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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List of Abbreviations

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

\[\text{Zhangsan, renwei [Lisi zhidao [Wangwu ziji/i/j/k]]}\]

Zhangsan think Lisi know Wangwu like self

‘Zhangsan\textsubscript{i} thinks Lisi\textsubscript{j} knows Wangwu\textsubscript{k} likes him\textsubscript{i/j}/himself\textsubscript{k}.’

b. Cantonese\textsuperscript{1}

\[\text{Dai-Mahn gohkdæk [Siú-Mihn jídouh [Wah-jái k jongyi jihgéi/i/j/k]]}\]

Man think Ming know Wah like self

‘Man\textsubscript{i} thinks Ming\textsubscript{j} knows Wah\textsubscript{k} likes him\textsubscript{i/j}/himself\textsubscript{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\textsubscript{i} thinks [Peter\textsubscript{j} knows [Kevin\textsubscript{k} likes himself\textsubscript{i/j/k}]].

\textsuperscript{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: å (high level), å (high rising), a (mid level), âh (low falling), âh (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 *jìhgei*, 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).

\[(4) \hspace{1cm} \begin{array}{l}
  \text{i. LD reflexives are monomorphemic (Pica, 1987).} \\
  \text{ii. LD reflexives are subject oriented.} \\
  \text{iii. In languages without subject-verb agreement, LD reflexives manifest the Blocking Effect, the blocking of a reflexive-antecedent relation due to the presence of an intervening subject with person features different from those of the local subject. (p. 628)}
\end{array}\]

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.

\[(5) \hspace{1cm} \begin{array}{l}
  \text{Mandarin} \\
  \text{a. } John_i \text{ zhida} Bill_j \text{ xihuan ta-ziji}_{i,j} \\
  \text{ John know Bill like 3SG-self} \\
  \text{‘John}_i \text{ knows that Bill}_j \text{ likes *him}_i/\text{himself}_j.’ \hspace{1cm} (\text{Pan 1997: 14(9)})
\end{array}\]
b. John zhidao Bill xihuan ziji/j
John know Bill like self
‘Johni knows that Billj likes himi/himselfj.’ (Pan 1997: 14(8))

(6) Cantonese

a. Síu-Mìhngi jídóuh Dái-Màhnj jöngyi këuih-jihgéi*i/j
Míng know Man like 3SG-self
‘Míngi knows that Manj likes *himi/himselfj.’

b. Síu-Mìhngi jídóuh Dái-Màhnj jöngyi jihgéi*i/j
Míng know Man like self
‘Míngi knows that Manj likes himi/himselfj.’

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

Johni shuo [naben shuj hai -le ta-ziji*/i,j]
John say that book hurt PERF 3SG-self
‘Johni said that that book hurt himi.’ (Pan 1997: 14(10))

b. Cantonese

Síu-Mìhngi wah [gó bún syūj gáu haam këuih-jihgéi*/i,j]
Míng say that CL book make cry 3SG-self
‘Míngi says the book makes himi 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 [ziji*/i,j zai wenxi]
Zhangsan tell Lisi self PROG study
‘Zhangsani tells Lisi that selfi*/i,j is studying.’

(9) Dái-Màhn i tùngji Síu-Mìhngj [jihgéi*/i,j tìngyat chūhják]
Man inform Ming self tomorrow quit
‘Mani informs Mingj that selfi*/i,j is quitting his job tomorrow.’
In (8), \textit{ziji} takes the matrix subject \textit{Zhangsan} but not the matrix object \textit{Lisi} as antecedent. Similarly, in (9), \textit{jihgei} takes the matrix subject \textit{Dai-Mahn} but not the matrix object \textit{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 \textit{ziji} and \textit{jihgei} are unspecified for person.\footnote{\textit{Ziji} and \textit{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).}

\begin{itemize}
\item \textbf{(10)} \textit{Zhangsan} \textit{ni} \\
\textit{Zhangsan think 2SG hate self} \\
‘\textit{Zhangsan, thinks you hate *him/i/yourself}.’ (Huang & Liu 2001: 142(3d))
\item \textbf{(11)} \textit{Mahn-jai} \textit{leih} \\
\textit{Man think 2SG hate self} \\
‘\textit{Man, thinks you hate *him/i/yourself}.’
\end{itemize}

In (10), the LD subject \textit{Zhangsan} is in third person, while the local subject \textit{ni} \textit{‘you’} is in second person. In (11), the LD subject \textit{Mahn-jai} is in third person, while the local subject \textit{leih} \textit{‘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.

\begin{itemize}
\item \textbf{(12)} \textit{Wo} \textit{juede} \textit{Lisi} \\
\textit{1SG think Lisi at criticize self} \\
‘\textit{I think that Lisi is criticizing me/i/himself}.’ (Huang & Liu 2001: 162(52))
\item \textbf{(13)} \textit{Ngoh} \textit{gokdak} \textit{Mihng-jai} \textit{paipihng} \\
\textit{1SG think Ming criticize PROG self} \\
‘\textit{I think that Ming is criticizing me/i/himself}.’
\end{itemize}
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.

\[
\text{(14) a. Pavarotti crede che i } \text{suoi Palestino siano in fiamme.} \\
\text{‘Pavarotti believes that his pants are on fire.’ (de re reading)} \\
\text{b. Pavarotti crede che i } \text{proprio Palestino siano in fiamme.} \\
\text{‘Pavarotti believes that self’s pants are on fire.’ (de se reading)}
\]

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, zheng-tian dui-zhe wo chuipeng ziji,*
   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, gaosu wo Lisi hen ziji,*
   Zhangsan tell me Lisi hate self
   ‘Zhangsan told me that Lisi hated *him*/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.

\[Zhangsan_i \text{ piping-le } ziji_i\]

\[Zhangsan \text{ criticize-ASP self}\]

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

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

\[Zhangsan_i \text{ piping-le } [NP ziji_i \text{ de pengyou}]\]

\[Zhangsan \text{ criticize-ASP self de friend}\]

‘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.

\[Zhangsan_i [AP cong ziji_i \text{ de jiaodu}] \text{ pinggu zhe-jian shi } \text{ de}\]

\[Zhangsan \text{ from self de angle assess this-CL matter de}\]

\[libi\]

\[\text{pro-and-con}\]

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

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

\[[NP Zhangsan_i-de jiaooao] \text{ hai-le ziji}\]

\[Zhangsan-'s arrogance hurt-ASP self\]

‘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.

\[Zhangsan_i \text{ gaosu wo } [ziji_i \text{ de erzi zui congming}]\]

\[Zhangsan tell me self de son most clever\]

‘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.

\[\text{(19)} \quad \text{Dai-Màhn}i \ \text{wah bée ngóh téng} \ [\text{jihgéi}i \ \text{go jái jeuih chòngmìhng}]\]

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 I\(^0\)-to-I\(^0\) movement involves a number of successive steps, allowing local binding at each step and accounting for the LD binding and subject orientation of *ziji*.

\[\text{(20)} \quad \begin{align*}
a. \quad & \text{Zhangsan zhidaọ Lisi zai pian ziji} \\
& \text{Zhangsan know Lisi PROG lie self} \\
& \text{‘Zhangsan knows Lisi is lying to self.’} \\

b. \quad & [\text{IP Zhangsan} \ [\underbrace{[\text{ziji}]}_t \ \text{zhidaọ} \ [\text{IP Lisi} \ [\underbrace{[\text{pian} \ t_i]}_t \ \text{zhidaọ} \ [\text{IP Lisi} \ [\underbrace{[\text{zai} \ pian \ t_i]}_t \ \text{zai pian} \ t_i]]]}]] \\
& \text{Zhangsan self know Lisi PROG lie} \\
& \text{‘Zhangsan knows Lisi is lying to self.’} \\
\end{align*}\]

As can be seen in (20b), which illustrates an LF movement derived from (20a), the embedded *ziji* moves in LF to I\(^0\) 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 *zijis* 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 I<sub>0</sub>-to-I<sub>0</sub> 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 I<sub>0</sub>.

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 I<sub>0</sub> in the minimal IP is obligatory in Chinese but not in Italian or Icelandic, since movement to I<sub>0</sub> puts the LDA within the c-command of only the subject.

(21) Ég sendi Haraldi, föt á sjálfr sig, I sent Harald clothes for self self
‘I sent Harald clothes for himself.’ (Cole & Sung 1994: 359(11b))

(22) Zhangsan, zengsong gei Lisi, yipian guanyu ziji, 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))

I<sub>0</sub>-to-I<sub>0</sub> 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<sup>max</sup>) while the latter is a head (X<sup>0</sup>). Since only a head is qualified to undergo LF head movement, ta-ziji can never move to I<sub>0</sub> 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 I<sub>0</sub> has no base generated φ-features in Chinese. As ziji moves from a lower I<sub>0</sub> to a higher I<sub>0</sub> in the LF, ziji in the higher I<sub>0</sub> and its trace in the lower I<sub>0</sub> 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 IP<sub>1</sub>, IP<sub>2</sub> and IP<sub>3</sub> 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) \[ IP_1 \text{Zhangsan renwei} \mid IP_2 \text{wo} \mid zhidaow \mid IP_3 \text{Wangwu xihuan ziji}_i/xi_j/k][\]

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 IP$_3$ to I$_3$ in the LF. Feature checking checks that SpecIP$_3$ and I$_3$ do not have conflicting φ-features. Wangwu can be a potential antecedent of ziji. However, problems arise as ziji moves up to I$_2$, where its [+3] person feature is percolated to. Since SpecIP$_2$ has a [+1] person feature, SpecIP$_2$ and I$_2$ do not agree in person feature. Ziji cannot take the subject of IP$_2$ wo ‘I’ as antecedent. Ziji also fails to move to IP$_1$, since successive cyclic head movement requires ziji to stop at every intermediate IPs. Thus, ziji cannot take the subjects in IP$_1$ and IP$_2$ 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.
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.

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, shuo [Zhangsan chang piping ziji] Lisi say Zhangsan often criticize self
   ‘Lisi says that Zhangsan often criticizes him.’

b. [Ziji-de xiaohai mei de jiang] de xiaoxi shi Lisi, hen shangxin
   Self’s child not get prize DE news make Lisi very sad
   ‘The news that his child didn’t win the prize made Lisi very sad.’

c. ?[Zhangsan lai kan ziji] de shihou, Lisi, zheng zai kan shu
   Zhangsan come see self DE moment Lisi now at read book
   ‘Lisi was reading when Zhangsan came to visit him.’

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, Hermen 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). 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-ascripter in the former scenario and not a self-ascripter 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-ascriptors. Therefore, the first and second person NPs in (29a) and (29b) are obligatory self-ascriptors, while the third person NP in (29c) is an optional self-ascripter. Pan accounts for the blocking effect by proposing that LD binding to a remote optional self-ascripter (LD third person subject NP) can be blocked when there exists an obligatory self-ascripter (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-ascripter cannot block a remote obligatory self-ascripter.

