-clausal sentences where the main predicate is a *hear*-verb. Embedded object is a proper noun which repeats either the matrix subject or the matrix object.

Síu-Yin tēng Wing-Yān góng wah Gā-Yih chyun yím béi Wing-Yān
Yin listen Wing-Yan talk say Ga-Yee send infect to Wing-Yan

‘Yin hears from Wing Yan that Ga Yee infected Wing Yan.’

- c. Six bi-clausal sentences where the main predicate is an *ask*-verb. The agent of the embedded infinitival clause must be the matrix object.

Ji-Màhn giu A-Fāi mái fēi béi A-Jóu
Jee-Man ask Fai buy ticket to Jo

‘Jee Man asks Fai to buy tickets for Jo.’

4.1.3 Procedure

Four separate lists were prepared in a Latin Square design. All of the lists contained the same fillers. Each participant received 16 test trials (four trials per condition) and 16 filler trials. Experimental trial ordering was fully randomized and a unique order was generated for each participant. PsychoPy (Peirce 2007) was used to run the experiment.

The procedure of Experiment 2 was identical to that of Experiment 1. The computer screen displayed a context sentence, a target sentence, a comprehension question and two answer choices with a delay between each line. These delays were slightly longer than those in Experiment 1 to compensate for the longer sentences in Experiment 2. First, a context sentence describing a particular scene appeared near the top of the screen. After a delay of two-and-a-half seconds, a target sentence automatically appeared below the context sentence. After another delay of three-and-a-half seconds, participants were presented with a comprehension question, which asked to identify the internal argument in the embedded clause. Finally, after a delay of another three-and-a-half seconds, two answer choices appeared. These forced choices restricted participants’ response for the comprehension question to either the matrix subject or the matrix object. The positions of the answer choices were counterbalanced. The third character occupying the embedded subject position in the target sentence was never provided as an answer choice. A screenshot of a test trial is given in Figure 4.1, while translations are given in (55).

小琳、阿玲同小莉睇街市，佢哋買緊餸。

小琳話俾阿玲聽小莉踩到自己。

小琳話小莉踩到邊個？

阿玲 小琳

Figure 4.1: Screenshot of a test trial in Experiment 2

- (55) i. *Síu-Làhm, A-Lìhng tūhng Síu-Lei hái gāisí, kéuih-dei mái gán*
Lum Ling and Lei at wet-market they buy PROG
sóhng
grocery
‘Lum, Ling and Lei are at the wet market. They are getting grocery.’
- ii. *Síu-Làhm wah béi A-Lìhng tēng Síu-Lei chái dóu jihgí*
Lum say give Ling listen Lei step PRT self
‘Lum tells Ling that Lei stepped on self.’
- iii. *Síu-Làhm wah Síu-Lei chái dóu bīngo?*
Lum say Lei step PRT who
‘Who did Lum say Lei stepped on?’
- iv. *A-Lìhng / Síu-Làhm*
Ling / Lum
‘Ling / Lum’

The computer then recorded participants’ responses. For the test trials, for each response that selected the matrix subject as antecedent, a subject selection score of one was rewarded. For each response that selected the matrix object as antecedent, a subject selection score of zero was rewarded. For the filler trials, the computer registered whether a response was accurate or inaccurate. An accurate response is one that matched the proper noun in the embedded object position in the *say-* and *hear-*fillers, or one that matched the proper noun in the matrix object position in the *ask-*sentences.

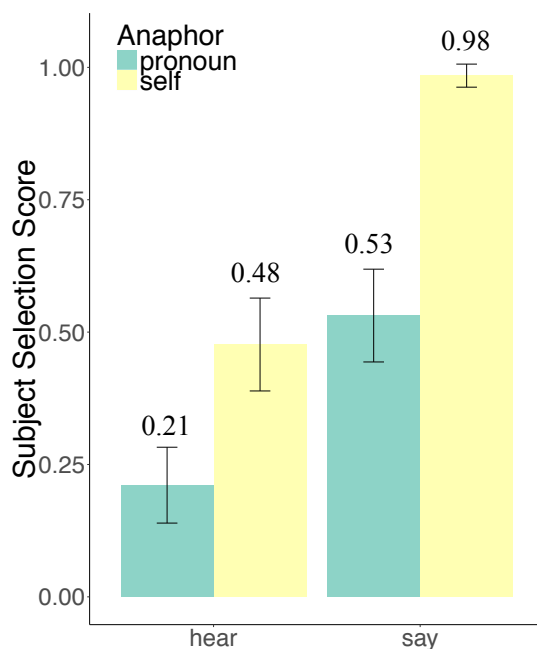


Figure 4.2: Mean subject selection score of test trials in Experiment 2

4.2 Results

The mean subject selection score for the test trials ranged between zero and one. An average closer to one denotes a greater tendency to select a matrix subject antecedent, while an average closer to zero denotes a greater tendency to select a matrix object antecedent. Figure 4.2 gives the mean subject selection score for each of the four conditions in Experiment 2.

A generalized linear mixed model (Bates et al. 2015) was fit in R (R Core Team 2016) with PREDICATE and ANAPHOR as fixed factors, and item and participant as random factors. Main effects of PREDICATE (Est.=1.48, SE=.29, $z=5.19$, $p<.001$) and ANAPHOR (Est.=1.25, SE=.28, $z=4.41$, $p<.001$) were found. There was an interaction between PREDICATE and ANAPHOR (Est.=2.81, SE=.79, $z=3.57$, $p<.001$). Pairwise comparison (TukeyHSD) of *say/self* and *say/pronoun* was significant ($p<.001$), and so was the pairwise comparison of *hear/self* and *hear/pronoun* ($p<.001$). Pairwise comparison of *say/pronoun* and *hear/self* was not significant ($p=.72$).

Participants' responses for the filler trials were then examined. The average filler score of all participants was 99%. All participants scored more than 85% in accu-

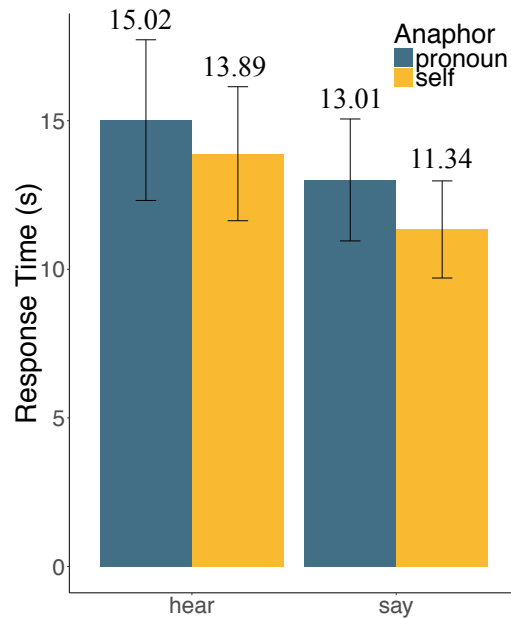


Figure 4.3: Mean response time (in seconds) in test trials in Experiment 2

racy. The high average accuracy score suggests the participants were attentive while completing the task and that the method of the experiment was appropriate.

Response time was also recorded. Figure 4.3 gives the mean response time in test trials in Experiment 2. A linear mixed model (Bates et al. 2015) was fit in R (R Core Team 2016) with RESPONSE TIME as the dependent variable, PREDICATE and ANAPHOR as fixed factors, and item and participant as random factors. No main effects and no interactions were found.

4.3 Discussion

The results in Experiment 2 revealed that in the embedded object position, the preference for a matrix subject antecedent is stronger in the *say/self* condition than in the *hear/self* condition. This tendency in antecedent selection coincides with where the logophoric centre rests—in the matrix subject in the *say/self* condition and in the matrix object in the *hear/self* condition. While participants predominantly selected the matrix subject as antecedent in the *say/self* condition (subject selection score=.98), their preference for subject/object antecedent appeared ambivalent in the *hear/self* condition, where the subject selection score was .48. This distribution

could not be due to a bimodal inter-speaker variation (i.e. the participants having two distinct grammars), since the majority of the participants (n=22) demonstrated variability in their antecedent selection in the *hear/self* condition. For the remaining ten participants, four of them consistently selected the matrix subject as antecedent while six of them consistently selected the matrix object as antecedent in the *hear/self* condition.

The ambivalent preference for subject/object antecedent in the *hear/self* condition could be resulting from a misalignment between the matrix subject and the source of information. When the two coincide, as in the *say/self* condition where the matrix subject is the logophoric centre, predominant preference for matrix subject antecedent was observed. However, when misalignment occurs, as in the *hear/self* condition where the source of information is not the matrix subject, the preference of having a subject antecedent seems to be competing against the selection of an antecedent that is the source of information. This competition could account for the .48 subject selection score in the *hear/self* condition, which denotes almost equally strong preference for matrix subject antecedent and matrix object antecedent. Thus, the putative subject-orientation of *jihgei* is not categorical, but is modulated by logophoric conditions. This finding echoes Han et al. (2015), whose study on the non-subject antecedent potential of Korean *caki* drew similar conclusions.

Also of interest in the findings of Experiment 2 is how participants interpreted the 3SG pronoun *keuih*. In the *say/pronoun* and the *hear/pronoun* conditions, there was not enough syntactic or semantic information for the reference resolution of *keuih*. The gender-neutral pronoun is linguistically ambiguous as it could refer to either the matrix subject or the matrix object, which are of the same gender and number. Also, the context sentences and test sentences were designed in a way such that the reference of the embedded pronoun was not biased towards either argument in the matrix clause. Comparing the two *pronoun* conditions, participants had a greater tendency towards a matrix subject reference in the *say/pronoun* condition than in the *hear/pronoun* condition. This tendency was observed between the two *self* conditions as well. In the *say/pronoun* condition, the subject selection score was .53, denoting that participants preferred matrix subject and matrix object antecedent almost equally. A bimodal inter-speaker variation cannot explain this distribution in the *say/pronoun* condition, since most of the participants (n=23) displayed variability in their reference selection. Among the remaining nine participants, six of them consistently preferred a matrix subject reference while three of them consistently preferred a matrix object reference. That the distribution is a result of chance due to

the poverty of syntactic and semantic information for reference resolution is, however, dubious, since *keuih* in the *hear/pronoun* condition referred to the matrix object at levels above chance. While the discussion of pronoun resolution is beyond the scope of the current thesis, the 3SG pronoun *keuih* offers a base-line of subject selection scores within the test conditions. Although no statistical significance was found, the numerical trends in the response latency seem to be inversely correlated with subject selection score—the longer the response time, the lower the subject selection score (i.e. greater tendency to select object antecedent); conversely, the shorter the response time, the higher the subject selection score (i.e. greater tendency to select subject antecedent). In other words, object antecedent selection seemed to be more difficult for participants, hence the increase in response time. In general, anaphors seem to have a tendency to go for a subject during reference resolution. Given the mean subject selection score results, *jihgei* seems to have a ‘heightened’ preference for subject antecedent compared to the pronoun. Hence, in each of the PREDICATE conditions, *jihgei* has a shorter response time than its pronoun counterpart. In the case of *hear*-conditions, the effects of logophoricity pulled up the response time in general, due to the matrix object being the logophoric centre. Even so, a shorter response time was still registered in the *jihgei*-sentences than the pronoun sentences.

In Experiment 1, the pronoun *keuih* and the LDA *jihgei* behaved very similarly to each other—both anaphors tended strongly towards the source of information in the embedded subject position. In Experiment 2, where *keuih* and *jihgei* were both in the embedded object position, *jihgei* was syntactically distinctive from the pronoun. In all of the test conditions, *jihgei* has a significantly higher subject selection score than its pronoun counterpart. In the *say* conditions, the alignment of the matrix subject and the source of information led to an extremely high subject selection score for *jihgei*. In the *hear* conditions, the competition between a preference for matrix subject antecedent and a preference for the source of information (matrix object) lowered the subject selection score for *jihgei* by about 50%. Even so, *jihgei*’s subject selection score was still significantly higher than that of *keuih*’s. The consistently higher subject selection score of *jihgei* across test conditions in Experiment 2 indicates a greater subject preference than its counterpart *keuih*.

4.4 Summary

Experiment 2 investigated the antecedent potential of the LDA *jihgei* in the embedded object position. The experimental results revealed anaphoric properties of *jihgei* that Experiment 1 failed to capture. Similar to Experiment 1, it was found that *jihgei* had non-subject antecedent potential when the logophoric centre was in a non-subject position. However, this tendency to select a non-subject logophoric centre as antecedent was mitigated by a subject antecedent preference in Experiment 2.

Experiment 2 demonstrated that, contrary to the putative subject orientation of *jihgei* in the literature, *jihgei* does have non-subject antecedent potential. While *jihgei* behaves very similarly to the pronoun in antecedent resolution in the embedded subject position, as in Experiment 1, Experiment 2 found that a subject preference that is modulated by logophoric conditions is present when *jihgei* is in the embedded object position. In the next chapter, possible accounts of *jihgei*'s subject-object asymmetry are provided in the General Discussion.

Chapter 5

General Discussion and Conclusion

The current thesis set out to examine the non-subject antecedent potential of the Cantonese LDA *jihgei*. In the two experiments conducted, it was revealed that *jihgei* exhibits non-subject antecedent potential in certain syntactic and logophoric environments. This final chapter gives a brief summary of the relevant findings of the two experiments conducted. A general discussion of how these findings relate to the two competing approaches towards Chinese LDAs is then given, followed by concluding remarks.

5.1 Summary of the findings

Jihgei occupied the embedded subject position in Experiment 1, and the embedded object position in Experiment 2. The findings from both Experiment 1 and Experiment 2 are summarized in Figure 5.1. When the predicate was a *say*-verb, *jihgei* demonstrated a strong preference to select the matrix subject (which was also the logophoric centre) as antecedent, regardless of the positions *jihgei* occupied. When the predicate was a *hear*-verb, *jihgei* exhibited different antecedent preferences in different syntactic positions. When it was in the embedded subject position, *jihgei* exhibited a strong preference to select the matrix object (which was also the logophoric centre) as antecedent. When it was in the embedded object position, *jihgei* demonstrated an ambivalent preference towards subject/object antecedent, which seems to have resulted from a misalignment between the matrix subject and the logophoric centre (the matrix object). The findings of the two experiments have revealed that non-subject antecedent potential is possible for Cantonese *jihgei*.

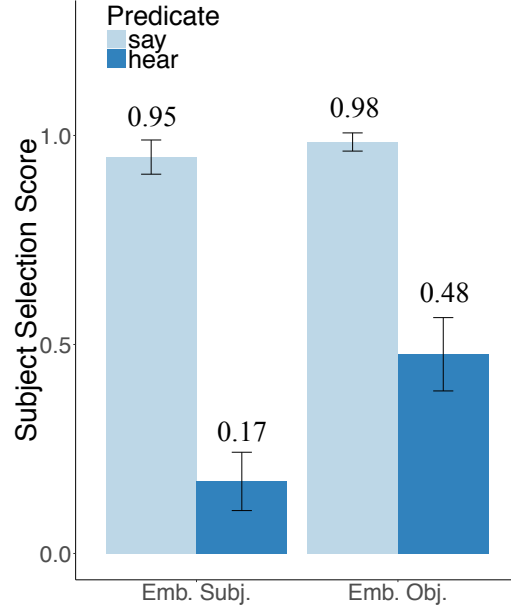


Figure 5.1: Mean subject selection score of *jihgei* in the embedded subject position (Experiment 1) and in the embedded object position (Experiment 2)

5.2 Theoretical implication

The experimental findings from the current study are valuable in the evaluation of LDA theories in the Chinese literature. Two competing approaches make different predictions of an LDA's antecedent. The syntactic approach proposes that *ziji* undergoes I⁰-to-I⁰ head movement in the LF. Thus *ziji* is predicted to take only subject antecedent. On the other hand, the logophoric approach contends that the antecedent of an LDA assumes certain discourse roles, which are not restricted to any syntactic positions. Therefore, non-subject antecedent potential is predicted to be possible. We found that the putative subject orientation of *jihgei* is not categorical, but more of a tendency, modulated by a logophoric centre. In light of the current findings, it appears that the logophoric approach is the superior theory.

The logophoric approach can account for the Cantonese data in the following way. In the case where the matrix subject and the Source were the same, *jihgei* registered a very high subject selection score. Consider the test sentence in (53a) from Experiment 2, which is repeated below in (56).

- (56) *Síu-Làhm wah béi A-Lìhng tēng [Síu-Lei chái dóu jihgēi]*
 Lum say give Ling listen Lei step PRT self
 ‘Lum tells Ling that Lei stepped on self.’

In (56), the predicate is a *say*-verb and *jihgei* is in the embedded object position. The sentence reports the speech of *Lum*, who is also the matrix subject. Since the matrix subject is the Source in (56), the matrix subject *Lum* is predominantly selected as antecedent (subject selection score = .98).

In the case where the matrix subject and the Source were different, ambivalent results were recorded. Consider now another test sentence from Experiment 2 as given in (53c), repeated below in (57).

- (57) *Síu-Làhm tēng A-Lìhng góng wah [Síu-Lei chái dóu jihgēi]*
 Lum listen Ling talk say Lei step PRT self
 ‘Lum hears from Ling that Lei stepped on self.’

In (57), the predicate is a *hear*-verb and *jihgei* is in the embedded object position. The Source in (57) is the matrix object *Ling*, since it is her speech that is reported in the sentence. When the matrix subject and the Source are different, participants were ambivalent towards subject/object antecedent. The antecedent of *jihgei* in (57) has an almost equal chance of being either the matrix subject *Lum* or the matrix object *Ling* (subject selection score = .48). This apparent ambivalence is argued to be a result of competition between *jihgei*’s preference for the subject and *jihgei*’s preference for the Source.

Although subject *jihgei* demonstrated subject preference in the *hear*-sentences in Experiment 1, it had a much lower subject selection score (subject selection score = .17) in comparison to object *jihgei* in the same condition in Experiment 2. A speculation of subject *jihgei*’s low subject selection score could be that, when *jihgei* is in the embedded subject position, it, as a subject, is more susceptible to discourse factors, and therefore has a much stronger preference to select the Source (i.e. the matrix object) as antecedent. In fact, this speculation is supported by the behaviour of pronouns in the subject position too. When the pronoun *keuih* was in the embedded subject position, as in Experiment 1, it demonstrated strong attraction to the logophoric centre (subject selection score = .97 when the logophoric centre was the subject; subject selection score = .08 when the logophoric centre was the object). That the subject position is strongly susceptible to discourse factor could be a general fact that is not only limited to LDAs.

A remaining question is why *jihgei* has this subject preference. The subject effect of *jihgei* could be related to the ‘perspectival centre’, as suggested by Han et al. (2015). As mentioned in Chapter 1, their experimental study on Korean *caki* revealed non-subject antecedent potential of the Korean LDA. Similar to the present study, they also found subject preference for their LDA. Han et al. (2015) propose that the subject effect of *caki* could be due to the requirement of the antecedent of *caki* to be ‘the person whose point-of-view the speaker is adopting’ (p. 28), in other words, the ‘perspectival centre’. This notion is comparable to Sells’ ‘pivot’ (1987), as discussed in §2.2.3. Given a *say*- or *hear*-sentence with an embedded propositional clause, the content in the embedded clause is said or heard from the matrix subject’s point of view. However, the matrix verb may cause the perspectival centre to shift. In *say*-sentences, it is relatively easy for a speaker to adopt the matrix subject’s point of view, since it is the matrix subject who reports the embedded propositional content. However, in *hear*-sentences, it is the matrix object who reports the embedded propositional content, allowing it to be a potential perspectival centre. Thus, a speaker might adopt the point of view of either the matrix subject or the matrix object in *hear*-sentences.

5.3 Future work and conclusion

The findings and claims of the current study can be strengthened in three ways. First, the embedded predicates in the test sentences of the two experiments were different. Word frequency and/or syntactic parse of different embedded predicate types might result in different behaviours of *jihgei*. Using the same predicates in both experiments would minimize such impacts. Second, an independent plausibility test should be conducted to ensure that the two candidates (matrix subject and matrix object) are equally plausible to be *jihgei*’s referent, such that participants would not be biased towards either arguments due to predicate choice. Third, the data collected in the current study were offline. While the high average accuracy score in the filler trials suggest the participants were attentive and that the method of the experiment was appropriate, participants’ grammar would be even more revealing in online data. The speculation of the subject effect of *jihgei* relating to the perspectival centre can be further investigated in follow-up eye-tracking experiments. Similar experiments can also be done on Mandarin *ziji* to determine if the current findings can be extended to the Mandarin data.

The current study has proven experimentally that *jihgei* can have non-subject antecedents, given the appropriate syntactic and logophoric conditions. Given the findings that *jihgei* has non-subject antecedent potential, the current study endorses the logophoric approach towards accounting for Chinese LDAs, as the competing syntactic approach predicts only subject antecedent and cannot account for at least Cantonese LDA data.

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Appendix A

Test sentences from Experiment 1

A.1 Condition 1: say/jihgei

- (1) a. *Wàh-jái tùhng Wáih-mìhng hái chāntēng, kéuihdei jéunbeih ngai yeh*
Wah and Wai-ming at restaurant they prepare call thing
sihk
eat
‘Wah and Wai Ming are at the restaurant. They are about to order food.’
- b. *Wàh-jái wah béi Wáih-mìhng tēng jihgéi wúih ngai yífhán*
Wah say give Wai-ming listen self will call pasta
‘Wah tells Wai Ming that self will order pasta.’
- c. *Wàh-jái wah bīngo wúih ngai yífhán?*
Wah say who will call pasta
‘Who did Wah say will order pasta?’
- d. Wah / Wai Ming
- (2) a. *Síu-mìhng tùhng Gā-lok hái séjihlàuh, kéuihdei jéun-beih gán*
Ming and Ga-lok at office they prepare PROG
tīngyat go wuihyí
tomorrow CL meeting
‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’
- b. *Síu-mìhng wah béi Gā-lok tēng jihgéi gāmmāan wúih gáodimh go*
Ming say give Ga-lok listen self tonight will finish CL
bougou
report
‘Ming tells Ga Lok that self will finish the report tonight.’
- c. *Síu-mìhng wah bīngo gāmmāan wúih gáodimh go bougou?*
Ming say who tonight will finish CL report

‘Who did Ming say will finish the report?’

d. Ming / Ga Lok

- (3) a. *Wáih-jái tùhng A-Bōng hái ngàhnhòhng, kéuihdei pàih jó hóu loi déui*
Wai and Bong at bank they queue PERF very long
time
‘Wai and Bong are at the bank. They have been queuing for a very long time.’
- b. *Wáih-jái wah béi A-Bōng tēng jihgēi wúih gahm ríbak mān*
Wai say give Bong listen self will withdraw five-hundred
money
‘Wai tells Bong that self will withdraw five hundred dollars.’
- c. *Wáih-jái wah bīngō wúih gahm ríbak mān?*
Wai say who will withdraw five-hundred money
‘Who did Wai say will withdraw five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng tùhng A-Hòuh hái boujídong, kéuihdei tái gán dī tàoháiú*
Keung and Ho at newsstand they watch PROG CL
headline
‘Keung and Ho are at the newsstand. They are looking at the headlines.’
- b. *A-Kèuhng wah béi A-Hòuh tēng jihgēi tūngsèuhng séungmóng tái sānmán*
Keung say give Ho listen self usually online watch
news
‘Keung tells Ho that self usually reads the news online.’
- c. *A-Kèuhng wah bīngō tūngsèuhng séungmóng tái sānmán?*
Keung say who usually online watch news
‘Who did Keung say usually reads the news online?’
- d. Keung / Ho
- (5) a. *A-Mìhng tùhng Kèuhng-jái hái bokmatgún, kéuihdei tái gán húnglúhng fasehk*
Ming and Keung at museum they watch PROG
dinosaur fossil
‘Ming and Keung are at the museum. They are looking at dinosaur fossil.’

- b. *A-Mìhng wah béi Kèuhng-jái tēng jihgēi hahchi wúih dai*
 Ming say give Keung listen self next-time will bring
séunggēi
 camera
 ‘Ming tells Keung that self will bring a camera next time.’
- c. *A-Mìhng wah bīngō hahchi wúih dai séunggēi?*
 Ming say who next-time will bring camera
 ‘Who did Ming say will bring a camera next time?’
- d. Keung / Ming
- (6) a. *Dai-Màhn tùhng Síu-Ji hái sāandéng kéuihdei jéunbeih hàhn fāan*
 Man and Jee at peak they prepare walk back
lok sāan
 down hill
 ‘Man and Jee are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn wah béi Síu-Ji tēng jihgēi wúih fùh jyu dī syu lèi*
 Man say give Jee listen self will hold PROG CL tree come
hàhn
 walk
 ‘Man tells Jee that self will hold onto the trees while walking.’
- c. *Dai-Màhn wah bīngō wúih fùh jyu dī syu lèi hàhn?*
 Man say who will hold PROG CL tree come walk
 ‘Who did Man say will hold onto the trees while walking?’
- d. Jee / Man
- (7) a. *Ji-Hòuh tùhng Gā-Kèuhng hái fosāk, kéuihdei hah yāt tòhng*
 Jee-ho and Ga-keung at classroom they next one class
souhohk chākyihm
 Math test
 ‘Jee Ho and Ga Keung are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh wah béi Gā-Kèuhng tēng jihgēi hahchi wúih jóu dī*
 Jee-ho say give Ga-keung listen self next-time will early more
hōichí wānsyū
 start revision
 ‘Jee Ho tells Ga Keung that self will start revising earlier next time.’
- c. *Ji-Hòuh wah bīngō hahchi wúih jóu dī hōichí wānsyū?*
 Jee-ho say who next-time will early more start revision
 ‘Who did Jee Ho say will start revising earlier next time?’
- d. Ga Keung / Jee Ho

- (8) a. *Wái-Màhn tùhng Gihk-jái hái bāsí, kéuihdei sāk gán chē*
 Wai-man and Gik at bus they congested PROG car
 ‘Wai Man and Gik are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn wah béi Gihk-jái tēng jihgéi hahchi wúih jóu dī*
 Wai-man say give Gik listen self next-time will early more
sāugūng
 finish-work
 ‘Wai Man tells Gik that self will get off work earlier next time.’
- c. *Wái-Màhn wah bīngō hahchi wúih jóu dī sāugūng?*
 Wai-man say who next-time will early more finish-work
 ‘Who did Wai Man say will get off work earlier next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yih tùhng Yuk-Lihng hái tòusyūgún, kéuihdei pàih gán déui*
 Suk-yee and Yuk-ling at library they line PROG queue
wàhn syū
 return book
 ‘Suk Yee and Yuk Ling are at the library. They are lining up to return some books.’
- b. *Suk-Yih wah béi Yuk-Lihng tēng jihgéi hahchi wúih jéunsi*
 Suk-yee say give Yuk-ling listen self next-time will punctual
wàhn syū
 return book
 ‘Suk Yee tells Yuk Ling that self will return books on time next time.’
- c. *Suk-Yih wah bīngō hahchi wúih jéunsi wàhn syū?*
 Suk-yee say who next-time will punctual return book
 ‘Who did Suk Yee say will return books on time next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-Jīng tùhng Suhk-Fān hái heiyún, kéuihdei āamāam chóh dāi*
 Jing and Suk-fan at movie-theatre they just sat down
jó
 PERF
 ‘Jing and Suk Fan are at the movie theatre. They just sat down.’
- b. *A-Jīng wah béi Suhk-Fān tēng jihgéi hahchi wúih mái jūnggān*
 Jing say give Suk-fan listen self next-time will buy middle
wái
 seat
 ‘Jing tells Suk Fan that self will buy middle seats next time.’
- c. *A-Jīng wah bīngō hahchi wúih mái jūnggān wái?*
 Jing say who next-time will buy middle seat

‘Who did Jing say will buy middle seats next time?’

d. Jing / Suk Fan

- (11) a. *A-Yān tūhng Méi-Lihng hái ch̀ehfóng, kéukhdei k̄ng gán*
Yan and Meiling at kitchen they discuss PROG
gāmmāan jyú mē
tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’
- b. *A-Yān wah béi Méi-Lihng tēng jihgēi jēui lēk jyú h́ois̄n*
Yan say give Meiling listen self most clever cook seafood
‘Yan tells Meiling that self is best at cooking seafood.’
- c. *A-Yān wah b̄ngo jēui lēk jyú h́ois̄n?*
Yan say who most clever cook seafood?
‘Who did Yan say is best at cooking seafood?’
- d. Yan / Meiling
- (12) a. *Jing-Yih tūhng A-Sāan hái gūngyún, kéuihdei hái douh yéhchāan*
Jing-yee and San at park they at there picnic
‘Jing Yee and San are at the park. They are having a picnic there.’
- b. *Jing-Yih wah béi A-Sāan tēng jihgēi hahchi wúih j́ng bōlòh*
Jing-yee say give San listen self next-time will make pineapple
chéungjái
sausage
‘Jing Yee tells San that self will make pineapple and sausage skewers next time.’
- c. *Jing-Yih wah b̄ngo hahchi wúih j́ng bōlòh ch̀éungjái?*
Jing-yee say who next-time will make pineapple sausage
‘Who did Jing Yee say will make pineapple and sausage skewers next time?’
- d. Jing Yee / San
- (13) a. *Lai-Gēun tūhng A-Fúhng hái sōfá douh chó, kéuihdei tái gán*
Lai-geun and Fung at couch there sit they watch PROG
dinsi
television
‘Lai Geun and Fung are sitting on the couch. They are watching the television.’
- b. *Lai-Gēun wah béi A-Fúhng tēng jihgēi máhnmáhn tái*
Lai-geun say give Fung listen self every-night watch
gélukpín
documentary

- ‘Lai Geun tells Fung that self watches documentaries every night.’
- c. *Lai-Gēun wah bīngō máhn máhn tái géilukpín?*
Lai-geun say who every-night watch documentary
‘Who did Lai Geun say watches documentaries every night?’
- d. Fung / Lai Geun
- (14) a. *Síu-Làhm tùhng A-Lìhng hái gāsí, kéuihdei mái gán sóhng*
Lum and Ling at wet-market they buy PROG grocery
‘Lum and Ling are at the wet market. They are getting grocery.’
- b. *Síu-Làhm wah béi A-Fúhng tēng jihgái lám jyu mái yàohyú*
Lum say give Ling listen self think PROG buy squid
‘Lum tells Ling that self is planning to buy squids.’
- c. *Síu-Làhm wah bīngō lám jyu mái yàohyú?*
Lum say who think PROG buy squid
‘Who did Lum say is planning to buy squids?’
- d. Ling / Lum
- (15) a. *Síu-Fā tùhng A-Jān hái dihnhei póu, kéuihdei tái gán*
Fa and Jan at electric-appliance store they watch PROG
mèihbōlòuh
microwave
‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
- b. *Síu-Fā wah béi A-Jān tēng jihgái yáo jēung gáo jik kāt*
Fa say give Jan listen self has CL nine discount card
‘Fa tells Jan that self has a ten percent discount card.’
- c. *Síu-Fā wah bīngō yáo jēung gáo jik kāt?*
Fa say who have CL nine discount card
‘Who did Fa say has a ten percent discount card?’
- d. Jan / Fa
- (16) a. *Síu-Yúk tùhng Síu-Fān hái yeukfòhng, kéuihdei mái gán wàih tāmíng*
Yuk and Fan at pharmacy they buy PROG vitamin
yún
pills
‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
- b. *Síu-Yúk wah béi Síu-Fān tēng jihgái sìhngyat sēungfūng gámmou*
Yuk say give Fan listen self always cold Flu
‘Yuk tells Fan that self is always sick.’

- c. *Síu-Yúk wah bīngō sìhngyat sēungfūng gámmou?*
 Yúk say who always cold Flu
 ‘Who did Yuk say is always sick?’

A.2 Condition 2: say/pronoun

- (1) a. *Wàh-jái tùhng Wáih-mìhng hái chāntēng, kéuihdei jéunbeih ngai yeh*
 Wah and Wai-ming at restaurant they prepare call thing
sìhk
 eat
 ‘Wah and Wai Ming are at the restaurant. They are about to order food.’
- b. *Wàh-jái wah béi Wáih-mìhng tēng kéuih wúih ngai yíhfan*
 Wah say give Wai-ming listen 3SG will call pasta
 ‘Wah tells Wai Ming that s/he will order pasta.’
- c. *Wàh-jái wah bīngō wúih ngai yíhfan?*
 Wah say who will call pasta
 ‘Who did Wah say will order pasta?’
- d. Wah / Wai Ming
- (2) a. *Síu-mìhng tùhng Gā-lok hái séjihlàuh, kéuihdei jéun-beih gán*
 Ming and Ga-lok at office they prepare PROG
tīngyat go wuihyí
 tomorrow CL meeting
 ‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’
- b. *Síu-mìhng wah béi Gā-lok tēng kéuih gāmmāan wúih gáodimh go*
 Ming say give Ga-lok listen 3SG tonight will finish CL
bougou
 report
 ‘Ming tells Ga Lok that s/he will finish the report tonight.’
- c. *Síu-mìhng wah bīngō gāmmāan wúih gáodimh go bougou?*
 Ming say who tonight will finish CL report
 ‘Who did Ming say will finish the report tonight?’
- d. Ming / Ga Lok
- (3) a. *Wáih-jái tùhng A-Bōng hái ngàhnhòhng, kéuihdei pàih jó hóu loi*
 Wai and Bong at bank they queue PERF very long
déui
 time
 ‘Wai and Bong are at the bank. They have been queuing for a very long time.’