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}.’)
2. 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 yiwei [[NP wo_j -de xuesheng_k] bu xihuan ziji*_{i/*j/k}]**
    Baoyu think 1SG ‘student’ not like self
‘Baoyu 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 I⁰ 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) \[
\begin{array}{l}
\text{[John} \_ \text{de hua} ] \_ \text{gaosu Bill} \_ \text{[s ziji} \_ \text{self} \_ \text{de jihua xingbutong]} \\
\text{John \quad \text{DE words tell \quad Bill \quad \text{self \quad DE plan \quad carry-not-through}}}
\end{array}
\]

‘John’s words tell Bill that his own plan won’t work.’ (Pan 1997: 20(31))

(34) \[
\begin{array}{l}
\text{Wo wen guo ta} \_ \text{ji \_ bian [ziji} \_ \text{de \_ mingzi]} \\
\text{I \quad \text{ask \quad ASP \quad he \quad several \quad time \quad self \quad GEN \quad name}}
\end{array}
\]

‘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*-nun *Swuni*-eykey [caki\_ij-ka iki-lke-lako] *malha*-yess-ta

Yuli-TOP Swuni-to self-NOM win-FUT-comp say-PAST-DECL

‘Yuli said to Wuni that self\_ij would win the race.’
Yuli-TOP Swuni-from self-NOM win-FUT-comp hear-PAST-DECL
‘Yuli, 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.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Say/self</em></td>
<td>Main predicate is a <em>say</em>-verb while the embedded subject position contains the self anaphor <em>jihgei</em>.</td>
</tr>
<tr>
<td><em>Say/pronoun</em></td>
<td>Main predicate is a <em>say</em>-verb while the embedded subject position contains the third person pronoun <em>keuih</em>.</td>
</tr>
<tr>
<td><em>Hear/self</em></td>
<td>Main predicate is a <em>hear</em>-verb while the embedded subject position contains the self anaphor <em>jihgei</em>.</td>
</tr>
<tr>
<td><em>Hear/pronoun</em></td>
<td>Main predicate is a <em>hear</em>-verb while the embedded subject position contains the third person pronoun <em>keuih</em>.</td>
</tr>
</tbody>
</table>

Table 3.1: Experiment 1 design

The third person pronoun *keuih* is tested again 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

\[ A-Yān \ wāh \ bēi \ Méi-lihung \ tēng \ jiḥgēi \ jēui \ lēk \ jyū \ hōisin \]

Yan say give Meiling listen self most clever cook seafood

‘Yan tells Meiling that self is best at cooking seafood.’

b. Say/pronoun condition

\[ A-Yān \ wāh \ bēi \ Méi-lihung \ tēng \ kēuih \ jēui \ lēk \ jyū \ hōisin \]

Yan say give Meiling listen 3SG most clever cook seafood

‘Yan tells Meiling that she is best at cooking seafood.’

c. Hear/self condition

\[ A-Yān \ tēng \ Méi-lihung \ gōng \ wāh \ jiḥgēi \ jēui \ lēk \ jyū \ hōisin \]

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

\[ A-Yān \ tēng \ Méi-lihung \ gōng \ wāh \ kēuih \ jēui \ lēk \ jyū \ hōisin \]

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. In Experiment 1, the sequence wāh bēi...tēng ‘say give...listen’ denotes a say-verb, while the sequence tēng...gōng wāh ‘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

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1The serial say-verbs can be represented in eight ways: (i) wāh bēi...tēng ‘say give...listen’, (ii) gōng bēi...tēng ‘talk give...listen’, (iii) wāh bēi...jī ‘say give...know’, (iv) gōng bēi...jī ‘talk give...know’, (v) wāh...tēng ‘say...listen’, (vi) gōng...tēng ‘talk...listen’, (vii) wāh...jī ‘say...know’ and (viii) gōng...jī ‘talk...know’. The serial hear-verbs can be represented in two ways: (i) tēng...gōng wāh ‘listen...talk say’ and (ii) tēng...gōng ‘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:

\[(39) \]
\[\begin{array}{ll}
  i & \text{Monoclausal: } ([IP NP₁ V₁ NP₂ V₂]) \\
  ii & \text{Bi-clausal: } ([IP₁ NP₁ [IP₂ NP₂ V₂]])
\end{array}\]

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

\[(40) \]
\[\begin{array}{ll}
  i & \text{Monoclausal: } NP₁ \text{ is subject and } NP₂ \text{ is object.} \\
  ii & \text{Bi-clausal: } NP₁ \text{ and } NP₂ \text{ are subjects of the clause they appear in.}
\end{array}\]

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.

\[(41) \] \[\begin{align*}
  & [IP₁ Siu-Mihng wuih syünbo \ [IP₂ Dai-Màn hóyi teuihyäu]] \\
  & \text{Ming will announce Man can retire}
\end{align*}\]

‘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.

\[(42) \]

\[\begin{array}{ll}
  a. & Siu-Mihng wuih góng Dai-Màn *hóyi tēng [tīngyat lok yúh] \\
         & \text{Ming will talk Man can listen tomorrow fall rain}
          & \text{‘Ming will tell Man that it is going to rain tomorrow.’}
  b. & Siu-Mihng wuih tēng Dai-Màn *hóyi góng [tīngyat lok yúh] \\
         & \text{Ming will listen Man can talk tomorrow fall rain}
          & \text{‘Ming will hear from Man that it is going to rain tomorrow.’}
\end{array}\]
In (42a) and (42b), a second auxiliary is not allowed to appear before V₂. 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) [IP₁ Síu-Mìhng syūnbou gán [IP₂ Dai-Màn chih jó jík]]

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 V₁ for both serial verbs.

(44) Aspect

a. Síu-Mìhng góng gán Dai-Màn tèng *jó [tíngyat 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 tèng gán Dai-Màn góng *jó [tíngyat 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 V₂. 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) [IP₁ Síu-Mìhng móu syūnbou [IP₂ Dai-Màn móu chih jík]]

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 V₁ for both serial verbs.

(46) Polarity
In (46a) and (46b), a second negative marker is prohibited from appearing before V₂, 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) 
\[ IP \text{Síu-Mìhng} \text{chòuhséng Dai-Màn} \text{tùhngmài} [IP \emptyset \text{gūklāu Māh-Leih}] \]
\[ \text{Ming} \text{wake} \text{Man} \text{and} \emptyset \text{anger} \text{Mary} \]
‘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) 
\[ IP \text{Síu-Mìhng} \text{ji}dou [IP \text{Dai-Màn tāusihk}] \text{tùhngmài} [IP \emptyset \text{beihōi kēuīh lóupōh}] \]
\[ \text{Ming} \text{know} \text{Man} \text{cheat} \text{and} \emptyset \text{avoid} \text{his wife} \]
‘Ming knows that Man cheated (on his wife) and (Ming) is avoiding his wife.’¹

(49) 
\[ IP \text{Síu-Mìhng} \text{ji}dou [IP \text{Dai-Màn} j tāusihk] \text{tùhngmài} [IP \emptyset j \text{beihōi kēuīh lóupōh}] \]
\[ \text{Ming} \text{know} \text{Man} \text{cheat} \text{and} \emptyset \text{avoid} \text{his wife} \]
‘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.

¹This 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.

\[(50) \text{Subject ellipsis}\]

\[\text{a. } Síu-Mìhng, gông Dai-Màn, têng gâmyaht lohkyú tûhngmai } \emptyset_{i/j} \text{ máai ming talk man listen today rain and buy jô bâ jê PFV CL umbrella 'Ming tells Man that it is going to rain today and (Ming/*Man) bought an umbrella.'}\]

\[\text{b. } Síu-Mìhng, têng Dai-Màn gông gâmyaht lohkyú tûhngmai } \emptyset_{i/j} \text{ máai ming listen man talk today rain and buy jô bâ jê PFV CL umbrella 'Ming hears from Man that it is going to rain today and (Ming/*Man) bought an umbrella.'}\]

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.

*Gâ-Yân wah bêî A-Hâh têng A-Hâh hahchî dap dîksî*  
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 têng Hou-Yîhn gÔng wah Ji-Mìhng wûîh mûî bûn sîusyuk*  
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-Sî giu Mêî-Hâh hâhn mahn dîô*  
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).

(52) i. A-Yàn tâuhng Méi-lihng hái chèuhfóng kéuih-dei kîng gán
Yan and Meiling at kitchen they discuss PROG
gâmmân jéui mè
Tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

ii. A-Yän wah běi Méi-lihng têng jihgéi jeui lèk jéui hóisín
Yan say give Meiling listen self most clever cook seafood
‘Yan tells Meiling that self is best at cooking seafood.’

iii. A-Yân wah bîngo jeui lèk jéui hóisín?
Yan say who most clever cook seafood
‘Who did Yan say is best at cooking seafood?’

iv. A-Yân / Méi-lihng
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
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).
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. 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.

<table>
<thead>
<tr>
<th>Anaphor</th>
<th>Subject Selection Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>self</td>
<td>0.08</td>
</tr>
<tr>
<td>pronoun</td>
<td>0.17</td>
</tr>
<tr>
<td>self</td>
<td>0.97</td>
</tr>
<tr>
<td>pronoun</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Figure 3.3: Mean subject selection score of 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).

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.

Given 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.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Say/self</strong></td>
<td>Main predicate is a <em>say</em>-verb while the embedded object position contains the self anaphor <em>jihgei</em>.</td>
</tr>
<tr>
<td><strong>Say/pronoun</strong></td>
<td>Main predicate is a <em>say</em>-verb while the embedded object position contains the third person pronoun <em>keuih</em>.</td>
</tr>
<tr>
<td><strong>Hear/self</strong></td>
<td>Main predicate is a <em>hear</em>-verb while the embedded object position contains the self anaphor <em>jihgei</em>.</td>
</tr>
<tr>
<td><strong>Hear/pronoun</strong></td>
<td>Main predicate is a <em>hear</em>-verb while the embedded object position contains the third person pronoun <em>keuih</em>.</td>
</tr>
</tbody>
</table>

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

*Sú-Làhm wah béi  A-Lihng têng  Sú-Lei cháí dòu jihgéi*  
Lum  say  give  Ling  listen  Lei  step  PRT  self  
‘Lum tells Ling that Lei stepped on self.’

b. **Say/pronoun** condition

*Sú-Làhm wah béi  A-Lihng têng  Sú-Lei cháí dòu kéeuih*  
Lum  say  give  Ling  listen  Lei  step  PRT  3SG  
‘Lum tells Ling that Lei stepped on her.’

c. **Hear/self** condition

*Sú-Làhm têng  A-Lihng góng wah  Sú-Lei cháí dòu jihgéi*  
Lum  listen  Ling  talk  say  Lei  step  PRT  self  
‘Lum hears from Ling that Lei stepped on self.’

d. **Hear/pronoun** condition

*Sú-Làhm têng  A-Lihng góng wah  Sú-Lei cháí dòu kéeuih*  
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.

Ga-Yan wah béi  A-Hàh tēng  Ngá-Tihng 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.
‘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.

‘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).
(55) i. Síu-Làhm, A-Lìhng tùhng Síu-Lei hái gāisi, kêuhi-dei mái gán
Lum Ling and Lei at wet-market they buy PROG sòhng
  grocery
  ‘Lum, Ling and Lei are at the wet market. They are getting grocery.’

ii. Síu-Làhm wah bèi A-Lìhng têng Síu-Lei chái dóu jihgéi
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 bīngó?
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.
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-
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 logophoricty 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.
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 I$_0$-to-I$_0$ 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).
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).

\[(57) \quad \text{Síu-Làhm teng A-Lihng góngh wah [Síu-Lei chái dòu jihgei]}
\]
\[\text{Lum listen Ling talk say Lei step PRT self}
\]
\[\text{‘Lum hears from Ling that Lei stepped on self.’}
\]

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.
Bibliography


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Appendix A

Test sentences from Experiment 1

A.1 Condition 1: say/jihgei

(1)  a. Wàh-jái tūhng Wáih-mìhng hái chântêng, kéuihdei jéunbeih ngai yeh
Wah and Wai-ming at restaurant they prepare call thing sîhk
Wah and Wai Ming are at the restaurant. They are about to order food.
b. Wàh-jái wah béi Wáih-mìhng têng jihgéi wúih ngai yîhfán
Wah say give Wai-ming listen self will call pasta
Wah tells Wai Ming that self will order pasta.
c. Wàh-jái wah bîngó wúih ngai yîfán?
Wah say who will call pasta
‘Who did Wah say will order pasta?’
d. Wah / Wai Ming

(2)  a. Síu-mìhng tūhng Gâ-lok hái sêjihlàuh, kéuihdei jéun-beih gán
Ming and Ga Lok at office they prepare prog têngyat 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 Gâ-lok têng jihgéi gâmmâân 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 bîngó gâmmâân 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 tûhng A-Bông hái ngànhhòhng, kéuihdei páih jó hóu loi
     Wai and Bong at bank they queue PERF very long
déui
     ‘Wai and Bong are at the bank. They have been queuing for a very long
time.’

b. Wáih-jái wah bêí A-Bông têng jiêgêí wúih gahm nûbak
     Wai say give Bong listen self will withdraw five-hundred
mân
     ‘Wai tells Bong that self will withdraw five hundred dollars.’

c. Wáih-jái wah bêíng wúih gahm nûbak mân?
     Wai say who will withdraw five-hundred money
     ‘Who did Wai say will withdraw five hundred dollars?’

d. Wai / Bong

(4) a. A-Kèuhng tûhng A-Hòuh hái boujídong, kéuihdei tâí gân dî
     Keung and Ho at newsstand they watch PROG CL
tâohtíu
     headline
     ‘Keung and Ho are at the newsstand. They are looking at the headlines.’

b. A-Kèuhng wah bêí A-Hòuh têng jiêgêí tûngsèuhng séungmóng tâí
     Keung say give Ho listen self usually online watch
sânmân
     news
     ‘Keung tells Ho that self usually reads the news online.’

c. A-Kèuhng wah bêíng tûngsèuhng séungmóng tâí sânmán?
     Keung say who usually online watch news
     ‘Who did Keung say usually reads the news online?’

d. Keung / Ho

(5) a. A-Mìhng tûhng Kèuhng-jái hái bokmatgún, kéuihdei tâí gân
     Ming and Keung at museum they watch PROG
hânglûhng fasehk
     dinosaur fossil
     ‘Ming and Keung are at the museum. They are looking at dinosaur fossil.’
b. A-Mìhng wah béi Kèuhng-jái tèng jighéi 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 bǐngō 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 tūhng Sīu-Ji hái sāandéng kēuïhdei jéunbeih hāhn 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 Sīu-Ji tèng jighéi wúih fūh jyu dī syu lèi
Man say give Jee listen self will hold PROG CL tree come
hāhn
walk
‘Man tells Jee that self will hold onto the trees while walking.’
c. Dai-Màhn wah bǐngō wúih fūh jyu dī syu lèi hāhn?
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 tūhng Gā-Kèuhng hái fosāk, kēuïhdei hah yāt tōhng
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 tèng jighéi 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 bǐngō 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 tûhng Gihk-jái hái bâsì, kéuïhdei sâk gán chê
    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 bêi Gihk-jái têng ji̍h-gêi hahchi wúih jîu dî
    Wai-man say give Gik listen self next-time will early more
    sâugûng
    finish-work
    ‘Wai Man tells Gik that self will get off work earlier next time.’

    c. Wái-Màhn wah bîngô hahchi wúih jîu dî sâugûng?
    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-Yìh tûhng Yuk-Lìhng hái tòusyûgûn, kéuïhdei pàih gân déuí
    Suk-yee and Yuk-ling at library they line PROG queue
    wàhn syû
    return book
    ‘Suk Yee and Yuk Ling are at the library. They are lining up to return
    some books.’

    b. Suk-Yìh wah bêi Yuk-Lìhng têng ji̍h-gêi hahchi wúih jëuñsi
    Suk-yee say give Yuk-ling listen self next-time will punctual
    wàhn syû
    return book
    ‘Suk Yee tells Yuk Ling that self will return books on time next time.’

    c. Suk-Yìh wah bîngô hahchi wúih jëuñsi wàhn syû?
    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 tûhng Su̍k-Fân hái heiyûn, kéuïhdei āamāam chóh dâi
    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 bêi Su̍k-Fân têng ji̍h-gêi hahchi wúih mái jün̄gûn
    Jing say give Suk-fan listen self next-time will buy middle
    wâi
    seat
    ‘Jing tells Suk Fan that self will buy middle seats next time.’

    c. A-Jīng wah bîngô hahchi wúih mái jün̄gûn wâi?
    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-Yán tûhng Mèi-Lìhng hái chèuhfông, kéukhdei kîng gán**
Yan and Meiling at kitchen they discuss PROG
gâmnaan jyú mē
tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’
b. **A-Yán wah béi Mèi-Lìhng têng jihgéi jeui lêk jyú hóisin**
Yan say give Meiling listen self most clever cook seafood
‘Yan tells Meiling that self is best at cooking seafood.’
c. **A-Yán wah bîngo jeui lêk jyú hóisin?**
Yan say who most clever cook seafood?
‘Who did Yan say is best at cooking seafood?’
d. Yan / Meiling

(12) a. **Jìng-Yìh tûhng A-Sàan hái gûngyûn, kéuihdei hái douh yêhchāan**
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. **Jìng-Yìh wah béi A-Sàan têng jihgéi hahchi wúih jîng bôlôh**
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. **Jìng-Yìh wah bîngo hahchi wúih jîng bôlôh 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-Gêun tûhng A-Fûhng hái sôfá douh chô, kéuihdei táî gán**
Lai-guen and Fung at couch there sit they watch PROG
dînsî
television
‘Lai Geun and Fung are sitting on the couch. They are watching the television.’
b. **Lai-Gêun wah béi A-Fûhng têng jihgéi màhnmáhn táî**
Lai-guen say give Fung listen self every-night watch
géilukpín
documentary
c. *Lai-Gēun wah bīngo máhnmáhn táí 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 tūhng A-Lìhng hái gāsì, kéuîhdei 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 tèng jihung 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 bīngo lám jyu mái yàohyú?*
   Lum say who think PROG buy squid
   ‘Who did Lum say is planning to buy squids?’

(15) a. *Síu-Fà tūhng A-Jān hái dihnhei póu, kéuîhdei táí gán*
   Fa and Jan at electric-appliance store they watch PROG mèihbolouh microwave
   ‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’

b. *Síu-Fà wah béi A-Jān tèng jihung yáou jěung gáou 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-Fà wah bīngo yáou jěung gáou jik kāt?*
   Fa say who have CL nine discount card
   ‘Who did Fa say has a ten percent discount card?’

(16) a. *Síu-Yúk tūhng Síu-Fān hái yeukföhng, kéuîhdei mái gán wàihtāming*
   Yuk and Fan at pharmacy they buy PROG vitamin yün pills
   ‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’

b. *Síu-Yúk wah béi Síu-Fān tèng jihung yáou sēungfōng gámmou*
   Yuk say give Fan listen self always cold Flu
   ‘Yuk tells Fan that self is always sick.’
A.2 Condition 2: say/pronoun

(1) a. Wàh-jái tūhng Wáih-mìhng hái chânténg, kéuíhdei jéunbeih ngai yeh
   Wah and Wai-ming at restaurant they prepare call thing
   eat
   ‘Wah and Wai Ming are at the restaurant. They are about to order food.’
b. Wàh-jái wah bēi Wáih-mìhng tēng kéuíh wūih ngai yīhfán
   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 wūih ngai yīhfán?
   Wah say who will call pasta
   ‘Who did Wah say will order pasta?’
d. Wah / Wai Ming

(2) a. Síu-mìhng tūhng Gā-lok hái séjīhlàuh, kéuíhdei jéun-beih gán
   Ming and Ga-lok at office they prepare PROG
tēngyat go wuihyì
tomorrow CL meeting
   ‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’
b. Síu-mìhng wah bēi Gā-lok tēng kéuíh gāmmāan wūih gāodimh 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 wūih gāodimh 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 tūhng A-Bōng hái ngànhòhng, kéuíhdei pàih jō 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 běi A-Bông tēng kéuih wúih gahm rǔbak
   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 bēngo wúih gahm rǔbak 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 tūhng A-Hòuh hái boujídong, kéuihdei táí gān dī
   Keung and Ho at newsstand they watch PROG CL
   tàohtíu headline
   ‘Keung and Ho are at the newsstand. They are looking at the headlines.’

b. A-Kèuhng wah běi A-Hòuh tēng tūngsèuhng séungmóng táí
   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 bēngo tūngsèuhng séungmóng táí sānmán?
   Keung say who usually online watch news
   ‘Who did Keung say usually reads the news online?’

d. Keung / Ho

(5) a. A-Mìhng tūhng Kèuhng-jái hái bokmatgún, kéuihdei táí gān
   Ming and Keung at museum they watch PROG húnglúhéng fasehk
   dinosaur fossil
   ‘Ming and Keung are at the museum. They are looking at dinosaur fossil.

b. A-Mìhng wah běi Kèuhng-jái tēng kéuih hahchi wúih dái
   Ming say give Keung listen 3SG next-time will bring
   sēunggēi camera
   ‘Ming tells Keung that s/he will bring a camera next time.’

c. A-Mìhng wah bēngo hahchi wúih dái sēunggēi?
   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 tòhng Síu-Ji hái säändeng kéuihdei jéunbeih hähn fään
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 tèng kéuih wúih fùh jyu dī syu lèi
Man say give Jee listen 3SG will hold PROG CL tree come
hähn
walk
‘Man tells Jee that s/he will hold onto the trees while walking.’

c. Dai-Màhn wah bīngo wúih fùh jyu dī syu lèi hähn?
Man say who will hold PROG CL tree come walk
‘Who did Man say will hold onto the trees while walking?’