- b. *Wáih-jái wah béi A-Bōng tēng kéuih wúih gahm mbak*
 Wai say give Bong listen 3SG will withdraw five-hundred
mān
 money
 ‘Wai tells Bong that s/he will withdraw five hundred dollars.’
- c. *Wáih-jái wah bīngō wúih gahm mbak mān?*
 Wai say who will withdraw five-hundred money
 ‘Who did Wai say will withdraw five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng tùhng A-Hòuh hái boujídong, kéuihdei tái gán dī*
 Keung and Ho at newsstand they watch PROG CL
tàohái
 headline
 ‘Keung and Ho are at the newsstand. They are looking at the headlines.’
- b. *A-Kèuhng wah béi A-Hòuh tēng kéuih tūngsèuhng séungmóng tái*
 Keung say give Ho listen 3SG usually online watch
sānmán
 news
 ‘Keung tells Ho that s/he usually reads the news online.’
- c. *A-Kèuhng wah bīngō tūngsèuhng séungmóng tái sānmán?*
 Keung say who usually online watch news
 ‘Who did Keung say usually reads the news online?’
- d. Keung / Ho
- (5) a. *A-Mìhng tùhng Kèuhng-jái hái bokmatgún, kéuihdei tái gán*
 Ming and Keung at museum they watch PROG
húnglúhng fasehk
 dinosaur fossil
 ‘Ming and Keung are at the museum. They are looking at dinosaur fossil.’
- b. *A-Mìhng wah béi Kèuhng-jái tēng kéuih hahchi wúih dai*
 Ming say give Keung listen 3SG next-time will bring
séunggēi
 camera
 ‘Ming tells Keung that s/he will bring a camera next time.’
- c. *A-Mìhng wah bīngō hahchi wúih dai séunggēi?*
 Ming say who next-time will bring camera
 ‘Who did Ming say will bring a camera next time?’
- d. Keung / Ming

- (6) a. *Dai-Màhn tùhng Síu-Ji hái sāandéng kéuihdei jéunbeih hàhn fāan*
 Man and Jee at peak they prepare walk back
lok sāan
 down hill
 ‘Man and Jee are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn wah béi Síu-Ji tēng kéuih wúih fùh jyu dī̄ syu lèi*
 Man say give Jee listen 3SG will hold PROG CL tree come
hàhn
 walk
 ‘Man tells Jee that s/he will hold onto the trees while walking.’
- c. *Dai-Màhn wah bīngō wúih fùh jyu dī̄ syu lèi hàhn?*
 Man say who will hold PROG CL tree come walk
 ‘Who did Man say will hold onto the trees while walking?’
- d. Jee / Man
- (7) a. *Ji-Hòuh tùhng Gā-Kèuhng hái fosāk, kéuihdei hah yāt tòhng*
 Jee-ho and Ga-keung at classroom they next one class
souhohk chākyihm
 Math test
 ‘Jee Ho and Ga Keung are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh wah béi Gā-Kèuhng tēng kéuih hahchi wúih jóu dī̄*
 Jee-ho say give Ga-keung listen 3SG next-time will early more
hōichí wānsyū
 start revision
 ‘Jee Ho tells Ga Keung that s/he will start revising earlier next time.’
- c. *Ji-Hòuh wah bīngō hahchi wúih jóu dī̄ hōichí wānsyū?*
 Jee-ho say who next-time will early more start revision
 ‘Who did Jee Ho say will start revising earlier next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màhn tùhng Gihk-jái hái bāsí, kéuihdei sāk gán chē*
 Wai-man and Gik at bus they congested PROG car
 ‘Wai Man and Gik are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn wah béi Gihk-jái tēng kéuih hahchi wúih jóu dī̄*
 Wai-man say give Gik listen 3SG next-time will early more
sāugūng
 finish-work
 ‘Wai Man tells Gik that s/he will get off work earlier next time.’
- c. *Wái-Màhn wah bīngō hahchi wúih jóu dī̄ sāugūng?*
 Wai-man say who next-time will early more finish-work

‘Who did Wai Man say will get off work earlier next time?’

d. Wai Man / Gik

- (9) a. *Suk-Yih t̀hng Yuk-L̀hng hái t̀pusyūgún, kéuihdei p̀aih gán déui*
Suk-yee and Yuk-ling at library they line PROG queue
ẁahn syū
return book
‘Suk Yee and Yuk Ling are at the library. They are lining up to return some books.’
- b. *Suk-Yih wah béi Yuk-L̀hng t̀ng kéuih hahchi ẁih jéunsi*
Suk-yee say give Yuk-ling listen 3SG next-time will punctual
ẁahn syū
return book
‘Suk Yee tells Yuk Ling that s/he will return books on time next time.’
- c. *Suk-Yih wah b̄ingo hahchi ẁih jéunsi ẁahn syū?*
Suk-yee say who next-time will punctual return book
‘Who did Suk Yee say will return books on time next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-J̄ng t̀hng Suk-F̄n hái heiyún, kéuihdei āamāam ch́oh dāi*
Jing and Suk-fan at movie-theatre they just sat down
j́o
PERF
‘Jing and Suk Fan are at the movie theatre. They just sat down.’
- b. *A-J̄ng wah béi Suk-F̄n t̀ng kéuih hahchi ẁih mái j̄nggān*
Jing say give Suk-fan listen 3SG next-time will buy middle
ẁái
seat
‘Jing tells Suk Fan that s/he will buy middle seats next time.’
- c. *A-J̄ng wah b̄ingo hahchi ẁih mái j̄nggān ẁái?*
Jing say who next-time will buy middle seat
‘Who did Jing say will buy middle seats next time?’
- d. Jing / Suk Fan
- (11) a. *A-Yān t̀hng Méi-L̀hng hái ch̀uhfóng, kéukhdei k̄ng gán*
Yan and Meiling at kitchen they discuss PROG
gāmmāan jyú mē
tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

- b. *A-Yān wah béi Méi-Lihng tēng kéuih jèui lēk jjú hóisīn*
 Yan say give Meiling listen 3SG most clever cook seafood
 ‘Yan tells Meiling that s/he is best at cooking seafood.’
- c. *A-Yān wah bīngo jèui lēk jjú hóisīn?*
 Yan say who most clever cook seafood?
 ‘Who did Yan say is best at cooking seafood?’
- d. Yan / Meiling
- (12) a. *Jing-Yìh tūhng A-Sāan hái gūngyún, kéuihdei hái douh yéhcāan*
 Jing-yee and San at park they at there picnic
 ‘Jing Yee and San are at the park. They are having a picnic there.’
- b. *Jing-Yìh wah béi A-Sāan tēng kéuih hahchi wúih jing bōlòh*
 Jing-yee say give San listen 3SG next-time will make pineapple
chéungjái
 sausage
 ‘Jing Yee tells San that s/he will make pineapple and sausage skewers
 next time.’
- c. *Jing-Yìh wah bīngo hahchi wúih jing bōlòh chéungjái?*
 Jing-yee say who next-time will make pineapple sausage
 ‘Who did Jing Yee say will make pineapple and sausage skewers next
 time?’
- d. Jing Yee / San
- (13) a. *Lai-Gēun tūhng A-Fúhng hái sōfá douh chó, kéuihdei tái gán*
 Lai-geun and Fung at couch there sit they watch PROG
dīnsi
 television
 ‘Lai Geun and Fung are sitting on the couch. They are watching the
 television.’
- b. *Lai-Gēun wah béi A-Fúhng tēng kéuih máhnmáhn tái*
 Lai-geun say give Fung listen 3SG every-night watch
gélukpín
 documentary
 ‘Lai Geun tells Fung that s/he watches documentaries every night.’
- c. *Lai-Gēun wah bīngo máhnmáhn tái gélukpín?*
 Lai-geun say who every-night watch documentary
 ‘Who did Lai Geun say watches documentaries every night?’
- d. Fung / Lai Geun
- (14) a. *Síu-Làhm tūhng A-Lihng hái gāsí, kéuihdei mái gán sóhng*
 Lum and Ling at wet-market they buy PROG grocery

- ‘Lum and Ling are at the wet market. They are getting grocery.’
- b. *Síu-Làhm wah béi A-Fúhng tēng kéuih lám jyu mái yàohyú*
 Lum say give Ling listen 3SG think PROG buy squid
 ‘Lum tells Ling that s/he is planning to buy squids.’
- c. *Síu-Làhm wah bīngo lám jyu mái yàohyú?*
 Lum say who think PROG buy squid
 ‘Who did Lum say is planning to buy squids?’
- d. Ling / Lum
- (15) a. *Síu-Fā tūhng A-Jān hái dihnhei póu, kéuihdei tái gán*
 Fa and Jan at electric-appliance store they watch PROG
mèihbōlòuh
 microwave
 ‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
- b. *Síu-Fā wah béi A-Jān tēng kéuih yáo jēung gáo jik kāt*
 Fa say give Jan listen 3SG has CL nine discount card
 ‘Fa tells Jan that s/he has a ten percent discount card.’
- c. *Síu-Fā wah bīngo yáo jēung gáo jik kāt?*
 Fa say who have CL nine discount card
 ‘Who did Fa say has a ten percent discount card?’
- d. Jan / Fa
- (16) a. *Síu-Yúk tūhng Síu-Fān hái yeukfòhng, kéuihdei mái gán wàih tāmīng*
 Yuk and Fan at pharmacy they buy PROG vitamin
yún
 pills
 ‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
- b. *Síu-Yúk wah béi Síu-Fān tēng kéuih sìhngyat sēungfūng gámmou*
 Yuk say give Fan listen 3SG always cold Flu
 ‘Yuk tells Fan that s/he is always sick.’
- c. *Síu-Yúk wah bīngo sìhngyat sēungfūng gámmou?*
 Yuk say who always cold Flu
 ‘Who did Yuk say is always sick?’

A.3 Condition 3: hear/jihgei

- (1) a. *Wàh-jái tūhng Wáih-mìhng hái chāntēng, kéuihdei jéunbeih ngai yeh*
 Wah and Wai-ming at restaurant they prepare call thing
sìhk
 eat

‘Wah and Wai Ming are at the restaurant. They are about to order food.’

b. *Wàh-jái tēng Wáih-mìhng góng wah jihgèi wúih ngai yíh fán*
Wah listen Wai-ming talk say self will call pasta

‘Wah hears from Wai Ming that self will order pasta.’

c. *Wàh-jái tēng góng wah bīngō wúih ngai yíh fán?*
Wah listen talk say who will call pasta

‘Who did Wah hear will order pasta?’

d. Wah / Wai Ming

(2) a. *Síu-mìhng tūhng Gā-lok hái séjihlauh, kéuihdei jéun-beih gán*
Ming and Ga-lok at office they prepare PROG
tīngyat go wuihyí
tomorrow CL meeting

‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’

b. *Síu-mìhng tēng Gā-lok góng wah jihgèi gāmmāan wúih gáodimh go*
Ming listen Ga-lok talk say self tonight will finish CL
bougou
report

‘Ming hears from Ga Lok that self will finish the report tonight.’

c. *Síu-mìhng tēng góng wah bīngō gāmmāan wúih gáodimh go bougou?*
Ming listen talk say who tonight will finish CL report

‘Who did Ming hear will finish the report tonight?’

d. Ming / Ga Lok

(3) a. *Wáih-jái tūhng A-Bōng hái ngàhnhòhng, kéuihdei pàih jó hóu loi*
Wai and Bong at bank they queue PERF very long
déui
time

‘Wai and Bong are at the bank. They have been queuing for a very long time.’

b. *Wáih-jái tēng A-Bōng góng wah jihgèi wúih gahm mbak*
Wai listen Bong talk say self will withdraw five-hundred
mān
money

‘Wai hears from Bong that self will withdraw five hundred dollars.’

c. *Wáih-jái tēng góng wah bīngō wúih gahm mbak mān?*
Wai listen talk say who will withdraw five-hundred money

‘Who did Wai hear will withdraw five hundred dollars?’

d. Wai / Bong

- (4) a. *A-Kèuhng tùhng A-Hòuh hái boujídong, kéuihdei tái gán dī*
Keung and Ho at newsstand they watch PROG CL
tàoh tíu
headline
'Keung and Ho are at the newsstand. They are looking at the headlines.'
- b. *A-Kèuhng tēng A-Hòuh góng wah jihgēi tōngsèuhng séungmóng tái*
Keung listen Ho talk say self usually online watch
sānmán
news
'Keung hears from Ho that self usually reads the news online.'
- c. *A-Kèuhng tēng góng wah bīngō tōngsèuhng séungmóng tái*
Keung listen talk say who usually online watch
sānmán?
news
'Who did Keung hear usually reads the news online?'
- d. Keung / Ho
- (5) a. *A-Mìhng tùhng Kèuhng-jái hái bokmatgún, kéuihdei tái gán*
Ming and Keung at museum they watch PROG
húnglúhng fasehk
dinosaur fossil
'Ming and Keung are at the museum. They are looking at dinosaur fossil.'
- b. *A-Mìhng tēng Kèuhng-jái góng wah jihgēi hahchi wúih dai*
Ming listen Keung talk say self next-time will bring
séunggēi
camera
'Ming hears from Keung that self will bring a camera next time.'
- c. *A-Mìhng tēng góng wah bīngō hahchi wúih dai séunggēi?*
Ming listen talk say who next-time will bring camera
'Who did Ming hear will bring a camera next time?'
- d. Keung / Ming
- (6) a. *Dai-Màhn tùhng Síu-Ji hái sāandéng kéuihdei jéunbeih hàhn fāan*
Man and Jee at peak they prepare walk back
lok sāan
down hill
'Man and Jee are at the peak. They are about to walk downhill.'
- b. *Dai-Màhn tēng Síu-Ji góng wah jihgēi wúih fùh jyu dī syu lèi*
Man listen Jee talk say self will hold PROG CL tree come
hàhn
walk

- ‘Man hears from Jee that self will hold onto the trees while walking.’
- c. *Dai-Màhn tēng góng wah bīngō wúih fùh jyu dī syu lèi hàhn?*
 Man listen talk say who will hold PROG CL tree come walk
 ‘Who did Man hear will hold onto the trees while walking?’
- d. Jee / Man
- (7) a. *Ji-Hòuh tùhng Gā-Kèuhng hái fosāk, kéuihdei hah yāt tòhng*
 Jee-ho and Ga-keung at classroom they next one class
souhohk chākyihm
 Math test
 ‘Jee Ho and Ga Keung are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh tēng Gā-Kèuhng góng wah jihgéi hahchi wúih jóu dī*
 Jee-ho listen Ga-keung talk say self next-time will early more
hōichí wānsyū
 start revision
 ‘Jee Ho hears from Ga Keung that self will start revising earlier next time.’
- c. *Ji-Hòuh tēng góng wah bīngō hahchi wúih jóu dī hōichí*
 Jee-ho listen talk say who next-time will early more start
wānsyū?
 revision
 ‘Who did Jee Ho hear will start revising earlier next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màhn tùhng Gihk-jái hái bāsí, kéuihdei sāk gán chē*
 Wai-man and Gik at bus they congested PROG car
 ‘Wai Man and Gik are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn tēng Gihk-jái góng wah jihgéi hahchi wúih jóu dī*
 Wai-man listen Gik talk say self next-time will early more
sāugūng
 finish-work
 ‘Wai Man hears from Gik that self will get off work earlier next time.’
- c. *Wái-Màhn tēng góng wah bīngō hahchi wúih jóu dī sāugūng?*
 Wai-man listen talk say who next-time will early more finish-work
 ‘Who did Wai Man hear will get off work earlier next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh tùhng Yuk-Lìhng hái tòusyūgún, kéuihdei pàih gán déui*
 Suk-ye and Yuk-ling at library they line PROG queue
wàhn syū
 return book

‘Suk Yee and Yuk Ling are at the library. They are lining up to return some books.’

- b. *Suk-Yìh tēng Yuk-Lìhng góng wah jihgèi hahchi wúih jéunsi*
Suk-yee listen Yuk-ling talk say self next-time will punctual
wàhn syū
return book

‘Suk Yee hears from Yuk Ling that self will return books on time next time.’

- c. *Suk-Yìh tēng góng wah bīngō hahchi wúih jéunsi wàhn syū?*
Suk-yee listen talk say who next-time will punctual return book
‘Who did Suk Yee hear will return books on time next time?’
d. Suk Yee / Yuk Ling

- (10) a. *A-Jīng tūhng Suhk-Fān hái heiyún, kéuihdei āamāam chók dāi*
Jing and Suk-fan at movie-theatre they just sat down
jó
PERF

‘Jing and Suk Fan are at the movie theatre. They just sat down.’

- b. *A-Jīng tēng Suhk-Fān góng wah jihgèi hahchi wúih mái jūnggān*
Jing listen Suk-fan talk say self next-time will buy middle
wái
seat

‘Jing hears from Suk Fan that self will buy middle seats next time.’

- c. *A-Jīng tēng góng wah bīngō hahchi wúih mái jūnggān wái?*
Jing listen talk say who next-time will buy middle seat
‘Who did Jing hear will buy middle seats next time?’
d. Jing / Suk Fan

- (11) a. *A-Yān tūhng Méi-Lìhng hái chéuhfóng, kéukhdei kīng gán*
Yan and Meiling at kitchen they discuss PROG
gāmmāan jyú mē
tonight cook what

‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

- b. *A-Yān tēng Méi-Lìhng góng wah jihgèi jèui lēk jyú hóisīn*
Yan listen Meiling talk say self most clever cook seafood
‘Yan hears from Meiling that self is best at cooking seafood.’

- c. *A-Yān tēng góng wah bīngō jèui lēk jyú hóisīn?*
Yan listen talk say who most clever cook seafood?
‘Who did Yan hear is best at cooking seafood?’
d. Yan / Meiling

- (12) a. *Jing-Yìh tùhng A-Sāan hái gūngyún, kéuihdei hái douh yéhchāan*
 Jing-yee and San at park they at there picnic
 ‘Jing Yee and San are at the park. They are having a picnic there.’
- b. *Jing-Yìhtēng béi A-Sāan góng wah jihgéi hahchi wúih jíng*
 Jing-yee listen San talk say self next-time will make
bōlòh chéungjái
 pineapple sausage
 ‘Jing Yee hears from San that self will make pineapple and sausage skewers next time.’
- c. *Jing-Yìh tēng góng wah bīngō hahchi wúih jíng bōlòh*
 Jing-yee listen talk say who next-time will make pineapple
chéungjái?
 sausage
 ‘Who did Jing Yee hear will make pineapple and sausage skewers next time?’
- d. Jing Yee / San
- (13) a. *Lai-Gēun tùhng A-Fúhng hái sōfá douh chó, kéuihdei tái gán*
 Lai-geun and Fung at couch there sit they watch PROG
dinsi
 television
 ‘Lai Geun and Fung are sitting on the couch. They are watching the television.’
- b. *Lai-Gēun tēng A-Fúhng góng wah jihgéi máhnmáhn tái*
 Lai-geun listen Fung talk say self every-night watch
gélukpín
 documentary
 ‘Lai Geun hears from Fung that self watches documentaries every night.’
- c. *Lai-Gēun tēng góng wah bīngō máhnmáhn tái gélukpín?*
 Lai-geun listen talk say who every-night watch documentary
 ‘Who did Lai Geun hear watches documentaries every night?’
- d. Fung / Lai Geun
- (14) a. *Síu-Làhm tùhng A-Lìhng hái gāsí, kéuihdei mái gán sóhng*
 Lum and Ling at wet-market they buy PROG grocery
 ‘Lum and Ling are at the wet market. They are getting grocery.’
- b. *Síu-Làhm tēng A-Fúhng góng wah jihgéi lám jyu mái yàohyú*
 Lum listen Ling talk say self think PROG buy squid
 ‘Lum hears from Ling that self is planning to buy squids.’
- c. *Síu-Làhm tēng góng wah bīngō lám jyu mái yàohyú?*
 Lum listen talk say who think PROG buy squid

‘Who did Lum hear is planning to buy squids?’

d. Ling / Lum

- (15) a. *Síu-Fā tūhng A-Jān hái dihnhei póu, kéuihdei tái gán*
Fa and Jan at electric-appliance store they watch PROG
mèihbōlòuh
microwave
‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
- b. *Síu-Fā tēng A-Jān góng wah jihgēi yáo jēung gáo jik kāt*
Fa listen Jan talk say self has CL nine discount card
‘Fa hears from Jan that self has a ten percent discount card.’
- c. *Síu-Fā tēng góng wah bīngō yáo jēung gáo jik kāt?*
Fa listen talk say who have CL nine discount card
‘Who did Fa hear has a ten percent discount card?’
- d. Jan / Fa

- (16) a. *Síu-Yúk tūhng Síu-Fān hái yeukfòhng, kéuihdei mái gán wàihhtāming*
Yuk and Fan at pharmacy they buy PROG vitamin
yún
pills
‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
- b. *Síu-Yúk tēng Síu-Fān góng wah jihgēi sìhngyat sēungfūng gámmou*
Yuk listen Fan talk say self always cold Flu
‘Yuk hears from Fan that self is always sick.’
- c. *Síu-Yúk tēng góng wah bīngō sìhngyat sēungfūng gámmou?*
Yuk listen talk say who always cold Flu
‘Who did Yuk hear is always sick?’