(7) a. Ji-Hòuh tòhng Gā-Kèuhng hái fosāk, kéuihdei hah yāt tòhng
Jee-ho and Ga-keung at classroom they next one class
souohhk chàkyihm
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 tèng kéuih hahchì wúih jòu dī
Jee-ho say give Ga-keung listen 3SG next-time will early more
hōichì wānsyū
start revision
‘Jee Ho tells Ga Keung that s/he will start revising earlier next time.’

c. Ji-Hòuh wah bīngo hahchì wúih jòu dī hōichì 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 tòhng Gihk-jái hái bāsí, kéuihdei sāk gān 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 tèng kéuih hahchì wúih jòu dī
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 bīngo hahchì wúih jòu 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 tūhng Yuk-Lihng hái tpusyūgún, kẽuihdei pàih gán déuí
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 bēí Yuk-Lihng tēng kẽuih hahchī wūíh jéunsi
Suk-yee say give Yuk-ling listen 3SG next-time will punctual
wàhn syū
return book
‘Suk Yee tells Yuk Ling that s/he will return books on time next time.’
c. Suk-Yih wah bīŋgo hahchī wūíh 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 tūhng Suhk-Fān hái heiyán, kẽuihdei āāmāam chôh 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 bēí Suhk-Fān tēng kẽuih hahchī wūíh mái jūnggān
Jing say give Suk-fan listen 3SG next-time will buy middle
wāi
seat
‘Jing tells Suk Fan that s/he will buy middle seats next time.’
c. A-Jīng wah bīŋgo hahchī wūíh mái jūnggān wāí?
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 chēuhfóng, kẽukhdei kīng gān
Yan and Meiling at kitchen they discuss PROG
gāmmāan jyū mē
tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’
b. **A-Yàn wah běi Mèi-Lìhng tēng kēuih jeui lēk jyú hóisīn**
Yan     say give Meiling   listen 3SG   most clever cook seafood
‘Yan tells Meiling that s/he is best at cooking seafood.’
c. **A-Yàn wah bīn̄go jeui lēk jyú 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 gūngyūn, kēuihdei hái douh yēhchāan**
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 běi A-Sāan tēng kēuih hahchí wūih jīng bōlōh**
Jing-yee say give San   listen 3SG   next-time will make pineapple chēungjáí
sausage
‘Jing Yee tells San that s/he will make pineapple and sausage skewers next time.’
c. **Jing-Yìh wah bīn̄go hahchí wūih jīng bōlōh chēungjáí?**
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-Fūhng hái sōfá douh chí, kēuihdei tāi gān**
Lai-guen 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 běi A-Fūhng tēng kēuih máhnhmáhn tāi**
Lai-guen say give Fung listen 3SG every-night watch
géilukpín
documentary
‘Lai Geun tells Fung that s/he watches documentaries every night.’
c. **Lai-Gēun wah bīn̄go máhnhmáhn tāi géilukpín?**
Lai-guen 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, kēuihdei máí gān sōhng**
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 běi A-Fúhng têng kêuih lâm 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 lâm 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-F¯a tūhng A-J¯an hái dihnhei póu, kêuihdei táí gán
   Fa and Jan at electric-appliance store they watch PROG
   méihbölóuh microwave
   ‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
b. Síu-F¯a wah běi A-J¯an têng kêuih yáo jêung 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-F¯a wah bīngo yáo jêung gáo jik kāt?
   Fa say who have CL nine discount card
   ‘Who did Fa say has a ten percent discount card?’
d. Jan / Fa

c. Síu-F¯a wah bīngo yáo jêung 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-F¯an hái yeukfòhng, kêuihdei mái gán wàihtáming
   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 běi Síu-F¯an têng kêuih sìhngyat sêungfêng 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 sêungfêng gámmou?
   Yuk say who always cold Flu
   ‘Who did Yuk say is always sick?’

da. Wàh-jái tūhng Wáih-mìhng hái chântêng, kêuihdei jéunbeih ngai yeh
   Wah and Wai-ming at restaurant they prepare call thing
   sihk eat

A.3 Condition 3: hear/jihgei

(1) a. Wàh-jái tūhng Wáih-mìhng hái chântêng, kêuihdei 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. \textit{Wàh-jái têng Wáih-mi̍hng góng wah jihgéi wúih ngai yīhfn}  
Wah listen Wai-ming talk say self will call pasta  
‘Wah hears from Wai Ming that self will order pasta.’

c. \textit{Wàh-jái têng góng wah bín̄go wúih ngai yīfân?}  
Wah listen talk say who will call pasta  
‘Who did Wah hear will order pasta?’

d. Wah / Wai Ming

(2) a. \textit{Síu-mi̍hng tûhng Gā-lok hái séjihlàu, kéuihdei jéun-beih gán}  
Ming and Ga-lok at office they prepare \textsc{prog}  
téngyat go wuihyí  
tomorrow \textsc{cl} meeting  
‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’

b. \textit{Síu-mi̍hng têng Gā-lok góng wah jihgéi gâmmáan wúih gáodìm̄h go}  
Ming listen Ga-lok talk say self tonight will finish \textsc{cl} bougou  
report  
‘Ming hears from Ga Lok that self will finish the report tonight.’

c. \textit{Síu-mi̍hng têng góng wah bín̄go gâmmáan wúih gáodìm̄h go bougou?}  
Ming listen talk say who tonight will finish \textsc{cl} report  
‘Who did Ming hear will finish the report tonight?’

d. Ming / Ga Lok

(3) a. \textit{Wáih-jái tûhng A-Bông hái ngànhnòhng, kéuihdei pàih jô hóu loi}  
Wai and Bong at bank they queue \textsc{perf} very long  
déui  
time  
‘Wai and Bong are at the bank. They have been queuing for a very long time.’

b. \textit{Wáih-jái têng A-Bông góng wah jihgéi wúih gahm rébak}  
Wai listen Bong talk say self will withdraw five-hundred  
mân  
money  
‘Wai hears from Bong that self will withdraw five hundred dollars.’

c. \textit{Wáih-jái têng góng wah bín̄go wúih gahm rébak mân?}  
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-Keüng tühng A-Hôuh hái boujídong, kéuíhdei tái gán dī Keung and Ho at newsstand they watch PROG CL tâohtíu headline
   ‘Keung and Ho are at the newsstand. They are looking at the headlines.’

b. A-Keüng têng A-Hôuh góng wah jihgéi tōngsèuhng séungmóng táí Keung listen Ho talk say self usually online watch sänmán news
   ‘Keung hears from Ho that self usually reads the news online.’

c. A-Keüng têng góng wah bêngo tōngsèuhng séungmóng táí Keung listen talk say who usually online watch sänmán?
   ‘Who did Keung hear usually reads the news online?’

d. Keung / Ho

(5) a. A-Mìhng tühng Kèuhng-jái hái bokmatgún, kéuíhdei 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 têng Kèuhng-jái góng wah jihgéi hahchi wúih dai Ming listen Keung talk say self next-time will bring séunggéi camera
   ‘Ming hears from Keung that self will bring a camera next time.’

c. A-Mìhng têng góng wah bêngo hahchi wúih dai séunggéi?
   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 tühng Síu-Ji hái sâandéng kéuíhdei jéunbeih hàhn fäan Man and Jee at peak they prepare walk back lok săan down hill
   ‘Man and Jee are at the peak. They are about to walk downhill.’

b. Dai-Màhn têng Síu-Ji góng wah jihgéi wúih fûh 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-Mánh têng góng wah bîng wúih fûh jyu dî syu lêi 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 tûhng Gã-Kèuhng hái fosâk, kéuïhdei hah yât tôhng*
   Jee-ho and Ga-keung at classroom they next one class
   souhohk châkyihm
   ‘Jee Ho and Ga Keung are in the classroom. They are having a Math test
   next lesson.’

b. *Ji-Hòuh têng Gã-Kèuhng góng wah jihgéi hahchi wúih jóu dî*
   Jee-ho listen Ga-keung talk say self next-time will early more
   hûîchí wânsyû
   start revision
   ‘Jee Ho hears from Ga Keung that self will start revising earlier next
   time.’

c. *Ji-Hòuh têng góng wah bûngo hahchi wúih jóu dî hûîchí*
   Jee-ho listen talk say who next-time will early more start
   wânsyû?
   revision
   ‘Who did Jee Ho hear will start revising earlier next time?’

d. Ga Keung / Jee Ho

(8) a. *Wái-Màhn tûhng Gîhk-jái hái bàst, kéuïhdei sâk gân ché*
   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 têng Gîhk-jái góng wah jihgéi hahchi wúih jóu dî*
   Wai-man listen Gik talk say self next-time will early more
   sâugûng
   finish-work
   ‘Wai Man hears from Gik that self will get off work earlier next time.’

c. *Wái-Màhn têng góng wah bûngo hahchi wúih jóu dî sâugûng?*
   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 tûhng Yuk-Lihng hái tòusyûgûn, kéuïhdei pàih gân déui*
   Suk-yee and Yuk-ling at library they line PROG queue
   wâhn syû
   return book
‘Suk Yee and Yuk Ling are at the library. They are lining up to return some books.’

b. *Suk-Yìh t¯ eng Yuk-Lìhng góng wah jìhgéi hahchi wúih jéunsi*  
   Suk-ye returns Yuk-ling to talk say self next-time will punctual  
   wàhn syú  
   return book  
   ‘Suk Yee hears from Yuk Ling that self will return books on time next time.’

c. *Suk-Yìh t¯ eng góng wah bìngo hahchi wúih jéunsi wàhn syú?*  
   Suk-ye 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-J¯ing tūhng Suhk-F¯ an hái heiyán, kéuìhdei āamãam chóh dái*  
   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-J¯ing t¯ eng Suhk-F¯ an góng wah jìhgéi hahchi wúih mái jünggân*  
   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-J¯ing t¯ eng góng wah bìngo hahchi wúih mái jünggân wáí?*  
   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-Y¯ an tūhng Méi-Lìhng hái chèuhfóng, kéukhdei kõng gán*  
   Yan and Meiling at kitchen they discuss PROG  
   gāmnāan jyú mé  
   tonight cook what  
   ‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

b. *A-Y¯ an t¯ eng Méi-Lìhng góng wah jìhgéi jeui lèk 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-Y¯ an t¯ eng góng wah bìngo jeui lèk 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 gungyün, kēuihdei hái douh yēhchǎan
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-Yihtēng bēi A-Sāan gōng 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 gōng wah bīngo 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

tb (13) a. Lai-Gèun tùhng A-Fúhng hái sōfá douh chó, kēuihdei tái gán
Lai-guen 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 gōng wah jihgéi máhnmáhn tái
Lai-guen listen Fung talk say self every-night watch
géilukpín
documentary
‘Lai Geun hears from Fung that self watches documentaries every night.’
c. Lai-Gēun tēng gōng wah bīngo máhnmáhn tái géilukpín?
Lai-guen listen talk say who every-night watch documentary
‘Who did Lai Geun hear watches documentaries every night?’
d. Fung / Lai Geun

tc (14) a. Síu-Làhm tùhng A-Lìhng hái gāsí, kēuihdei 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 gōng 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 gōng wah bīngo lám jyu mái yàohyú?
Lum listen talk say who think PROG buy squid

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

d. Ling / Lum

(15) a. Síu-F¯ a tühng A-J¯ an hái dihnhei póu, kéuihdei táí gán
Fa and Jan at electric-appliance store they watch PROG microwave
‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’
b. Síu-F¯ a tüeng A-J¯ an góng wah jihgéi yāo jēung gāo 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-F¯ a tüeng góng wah bīngo yāo jēung gāo 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 tühng Síu-F¯ an hái yeukfōhng, kéuihdei máí gán wàihtāming
Yuk and Fan at pharmacy they buy PROG vitamin pills
‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
b. Síu-Yúk tüeng Síu-F¯ an góng wah jihgéi sīhngyat sēungfūng gámmou
Yuk listen Fan talk say self always cold Flu
‘Yuk hears from Fan that self is always sick.’
c. Síu-Yúk tüeng góng wah bīngo sīhngyat 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. Wāh-jái tühng Wāih-mihng hái chāntēng, kéuihdei jēunbeih ngai yeh
Wah and Wai-ming at restaurant they prepare call thing eat
‘Wah and Wai Ming are at the restaurant. They are about to order food.’
b. Wāh-jái tüeng Wāih-mihng góng wah kéuih wūih ngai yūhsān
Wah listen Wai-ming talk say 3SG will call pasta
‘Wah hears from Wai Ming that s/he will order pasta.’
c. Wàh-jái tèng góng wah bīngo wúih ngái yìfán?
   Wah listen talk say who will call pasta
   ‘Who did Wah hear will order pasta?’

d. Wah / Wai Ming

(2) a. Síu-mìhng tòhng Gā-lok hái séjhläh, kéuihdei jèwn-beih gán
   Ming and Ga-lok at office they prepare PROG tīngyat go wuhyì
tomorrow CL meeting
   ‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’

b. Síu-mìhng tèng 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 tèng góng wah bīngo 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 tòhng A-Bōng hái ngàhnhòhng, kéuihdei pàih jō 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 tèng A-Bōng góng wah kéuih wúih gahm ríbak
   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 tèng góng wah bīngo wúih gahm ríbak 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-Kēuhung tòhng A-Hōuh hái boujídong, kéuihdei tāi gān dī
   Keung and Ho at newsstand they watch PROG CL
tàohtíu
   headline
   ‘Keung and Ho are at the newsstand. They are looking at the headlines.’
b. A-Kèuhng tēng A-Hòuh góng wah kéuih tōngsēuhng sēungmóng tǎi
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 bīngo tōngsēuhng sēungmóng tǎi
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 tǎi gán
Ming and Keung at museum they watch PROG húnglūhng 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 hahchí wúih dai
Ming listen Keung talk say 3SG next-time will bring sēunggēi
camera
‘Ming hears from Keung that s/he will bring a camera next time.’
c. A-Mìhng tēng góng wah bīngo hahchí wúih dai sēunggēi?
Ming listen talk say who next-time will bring camera
‘Who did Ming hear will bring a camera next time?’
d. Keung / Ming

d. Jee / Man

(6) a. Dai-Màhn tūhng Sīu-Ji hái sāandéng kéuihdei jéunbeih hāhn fāan
Man and Jee at peak they prepare walk back
downhill
dai lōk sāan
‘Man and Jee are at the peak. They are about to walk downhill.’
b. Dai-Màhn tēng Sīu-Ji góng wah kéuih wūih fūh jyu dī syu lèi
Man listen Jee talk say 3SG will hold PROG CL tree come
walk
‘Man hears from Jee that s/he will hold onto the trees while walking.’
c. Dai-Màhn tēng góng wah bīngo wūih fūh jyu dī syu lèi hāhn?
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 tòhng Gā-Kèuhng hái fosāk, kéuìhdei hah yāt tòhng*
Jee-ho and Ga-keung at classroom they next one class
souhoak châkyhm
Math test
‘Jee Ho and Ga Keung are in the classroom. They are having a Math test
next lesson.’

b.  *Ji-Hòuh tèng Gā-Kèuhng góng wah kéuìh hahchi wúih jòu dī*
Jee-ho listen Ga-keung talk say 3SG next-time will early more
hōičí wânsyu
start revision
‘Jee Ho hears from Ga Keung that s/he will start revising earlier next
time.’

c.  *Ji-Hòuh tèng góng wah bīngo hahchi wúih jòu dī hōičí?
Jee-ho listen talk say who next-time will early more start
wânsyu? revision
‘Who did Jee Ho hear will start revising earlier next time?’

d.  Ga Keung / Jee Ho

(8) a.  *Wái-Màhn tòhng Gihk-jái hái bāsi, kéuìhdei 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 tèng Gihk-jái góng wah kéuìh hahchi wúih jòu dī*
Wai-man listen Gik talk say 3SG next-time will early more
sāugāŋg
finish-work
‘Wai Man hears from Gik that s/he will get off work earlier next
time.’

c.  *Wái-Màhn tèng góng wah bīngo hahchi wúih jòu dī sāugāŋg?
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 tòhng Yuk-Lìhng hái tòusyūgún, kéuìhdei pàih gán déuǐ*
Suk-yee and Yuk-ling at library they line PROG queue
wāhn syū
return book
‘Suk Yee and Yuk Ling are at the library. They are lining up to return
some books.’

b.  *Suk-Yìh tèng Yuk-Lìhng góng wah kéuìh hahchi wúih jéunsi*
Suk-yee listen Yuk-ling talk say 3SG next-time will punctual
wāhn syū
return book
‘Suk Yee hears from Yuk Ling that s/he will return books on time next time.’

c. Suk-Yìh t¯ eng góng wah b¯ingo hahchi wúih jéunsi wàhn syû?
   Suk-yeoy 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-J¯ing tûhng Sukh-F¯ an hái heiyûn, kéuikdei aam¯aam 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-J¯ing t¯ eng Sukh-F¯ an góng wah kéuih hahchi wúih mái jünggān
   Jing listen Suk-fan talk say 3SG next-time will buy middle wāi
   seat
   ‘Jing hears from Suk Fan that s/he will buy middle seats next time.’

c. A-J¯ing t¯ eng góng wah b¯ingo hahchi wúih mái jünggān wūih?
   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-Y¯ an tûhng Méi-Lìhng hái chèuhfûng, kéuikdei kíng gán
   Yan and Meiling at kitchen they discuss PROG
   gûmmāan jyū mē
   tonight cook what
   ‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

b. A-Y¯ an t¯ eng Méi-Lìhng góng wah kēuih jeui lēk jyū hōisīn
   Yan listen Meiling talk say 3SG most clever cook seafood
   ‘Yan hears from Meiling that s/he is best at cooking seafood.’

c. A-Y¯ an t¯ eng góng wah b¯ingo jeui lēk jyū hōisīn?
   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 tûhng A-S¯ aan hái gûngyûn, kéuikdei hái douh yēchāan
   Jing-yeoy and San at park they at there picnic
   ‘Jing Yee and San are at the park. They are having a picnic there.’
b. Jing-Yihtêng béi A-Sân góng wah kéuih hahchi wúih jíng
   Jing-yee listen San talk say 3SG next-time will make
   bōlōh chéungjái
   pineapple sausage
   ‘Jing Yee hears from San that s/he will make pineapple and sausage skew-
   ers next time.’

c. Jing-Yih têng góng wah bīngo hahchi wúih jíng bōlōh
   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 táí gán
   Lai-guen 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 têng A-Fúhng góng wah kéuih máhnmáhn táí
   Lai-guen listen Fung talk say 3SG every-night watch
géilukpín
   documentary
   ‘Lai Geun hears from Fung that s/he watches documentaries every night.’

c. Lai-Gēun têng góng wah bīngo máhnmáhn táí géilukpín?
   Lai-guen 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-Lihng hái gāsi, 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 têng 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 têng góng wah bīngo 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 dūnhkéi póu, kēuihdei táí gān
Fa and Jan at electric-appliance store they watch PROG mēihbōlōuh
microwave
‘Fa and Jan are at the electric appliance store. They are looking at mi-
crowaves.’
b. Síu-Fā tēng A-Jān gōng wah kēuih yāo jēung gāo jīk 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 gōng wah bīngō yāo jēung gāo jīk 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-Yūk tūhng Síu-Fān hái yeukfōhng, kēuihdei mái gān wāihtāming
Yuk and Fan at pharmacy they buy PROG vitamin yān
pills
‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’
b. Síu-Yūk tēng Síu-Fān gōng wah kēuih sīhngyat sēungfūng gāmmou
Yuk listen Fan talk say 3SG always cold Flu
‘Yuk hears from Fan that s/he is always sick.’
c. Síu-Yūk tēng gōng wah bīngō sīhngyat sēungfūng gāmmou?
Yuk listen talk say who always cold Flu
‘Who did Yuk hear is always sick?’

A.5 Filler trials

(1) a. Daih-Hūhng tūhng Hou-Lāhm hái gāsīpōu, kēuihdei táí gān
Dai-hung and Ho-lam at furniture-shop they look PROG syūtōi
desk
‘Dai Hung and Ho Lam are at the furniture shop. They are looking at
desks.’
b. Daih-Hūhng wah bēi Hou-Lāhm tēng Daih-Hūhng sēung 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 bĩngo séung mái jéung daih dǐ ĝe?*
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 tūhng Gwök-Duhng hái gáfédim, kéuihdei yám gán*
Ga-ming and Gwok-dung at coffee-shop they drink PROG
gáfè coffee
‘Ga Ming and Gwok Dung are at the coffee shop. They are having coffee.’
b. *Gā-Míng wah běi Gwök-Duhng tēng Gā-Míng hahchi wúih ngaai*
Ga-ming say give Gwok-dung listen Ga-ming next-time will order
jāi fè plain coffee
‘Ga Ming tells Gwok Dung that Ga Ming will order black coffee next time.’
c. *Gā-Míng wah bǐngo hahchi wúih ngaai jāi fè?*
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 tūhng Ji-Wái hái būpó, kéuihdei jíng gán bīu*
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 běi Ji-Wái tēng Ji-Wái hahchi wúi héui daihyih*
Ga-bo say give Jee-wai listen Jee-wai next-time will go second
douh jíng bīu place fix watch
‘Ga Bo tells Jee Wai that Jee Wai will go elsewhere to get watches fixed next time.’
c. *Gā-Bóu wah bǐngo hahchi wúih héui daihyih douh jíng bīu?*
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 tūhng A-Hâh hái deih-tik, kéuihdei gón sīhgan*
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 běi A-Hâh tēng A-Hâh 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. Ga-Yan wah bīngo hahchi dap dīsī?
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. Sīu-Kēih tūhng A-Mán hái bakfo̍gūngșí, kēuihdei tái gān
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. Sīu-Kēih wah bēi A-Mán tēng A-Mán gāmga 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. Sīu-Kēih wah bīngo gāmga 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 tūhng Jī-Gīn hái binleidīm, kēuihdei sīhk gān
Ga-ming and Jee-geen at convenience-store they eat PROG yūhdān
fish-ball
‘Ga Ming and Jee Geen are at the convenience store. They are eating fish balls.’

b. Gā-Mìhng tēng Jī-Gīn góng wa Gā-Mìhng hahchi heui
Ga-ming listen Jee-geen talk say Ga-ming next-time go
Wong-Gōk dūk yūhdān
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 bīngo hahchi heui Wong-Gōk dūk
Ga-ming listen talk say who next-time go Mongkok poke
yūhdān?
fish-ball
‘Who did Ga Ming hear will go to Mongkok for fish balls next time?’

d. Ga Ming / Jee Geen

(7) a. Ji-Mihng tūhng Hou-Yīhn hái syūdim, kēuihdei tái gān 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 tèŋ Hou-Yihn góng wa Ji-Mìhng wúih mái bán sǐusyuk
   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 tèŋ góng wa bīingo wúih mái bán sǐusyuk?
   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-Sìn tūhng Gā-Mán hái jītyīhngngūk, kéuihdei jīn 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-Sìn tèŋ Gā-Mán góng wa Síu-Sìn hahchi wúih jīn dyūn 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-Sìn tèŋ góng wa bīingo hahchi wúih jīn dyūn 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 tūhng Yān-Tīhng 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 tèŋ Yān-Tīhng góng wa Yān-Tīhng gāmchi chāh hòhngsīk
   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 tèŋ góng wa bīingo gāmchi chāh hòhngsīk?
   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-Yīn tūhng Wing-Yīn hái chánsō, 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-Yīn tēng Wing-Yān gōng wa Wing-Yān yiu dai fān go hāojiao**

   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-Yīn tēng gōng wa bīngo yiu dai fān go hāojiao?**