A.4 Condition 4: hear/pronoun

- (1) a. *Wàh-jái tūhng Wáih-mìhng hái chāntēng, kéuihdei jéunbeih ngai yeh*
Wah and Wai-ming at restaurant they prepare call thing
sìhk
eat
‘Wah and Wai Ming are at the restaurant. They are about to order food.’
- b. *Wàh-jái tēng Wáih-mìhng góng wah kéuih wúih ngai yíhfán*
Wah listen Wai-ming talk say 3SG will call pasta
‘Wah hears from Wai Ming that s/he will order pasta.’

- c. *Wàh-jái tēng góng wah bīngō wúih ngai yífán?*
 Wah listen talk say who will call pasta
 ‘Who did Wah hear will order pasta?’
- d. Wah / Wai Ming
- (2) a. *Síu-mìhng tùhng Gā-lok hái séjihlàuh, kéuihdei jéun-beih gán*
 Ming and Ga-lok at office they prepare PROG
tīngyat go wuihyí
 tomorrow CL meeting
 ‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’
- b. *Síu-mìhng tēng Gā-lok góng wah kéuih gāmmāan wúih gáodimh go*
 Ming listen Ga-lok talk say 3SG tonight will finish CL
bougou
 report
 ‘Ming hears from Ga Lok that s/he will finish the report tonight.’
- c. *Síu-mìhng tēng góng wah bīngō gāmmāan wúih gáodimh go bougou?*
 Ming listen talk say who tonight will finish CL report
 ‘Who did Ming hear will finish the report tonight?’
- d. Ming / Ga Lok
- (3) a. *Wáih-jái tùhng A-Bōng hái ngànhhòhng, kéuihdei pàih jó hóu loi*
 Wai and Bong at bank they queue PERF very long
déui
 time
 ‘Wai and Bong are at the bank. They have been queuing for a very long time.’
- b. *Wáih-jái tēng A-Bōng góng wah kéuih wúih gahm mbak*
 Wai listen Bong talk say 3SG will withdraw five-hundred
mān
 money
 ‘Wai hears from Bong that s/he will withdraw five hundred dollars.’
- c. *Wáih-jái tēng góng wah bīngō wúih gahm mbak mān?*
 Wai listen talk say who will withdraw five-hundred money
 ‘Who did Wai hear will withdraw five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng tùhng A-Hòuh hái boujídong, kéuihdei tái gán dī*
 Keung and Ho at newsstand they watch PROG CL
tàohhtíu
 headline
 ‘Keung and Ho are at the newsstand. They are looking at the headlines.’

- b. *A-Kèuhng tēng A-Hòuh góng wah kéuih tōngsèuhng séungmóng tái*
 Keung listen Ho talk say 3SG usually online watch
sānmán
 news
 ‘Keung hears from Ho that s/he usually reads the news online.’
- c. *A-Kèuhng tēng góng wah bīngō tōngsèuhng séungmóng tái*
 Keung listen talk say who usually online watch
sānmán?
 news
 ‘Who did Keung hear usually reads the news online?’
- d. Keung / Ho
- (5) a. *A-Mìhng tūhng Kèuhng-jái hái bokmatgún, kéuihdei tái gán*
 Ming and Keung at museum they watch PROG
húnglúhng fasehk
 dinosaur fossil
 ‘Ming and Keung are at the museum. They are looking at dinosaur fossil.’
- b. *A-Mìhng tēng Kèuhng-jái góng wah kéuih hahchi wúih dai*
 Ming listen Keung talk say 3SG next-time will bring
séunggēi
 camera
 ‘Ming hears from Keung that s/he will bring a camera next time.’
- c. *A-Mìhng tēng góng wah bīngō hahchi wúih dai séunggēi?*
 Ming listen talk say who next-time will bring camera
 ‘Who did Ming hear will bring a camera next time?’
- d. Keung / Ming
- (6) a. *Dai-Màhn tūhng Síu-Ji hái sāandéng kéuihdei jéunbeih hàhn fāan*
 Man and Jee at peak they prepare walk back
lok sāan
 down hill
 ‘Man and Jee are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn tēng Síu-Ji góng wah kéuih wúih fùh jyu dī syu lèi*
 Man listen Jee talk say 3SG will hold PROG CL tree come
hàhn
 walk
 ‘Man hears from Jee that s/he will hold onto the trees while walking.’
- c. *Dai-Màhn tēng góng wah bīngō wúih fùh jyu dī syu lèi hàhn?*
 Man listen talk say who will hold PROG CL tree come walk
 ‘Who did Man hear will hold onto the trees while walking?’
- d. Jee / Man

- (7) a. *Ji-Hòuh tùhng Gā-Kèuhng hái fosāk, kéuihdei hah yāt tòhng*
 Jee-ho and Ga-keung at classroom they next one class
souhohk chākyihm
 Math test
 ‘Jee Ho and Ga Keung are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh tēng Gā-Kèuhng góng wah kéuih hahchi wúih jóu dī*
 Jee-ho listen Ga-keung talk say 3SG next-time will early more
hōichí wānsyū
 start revision
 ‘Jee Ho hears from Ga Keung that s/he will start revising earlier next time.’
- c. *Ji-Hòuh tēng góng wah bīngō hahchi wúih jóu dī hōichí*
 Jee-ho listen talk say who next-time will early more start
wānsyū?
 revision
 ‘Who did Jee Ho hear will start revising earlier next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màhn tùhng Gihk-jái hái bāsí, kéuihdei sāk gán chē*
 Wai-man and Gik at bus they congested PROG car
 ‘Wai Man and Gik are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn tēng Gihk-jái góng wah kéuih hahchi wúih jóu dī*
 Wai-man listen Gik talk say 3SG next-time will early more
sāugūng
 finish-work
 ‘Wai Man hears from Gik that s/he will get off work earlier next time.’
- c. *Wái-Màhn tēng góng wah bīngō hahchi wúih jóu dī sāugūng?*
 Wai-man listen talk say who next-time will early more finish-work
 ‘Who did Wai Man hear will get off work earlier next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh tùhng Yuk-Lìhng hái tòusyūgún, kéuihdei pàih gán déui*
 Suk-yee and Yuk-ling at library they line PROG queue
wàhn syū
 return book
 ‘Suk Yee and Yuk Ling are at the library. They are lining up to return some books.’
- b. *Suk-Yìh tēng Yuk-Lìhng góng wah kéuih hahchi wúih jéunsi*
 Suk-yee listen Yuk-ling talk say 3SG next-time will punctual
wàhn syū
 return book

‘Suk Yee hears from Yuk Ling that s/he will return books on time next time.’

- c. *Suk-Yih tēng góng wah bīngō hahchi wúih jéunsi wàhn syū?*
Suk-yee listen talk say who next-time will punctual return book
‘Who did Suk Yee hear will return books on time next time?’
- d. Suk Yee / Yuk Ling

- (10) a. *A-Jīng tūhng Suhk-Fān hái heiyún, kéuihdei āamāam chóh dāi*
Jing and Suk-fan at movie-theatre they just sat down
jó
PERF

‘Jing and Suk Fan are at the movie theatre. They just sat down.’

- b. *A-Jīng tēng Suhk-Fān góng wah kéuih hahchi wúih mái jūnggān*
Jing listen Suk-fan talk say 3SG next-time will buy middle
wái
seat

‘Jing hears from Suk Fan that s/he will buy middle seats next time.’

- c. *A-Jīng tēng góng wah bīngō hahchi wúih mái jūnggān wái?*
Jing listen talk say who next-time will buy middle seat
‘Who did Jing hear will buy middle seats next time?’
- d. Jing / Suk Fan

- (11) a. *A-Yān tūhng Méi-Lìhng hái chēuhfóng, kéukhdei kīng gán*
Yan and Meiling at kitchen they discuss PROG
gāmmāan jyú mē
tonight cook what

‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

- b. *A-Yān tēng Méi-Lìhng góng wah kéuih jwei lēk jyú hóisīn*
Yan listen Meiling talk say 3SG most clever cook seafood
‘Yan hears from Meiling that s/he is best at cooking seafood.’

- c. *A-Yān tēng góng wah bīngō jwei lēk jyú hóisīn?*
Yan listen talk say who most clever cook seafood?
‘Who did Yan hear is best at cooking seafood?’

- d. Yan / Meiling

- (12) a. *Jing-Yih tūhng A-Sān hái gūngyún, kéuihdei hái douh yéhchān*
Jing-yee and San at park they at there picnic
‘Jing Yee and San are at the park. They are having a picnic there.’

- b. *Jing-Yìhtēng béi A-Sāan góng wah kéuih hahchi wúih jing*
 Jing-yee listen San talk say 3SG next-time will make
bōlòh chéungjái
 pineapple sausage
 ‘Jing Yee hears from San that s/he will make pineapple and sausage skewers next time.’
- c. *Jing-Yìh tēng góng wah bīngò hahchi wúih jing bōlòh*
 Jing-yee listen talk say who next-time will make pineapple
chéungjái?
 sausage
 ‘Who did Jing Yee hear will make pineapple and sausage skewers next time?’
- d. Jing Yee / San
- (13) a. *Lai-Gēun tūhng A-Fúhng hái sōfá douh chó, kéuihdei tái gán*
 Lai-geun and Fung at couch there sit they watch PROG
dinsi
 television
 ‘Lai Geun and Fung are sitting on the couch. They are watching the television.’
- b. *Lai-Gēun tēng A-Fúhng góng wah kéuih máhnmáhn tái*
 Lai-geun listen Fung talk say 3SG every-night watch
gélukpín
 documentary
 ‘Lai Geun hears from Fung that s/he watches documentaries every night.’
- c. *Lai-Gēun tēng góng wah bīngò máhnmáhn tái gélukpín?*
 Lai-geun listen talk say who every-night watch documentary
 ‘Who did Lai Geun hear watches documentaries every night?’
- d. Fung / Lai Geun
- (14) a. *Síu-Làhm tūhng A-Lìhng hái gāsí, kéuihdei mái gán sóhng*
 Lum and Ling at wet-market they buy PROG grocery
 ‘Lum and Ling are at the wet market. They are getting grocery.’
- b. *Síu-Làhm tēng A-Fúhng góng wah kéuih lám jyu mái yàohyú*
 Lum listen Ling talk say 3SG think PROG buy squid
 ‘Lum hears from Ling that s/he is planning to buy squids.’
- c. *Síu-Làhm tēng góng wah bīngò lám jyu mái yàohyú?*
 Lum listen talk say who think PROG buy squid
 ‘Who did Lum hear is planning to buy squids?’
- d. Ling / Lum

- (15) a. *Síu-Fā tùhng A-Jān hái dihnhei póu, kéuihdei tái gán*
 Fa and Jan at electric-appliance store they watch PROG
mèihbōlòuh
 microwave
 ‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
- b. *Síu-Fā tēng A-Jān góng wah kéuih yáo jēung gáo jik kāt*
 Fa listen Jan talk say 3SG has CL nine discount card
 ‘Fa hears from Jan that s/he has a ten percent discount card.’
- c. *Síu-Fā tēng góng wah bīngo yáo jēung gáo jik kāt?*
 Fa listen talk say who have CL nine discount card
 ‘Who did Fa hear has a ten percent discount card?’
- d. Jan / Fa
- (16) a. *Síu-Yúk tùhng Síu-Fān hái yeukfòhng, kéuihdei mái gán wàihhtāming*
 Yuk and Fan at pharmacy they buy PROG vitamin
yún
 pills
 ‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
- b. *Síu-Yúk tēng Síu-Fān góng wah kéuih sìhngyat sēungfūng gámmou*
 Yuk listen Fan talk say 3SG always cold Flu
 ‘Yuk hears from Fan that s/he is always sick.’
- c. *Síu-Yúk tēng góng wah bīngo sìhngyat sēungfūng gámmou?*
 Yuk listen talk say who always cold Flu
 ‘Who did Yuk hear is always sick?’

A.5 Filler trials

- (1) a. *Daih-Hùhng tùhng Hou-Làhm hái gāsīpóu, kéuihdei tái gán*
 Dai-hung and Ho-lam at furniture-shop they look PROG
syūtóí
 desk
 ‘Dai Hung and Ho Lam are at the furniture shop. They are looking at desks.’
- b. *Daih-Hùhng wah béi Hou-Làhm tēng Daih-Hùhng séung mái jēung*
 Dai-hung say give Ho-lam listen Dai-hung want buy CL
daih dī ge
 big a-bit LP
 ‘Dai Hung tells Ho Lam that Dai Hung wants to buy a bigger desk.’

- c. *Daih-Hùhng wah bīngō séung mái jēung daih dī ge?*
 Dai-hung say who want buy CL big a-bit LP
 ‘Who did Dai Hung say wants to buy a bigger desk?’
- d. Dai Hung / Ho Lam
- (2) a. *Gā-Míng tùhng Gwōk-Duhng hái gáfēdim, kéuihdei yám gán*
 Ga-ming and Gwok-dung at coffee-shop they drink PROG
gáfē
 coffee
 ‘Ga Ming and Gwok Dung are at the coffee shop. They are having coffee.’
- b. *Gā-Míng wah béi Gwōk-Duhng tēng Gā-Míng hahchi wúih ngaai*
 Ga-ming say give Gwok-dung listen Ga-ming next-time will order
jāi fē
 plain coffee
 ‘Ga Ming tells Gwok Dung that Ga Ming will order black coffee next time.’
- c. *Gā-Míng wah bīngō hahchi wúih ngaai jāi fē?*
 Ga-ming say who next-time will order plain coffee
 ‘Who did Ga Ming say will order black coffee next time?’
- d. Gwok Dung / Ga Ming
- (3) a. *Gā-Bóu tùhng Ji-Wái hái biūpó, kéuihdei jíng gán biū*
 Ga-bo and Jee-wai at watch-shop they fix PROG watch
 ‘Ga Bo and Jee Wai are at the watch shop. They are getting a watch fixed.’
- b. *Gā-Bóu wah béi Ji-Wái tēng Ji-Wái hahchi wúih héui daihyih*
 Ga-bo say give Jee-wai listen Jee-wai next-time will go second
douh jíng biū
 place fix watch
 ‘Ga Bo tells Jee Wai that Jee Wai will go elsewhere to get watches fixed next time.’
- c. *Gā-Bóu wah bīngō hahchi wúih héui daihyih douh jíng biū?*
 Ga-bo say who next-time will go second place fix watch
 ‘Who did Ga Bo say will go elsewhere to get watches fixed next time?’
- d. Ga Bo / Jee Wai
- (4) a. *Gā-Yān tùhng A-Hàh hái deih-tik, kéuihdei gón sihgan*
 Ga-yan and Ha at train they rush time
 ‘Ga Yan and Ha are on the train. They are in a hurry.’
- b. *Gā-Yān wah béi A-Hàh tēng A-Hàh hahchi dap dīksí*
 Ga-yan say give Ha listen Ha next-time take cab
 ‘Ga Yan tells Ha that Ha will take a cab next time.’

- c. *Gā-Yān wah bīngō hahchi dap dīksí?*
 Ga-yan say who next-time take cab
 ‘Who did Ga Yan say will take a cab next time?’
- d. Ga Yan / Ha
- (5) a. *Síu-Kèih tùhng A-Mán hái bakfogūngsī, kéuihdei tái gán*
 Kay and Man at department-store they look PROG
sāam
 clothes
 ‘Kay and Man are at the department store. They are looking at clothes.’
- b. *Síu-Kèih wah béi A-Mán tēng A-Mán gámga sīn mái sāam*
 Kay say give Man listen Man sale then buy clothes
 ‘Kay tells Man that Man buys clothes when they are on sale.’
- c. *Síu-Kèih wah bīngō gámga sīn mái sāam?*
 Kay say who sale then buy clothes
 ‘Who did Kay say buys clothes when they are on sale?’
- d. Man / Kay
- (6) a. *Gā-Mìhng tùhng Jí-Gín hái binleidīm, kéuihdei sihk gán*
 Ga-ming and Jee-geen at convenience-store they eat PROG
yùhdán
 fish-ball
 ‘Ga Ming and Jee Geen are at the convenience store. They are eating fish balls.’
- b. *Gā-Mìhng tēng Jí-Gín góng wa Gā-Mìhng hahchi heui*
 Ga-ming listen Jee-geen talk say Ga-ming next-time go
Wong-Gōk dūk yùhdán
 Mongkok poke fish-ball
 ‘Ga Ming hears from Jee Geen that Ga Ming will go to Mongkok for fish balls next time.’
- c. *Gā-Mìhng tēng góng wa bīngō hahchi heui Wong-Gōk dūk*
 Ga-ming listen talk say who next-time go Mongkok poke
yùhdán?
 fish-ball
 ‘Who did Ga Ming hear will go to Mongkok for fish balls next time?’
- d. Ga Ming / Jee Geen
- (7) a. *Ji-Mìhng tùhng Hou-Yìhn hái syūdim, kéuihdei tái gán syū*
 Jee-ming and Ho-yeen at bookstore they look PROG book
 ‘Jee Ming and Ho Yeen are at the book store. They are looking at books.’