   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 tūhng Wíng-Hōng hái haktēng, kéuihdei táí 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 dinsì**

   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 bīngo gao daih sēng dī go dinsì?**

   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. **Jí-Màhn tūhng A-Fāi hái taihōnggūn, kéuihdei kēi jō hái**

   Jee-man and Fai at space-museum they stand EXP at
mùnháo
entrance

   ‘Jee Man and Fai are at the space museum. They are standing at the entrance’

b. **Jí-Màhn giu A-Fāi mái fēi**

   Jee-man ask Fai buy ticket

   ‘Jee Man asks Fai to buy tickets.’

c. **Jí-Màhn giu bīngo mái fēi?**

   Jee-man ask who buy ticket

   ‘Who did Jee Man ask to buy tickets?’

d. Jee Man / Fai

(13) a. **Gā-Lók tūhng Jí-Hōng hái ginsānsāk, kéuihdei pāo 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. Ga-Lók giu Ji-Hông yám sihk yiu gwânkhâhng
   Ga-lok ask Jee-hong drink eat need balance
   ‘Ga Lok asks Jee Hong to have a balanced diet.’

c. Ga-Lók giu bêingo yám sihk yiu gwânkhâhng?
   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-Sân tûhng Gâ-Lái hái chûkâpsîchêuhng, kêuïhdei tâi gân
   Chui-san and Ga-lai at supermarket they look PROG
   hóisîn
   seafood
   ‘Chui San and Ga Lai are at the supermarket. They are looking at
   seafood.’

b. Cheui-Sân giu Gâ-Lái gân chòilîu jîng hóisîn 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.

b. Cheui-Sân giu Gâ-Lái gân chòilîu jîng hóisîn 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. Sîu-Sî tûhng Méi-Hâh hái sêungchêuhng, kêuïhdei hàhng gân gâi
   Si and Mei Ha at mall they walk PROG street
   ‘Si and Mei Ha are at the mall. They are shopping.’

b. Sîu-Sî giu Méi-Hâh hàhn mahn dî
   Si ask Mei-ha walk slow a-bit
   ‘Si asks Mei Ha to walk a bit slower.’

c. Sîu-Sî giu bêingo hàhn mahn dî?
   Si ask who walk slow a-bit
   ‘Who did Si ask to walk slower?’

d. Mei Ha / Si

(16) a. Gâ-Yîh tûhng Sûk-Mân hái ngûkkêi, kêuïhdei jêuïneih chêut mûnhháo
   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. Gâ-Yîh giu Sûk-Mân jeuk dô gin sâm
   Ga-yee ask Suk-man wear more CL clothes
   ‘Ga Yee asks Suk Man to wear more clothes.’
c.  Gā-Yīh giū bīngo jeuk do  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-Jí hái chāantēng, kéuihdei āamāam
   Wah  Wai-ming and  Jee   at  restaurant  they  just
dóusēh 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-Jí jōng dóu jiḥgēi
   Wah  say  give  Wai-ming  listen  Jee  collide PRT self
   ‘Wah tells Wai Ming that  Jee bumped against self.’
c. Wàh-jái wah Síu-Jí jōng dóu bīngō?
   Wah  say  Jee  collide PRT who
   ‘Who did  Wah say  Jee bumped  against?’
d. Wah / Wai Ming

(2) a. Síu-Mìng, Gā-Lok tūhng Jín-Pāhng hái séjihlàuh, kéuihdei kyutdīhng
   Ming  Ga-lop  and  Jeen-pang  at  office  they  decide
gān  hah  go  sīŋkēih  go  wuihyí  go  jyútāih
   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-Pāhng jantūhng jiḥgēi
   Ming  say  give  Ga-lop  listen  Jeen-pang  agree  self
   ‘Ming  tells  Ga  Lok  that  Jeen Pang  agrees  with  self.’
c. Síu-Mìng wah Jín-Pāhng jantūhng bīngō?
   Ming  say  Jeen-pang  agree  who
   ‘Who did  Ming say  Jeen Pang  agrees with?’
d. Ming / Ga Lok

(3) a. Wáih-jái, A-Bông tûhng A-Jihng hái ngâhn hôhng, kêu hđei pài h jô
Wai Bong and Jing at bank they queue ASP hôu loi déu
very long line
‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’
b. Wáih-jái wah bêi A-Bông têng A-Jihng jâan jiêgêi ní-bak
Wai say give Bong listen Jing owe self five-hundred mân
money
‘Wai tells Bong that Jing owes self five hundred dollars.’
c. Wáih-jái wah A-Jihng jâan bîngo ní-bak mân?
Wai say Jing owe who five-hundred money
‘Who did Wai say Jing owes five hundred dollars?’
d. Wai / Bong

Keung Ho and Jo at newsstand they discuss PROG sihsi
current-affairs
‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’
Keung say give Ho listen Jo always argue self
‘Keung tells Ho that Jo always argues with self.’
c. A-Kêuhng wah A-Jóu sihngyat fâanbok bîngo?
Keung say Jo always argue who
‘Who did Keung say Jo always argue with?’
d. Keung / Ho

(5) a. A-Mìhng, Kêuhng-jâi tûhng A-Lóhng hái bokmahtgûn, kêu hđei táí
Ming Keung and Long at museum they watch PROG gân hûnglûng fasehk
dinosaur fossil
‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
b. A-Mìhng wah bêi Kêuhng-jâi têng A-Lóhng hahchi dai jiêgêi
Ming say give Keung listen Long next-time bring self hêui föhokgûn
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 fòhokgún?
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, Sùu-Jì tûhng Chèuhung-jái hái säändéng, kéuihdei jéunbeih 
Man, Jee and Cheung at peak they prepare 
hâhn fàan 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 Sùu-Jì têng Chèuhung-jái wúih jyh jyu jihgéi 
Man say give Jee listen Cheung will hold PROG self 
‘Man tells Jee that Cheung will hold onto self.’
c. Dai-Màhn wah Chèuhung-jái wúih jyh jyu bīngo? 
Man say Cheung will hold PROG who 
‘Who did Man say Cheung will hold onto?’
d. Jee / Man

(7) a. Ji-Hòuh, Gã-Kèuhng tûhng Màhn-jái hái fosāk, kéuihdei hah yāt 
Jee-Ho, Ga-Keung and Man at classroom they next one 
tòhng souohhk châkyihm 
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 Gã-Kèuhng têng Màhn-jái hahchi gao jihgéi 
Jee-Ho say give Ga-keung listen Man next-time teach self 
mèihjīkjān 
calculus 
‘Jee Ho tells Ga Keung that Man will teach self calculus next time.’
c. Ji-Hòuh wah Màhn-jái hahchi gao bīngo mèihjīkjān? 
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, Gìhk-jái tûhng A-Jàahk hái bāsì, kéuihdei sāk gān 
Wai-Man, Gik and Jak at bus they congested PROG 
car 
‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’
b. Wái-Màhn wah běi Gihk-jái tēng A-Jàahk hahchí wúih chē jihgéi
  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 hahchí 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-B¯ik hái tòuhsyūgún, kéuihdei pàih gán
  Suk-yee, Yuk-ling and Bik at library they line PROG déui wàhn syú
  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 běi Yuk-Lìhng tēng hahchí dī syū dòukèih Síu-B¯ik
  Suk-yee say give Yuk-ling listen next-time CL book due Bik
  wúih tâihséng jihgéi
  will remind self
  ‘Suk Yee tells Yuk Ling that Bik will remind self when the books are due
  next time.’

c. Suk-Yìh wah hahchí dī syū dòukèih Síu-B¯ik wúih tâihséng 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-Jìng, Suk-F¯ an tùhng Síu-F¯ ong hái heiyún, kéuihdei āamāam
  Jing, Suk Fan and Fong at movie-theatre they just
  chōh dāi jó
  sat down EXP
  ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’

b. A-Jìng wah běi Suk-F¯ an tēng Síu-F¯ ong hahchí wúih běi jùnggān
  Jing say give Suk-fan listen Fong next-time will give middle
  wái jihgéi
  seat self
  ‘Jing tells Suk Fan that Fong will give self the middle seat next time.’

c. A-Jìng wah Síu-F¯ ong hahchí wúih běi jùnggān 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-Yăn, Méi-lìhng tûhng Sîu-Chîng hái chyxîông, kéuihdei king gán*  
Yan, Meiling and Ching at kitchen they discuss PROG  
jyû syûn lat tông 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-Yăn wah béi Méi-lìhng têng Sîu-Chîng hahchî wûih chîng 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-Yăn wah Sîu-Chîng hahchî wûih chîng gao bîngo?*  
Yan say Ching next-time will ask teach who  
‘Who did Yan say Ching will ask next time?’

d. Yan / Meiling

(12) a. *Jîng-Yìh, A-Sûan tûhng Gâ-Bîk hái gûngyûn, kéuihdei hái douh*  
Jing-yee San and Ga-bik at park they at there yéhcháan  
picnic  
‘Jing Yee, San and Ga Bik are at the park. They are having a picnic  
there.’

b. *Jîng-Yìh wah béî A-Sûan têng Gâ-Bîk hahsingkèih yéhcháan wûih*  
Jing-yee say give San listen Ga-bik next-week picnic will  
ngaai màaih jihgéi  
call PRT self  
‘Jing Yee tells San that Ga Bik will invite self to picnic next week.’

c. *Jîng-Yìh wah Gâ-Bîk hahsingkèih yéhcháan wûih ngaai màaih bîngo?*  
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-Gyûn, A-Fûhng Tûhng Sîu-Tôhng hái sôfá douh chó, kéuihdei*  
Lai-gyun Fung and Tong at couch there sit they  
tâi tâi 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-Gyûn wah béî A-Fûhng têng Sîu-Tôhng hahchî wûih ngaai*  
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-Gy¯un wah Síu-Tòhng hahchi wúih ngaai séng b¯ingo?
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, kēuihdei 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 jihgéi
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 b¯ingo?
Lum say Lei step PRT who
‘Who did Lum say Lei stepped on?’

d. Ling / Lum

(15) a. Síu-F¯a, A-J¯an tùhng Bīk-Yúk hái dihnhei póu, kēuihdei
Fa Jan and Bik-yuk at electric-appliance store they tāi gán mèihbōlouh
watch PROG microwave
‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.

b. Síu-F¯a wah béi A-J¯an tēng Bīk-Yúk jangāan béi jēung gāo jik
Fa say give Jan listen Bik-yuk later give CL nine discount kāat jihgéi
card self
‘Fa tells Jan that Bik Yuk will give self a ten percent discount card later.’

c. Síu-F¯a wah Bīk-Yúk jangāan béi jēung gāo jik kāat b¯ingo?
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-F¯an tùhng Jing-Hēung hái sēungcheung, kēuihdei
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 têng Jing-Héung ganpái beihoi jihgei*
   
   ‘Yuk say give Fan listen Jing-heung lately avoid self’

   ‘Yuk tells Fan that Jing Hueng has been avoiding self lately.’

c. *Síu-Yúk wah Jing-Héung ganpái beihoi bīngo?*
   
   ‘Who did Yuk say Jing Heung has been avoiding lately?’

d. Fan / Yuk

B.2  Condition 2: say/pronoun

(1) a. *Wàh-jái, Wáih-Mìhng tūhng 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?*

   Way say Jee collide PRT who

   ‘Who did Wah say Jee bumped against?’

d. Wah / Wai Ming

(2) a. *Síu-Mìng, Gā-Lok tūhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdihng*

   Ming Ga-lok and Jeen-pang at office they decide

   *gán hah go sīngkèih go wuǐhyí 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 jantūhng kéuih*

   Ming say give Ga-lok listen Jeen-pang agree 3SG

   ‘Ming tells Ga Lok that Jeen Pang agrees with s/he.’

c. *Síu-Mìng wah Jín-Pàhng jantūhng bīngo?*

   Ming say Jeen-pang agree who

   ‘Who did Ming say Jeen Pang agrees with?’

d. Ming / Ga Lok

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(3)  a. **Wáih-jái, A-Bông tûhng A-Jìhng hái ngûnhôhng, kêuïhdei pàiø jó**
    Wai and Jing at bank they queue ASP
    hóu loi dévi
    very long line
    ‘Wai, Bong and Jing are at the bank. They have been queuing for a very
    long time.’

    b. **Wáih-jái wah bêí A-Bông têng A-Jìhng jaaän kêuïh mû-bak**
    Wai say give Bong listen Jing owe 3SG five-hundred mân
    money
    ‘Wai tells Bong that Jing owes s/he five hundred dollars.’

    c. **Wáih-jái wah A-Jìhng jaaän bîngo mû-bak mûn?**
    Wai say Jing owe who five-hundred money
    ‘Who did Wai say Jing owes five hundred dollars?’

d. **Wai / Bong**

(4)  a. **A-Kêuhng, A-Hòuh tûhng A-Jóu hái boujîdong, kêuïhdei tóulun gân**
    Keung Ho and Jo at newsstand they discuss PROG sihsi
    current-affiars
    ‘Keung, Ho and Jo are at the newsstand. They are discussing current
    affairs.’

    b. **A-Kêuhng wah bêí A-Hòuh têng A-Jóu sihngyat fàanbok kêuïh**
    Keung say give Ho listen Jo always argue 3SG
    ‘Keung tells Ho that Jo always argues with s/he.’

    c. **A-Kêuhng wah A-Jóu sihngyat fàanbok bîngo?**
    Keung say Jo always argue who
    ‘Who did Keung say Jo always argue with?’

d. **Keung / Ho**

(5)  a. **A-Mîhng, Kêuhng-jái tûhng A-Lôhng hái bokmahtgûn, kêuïhdei tái**
    Ming Keung and Long at museum they watch gân húnglûhng fasehk
    PROG dinosaur fossil
    ‘Ming, Keung and Long are at the museum. They are looking at dinosaur
    fossils.’

    b. **A-Mîhng wah bêí Kêuhng-jái têng A-Lôhng hahchi dai kêuïh**
    Ming say give Keung listen Long next-time bring 3SG
    heui fôhokgûn
    go science-museum
    ‘Ming tells Keung that Long will take s/he to the Science Museum next
    time.’

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c. A-Miḥng wah A-Lóhng hahchi dai ṃingo heui fōhokgūn?
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-Māhn, Sīu-Ji túhng Chèuhng-jáí hái säándéng, kéuihdei jéunbeih
Man gee and Cheung at peak they prepare
hān faan lok sāan
walk back down hill
‘Man, Gee and Cheung are at the peak. They are about to walk downhill.’
b. Dai-Māhn wah béi Sīu-Ji tēng Chèuhng-jáí wúih fū h jyu kéuih
Man say gee Cheung will hold PROG 3SG
‘Man tells Jee that Cheung will hold onto s/he.’
c. Dai-Māhn wah Chèuhng-jáí wúih fū h 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 túhng Måhn-jáí hái fosāk, kéuihdei hah yāt
Jee-ho, Ga-keung and Man at classroom they next one
tōhng 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 Måhn-jáí hahchi gao kéuih
Jee-ho say give Ga-keung listen Man next-time teach 3SG mèihjīkfaṅ
calculus
‘Jee Ho tells Ga Keung that Man will teach s/he calculus next time.’
c. Ji-Hòuh wah Måhn-jáí hahchi gao bīngo mèihjīkfaṅ?
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-Måhn, Gihk-jáí túhng A-Jàahk hái bāsi, kéuihdei sāk gān
Wai-man Gik and Jak at bus they congested PROG 3SG
car
‘Wai Man, Gik and Jak are on the bus. They are stuck in traffic.’
b. Wái-Måhn wah béi Gihk-jáí 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 tūhng Síu-B¯ik hái tòuhsyūgán, kéuihdei páih 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 hahchì dī syū dōukēih Síu-B¯ik
Suk-yee say give Yuk-ling listen next-time CL book due Bik
wúih tāihséng 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 hahchì dī syū dōukēih Síu-B¯ik wúih tāihséng 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-J¯ing, Suk-F¯ an tūhng Síu-Fòng hái heiyún, kéuihdei āamāam
Jing Suk-fan and Fong at movie-theatre they just
chóh dāi jō
sat down EXP
‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’

b. A-J¯ing wah béi Suk-F¯ an tēng Síu-Fòng hahchì wúih béi jünggān
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-J¯ing wah Síu-Fòng hahchì wúih béi jünggān 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-Y¯ an, Méi-lihng tūhng Síu-Ch¯ ing hái chyùfŏng, kéuihdei king gán
Yan Meiling and Ching at kitchen they discuss PROG
jyù 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-Yán wah béi Méi-lîhng têng Síu-Chíng hahchî wúih chíng gâo
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-Yán wah Síu-Chíng hahchî wúih chíng gâo bîngo?
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-Săan tühng Gă-Bîk hái gûngyûn, kéuihdei hái douh
Jing-yee San and Ga-bik at park they at there yêhchâan
picnic
‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’

b. Jing-Yìh wah béi A-Săan têng Gă-Bîk hahsingkêih yêhchâan 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 Gă-Bîk hahsingkêih yêhchâan wúih ngaai màaih bîngo?
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-Gyûn, A-Fûhng Tùhng Síu-Tôhng hái sôfá douh cho, kéuihdei
Lai-gyun Fung and Tong at couch there sit they
táî táî 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-Gyûn wah béi A-Fûhng têng Síu-Tôhng hahchî 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-Gyûn wah Síu-Tôhng hahchî wúih ngaai séng bîngo?
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 tòhung Síu-Lei hái gāisi, kěuuhdei 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 bēi A-Lìhng těng Síu-Lei chai dóu kěuuh
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 bǐngo?
Lum say Lei step prt who
‘Who did Lum say Lei stepped on?’
d. Ling / Lum

(15) a. Síu-Fà, A-Jan tòhung Bīk-Yúk hái dínhhei póu, kěuuhdei
Fa Jan and Bik-yuk at electric-appliance store they
tái gán mēihbōlouh
watch prog microwave
‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking
at microwaves.

b. Síu-Fà wah bēi A-Ján těng Bīk-Yúk jangāan bēi jēung gào jìk
Fa say give Jan listen Bik-yuk later give cl nine discount
kāat kěuuh
card 3sg
‘Fa tells Jan that Bik Yuk will give s/he a ten percent discount card later.’
c. Síu-Fà wah Bīk-Yúk jangāan bēi jēung gào jìk kāat bǐngo?
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 tòhung Jing-Hēung hái sēungcheung, kěuuhdei
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 bēi Síu-Fān těng Jing-Hēung gampāi beihōi kěuuh
Yuk say give Fan listen Jing-heung lately avoid 3sg
‘Yuk tells Fan that Jing Hueng has been avoiding s/he lately.’
c. Síu-Yún wáh Jing-Heung ganpái beihōi bǐngō?
   Yuk say Jing-heung lately avoid who
   ‘Who did Yuk say Jing Heung has been avoiding lately?’

B.3  Condition 3: hear/jihgei

(1) a. Wáh-jái, Wáih-Ming tùhng Síu-Ji hái chāanténg, kêuïhdéi āamāam
   Wah Wai-ming and Jee at restaurant they just
   dòuséh jō hōlok
   spill EXP coke
   ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’

b. Wáh-jái têng Wáih-Ming góng wáh Síu-Ji jong dòu jihgéi
   Wah listen Wai-ming talk say Jee collide PRT self
   ‘Wah hears from Wai Ming that Jee bumped against self.’

c. Wáh-jái têng góng wáh Síu-Ji jong dòu bǐngō?
   Wah listen talk say Jee collide PRT who
   ‘Who did Wah hear Jee bumped against?’

d. Wah / Wai Ming

(2) a. Síu-Míng, Gā-Lok tùhng Jín-Pâhng hái sêjihlàuh, kêuïhdéi kyutdíhng
   Ming Ga Lok and Jeen Pang at office they decide
   gán hah go sîngkèih go wuïhyí go jyútâih
   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-Míng têng Gā-Lok góng wáh Jín-Pâhng 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-Míng têng góng wáh Jín-Pâhng jantùhng bǐngō?
   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-Bông tùhng A-Jihng hái ngâhnêhng, kêuïhdéi pài hj jō
   Wai Bong and Jing at bank they queue ASP
   hōu 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 têng A-Bông gông wah A-Jihng jään jihgéi nú-bak**
   Wai listen Bong talk say Jing owe self five-hundred män money
   ‘Wai hears from Bong that Jing owes self five hundred dollars.’

c. **Wáih-jái têng gông wah A-Jihng jään bïngo nú-bak män?**
   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 tühng A-Jóu hái boujídong, kéuïhdei tóulun gán**
   Keung Ho and Jo at newsstand they discuss PROG sihši current-affiars
   ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’

b. **A-Kèuhng têng A-Hòuh gông wah A-Jóu sihngyat fáanjok jihgéi**
   Keung listen Ho talk say Jo always argue self
   ‘Keung hears from Ho that Jo always argues with self.’

c. **A-Kèuhng têng gông wah A-Jóu sihngyat fáanjok bïngo?**
   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 tühng A-Lóhng hái bokmahtgún, kéuïhdei táí**
   Ming Keung and Long at museum they watch gán húnglahng fásehk
   PROG dinosaur fossil
   ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’

b. **A-Mìhng têng Kèuhng-jái gông wah A-Lóhng hahchi dai jihgéi**
   Ming listen Keung talk say Long next-time bring self heui fôhokgún
   go science-museum
   ‘Ming hears from Keung that Long will take self to the Science Museum next time.’

c. **A-Mìhng têng gông wah A-Lóhng hahchi dai bïngo heui**
   Ming listen talk say Long next-time bring who go fôhokgún?
   science-museum
   ‘Who did Ming hear Long will take to the Science Museum next time?’
d. Keung / Ming

(6) a. *Dai-Máhn, Sū-Ji tūhng Chèuhng-jái hái sāandéng, kēuihdei jēunjbeih*  
Man Je and Cheung at peak they prepare  
hāhn fāan lok sāan  
walk back down hill  
‘Man, Je and Cheung are at the peak. They are about to walk downhill.’

b. *Dai-Máhn tēng Sū-Ji góng wah Chèuhng-jái wúih fūh jyu jiḥgéi*  
Man listen Je talk say Cheung will hold PROG self  
‘Man hears from Je that Cheung will hold onto self.’

c. *Dai-Máhn tēng góng wah Chèuhng-jái wúih fūh jyu bīnɡo?*  
Man listen talk say Cheung will hold PROG who  
‘Who did Man hear Cheung will hold onto?’