- b. *Ji-Mìhng tēng Hou-Yìhn góng wa Ji-Mìhng wúih mái bún s̄usyuk*
 Jee-ming listen Ho-yeen talk say Jee-ming will buy CL novel
 ‘Jee Ming hears from Ho Yeen that Jee Ming will buy a novel.’
- c. *Ji-Mìhng tēng góng wa b̄ingo wúih mái bún s̄usyuk?*
 Jee-ming listen talk say who will buy CL novel
 ‘Who did Jee Ming hear will buy a novel?’
- d. Jee Ming / Ho Yeen
- (8) a. *Síu-Sin t̀hng Gā-Mán hái f̄atỳhngngūk, kéuihdei jín gán tàohfāt*
 Sin and Ga-man at hair-salon they cut PROG hair
 ‘Sin and Ga Man are at the hair salon. They are having a hair cut.’
- b. *Síu-Sin tēng Gā-Mán góng wa Síu-Sin hahchi wúih jín dyún dī*
 Sin listen Ga-man talk say Sin next-time will cut short a-bit
 ‘Sin hears from Ga Man that Sin will cut her hair shorter next time.’
- c. *Síu-Sin tēng góng wa b̄ingo hahchi wúih jín dyún dī?*
 Sin listen talk say who next-time will cut short a-bit
 ‘Who did Sin hear will cut her hair shorter next time?’
- d. Ga Man / Sin
- (9) a. *Pui-Sān t̀hng Yún-Tìhng hái méiyòhngyún, kéuihdei sāo gán gaap*
 Pui-san and Yun-ting at beauty-salon they trim PROG nails
 ‘Pui San and Yun Ting are at the beauty salon. They are having a manicure.’
- b. *Pui-Sān tēng Yún-Tìhng góng wa Yún-Tìhng gāmchi chàh hòhngs̄ik*
 Pui-san listen Yun-ting talk say Yun-ting this-time apply red
 ‘Pui San hears from Yun Ting that Yun Ting will paint her nails red this time.’
- c. *Pui-Sān tēng góng wa b̄ingo gāmchi chàh hòhngs̄ik?*
 Pui-san listen talk say who this-time apply red
 ‘Who did Pui San hear will paint her nails red this time?’
- d. Pui San / Yun Ting
- (10) a. *Síu-Yin t̀hng Wing-Yān hái chānsó, kéuihdei dāng gán tái yīsāng*
 Yin and Wing-yan at clinic they wait PROG watch doctor
 ‘Yin and Wing Yan are at the clinic. They are waiting to see the doctor.’

- b. *Síu-Yin tēng Wíng-Yān góng wa Wíng-Yān yiu dai fān go háojao*
 Yin listen Wing-yan talk say Wing-yan need wear back CL mask
 ‘Yin hears from Wing Yan that Wing Yan needs to wear a face mask.’
- c. *Síu-Yin tēng góng wa bīnggo yiu dai fān go háojao?*
 Yin listen talk say who need wear back CL mask
 ‘Who did Yan hear needs to wear a face mask?’
- d. Wing Yan / Yin
- (11) a. *Wai-Màhn tùhng Wíng-Hōng hái haktēng, kéuihdei tái gán*
 Wai-man and Wing-hong at living-room they watch PROG
dinsi
 television
 ‘Wai Man and Wing Hong are in the living room. They are watching the television.’
- b. *Wai-Màhn giu Wíng-Hōng gao daih sēng dī go dinsi*
 Wai-man ask Wing-hong adjust big volume a-bit CL television
 ‘Wai Man asks Wing Hong to turn up the volume of the television.’
- c. *Wai-Màhn giu bīnggo gao daih sēng dī go dinsi?*
 Wai-man ask who adjust big volume a-bit CL television
 ‘Who did Wai man ask to turn up the volume of the television?’
- d. Wai Man / Wing Hong
- (12) a. *Ji-Màhn tùhng A-Fāi hái taihōhnggún, kéuihdei kái jó hái*
 Jee-man and Fai at space-museum they stand EXP at
mùhnháo
 entrance
 ‘Jee Man and Fai are at the space museum. They are standing at the entrance’
- b. *Ji-Màhn giu A-Fāi mái fēi*
 Jee-man ask Fai buy ticket
 ‘Jee Man asks Fai to buy tickets.’
- c. *Ji-Màhn giu bīnggo mái fēi?*
 Jee-man ask who buy ticket
 ‘Who did Jee Man ask to buy tickets?’
- d. Jee Man / Fai
- (13) a. *Gā-Lók tùhng Jí-Hōng hái ginsānsāk, kéuihdei páo gán bou*
 Ga-lok and Jee-hong at gym they run PROG step
 ‘Ga Lok and Jee Hong are at the gym. They are running.’

- b. *Gā-Lók giu Jí-Hōng yám sihk yiu gwānhàhng*
 Ga-lok ask Jee-hong drink eat need balance
 ‘Ga Lok asks Jee Hong to have a balanced diet.’
- c. *Gā-Lók giu bīngō yám sihk yiu gwānhàhng?*
 Ga-lok ask who drink eat need balance
 ‘Who did Ga Lok ask to have a balanced diet?’
- d. Jee Hong / Ga Lok
- (14) a. *Cheui-Sān tūhng Gā-Lái hái chiūkāpsíchèuhng, kéuihdei tái gán*
 Chui-san and Ga-lai at supermarket they look PROG
hóisīn
 seafood
 ‘Chui San and Ga Lai are at the supermarket. They are looking at seafood.’
- b. *Cheui-Sān giu Gā-Lái gán chòilíu jíng hóisīn cháofahn*
 Chui-san ask Ga-lai choose ingredient make seafood fried-rice
 ‘Chui San asks Ga Lai to choose ingredients for making seafood fried rice.’
- c. *Cheui-Sān giu bīngō gán chòilíu jíng hóisīn cháofahn?*
 Chui-san ask who choose ingredient make seafood fried-rice
 ‘Who did Chui San ask to choose ingredients for making seafood fried rice?’
- d. Chui San / Ga Lai
- (15) a. *Síu-Sí tūhng Méi-Hàh hái sēungchèuhng, kéuihdei hàhng gán gāi*
 Si and Mei-ha at mall they walk PROG street
 ‘Si and Mei Ha are at the mall. They are shopping.’
- b. *Síu-Sí giu Méi-Hàh hàhn mahn dī*
 Si ask Mei-ha walk slow a-bit
 ‘Si asks Mei Ha to walk a bit slower.’
- c. *Síu-Sí giu bīngō hàhn mahn dī?*
 Si ask who walk slow a-bit
 ‘Who did Si ask to walk slower?’
- d. Mei Ha / Si
- (16) a. *Gā-Yìh tūhng Súk-Mán hái ngūkkéi, kéuihdei jéunbeih chēut mūnháo*
 Ga-yee and Suk-man at home they prepare out entrance
 ‘Ga Yee and Suk Man are home. They are about to head out.’
- b. *Gā-Yìh giu Súk-Mán jeuk dō gin sām*
 Ga-yee ask Suk-man wear more CL clothes
 ‘Ga Yee asks Suk Man to wear more clothes.’

- c. *Gā-Yih giu bīngō jeuk dō gin sāam?*
Ga-yee ask who wear more CL clothes
'Who did Ga Yee ask to wear more clothes?'
- d. Suk Man / Ga Yee

Appendix B

Test sentences from Experiment 2

B.1 Condition 1: say/jihgei

- (1) a. *Wàh-jái, Wáih-Mìhng tùhng Síu-Ji hái chāantēng, kéuihdei āamāam*
Wah Wai-ming and Jee at restaurant they just
dóuséh jó hólok
spill EXP coke
‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’
- b. *Wàh-jái wah béi Wáih-Mìhng tēng Síu-Ji jong dóu jihgéi*
Wah say give Wai-ming listen Jee collide PRT self
‘Wah tells Wai Ming that Jee bumped against self.’
- c. *Wàh-jái wah Síu-Ji jong dóu bīngō?*
Way say Jee collide PRT who
‘Who did Wah say Jee bumped against?’
- d. Wah / Wai Ming
- (2) a. *Síu-Mìng, Gā-Lok tùhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdihng*
Ming Ga-lok and Jeen-pang at office they decide
gán hah go sīngkèih go wuihyí go jyútàih
PROG next CL week CL meeting CL theme
‘Ming, Ga Lok and Jeen Pang are at the office. They are deciding on a theme for a meeting next week.’
- b. *Síu-Mìng wah béi Gā-Lok tēng Jín-Pàhng jantùhng jihgéi*
Ming say give Ga-lok listen Jeen-pang agree self
‘Ming tells Ga Lok that Jeen Pang agrees with self.’
- c. *Síu-Mìng wah Jín-Pàhng jantùhng bīngō?*
Ming say Jeen-pang agree who
‘Who did Ming say Jeen Pang agrees with?’

- d. Ming / Ga Lok
- (3) a. *Wáih-jái, A-Bōng tùhng A-Jìhng hái ngàhnhòhng, kéuihdei pàih jó*
 Wai Bong and Jing at bank they queue ASP
hóu loi déui
 very long line
 ‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’
- b. *Wáih-jái wah béi A-Bōng tēng A-Jìhng jāan jihgēi m-bak*
 Wai say give Bong listen Jing owe self five-hundred
mān
 money
 ‘Wai tells Bong that Jing owes self five hundred dollars.’
- c. *Wáih-jái wah A-Jìhng jāan bīngo m-bak mān?*
 Wai say Jing owe who five-hundred money
 ‘Who did Wai say Jing owes five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng, A-Hòuh tùhng A-Jóu hái boujídong, kéuihdei tóulun gán*
 Keung Ho and Jo at newsstand they discuss PROG
sìhsi
 current-affairs
 ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’
- b. *A-Kèuhng wah béi A-Hòuh tēng A-Jóu sìhngyat fáanbok jihgēi*
 Keung say give Ho listen Jo always argue self
 ‘Keung tells Ho that Jo always argues with self.’
- c. *A-Kèuhng wah A-Jóu sìhngyat fáanbok bīngo?*
 Keung say Jo always argue who
 ‘Who did Keung say Jo always argue with?’
- d. Keung / Ho
- (5) a. *A-Mìhng, Kèuhng-jái tùhng A-Lóhng hái bokmahtgún, kéuihdei tái*
 Ming Keung and Long at museum they watch
gán húnglúhng fasehk
 PROG dinosaur fossil
 ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
- b. *A-Mìhng wah béi Kèuhng-jái tēng A-Lóhng hahchi dai jihgēi*
 Ming say give Keung listen Long next-time bring self
heui fōhokgún
 go science-museum

- ‘Ming tells Keung that Long will take self to the Science Museum next time.’
- c. *A-Mìhng wah A-Lóhng hahchi dai bīngo heui fōhokún?*
 Ming say Long next-time bring who go science-museum
 ‘Who did Ming say Long will take to the Science Museum next time?’
- d. Keung / Ming
- (6) a. *Dai-Màhn, Síu-Ji tūhng Chèuhng-jái hái sāandéng, kéuihdei jéunbeih*
 Man Jee and Cheung at peak they prepare
hàhn fāan lok sāan
 walk back down hill
 ‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn wah béi Síu-Ji tēng Chèuhng-jái wúih fùh jyu jìhgéi*
 Man say give Jee listen Cheung will hold PROG self
 ‘Man tells Jee that Cheung will hold onto self.’
- c. *Dai-Màhn wah Chèuhng-jái wúih fùh jyu bīngo?*
 Man say Cheung will hold PROG who
 ‘Who did Man say Cheung will hold onto?’
- d. Jee / Man
- (7) a. *Ji-Hòuh, Gā-Kèuhng tūhng Mǎhn-jái hái fosāk, kéuihdei hah yāt*
 Jee-ho, Ga-keung and Man at classroom they next one
tòhng souhohk chākyihm
 class Math test
 ‘Jee Ho, Ga Keung and Man are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh wah béi Gā-Kèuhng tēng Mǎhn-jái hahchi gao jìhgéi*
 Jee-ho say give Ga-keung listen Man next-time teach self
mèihjìkfān
 calculus
 ‘Jee Ho tells Ga Keung that Man will teach self calculus next time.’
- c. *Ji-Hòuh wah Mǎhn-jái hahchi gao bīngo mèihjìkfān?*
 Jee-ho say Man next-time teach who calculus
 ‘Who did Jee Ho say Man will teach calculus next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màhn, Gihk-jái tūhng A-Jàahk hái bāsí, kéuihdei sāk gán*
 Wai-man Gik and Jak at bus they congested PROG
chē
 car
 ‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’

- b. *Wái-Màhn wah béi Gihk-jái tēng A-Jàahk hahchi wúih chē jihgái*
 Wai-man say give Gik listen Jak next-time will drive self
 ‘Wai man tells Gik that Jak will drive self next time.’
- c. *Wái-Màhn wah A-Jàahk hahchi wúih chē bīngō?*
 Wai-man say Jak next-time will drive who
 ‘Who did Wai Man say Jak will drive next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh, Yuk-Lìhng tùhng Síu-Bīk hái tòuhsyūgún, kéuihdei pàih gán*
 Suk-yee, Yuk-ling and Bik at library they line PROG
déui wàhn syū
 queue return book
 ‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to return some books.’
- b. *Suk-Yìh wah béi Yuk-Lìhng tēng hahchi dī syū dōukèih Síu-Bīk*
 Suk-yee say give Yuk-ling listen next-time CL book due Bik
wúih tàihséng jihgái
 will remind self
 ‘Suk Yee tells Yuk Ling that Bik will remind self when the books are due next time.’
- c. *Suk-Yìh wah hahchi dī syū dōukèih Síu-Bīk wúih tàihséng bīngō?*
 Suk-yee say next-time CL book due Bik will remind who
 ‘Who did Suk Yee say Bik will remind when the books are due next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-Jīng, Suk-Fān tùhng Síu-Fōng hái heiyún, kéuihdei āamāam*
 Jing Suk-fan and Fong at movie-theatre they just
chóh dāi jó
 sat down EXP
 ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’
- b. *A-Jīng wah béi Suk-Fān tēng Síu-Fōng hahchī wúih béi jūnggān*
 Jing say give Suk-fan listen Fong next-time will give middle
wái jihgái
 seat self
 ‘Jing tells Suk Fan that Fong will give self the middle seat next time.’
- c. *A-Jīng wah Síu-Fōng hahchī wúih béi jūnggān wái bīngō?*
 Jing say Fong next-time will give middle seat who
 ‘Who did Jing say Fong will give the middle seat next time?’
- d. Jing / Suk Fan

- (11) a. *A-Yān, Méi-lìhng tùhng Síu-Chīng hái chyùfóng, kéuihdei king gán*
 Yan Meiling and Ching at kitchen they discuss PROG
jjú syūn lat tōng ge beikyut
 cook sour spicy soup LP secret
 ‘Yan, Meiling and Ching are in the kitchen. They are discussing the secret to making hot and sour soup.’
- b. *A-Yān wah béi Méi-lìhng tēng Síu-Chīng hahchī wúih ching gao*
 Yan say give Meiling listen Ching next-time will ask teach
jihgéi
 self
 ‘Yan tells Meiling that Ching will ask self (for tips) next time.’
- c. *A-Yān wah Síu-Chīng hahchī wúih ching gao bīngō?*
 Yan say Ching next-time will ask teach who
 ‘Who did Yan say Ching will ask next time?’
- d. Yan / Meiling
- (12) a. *Jing-Yìh, A-Sāan tùhng Gā-Bīk hái gūngyún, kéuihdei hái douh*
 Jing-yee San and Ga-bik at park they at there
yéhchāan
 picnic
 ‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’
- b. *Jing-Yìh wah béi A-Sāan tēng Gā-Bīk hahsingkèih yéhchāan wúih*
 Jing-yee say give San listen Ga-bik next-week picnic will
ngaaì màaih jihgéi
 call PRT self
 ‘Jing Yee tells San that Ga Bik will invite self to picnic next week.’
- c. *Jing-Yìh wah Gā-Bīk hahsingkèih yéhchāan wúih ngaaì màaih bīngō?*
 Jing-yee say Ga-bik next-week picnic will call PRT who
 ‘Who did Jing Yee say Ga Bik will invite to picnic next week?’
- d. Jing Yee / San
- (13) a. *Lai-Gyūn, A-Fúhng Tùhng Síu-Tòhng hái sōfá douh chó, kéuihdei*
 Lai-gyun Fung and Tong at couch there sit they
tái tái hah dihnsih fan jeuhk jó
 watch watch PROG television sleep PRT EXP
 ‘Lai Gyun, Fung and Tong are sitting on the couch. They fell asleep while watching the television.’
- b. *Lai-Gyūn wah béi A-Fúhng tēng Síu-Tòhng hahchī wúih ngaaì*
 Lai-gyun say give Fung listen Tong next-time will call
séng jihgéi
 awake self

- Lai Gyun tells Fung that Tong will wake self next time.’
- c. *Lai-Gyūn wah Síu-Tòhng hahchi wúih ngaai séng bīngo?*
Lai-gyun say Tong next-time will call awake who
‘Who did Lai Gyun say Tong will wake next time?’
- d. Fung / Lai Gyun
- (14) a. *Síu-Làhm, A-Lìhng tùhng Síu-Lei hái gāisí, kéuihdei mái gán*
Lum Ling and Lei at wet-market they buy PROG
song
grocery
‘Lum, Ling and Lei are at the wet market. They are getting grocery.’
- b. *Síu-Làhm wah béi A-Lìhng tēng Síu-Lei chai dóu jihgái*
Lum say give Ling listen Lei step PRT self
‘Lum tells Ling that Lei stepped on self.’
- c. *Síu-Làhm wah Síu-Lei chai dóu bīngo?*
Lum say Lei step PRT who
‘Who did Lum say Lei stepped on?’
- d. Ling / Lum
- (15) a. *Síu-Fā, A-Jān tùhng Bīk-Yúk hái dihnhei póu, kéuihdei*
Fa Jan and Bik-yuk at electric-appliance store they
tái gán mēihbōlòuh
watch PROG microwave
‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.’
- b. *Síu-Fā wah béi A-Jān tēng Bīk-Yúk jangāan béi jēung gáo jik*
Fa say give Jan listen Bik-yuk later give CL nine discount
kāat jihgái
card self
‘Fa tells Jan that Bik Yuk will give self a ten percent discount card later.’
- c. *Síu-Fā wah Bīk-Yúk jangāan béi jēung gáo jik kāat bīngo?*
Fa say Bik-yuk later give CL nine discount card who
‘Who did Fa say Bik Yuk will give a ten percent discount card later?’
- d. Jan / Fa
- (16) a. *Síu-Yúk, Síu-Fān tùhng Jīng-Hēung hái sēungcheung, kéuihdei*
Yuk Fan and Jing-heung at mall they
gamāam jōng dóu
coincidental collide PRT
‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

- b. *Síu-Yúk wah béi Síu-Fān tēng Jīng-Hēung ganpái beihōi jihgēi*
 Yuk say give Fan listen Jīng-heung lately avoid self
 ‘Yuk tells Fan that Jīng Heung has been avoiding self lately.’
- c. *Síu-Yúk wah Jīng-Hēung ganpái beihōi bīngo?*
 Yuk say Jīng-heung lately avoid who
 ‘Who did Yuk say Jīng Heung has been avoiding lately?’
- d. Fan / Yuk

B.2 Condition 2: say/pronoun

- (1) a. *Wàh-jái, Wáih-Mìhng tùhng Síu-Ji hái chāantēng, kéuihdei āamāam*
 Wah Wai-ming and Jee at restaurant they just
dóuséh jó hólok
 spill EXP coke
 ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’
- b. *Wàh-jái wah béi Wáih-Mìhng tēng Síu-Ji jong dóu kéuih*
 Wah say give Wai-ming listen Jee collide PRT 3SG
 ‘Wah tells Wai Ming that Jee bumped against s/he.’
- c. *Wàh-jái wah Síu-Ji jong dóu bīngo?*
 Wah say Jee collide PRT who
 ‘Who did Wah say Jee bumped against?’
- d. Wah / Wai Ming
- (2) a. *Síu-Mìng, Gā-Lok tùhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdihng*
 Mìng Gā-lok and Jeen-pang at office they decide
gán hah go sīngkèih go wuihyí go jyútàih
 PROG next CL week CL meeting CL theme
 ‘Mìng, Gā Lok and Jeen Pang are at the office. They are deciding on a theme for a meeting next week.’
- b. *Síu-Mìng wah béi Gā-Lok tēng Jín-Pàhng jantùhng kéuih*
 Mìng say give Gā-lok listen Jeen-pang agree 3SG
 ‘Mìng tells Gā Lok that Jeen Pang agrees with s/he.’
- c. *Síu-Mìng wah Jín-Pàhng jantùhng bīngo?*
 Mìng say Jeen-pang agree who
 ‘Who did Mìng say Jeen Pang agrees with?’
- d. Mìng / Gā Lok

- (3) a. *Wáih-jái, A-Bōng tùhng A-Jìhng hái ngàhnhòhng, kéuihdei pàih jó*
 Wai Bong and Jing at bank they queue ASP
hóu loi déui
 very long line
 ‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’
- b. *Wáih-jái wah béi A-Bōng tēng A-Jìhng jāan kéuih m-bak*
 Wai say give Bong listen Jing owe 3SG five-hundred
mān
 money
 ‘Wai tells Bong that Jing owes s/he five hundred dollars.’
- c. *Wáih-jái wah A-Jìhng jāan bīngo m-bak mān?*
 Wai say Jing owe who five-hundred money
 ‘Who did Wai say Jing owes five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng, A-Hòuh tùhng A-Jóu hái boujídong, kéuihdei tóulun gán*
 Keung Ho and Jo at newsstand they discuss PROG
sìhsi
 current-affairs
 ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’
- b. *A-Kèuhng wah béi A-Hòuh tēng A-Jóu sìhngyat fáanbok kéuih*
 Keung say give Ho listen Jo always argue 3SG
 ‘Keung tells Ho that Jo always argues with s/he.’
- c. *A-Kèuhng wah A-Jóu sìhngyat fáanbok bīngo?*
 Keung say Jo always argue who
 ‘Who did Keung say Jo always argue with?’
- d. Keung / Ho
- (5) a. *A-Mìhng, Kèuhng-jái tùhng A-Lóhng hái bokmahtgún, kéuihdei tái*
 Ming Keung and Long at museum they watch
gán húnglúhng fasehk
 PROG dinosaur fossil
 ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
- b. *A-Mìhng wah béi Kèuhng-jái tēng A-Lóhng hahchi dai kéuih*
 Ming say give Keung listen Long next-time bring 3SG
heui fōhokgún
 go science-museum
 ‘Ming tells Keung that Long will take s/he to the Science Museum next time.’

- c. *A-Mìhng wah A-Lóhng hahchi dai bīngō heui fōhokgún?*
 Ming say Long next-time bring who go science-museum
 ‘Who did Ming say Long will take to the Science Museum next time?’
- d. Keung / Ming
- (6) a. *Dai-Màhn, Síu-Ji tùhng Chèuhng-jái hái sāandéng, kéuihdei jéunbeih*
 Man Jee and Cheung at peak they prepare
hàhn fāan lok sāan
 walk back down hill
 ‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn wah béi Síu-Ji tēng Chèuhng-jái wúih fùh jyu kéuih*
 Man say give Jee listen Cheung will hold PROG 3SG
 ‘Man tells Jee that Cheung will hold onto s/he.’
- c. *Dai-Màhn wah Chèuhng-jái wúih fùh jyu bīngō?*
 Man say Cheung will hold PROG who
 ‘Who did Man say Cheung will hold onto?’
- d. Jee / Man
- (7) a. *Ji-Hòuh, Gā-Kèuhng tùhng Mǎhn-jái hái fosāk, kéuihdei hah yāt*
 Jee-ho, Ga-keung and Man at classroom they next one
tòhng souhohk chākyihm
 class Math test
 ‘Jee Ho, Ga Keung and Man are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh wah béi Gā-Kèuhng tēng Mǎhn-jái hahchi gao kéuih*
 Jee-ho say give Ga-keung listen Man next-time teach 3SG
mèihjīkfān
 calculus
 ‘Jee Ho tells Ga Keung that Man will teach s/he calculus next time.’
- c. *Ji-Hòuh wah Mǎhn-jái hahchi gao bīngō mèihjīkfān?*
 Jee-ho say Man next-time teach who calculus
 ‘Who did Jee Ho say Man will teach calculus next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màhn, Gihk-jái tùhng A-Jàahk hái bāsí, kéuihdei sāk gán*
 Wai-man Gik and Jak at bus they congested PROG
chē
 car
 ‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn wah béi Gihk-jái tēng A-Jàahk hahchi wúih chē kéuih*
 Wai-man say give Gik listen Jak next-time will drive 3SG

- ‘Wai man tells Gik that Jak will drive s/he next time.’
- c. *Wái-Màhn wah A-Jàahk hahchi wúih chē bīngo?*
 Wai-man say Jak next-time will drive who
 ‘Who did Wai Man say Jak will drive next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh, Yuk-Lìhng tùhng Síu-Bīk hái tòuhsyūgún, kéuihdei pàih gán*
 Suk-yee, Yuk-ling and Bik at library they line PROG
déui wàhn syū
 queue return book
 ‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to return some books.’
- b. *Suk-Yìh wah béi Yuk-Lìhng tēng hahchi dī syū dōukèih Síu-Bīk*
 Suk-yee say give Yuk-ling listen next-time CL book due Bik
wúih tàihséng kéuih
 will remind 3SG
 ‘Suk Yee tells Yuk Ling that Bik will remind s/he when the books are due next time.’
- c. *Suk-Yìh wah hahchi dī syū dōukèih Síu-Bīk wúih tàihséng bīngo?*
 Suk-yee say next-time CL book due Bik will remind who
 ‘Who did Suk Yee say Bik will remind when the books are due next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-Jīng, Suk-Fān tùhng Síu-Fōng hái heiyún, kéuihdei āamāam*
 Jing Suk-fan and Fong at movie-theatre they just
chóh dāi jó
 sat down EXP
 ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’
- b. *A-Jīng wah béi Suk-Fān tēng Síu-Fōng hahchī wúih béi jūnggān*
 Jing say give Suk-fan listen Fong next-time will give middle
wái kéuih
 seat 3SG
 ‘Jing tells Suk Fan that Fong will give s/he the middle seat next time.’
- c. *A-Jīng wah Síu-Fōng hahchī wúih béi jūnggān wái bīngo?*
 Jing say Fong next-time will give middle seat who
 ‘Who did Jing say Fong will give the middle seat next time?’
- d. Jing / Suk Fan
- (11) a. *A-Yān, Méi-lìhng tùhng Síu-Chīng hái chyùfóng, kéuihdei king gán*
 Yan Meiling and Ching at kitchen they discuss PROG
jyú syūn lat tōng ge beikyut
 cook sour spicy soup LP secret

‘Yan, Meiling and Ching are in the kitchen. They are discussing the secret to making hot and sour soup.’

- b. *A-Yān wah béi Méi-lìhng tēng Síu-Chīng hahchī wúih ching gao*
 Yan say give Meiling listen Ching next-time will ask teach
kéuih
 3SG

‘Yan tells Meiling that Ching will ask s/he (for tips) next time.’

- c. *A-Yān wah Síu-Chīng hahchī wúih ching gao bīngo?*
 Yan say Ching next-time will ask teach who

‘Who did Yan say Ching will ask next time?’

- d. Yan / Meiling

- (12) a. *Jing-Yìh, A-Sāan tùhng Gā-Bīk hái gūngyún, kéuihdei hái douh*
 Jing-yee San and Ga-bik at park they at there
yéhchāan
 picnic

‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’

- b. *Jing-Yìh wah béi A-Sāan tēng Gā-Bīk hahsingkèih yéhchāan wúih*
 Jing-yee say give San listen Ga-bik next-week picnic will
ngaai màaih kéuih
 call PRT 3SG

‘Jing Yee tells San that Ga Bik will invite s/he to picnic next week.’

- c. *Jing-Yìh wah Gā-Bīk hahsingkèih yéhchāan wúih ngaai màaih bīngo?*
 Jing-yee say Ga-bik next-week picnic will call PRT who

‘Who did Jing Yee say Ga Bik will invite to picnic next week?’

- d. Jing Yee / San

- (13) a. *Lai-Gyūn, A-Fúhng Tùhng Síu-Tòhng hái sōfá douh chó, kéuihdei*
 Lai-gyun Fung and Tong at couch there sit they
tái tái hah dihnsih fan jeuhk jó
 watch watch PROG television sleep PRT EXP

‘Lai Gyun, Fung and Tong are sitting on the couch. They fell asleep while watching the television.’

- b. *Lai-Gyūn wah béi A-Fúhng tēng Síu-Tòhng hahchi wúih ngaai*
 Lai-gyun say give Fung listen Tong next-time will call
séng kéuih
 awake 3SG

Lai Gyun tells Fung that Tong will wake s/he next time.’

- c. *Lai-Gyūn wah Síu-Tòhng hahchi wúih ngaai séng bīngo?*
 Lai-gyun say Tong next-time will call awake who

‘Who did Lai Gyun say Tong will wake next time?’

d. Fung / Lai Gyun

- (14) a. *Síu-Làhm, A-Lìhng tùhng Síu-Lei hái gāisí, kéuihdei mái gán*
Lum Ling and Lei at wet-market they buy PROG
song
grocery

‘Lum, Ling and Lei are at the wet market. They are getting grocery.’

- b. *Síu-Làhm wah béi A-Lìhng tēng Síu-Lei chai dóu kéuih*
Lum say give Ling listen Lei step PRT 3SG

‘Lum tells Ling that Lei stepped on s/he.’

- c. *Síu-Làhm wah Síu-Lei chai dóu bīngō?*
Lum say Lei step PRT who

‘Who did Lum say Lei stepped on?’

d. Ling / Lum

- (15) a. *Síu-Fā, A-Jān tùhng Bīk-Yúk hái dihnhei póu, kéuihdei*
Fa Jan and Bik-yuk at electric-appliance store they
tái gán mēihbōlòuh
watch PROG microwave

‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.’

- b. *Síu-Fā wah béi A-Jān tēng Bīk-Yúk jangāan béi jēung gáo jik*
Fa say give Jan listen Bik-yuk later give CL nine discount
kāat kéuih
card 3SG

‘Fa tells Jan that Bik Yuk will give s/he a ten percent discount card later.’

- c. *Síu-Fā wah Bīk-Yúk jangāan béi jēung gáo jik kāat bīngō?*
Fa say Bik-yuk later give CL nine discount card who

‘Who did Fa say Bik Yuk will give a ten percent discount card later?’

d. Jan / Fa

- (16) a. *Síu-Yúk, Síu-Fān tùhng Jīng-Hēung hái sēungcheung, kéuihdei*
Yuk Fan and Jing-heung at mall they
gamāam jong dóu
coincidental collide PRT

‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

- b. *Síu-Yúk wah béi Síu-Fān tēng Jīng-Hēung ganpái beihōi kéuih*
Yuk say give Fan listen Jing-heung lately avoid 3SG

‘Yuk tells Fan that Jing Hueng has been avoiding s/he lately.’

- c. *Síu-Yúk wah Jing-Hēung ganpái beihōi bīngo?*
 Yuk say Jing-heung lately avoid who
 ‘Who did Yuk say Jing Heung has been avoiding lately?’
- d. Fan / Yuk

B.3 Condition 3: hear/jihgei

- (1) a. *Wàh-jái, Wáih-Mìhng tùhng Síu-Ji hái chāantēng, kéuihdei āamāam*
 Wah Wai-ming and Jee at restaurant they just
dóuséh jó hólok
 spill EXP coke
 ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’
- b. *Wàh-jái tēng Wáih-Mìhng góng wah Síu-Ji jong dóu jihgéi*
 Wah listen Wai-ming talk say Jee collide PRT self
 ‘Wah hears from Wai Ming that Jee bumped against self.’
- c. *Wàh-jái tēng góng wah Síu-Ji jong dóu bīngo?*
 Wah listen talk say Jee collide PRT who
 ‘Who did Wah hear Jee bumped against?’
- d. Wah / Wai Ming
- (2) a. *Síu-Mìng, Gā-Lok tùhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdihng*
 Ming Ga-lok and Jeen-pang at office they decide
gán hah go sīngkèih go wuihyí go jyútàih
 PROG next CL week CL meeting CL theme
 ‘Ming, Ga Lok and Jeen Pang are at the office. They are deciding on a theme for a meeting next week.’
- b. *Síu-Mìng tēng Gā-Lok góng wah Jín-Pàhng jantùhng jihgéi*
 Ming listen Ga-lok talk say Jeen-pang agree self
 ‘Ming hears from Ga Lok that Jeen Pang agrees with self.’
- c. *Síu-Mìng tēng góng wah Jín-Pàhng jantùhng bīngo?*
 Ming listen talk say Jeen-pang agree who
 ‘Who did Ming hear Jeen Pang agrees with?’
- d. Ming / Ga Lok
- (3) a. *Wáih-jái, A-Bōng tùhng A-Jìhng hái ngàhnhòhng, kéuihdei pàih jó*
 Wai Bong and Jing at bank they queue ASP
hóu loi déui
 very long line
 ‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’

- b. *Wáih-jái tēng A-Bōng góng wah A-Jihng jāan jihgēi m-bak*
 Wai listen Bong talk say Jing owe self five-hundred
mān
 money
 ‘Wai hears from Bong that Jing owes self five hundred dollars.’
- c. *Wáih-jái tēng góng wah A-Jihng jāan bīngo m-bak mān?*
 Wai listen talk say Jing owe who five-hundred money
 ‘Who did Wai hear Jing owes five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng, A-Hòuh tūhng A-Jóu hái boujídong, kéuihdei tóulun gán*
 Keung Ho and Jo at newsstand they discuss PROG
sìhsi
 current-affairs
 ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’
- b. *A-Kèuhng tēng A-Hòuh góng wah A-Jóu sìhngyat fáanbok jihgēi*
 Keung listen Ho talk say Jo always argue self
 ‘Keung hears from Ho that Jo always argues with self.’
- c. *A-Kèuhng tēng góng wah A-Jóu sìhngyat fáanbok bīngo?*
 Keung listen talk say Jo always argue who
 ‘Who did Keung hear Jo always argue with?’
- d. Keung / Ho
- (5) a. *A-Mìhng, Kèuhng-jái tūhng A-Lóhng hái bokmahtgún, kéuihdei tái*
 Ming Keung and Long at museum they watch
gán húnglúhng fasehk
 PROG dinosaur fossil
 ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
- b. *A-Mìhng tēng Kèuhng-jái góng wah A-Lóhng hahchi dai jihgēi*
 Ming listen Keung talk say Long next-time bring self
heui fōhokgún
 go science-museum
 ‘Ming hears from Keung that Long will take self to the Science Museum next time.’
- c. *A-Mìhng tēng góng wah A-Lóhng hahchi dai bīngo heui*
 Ming listen talk say Long next-time bring who go
fōhokgún?
 science-museum
 ‘Who did Ming hear Long will take to the Science Museum next time?’

- d. Keung / Ming
- (6) a. *Dai-Màhn, Síu-Ji tùhng Chèuhng-jái hái sāandéng, kéuihdei jéunbeih*
 Man Jee and Cheung at peak they prepare
hàhn fāan lok sāan
 walk back down hill
 ‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn tēng Síu-Ji góng wah Chèuhng-jái wúih fùh jyu jihgéi*
 Man listen Jee talk say Cheung will hold PROG self
 ‘Man hears from Jee that Cheung will hold onto self.’
- c. *Dai-Màhn tēng góng wah Chèuhng-jái wúih fùh jyu bīngō?*
 Man listen talk say Cheung will hold PROG who
 ‘Who did Man hear Cheung will hold onto?’
- d. Jee / Man
- (7) a. *Ji-Hòuh, Gā-Kèuhng tùhng Màmhn-jái hái fosāk, kéuihdei hah yāt*
 Jee-ho, Ga-keung and Man at classroom they next one
tòhng souhohk chākyihm
 class Math test
 ‘Jee Ho, Ga Keung and Man are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh tēng Gā-Kèuhng góng wah Màmhn-jái hahchi gao jihgéi*
 Jee-ho listen Ga-keung talk say Man next-time teach self
mèihjikfān
 calculus
 ‘Jee Ho hears from Ga Keung that Man will teach self calculus next time.’
- c. *Ji-Hòuh tēng góng wah Màmhn-jái hahchi gao bīngō mèihjikfān?*
 Jee-ho listen talk say Man next-time teach who calculus
 ‘Who did Jee Ho hear Man will teach calculus next time?’
- d. Ga Keung / Jee Ho
- (8) a. *Wái-Màmhn, Gihk-jái tùhng A-Jàahk hái bāsí, kéuihdei sāk gán*
 Wai-man Gik and Jak at bus they congested PROG
chē
 car
 ‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’
- b. *Wái-Màmhn tēng Gihk-jái góng wah A-Jàahk hahchi wúih chē*
 Wai-man listen Gik talk say Jak next-time will drive
jihgéi
 self
 ‘Wai man hears from Gik that Jak will drive self next time.’

- c. *Wái-Màhn tēng góng wah A-Jàahk hahchi wúih chē bīngō?*
 Wai-man listen talk say Jak next-time will drive who
 ‘Who did Wai Man hear Jak will drive next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh, Yuk-Lìhng tùhng Síu-Bìk hái tòuhsyūgún, kéuihdei pàih gán*
 Suk-yee, Yuk-ling and Bik at library they line PROG
déui wàhn syū
 queue return book
 ‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to return some books.’
- b. *Suk-Yìh tēng Yuk-Lìhng góng wah hahchi dī syū dōukèih Síu-Bìk*
 Suk-yee listen Yuk-ling talk say next-time CL book due Bik
wúih tàihséng jihgái
 will remind self
 ‘Suk Yee hears from Yuk Ling that Bik will remind self when the books are due next time.’
- c. *Suk-Yìh tēng góng wah hahchi dī syū dōukèih Síu-Bìk wúih*
 Suk-yee listen talk say next-time CL book due Bik will
tàihséng bīngō?
 remind who
 ‘Who did Suk Yee hear Bik will remind when the books are due next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-Jīng, Suk-Fān tùhng Síu-Fōng hái heiyún, kéuihdei āamāam*
 Jing Suk-fan and Fong at movie-theatre they just
chóh dāi jó
 sat down EXP
 ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’
- b. *A-Jīng tēng Suk-Fān góng wah Síu-Fōng hahchī wúih béi jūnggān*
 Jing listen Suk-fan talk say Fong next-time will give middle
wái jihgái
 seat self
 ‘Jing hears from Suk Fan that Fong will give self the middle seat next time.’
- c. *A-Jīng tēng góng wah Síu-Fōng hahchī wúih béi jūnggān wái*
 Jing listen talk say Fong next-time will give middle seat
bīngō?
 who
 ‘Who did Jing hear Fong will give the middle seat next time?’

- d. Jing / Suk Fan
- (11) a. *A-Yān, Méi-lìhng tùhng Síu-Chīng hái chyùfóng, kéuihdei king gán*
 Yan Meiling and Ching at kitchen they discuss PROG
jjú syūn lat tōng ge beikyut
 cook sour spicy soup LP secret
 ‘Yan, Meiling and Ching are in the kitchen. They are discussing the secret to making hot and sour soup.’
- b. *A-Yān tēng Méi-lìhng góng wah Síu-Chīng hahchī wúih ching gao*
 Yan listen Meiling talk say Ching next-time will ask teach
jihgái
 self
 ‘Yan hears from Meiling that Ching will ask self (for tips) next time.’
- c. *A-Yān tēng góng wah Síu-Chīng hahchī wúih ching gao bīngō?*
 Yan listen talk say Ching next-time will ask teach who
 ‘Who did Yan hear Ching will ask next time?’
- d. Yan / Meiling
- (12) a. *Jing-Yìh, A-Sāan tùhng Gā-Bīk hái gūngyún, kéuihdei hái douh*
 Jing-yee San and Ga-bik at park they at there
yéhchāan
 picnic
 ‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’
- b. *Jing-Yìh tēng A-Sāan góng wah Gā-Bīk hahsingkèih yéhchāan wúih*
 Jing-yee listen San talk say Ga-bik next-week picnic will
ngaaì màaih jihgái
 call PRT self
 ‘Jing Yee hears from San that Ga Bik will invite self to picnic next week.’
- c. *Jing-Yìh tēng góng wah Gā-Bīk hahsingkèih yéhchāan wúih ngaaì*
 Jing-yee listen talk say Ga-bik next-week picnic will call
màaih bīngō?
 PRT who
 ‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’
- d. Jing Yee / San
- (13) a. *Lai-Gyūn, A-Fúhng Tùhng Síu-Tòhng hái sōfá douh chó, kéuihdei*
 Lai-gyun Fung and Tong at couch there sit they
tái tái hah dihnsih fan jeuhk jó
 watch watch PROG television sleep PRT EXP
 ‘Lai Gyun, Fung and Tong are sitting on the couch. They fell asleep while watching the television.’

- b. *Lai-Gyūn tēng A-Fúhng góng wah Síu-Tòhng hahchi wúih ngaai séng jihgéi*
 Lai-gyun listen Fung talk say Tong next-time will call
awake self
 'Lai Gyun hears from Fung that Tong will wake self next time.'
- c. *Lai-Gyūn tēng góng wah Síu-Tòhng hahchi wúih ngaai séng bīngo?*
 Lai-gyun listen talk say Tong next-time will call awake
who
 'Who did Lai Gyun hear Tong will wake next time?'
- d. Fung / Lai Gyun
- (14) a. *Síu-Làhm, A-Lihng tùhng Síu-Lei hái gāisí, kéuihdei mái gán song*
 Lum Ling and Lei at wet-market they buy PROG
grocery
 'Lum, Ling and Lei are at the wet market. They are getting grocery.'
- b. *Síu-Làhm tēng A-Lihng góng wah Síu-Lei chai dóu jihgéi*
 Lum listen Ling talk say Lei step PRT self
 'Lum hears from Ling that Lei stepped on self.'
- c. *Síu-Làhm tēng góng wah Síu-Lei chai dóu bīngo?*
 Lum listen talk say Lei step PRT who
 'Who did Lum hear Lei stepped on?'
- d. Ling / Lum
- (15) a. *Síu-Fā, A-Jān tùhng Bīk-Yúk hái dihnhei póu, kéuihdei tái gán mèihbōlòuh*
 Fa Jan and Bik-yuk at electric-appliance store they
watch PROG microwave
 'Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.'
- b. *Síu-Fā tēng A-Jān góng wah Bīk-Yúk jangāan béi jēung gáo jik kāt jihgéi*
 Fa listen Jan talk say Bik-yuk later give CL nine
discount card self
 'Fa hears from Jan that Bik Yuk will give self a ten percent discount card later.'
- c. *Síu-Fā tēng góng wah Bīk-Yúk jangāan béi jēung gáo jik kāt bīngo?*
 Fa listen talk say Bik-yuk later give CL nine discount card
who
 'Who did Fa hear Bik Yuk will give a ten percent discount card later?'

- d. Jan / Fa
- (16) a. *Síu-Yúk, Síu-Fān tùhng Jing-Hēung hái sēungcheung, kéuihdei*
 Yuk Fan and Jing-heung at mall they
gamāam jong dóu
 coincidental collide PRT
 ‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’
- b. *Síu-Yúk tēng Síu-Fān góng wah Jing-Hēung ganpái beihōi jihgái*
 Yuk listen Fan talk say Jing-heung lately avoid self
 ‘Yuk hears from Fan that Jing Heung has been avoiding self lately.’
- c. *Síu-Yúk tēng góng wah Jing-Hēung ganpái beihōi bīngo?*
 Yuk listen talk say Jing-heung lately avoid who
 ‘Who did Yuk hear Jing Heung has been avoiding lately?’
- d. Fan / Yuk

B.4 Condition 4: hear/pronoun

- (1) a. *Wàh-jái, Wáih-Mìhng tùhng Síu-Ji hái chāantēng, kéuihdei āamāam*
 Wah Wai-ming and Jee at restaurant they just
dóuséh jó hólók
 spill EXP coke
 ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’
- b. *Wàh-jái tēng Wáih-Mìhng góng wah Síu-Ji jong dóu kéuih*
 Wah listen Wai-ming talk say Jee collide PRT 3SG
 ‘Wah hears from Wai Ming that Jee bumped against s/he.’
- c. *Wàh-jái tēng góng wah Síu-Ji jong dóu bīngo?*
 Wah listen talk say Jee collide PRT who
 ‘Who did Wah hear Jee bumped against?’
- d. Wah / Wai Ming
- (2) a. *Síu-Mìng, Gā-Lok tùhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdihng*
 Ming Ga-lok and Jeen-pang at office they decide
gán hah go sīngkèih go wuihyí go jyútàih
 PROG next CL week CL meeting CL theme
 ‘Ming, Ga Lok and Jeen Pang are at the office. They are deciding on a theme for a meeting next week.’
- b. *Síu-Mìng tēng Gā-Lok góng wah Jín-Pàhng jantùhng kéuih*
 Ming listen Ga-lok talk say Jeen-pang agree 3SG
 ‘Ming hears from Ga Lok that Jeen Pang agrees with s/he.’

- c. *Síu-Mìng tēng góng wah Jín-Pàhng jantùhng bīngō?*
 Mìng listen talk say Jeen-pang agree who
 ‘Who did Ming hear Jeen Pang agrees with?’
- d. Ming / Ga Lok
- (3) a. *Wáih-jái, A-Bōng tùhng A-Jìhng hái ngàhnhòhng, kéuihdei pàih jó*
 Wai Bong and Jing at bank they queue ASP
hóu loi déui
 very long line
 ‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’
- b. *Wáih-jái tēng A-Bōng góng wah A-Jìhng jāan kéuih í-bak*
 Wai listen Bong talk say Jing owe 3SG five-hundred
mān
 money
 ‘Wai hears from Bong that Jing owes s/he five hundred dollars.’
- c. *Wáih-jái tēng góng wah A-Jìhng jāan bīngō í-bak mān?*
 Wai listen talk say Jing owe who five-hundred money
 ‘Who did Wai hear Jing owes five hundred dollars?’
- d. Wai / Bong
- (4) a. *A-Kèuhng, A-Hòuh tùhng A-Jóu hái boujídong, kéuihdei tóulun gán*
 Keung Ho and Jo at newsstand they discuss PROG
sìhsi
 current-affairs
 ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’
- b. *A-Kèuhng tēng A-Hòuh góng wah A-Jóu sìhngyat fáanbok kéuih*
 Keung listen Ho talk say Jo always argue 3SG
 ‘Keung hears from Ho that Jo always argues with s/he.’
- c. *A-Kèuhng tēng góng wah A-Jóu sìhngyat fáanbok bīngō?*
 Keung listen talk say Jo always argue who
 ‘Who did Keung hear Jo always argue with?’
- d. Keung / Ho
- (5) a. *A-Mìhng, Kèuhng-jái tùhng A-Lóhng hái bokmahtgún, kéuihdei tái*
 Mìng Keung and Long at museum they watch
gán húnglúhng fasehk
 PROG dinosaur fossil
 ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’

- b. *A-Mìhng tēng Kèuhng-jái góng wah A-Lóhng hahchi dai kéuih*
 Ming listen Keung talk say Long next-time bring 3SG
heui fōhokgún
 go science-museum
 ‘Ming hears from Keung that Long will take s/he to the Science Museum next time.’
- c. *A-Mìhng tēng góng wah A-Lóhng hahchi dai bīngo heui*
 Ming listen talk say Long next-time bring who go
fōhokgún?
 science-museum
 ‘Who did Ming hear Long will take to the Science Museum next time?’
- d. Keung / Ming
- (6) a. *Dai-Màhn, Síu-Ji tùhng Chèuhng-jái hái sāandéng, kéuihdei jéunbeih*
 Man Jee and Cheung at peak they prepare
hàhn fāan lok sāan
 walk back down hill
 ‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’
- b. *Dai-Màhn tēng Síu-Ji góng wah Chèuhng-jái wúih fùh jyu kéuih*
 Man listen Jee talk say Cheung will hold PROG 3SG
 ‘Man hears from Jee that Cheung will hold onto s/he.’
- c. *Dai-Màhn tēng góng wah Chèuhng-jái wúih fùh jyu bīngo?*
 Man listen talk say Cheung will hold PROG who
 ‘Who did Man hear Cheung will hold onto?’
- d. Jee / Man
- (7) a. *Ji-Hòuh, Gā-Kèuhng tùhng Màmhn-jái hái fosāk, kéuihdei hah yāt*
 Jee-ho, Ga-keung and Man at classroom they next one
tòhng souhohk chākyihm
 class Math test
 ‘Jee Ho, Ga Keung and Man are in the classroom. They are having a Math test next lesson.’
- b. *Ji-Hòuh tēng Gā-Kèuhng góng wah Màmhn-jái hahchi gao kéuih*
 Jee-ho listen Ga-keung talk say Man next-time teach 3SG
mèihjīkfān
 calculus
 ‘Jee Ho hears from Ga Keung that Man will teach s/he calculus next time.’
- c. *Ji-Hòuh tēng góng wah Màmhn-jái hahchi gao bīngo mèihjīkfān?*
 Jee-ho listen talk say Man next-time teach who calculus
 ‘Who did Jee Ho hear Man will teach calculus next time?’
- d. Ga Keung / Jee Ho

- (8) a. *Wái-Màhn, Gihk-jái tùhng A-Jàahk hái bāsí, kéuihdei sāk gán*
 Wai-man Gik and Jak at bus they congested PROG
chē
 car
 ‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’
- b. *Wái-Màhn tēng Gihk-jái góng wah A-Jàahk hahchi wúih chē*
 Wai-man listen Gik talk say Jak next-time will drive
kéuih
 3SG
 ‘Wai man hears from Gik that Jak will drive s/he next time.’
- c. *Wái-Màhn tēng góng wah A-Jàahk hahchi wúih chē bīngō?*
 Wai-man listen talk say Jak next-time will drive who
 ‘Who did Wai Man hear Jak will drive next time?’
- d. Wai Man / Gik
- (9) a. *Suk-Yìh, Yuk-Lìhng tùhng Síu-Bīk hái tòuhsyūgún, kéuihdei pàih gán*
 Suk-yee, Yuk-ling and Bik at library they line PROG
déui wàhn syū
 queue return book
 ‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to return some books.’
- b. *Suk-Yìh tēng Yuk-Lìhng góng wah hahchi dī syū dōukèih Síu-Bīk*
 Suk-yee listen Yuk-ling talk say next-time CL book due Bik
wúih tàih séng kéuih
 will remind 3SG
 ‘Suk Yee hears from Yuk Ling that Bik will remind s/he when the books are due next time.’
- c. *Suk-Yìh tēng góng wah hahchi dī syū dōukèih Síu-Bīk wúih*
 Suk-yee listen talk say next-time CL book due Bik will
tàih séng bīngō?
 remind who
 ‘Who did Suk Yee hear Bik will remind when the books are due next time?’
- d. Suk Yee / Yuk Ling
- (10) a. *A-Jīng, Suk-Fān tùhng Síu-Fōng hái heiyún, kéuihdei āamāam*
 Jing Suk-fan and Fong at movie-theatre they just
chóh dāi jó
 sat down EXP
 ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’

- b. *A-Jīng tēng Suk-Fān góng wah Sū-Fōng hahchī wúih béi jūnggān*
 Jing listen Suk-fan talk say Fong next-time will give middle
wái kéuih
 seat 3SG
 ‘Jing hears from Suk Fan that Fong will give s/he the middle seat next time.’
- c. *A-Jīng tēng góng wah Sū-Fōng hahchī wúih béi jūnggān wái*
 Jing listen talk say Fong next-time will give middle seat
bīngō?
 who
 ‘Who did Jing hear Fong will give the middle seat next time?’
- d. Jing / Suk Fan
- (11) a. *A-Yān, Méi-lìhng tūhng Sū-Chīng hái chyùfóng, kéuihdei king gán*
 Yan Meiling and Ching at kitchen they discuss PROG
jyú syūn lat tōng ge beikyut
 cook sour spicy soup LP secret
 ‘Yan, Meiling and Ching are in the kitchen. They are discussing the secret to making hot and sour soup.’
- b. *A-Yān tēng Méi-lìhng góng wah Sū-Chīng hahchī wúih ching gao*
 Yan listen Meiling talk say Ching next-time will ask teach
kéuih
 3SG
 ‘Yan hears from Meiling that Ching will ask s/he (for tips) next time.’
- c. *A-Yān tēng góng wah Sū-Chīng hahchī wúih ching gao bīngō?*
 Yan listen talk say Ching next-time will ask teach who
 ‘Who did Yan hear Ching will ask next time?’
- d. Yan / Meiling
- (12) a. *Jing-Yìh, A-Sāan tūhng Gā-Bīk hái gūngyún, kéuihdei hái douh*
 Jing-yee San and Ga-bik at park they at there
yéhchāan
 picnic
 ‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’
- b. *Jing-Yìh tēng A-Sāan góng wah Gā-Bīk hahsingkèih yéhchāan wúih*
 Jing-yee listen San talk say Ga-bik next-week picnic will
ngaaì màaih kéuih
 call PRT 3SG
 ‘Jing Yee hears from San that Ga Bik will invite s/he to picnic next week.’

- c. *Jing-Yìh tēng góng wah Gā-Bīk hahsingkèih yéhchāan wúih ngaai*
 Jing-yee listen talk say Ga-bik next-week picnic will call
màaih bīngo?
 PRT who
 ‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’
- d. Jing Yee / San
- (13) a. *Lai-Gyūn, A-Fúhng Tùhng Síu-Tòhng hái sōfá douh chó, kéuihdei*
 Lai-gyun Fung and Tong at couch there sit they
tái tái hah dihnsih fan jeuhk jó
 watch watch PROG television sleep PRT EXP
 ‘Lai Gyun, Fung and Tong are sitting on the couch. They fell asleep while watching the television.’
- b. *Lai-Gyūn tēng A-Fúhng góng wah Síu-Tòhng hahchi wúih ngaai*
 Lai-gyun listen Fung talk say Tong next-time will call
séng kéuih
 awake 3SG
 Lai Gyun hears from Fung that Tong will wake s/he next time.’
- c. *Lai-Gyūn tēng góng wah Síu-Tòhng hahchi wúih ngaai séng*
 Lai-gyun listen talk say Tong next-time will call awake
bīngo?
 who
 ‘Who did Lai Gyun hear Tong will wake next time?’
- d. Fung / Lai Gyun
- (14) a. *Síu-Làhm, A-Lìhng tùhng Síu-Lei hái gāisí, kéuihdei mái gán*
 Lum Ling and Lei at wet-market they buy PROG
song
 grocery
 ‘Lum, Ling and Lei are at the wet market. They are getting grocery.’
- b. *Síu-Làhm tēng A-Lìhng góng wah Síu-Lei chai dóu kéuih*
 Lum listen Ling talk say Lei step PRT 3SG
 ‘Lum hears from Ling that Lei stepped on s/he.’
- c. *Síu-Làhm tēng góng wah Síu-Lei chai dóu bīngo?*
 Lum listen talk say Lei step PRT who
 ‘Who did Lum hear Lei stepped on?’
- d. Ling / Lum
- (15) a. *Síu-Fā, A-Jān tùhng Bīk-Yúk hái dihnhei póu, kéuihdei*
 Fa Jan and Bik-yuk at electric-appliance store they
tái gán mèihbōlòuh
 watch PROG microwave

‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.’

- b. *Síu-Fā tēng A-Jān góng wah Bīk-Yúk jangāan béi jēung gáo*
 Fa listen Jan talk say Bik-yuk later give CL nine
jik kāt kéuih
 discount card 3SG

‘Fa hears from Jan that Bik Yuk will give s/he a ten percent discount card later.’

- c. *Síu-Fā tēng góng wah Bīk-Yúk jangāan béi jēung gáo jik kāt*
 Fa listen talk say Bik-yuk later give CL nine discount card
bīngo?
 who

‘Who did Fa hear Bik Yuk will give a ten percent discount card later?’

- d. Jan / Fa

- (16) a. *Síu-Yúk, Síu-Fān tūhng Jing-Hēung hái sēungcheung, kéuihdei*
 Yuk Fan and Jing-heung at mall they
gamāam jong dóu
 coincidental collide PRT

‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

- b. *Síu-Yúk tēng Síu-Fān góng wah Jing-Hēung ganpái beihōi kéuih*
 Yuk listen Fan talk say Jing-heung lately avoid 3SG

‘Yuk hears from Fan that Jing Heung has been avoiding s/he lately.’

- c. *Síu-Yúk tēng góng wah Jing-Hēung ganpái beihōi bīngo?*
 Yuk listen talk say Jing-heung lately avoid who

‘Who did Yuk hear Jing Heung has been avoiding lately?’

- d. Fan / Yuk

B.5 Filler trials

- (1) a. *Daih-Hūhng, Hou-Làhm tūhng Gihn-jái hái gēipóu, kéuihdei dá gán*
 Dai-hung Ho-lam and Geen at arcade they hit PROG
gēi
 machine

‘Dai Hong, Ho Lam and Geen are at the arcade. They are playing video games.’

- b. *Daih-Hūhng wah béi Hou-Làhm tēng Gihn-jái syū jó béi*
 Dai-hung say give Ho-lam listen Geen lose EXP to
Daih-Hūhng
 Dai-hung

- ‘Dai Hung tells Ho Lam that Geen lost to Dai Hung.’
- c. *Daih-Hùhng wah Gihn-jái syū jó béi bīngo?*
 Dai-hung say Geen lose EXP to who
 ‘Who did Dai Hung say Geen lost to?’
- d. Dai Hung / Ho Lam
- (2) a. *Gā-Míng, Gwōk-Duhng tùhng A-Fāi hái gáfēdim, kéuihdei yám*
 Ga-ming Gwok-dung and Fai at coffee-shop they drink
gán gáfē
 PROG coffee
 ‘Ga Ming, Gwok Dung and Fai are at the coffee shop. They are having coffee.’
- b. *Gā-Míng wah béi Gwōk-Duhng tēng A-Fāi hahchi chéng Gā-Míng*
 Ga-ming say give Gwok-dung listen Fai next-time treat Ga-ming
yám gáfē
 drink coffee
 ‘Ga Ming tells Gwok Dung that Fai will treat Ga Ming a coffee next time.’
- c. *Gā-Míng wah A-Fāi hahchi chéng bīngo yám gáfē?*
 Ga-ming say Fai next-time treat who drink coffee
 ‘Who did Ga Ming say Fai will treat a coffee next time?’
- d. Gwok Dung / Ga Ming
- (3) a. *Gā-Bóu, Ji-Wái tùhng Wàhng-jái hái bīupóu, kéuihdei jing gán*
 Ga-bo Jee-wai and Wang at watch-shop they fix PROG
bīu
 watch
 ‘Ga Bo, Jee Wai and Wang are at the watch shop. They are getting a watch fixed.’
- b. *Gā-Bóu wah béi Ji-Wái tēng Wàhng-jái tīngyàht līng go līhnggín*
 Go-bo say give Jee-wai listen Wang tomorrow bring CL parts
béi Ji-Wái
 to Jee-wai
 ‘Ga Bo tells Jee Wai that Wang will bring some (watch) parts for Jee Wai tomorrow.’
- c. *Gā-Bóu wah tīngyàht līng go līhnggín béi bīngo?*
 Go-bo say tomorrow bring CL parts to who
 ‘Who did Ga Bo say Wang will bring some (watch) parts for tomorrow?’
- d. Ga Bo / Jee Wai
- (4) a. *Gā-Yān, A-Hàh tùhng Ngá-Tìhng hái deih-tik, kéuihdei gón sìhgan*
 Ga-yan Ha and Nga-ting at train they rush time

‘Ga Yan, Ha and Nga Ting are on the train. They are in a hurry.

- b. *Gā-Yān wah béi A-Hàh tēng Ngá-Tìhng hahchi gao A-Hàh dap*
Ga-yan say give Ha listen Nga-ting next-time teach Ha take
bāsí
bus

‘Ga Yan tells Ha that Nga Ting will teach Ha how to take the bus next time.’

- c. *Gā-Yān wah Ngá-Tìhng hahchi gao bīngō dap bāsí?*
Ga-yan say Nga-ting next-time teach who take bus
‘Who did Ga Yan say Nga Ting will teach how to take the bus next time?’
d. Ga Yan / Ha

- (5) a. *Síu-Kèih, A-Mán tùhng Sin-Yìh hái bakfogūngsī, kéuihdei tái*
Kay Man and Sin-yee at department-store they look
jong tùhng yāt gin sām
hit same one CL shirt

‘Kay, Man and Sin Yee are at the department store. They are interested in the same shirt.’

- b. *Síu-Kèih wah béi A-Mán tēng Sin-Yìh jāan yèhng A-Mán*
Kay say give Man listen Sin-yee fight win Man
‘Kay tells Man that Sin Yee wins over Man.’
c. *Síu-Kèih wah Sin-Yìh jāan yèhng bīngō?*
Kay say Sin-yee fight win who
‘Who did Kay say Sin Yee wins over?’
d. Man / Kay

- (6) a. *Gā-Mìhng, Jí-Gin tùhng A-Hòuh hái bihnleihdim, kéuihdei sihk*
Ga-ming Jee-geen and Ho at convenience-store they eat
gán yùhdán
PROG fish-ball

‘Ga Ming, Jee Geen and Ho are at the convenience store. They are eating fish balls.’

- b. *Gā-Mìhng tēng Jí-Gin góng wa A-Hòuh hahchi dūk yùhdán*
Ga-ming listen Jee-geen talk say Ho next-time poke fish-ball
joí yeuk Gā-Mìhng
again meet Ga-ming

‘Ga Ming hears from Jee Geen that Ho will meet Ga Ming for fish balls again next time.’

- c. *Gā-Mìhng tēng góng wa A-Hòuh hahchi dūk yùhdán joí yeuk*
Ga-ming listen Jtalk say Ho next-time poke fish-ball again meet
bīngō?
who

‘Who did Ga Ming hear Ho will meet for fish balls again next time?’

d. Ga Ming / Jee Geen

- (7) a. *Ji-Mìhng, Hou-Yìhn tùhng Lóng-jái hái syūdìm, kéuihdei tái gán*
Jee-ming Ho-yeen and Long at bookstore they look PROG
syū
book

‘Jee Ming, Ho Yeen and Long are at the book store. They are looking at books.’

- b. *Ji-Mìhng tēng Hou-Yìhn góng wa Lóng-jái hahchi mái maanwá*
Jee-ming listen Ho-yeen talk say Long next-time buy comics
wíih gān Ji-Mìhng
will follow Jee-ming

‘Jee Ming hears from Hou Yeen that Long will follow Jee Ming next time he buys comic books (Long will buy the same books as Jee Ming.’

- c. *Ji-Mìhng tēng góng wa Lóng-jái hahchi mái maanwá wíih gān*
Jee-ming listen talk say Long next-time buy comics will follow
bīngō?
who

‘Who did Jee Ming hear Long will follow next time he buys comic books?’

d. Jee Ming / Ho Yeen

- (8) a. *Síu-Sin, Gā-Mán tùhng Tìhng-Fān hái fatyìhngngūk, kéuihdei jín gán*
Sin Ga-man and Ting-fan at hair-salon they cut PROG
tàohfat
hair

‘Sin, Ga Man and Ting Fan are at the hair salon. They are having a hair cut.’

- b. *Síu-Sin tēng Gā-Mán góng wa Tìhng-Fān hahchi jyun fatyìhng*
Sin listen Ga-man talk say Ting-fan next-time change hairstyle
wíih man há Síu-Sin yigìn
will ask PRT Sin opinion

‘Sin hears from Ga Man that Ting Fan will ask Sin (for her opinion) before changing hairstyle next time.’

- c. *Síu-Sin tēng góng wa Tìhng-Fān hahchi jyun fatyìhng wíih man*
Sin listen talk say Ting-fan next-time change hairstyle will ask
há bīngō yigìn?
PRT who opinion

‘Who did Sin hear Ting Fan will ask (for opinion) before changing hairstyle next time?’

d. Ga Man / Sin

- (9) a. *Pui-Sān, Yún-Tìhng tùhng Jān-Lèih hái méiyòhngyún, kéuihdei sāo*
 Pui-san Yun-ting and Jan-lei at beauty-salon they trim
gán gap
 PROG nails
 ‘Pui San, Yun Ting and Jan Lei are at the beauty salon. They are having a manicure.’
- b. *Pui-Sān tēng Yún-Tìhng góng wa Jān-Lèih gán sīk gó ján*
 Pui-san listen Yun-ting talk say Jan-lei choose colour that time
mahn Yún-Tìhng díng tái
 ask Yun-ting how look
 ‘Pui San hears from Yun Ting that Jan Lei asks Yun Ting (what she thinks) when picking a colour.’
- c. *Pui-Sān tēng góng wa Jān-Lèih gán sīk gó ján mahn bīngō*
 Pui-san listen talk say Jan-lei choose colour that time ask who
díng tái?
 how look
 ‘Who did Pui San hear Jan Lei asks (for opinion) when picking a colour?’
- d. Pui San / Yun Ting
- (10) a. *Síu-Yin, Wíng-Yān tùhng Gā-Yìh hái chānsó, kéuihdei beng jó dāng*
 Yin Wing-yan and Ga-yee at clinic they sick EXP wait
gán tái yīsāng
 PROG look doctor
 ‘Yin, Wing Yan and Ga Yee are at the clinic. They are sick and they are waiting to see the doctor.’
- b. *Síu-Yin tēng Wíng-Yān góng wa Gā-Yìh chyun yím béi Wíng-Yān*
 Yin listen Wing-yan talk say Ga-yee send infect to Wing-yan
 ‘Yin hears from Wing yan that Ga Yee infected Wing Yan.’
- c. *Síu-Yin tēng góng wa Gā-Yìh chyun yím béi bīngō?*
 Yin listen talk say Ga-yee send infect to who
 ‘Who did Yin hear Ga Yee infected?’
- d. Wing Yan / Yin
- (11) a. *Wai-Màhn, Wíng-Hōng tùhng Jūhng-jái hái haktēng, kéuihdei tái*
 Wai-man Wing-hong and Jung at living-room they watch
gán dīngsi
 PROG television
 ‘Wai man, Wing Hong and Jung are in the living room. They are watching the television.’

- b. *Wai-Màhn giu Wíng-Hōng gao dai sēng dī go dinsi béi*
 Wai-man ask Wing-hong adjust big volume a-bit CL television to
Jūhng-jái
 Jung
 ‘Wai man asks Wing Hong to turn up the volume of the television for Jung.’
- c. *Wai-Màhn giu bīngō gao dai sēng dī go dinsi?*
 Wai-man ask who adjust big volume a-bit CL television
 ‘Who did Wai Man ask to turn up the volume of the television?’
- d. Wai Man / Wing Hong
- (12) a. *Ji-Màhn, A-Fāi tūhng A-Jóu hái taihūnggún, kéuihdei kái jó hái*
 Jee-man Fai and Jo at space-museum they stand EXP at
mùnhháó
 entrance
 ‘Jee Man, Fai and Jo are at the space museum. They are standing at the entrance.’
- b. *Ji-Màhn giu A-Fāi mái fēi béi A-Jóu*
 Jee-man ask Fai buy ticket to Jo
 ‘Jee Man asks Fai to buy tickets for Jo.’
- c. *Ji-Màhn giu bīngō mái fēi?*
 Jee-man ask Fai buy ticket
 ‘Who did Jee Man ask to buy tickets?’
- d. Jee Man / Fai
- (13) a. *Gā-Lok, Jí-Hōng tūhng Dai-Màhn hái ginsānsāk, kéuihdei páo gán*
 Ga-lok Jee-hong and Man at gym they run PROG
bou
 step
 ‘Ga Lok, Jee Hong and Man are at the gym. They are running.’
- b. *Gā-Lok giu Jí-Hōng ló go ngálihng béi Dai-Màhn*
 Ga-lok ask Jee-hong grab CL dumbbell to Man
 ‘Ga Lok asks Jee Hong to grab a dumbbell for Man.’
- c. *Gā-Lok giu bīngō ló go ngálihng?*
 Ga-lok ask who grab CL dumbbell
 ‘Who did Ga Lok ask to grab a dumbbell?’
- d. Jee Hong / Ga Lok
- (14) a. *Cheui-Sān, Gā-Lai tūhng Yuk-Lìhng hái chiūkāpsíchèuhng, kéuihdei*
 Chui-san Ga-lai and Yuk-ling at supermarket they
tái gán hóisīn
 look PROG seafood

‘Chui San, Ga Lai and Yuk Ling are at the supermarket. They are looking at seafood.’

- b. *Cheui-Sān giu Gā-Lai gán chòihlú jing hóisīn cháofan béi*
Chui-san ask Ga-lai choose ingredients make seafood fried-rice to
Yuk-Lihng
Yuk-ling

‘Chui San asks Ga Lai to choose ingredients for making seafood fried rice for Yuk Ling.’

- c. *Cheui-Sān giu bīngō gán chòihlú jing hóisīn cháofan?*
Chui-san ask who choose ingredients make seafood fried-rice
‘Who did Chui San ask to choose ingredients for making seafood fried rice?’
d. Chui San / Ga Lai

- (15) a. *Síu-Sī, Méi-Hàh tùhng Fān-múí hái sēungchèuhng, kéuihdei hàhng*
Si Mei-ha and Fan at mall they walk
gán gāi
PROG street

‘Si, Mei Ha and Fan are at the mall. They are shopping.’

- b. *Síu-Sī giu Méi-Hàh hàhn mahn dī dāng màih Fān-múí*
Si ask Mei-ha walk slow a-bit wait PRT Fan
‘Si asks Mei Ha to walk a bit slower (so Fan can catch up).’
c. *Síu-Sī giu bīngō hàhn mahn dī?*
Si ask who walk slow a-bit
‘Who did Si ask to walk slower?’
d. Mei Ha / Si

- (16) a. *Gā-Yìh, Suhk-Mán tùhng Síu-Jān hái ngūkkéi, kéuihdei jéunbeih chēut*
Ga-yee Suk-man and Jan at home they prepare out
mùnháo
entrance

‘Ga Yee, Suk Man and Jan are home. They are about to head out.’

- b. *Gā-Yìh giu Suhk-Mán dai dō gin lāo béi Síu-Jān*
Ga-yee ask Suk-man bring more CL jacket to Jan
‘Ga Yee asks Suk Man to bring an extra jacket for Jan.’
c. *Gā-Yìh giu bīngō dai dō gin lāo?*
Ga-yee ask who bring more CL jacket
‘Who did Ga Yee ask to bring an extra jacket?’
d. Suk Man / Ga Yee