d. Jee / Man

(7) a. *Ji-Hòuh, Gū-Kèuńg tūhng Māhn-jái hái fosāk, kēuihdei hah yāt*  
Jee-ho, Ga-keung and Man at classroom they next one  
tūhng souohhk 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 Gū-Kèuńg góng wah Māhn-jái hahchì gao jiḥgéi*  
Jee-ho listen Ga-keung talk say Man next-time teach self  
mēihjíkfān  
calculus  
‘Jee Ho hears from Ga Keung that Man will teach self calculus next time.’

c. *Ji-Hòuh tēng góng wah Māhn-jái hahchì gao bīnɡo mēihjíkfān?*  
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-Māhn, Gīhk-jái tūhng A-Jāahk hái bāsì, kēuihdei sāk gān*  
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-Māhn tēng Gīhk-jái góng wah A-Jāahk hahchì wūih chē*  
Wai-man listen Gik talk say Jak next-time will drive  
jiḥgéi  
self  
‘Wai man hears from Gik that Jak will drive self next time.’
c. Wái-Màhn têng góng wah A-Jàahk hahchi wúih chē bìngo?
   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 tûhng Síu-Bìk hái tòuhsyûgûn, kêuihdei páih gán
   Suk-yee, Yuk-ling and Bik at library they line PROG
   dëui wàhn syû
   queue return book
   ‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to
   return some books.’

b. Suk-Yìh têng Yuk-Lìhng góng wah hahchi dī syû dòukêih Síu-Bìk
   Suk-yee listen Yuk-ling talk say next-time CL book due Bik
   wûih tàihséng jihgéi
   will remind self
   ‘Suk Yee hears from Yuk Ling that Bik will remind self when the books
   are due next time.’

c. Suk-Yìh têng góng wah hahchi dī syû dòukêih Síu-Bìk wûih
   Suk-yee listen talk say next-time CL book due Bik will
   tàihséng bìngo?
   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-Jìng, Suk-F¯ an tûhng Síu-Fông hái heiyûn, kêuihdei āamãam
   Jing Suk-fan and Fong at movie-theatre they just
   chôh dâi jó
   sat down EXP
   ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’

b. A-Jìng têng Suk-F¯ an góng wah Síu-Fông hahchi wûih bêi jûnggûn
   Jing listen Suk-fan talk say Fong next-time will give middle
   wài jihgéi
   seat self
   ‘Jing hears from Suk Fan that Fong will give self the middle seat next
   time.’

c. A-Jìng têng góng wah Síu-Fông hahchi wûih bêi jûnggûn wâi
   Jing listen talk say Fong next-time will give middle seat
   bìngo?
   who
   ‘Who did Jing hear Fong will give the middle seat next time?’
d. Jing / Suk Fan

(11) a. A-Yăn, Méi-lîhng tûhng Sîu-Chîng hái chyûfông, kéuïhdei king gân
       Yan Meiling and Ching at kitchen they discuss PROG
       jyû syûn lat tông 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-Yăn têng Méi-lîhng góng wah Sîu-Chîng hahchî wúih chîng gao
       Yan listen Meiling talk say Ching next-time will ask teach
       jihgéi
       self
       ‘Yan hears from Meiling that Ching will ask self (for tips) next time.’

c. A-Yăn têng góng wah Sîu-Chîng hahchî wúih chîng gao bîngo?
       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-Yih, A-Sâan tûhng Gâ-Bîk hái gûngyûn, kéuïhdei hái douh
       Jing-yee San and Ga-bik at park they at there
       yéhchâan
       picnic
       ‘Jing Yee, San and Ga Bik are at the park. They are having a picnic
there.’

b. Jing-Yih têng A-Sâan góng wah Gâ-Bîk hahsingkêih yéhchâan wúih
       Jing-yee listen San talk say Ga-bik next-week picnic will
       ngaai màaih jihgéi
       call PRT self
       ‘Jing Yee hears from San that Ga Bik will invite self to picnic next week.’

c. Jing-Yih têng góng wah Gâ-Bîk hahsingkêih yéhchâan wúih ngaai
       Jing-yee listen talk say Ga-bik next-week picnic will call
       màaih bîngo?
       PRT who
       ‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’

d. Jing Yee / San

(13) a. Lai-Gyûn, A-Fûhung Tûhng Sîu-Tôhng hái sôfâ douh chó, kéuïhdei
       Lai-gyun Fung and Tong at couch there sit they
       tâi tâi hah dihnsih fan jeuhk jô
       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-Gyun teng A-Fuhng gong wah Siu-Tohng hakchi wuih ngaai*  
Lai-gyun listen Fung talk say Tong next-time will call  
seng jihgei  
awake self  
Lai Gyun hears from Fung that Tong will wake self next time.’

c. *Lai-Gyun teng gong wah Siu-Tohng hakchi wuih ngaai seng*  
Lai-gyun listen talk say Tong next-time will call awake  
bingo?  
who  
‘Who did Lai Gyun hear Tong will wake next time?’

d. Fung / Lai Gyun

(14) a. *Siu-Lahm, A-Linh tuhng Siu-Lei hai gai si, keuihdei mai gan*  
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. *Siu-Lahm teng A-Linh gong wah Siu-Lei chai dou jihgei*  
Lum listen Ling talk say Lei step PRT self  
‘Lum hears from Ling that Lei stepped on self.’

c. *Siu-Lahm teng gong wah Siu-Lei chai dou bingo?*  
Lum listen talk say Lei step PRT who  
‘Who did Lum hear Lei stepped on?’

d. Ling / Lum

(15) a. *Siu-Fa, A-Jan tuhng Bik-Yuk hai dihnhei pou, keuihdei*  
Fa Jan and Bik-yuk at electric-appliance store they  
tai gan mihbo lough  
watch PROG microwave  
‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking  
at microwaves.’

b. *Siu-Fa teng A-Jan gong wah Bik-Yuk jangaan bei jeyung gao*  
Fa listen Jan talk say Bik-yuk later give CL nine  
jik kaat jihgei  
discount card self  
‘Fa hears from Jan that Bik Yuk will give self a ten percent discount card  
later.’

c. *Siu-Fa teng gong wah Bik-Yuk jangaan bei jeyung gao jik kaat*  
Fa listen talk say Bik-yuk later give CL nine discount card  
bingo?  
who  
‘Who did Fa hear Bik Yuk will give a ten percent discount card later?’
d. Jan / Fa

(16) a. Síu-Yúk, Síu-Fân tūhng Jing-Héung hái sêungcheung, kéuíhdei
   Yuk Fan and Jing-Heung at mall they
   gamāam jong dúó
   coincidental collide PRT
   ‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

b. Síu-Yúk têng Síu-Fân góng wah Jing-Héung gânpái beihōi jiฮgēi
   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 têng góng wah Jing-Héung gânpái beihōi bēingo?
   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 tūhng Síu-Ji hái chāantēng, kéuíhdei āamāam
   Wah Wai-ming and Jee at restaurant they just
   dúóseh jō hólōk
   spill EXP coke
   ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’

b. Wàh-jái têng Wáih-Mìhng góng wah Síu-Ji jōng dúó kéuíh
   Wah listen Wai-ming talk say Jee collide PRT 3SG
   ‘Wah hears from Wai Ming that Jee bumped against s/he.’

c. Wàh-jái têng góng wah Síu-Ji jōng dúó bēingo?
   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 tūhng Jín-Pâhng hái sêijhlàuh, kéuíhdei kyutdihung
   Ming Ga-lok and Jeen-Pang at office they decide
   gân hah go sîngkèih go wuihyí go jyûtàih
   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 têng Gā-Lok góng wah Jín-Pâhng jantùhng kéuíh
   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 tèng góng wah Jín-Pàhng jantühng bĩngo?**

   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 tühng A-Jihng hái ngánh hôngg, kéuihdei páih jó**

   Wai  Bong  and  Jing  at  bank  they  queue ASP hóu loí déui very  long  line
   ‘Wai, Bong and Jing are at the bank. They have been queuing for a very long time.’

b. **Wáih-jái tèng A-Bōng góng wah A-Jihng jáan kéuih ní-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 tèng góng wah A-Jihng jáan bǐngo ní-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 tühng A-Jóu hái boujídong, kéuihdei tóulun gán**

   Keung  Ho  and  Jo  at  newsstand  they  discuss  PROG sihsi current-affairs
   ‘Keung, Ho and Jo are at the newsstand. They are discussing current affairs.’

b. **A-Kèuhng tèng A-Hòuh góng wah A-Jóu sǐhngyat 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 tèng góng wah A-Jóu sǐhngyat fáanbok bǐngo?**

   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 tühng A-Lóhng hái bokmahtgán, kéuihdei táí**

   Ming  Keung  and  Long  at  museum  they  watch gán  húngbǐhg fasehk PROG dinosaur  fossil
   ‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
b. A-Mìhng tèng Kèuhng-jái góng wah A-Lóhng hahchi dai kēuih
Ming listen Keung talk say Long next-time bring 3SG
heui fōhkgrün
go science-museum
‘Ming hears from Keung that Long will take s/he to the Science Museum
next time.’

c. A-Mìhng tèng góng wah A-Lóhng hahchi dai bīngo heui
Ming listen talk say Long next-time bring who go
fōhkgrün?
science-museum
‘Who did Ming hear Long will take to the Science Museum next time?’

d. Keung / Ming

(6) a. Dai-Màhn, Síu-Ji tühng Chèuhng-jái hái sāandéng, kēuihdei jéunbeih
Man, Jee and Cheung at peak they prepare
hâhn fāan lok sāan
walk back down hill
‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’

b. Dai-Màhn tèng Síu-Ji góng wah Chèuhng-jái wūih jyu kēuih
Man listen Jee talk say Cheung will hold PROG 3SG
‘Man hears from Jee that Cheung will hold onto s/he.’

c. Dai-Màhn tèng góng wah Chèuhng-jái wūih jyu 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 tühng Màhn-jái hái fosāk, kēuihdei hah yāt
Jee-ho, Ga-keung and Man at classroom they next one
tōhng souohhk châkyihm
class Math test
‘Jee Ho, Ga Keung and Man are in the classroom. They are having a
Math test next lesson.’

b. Ji-Hòuh tèng Gā-Kèuhng góng wah Màhn-jái hahchi gao kēuih
Jee-ho listen Ga-keung talk say Man next-time teach 3SG
mèihjìkfān
calculus
‘Jee Ho hears from Ga Keung that Man will teach s/he calculus next time.’

c. Ji-Hòuh tèng góng wah Màhn-jái hahchi gao bīngo mèihjìkfān?
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 tūhng A-Jàahk hái bāsí, kéuìhdei sāk  gán
Wai-man Gik and Jak at bus they congested PROG
ché
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 ché
Wai-man listen Gik talk say Jak next-time will drive
kéuìh
3SG
‘Wai man hears from Gik that Jak will drive s/he next time.’
c. Wái-Màhn tēng góng wah A-Jàahk hahchi wúih ché 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 tūhng Sīu-Bīk hái tōuhsyūgún, kéuìhdei pāih gán
Suk-yee, Yuk-ling and Bik at library they line PROG
déui wāhn 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 Sīu-Bīk
Suk-yee listen Yuk-ling talk say next-time CL book due Bik
wúih tāihséng kéuìh
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 Sīu-Bīk wúih
Suk-yee listen talk say next-time CL book due Bik will
tāihséng 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 tūhng Sīu-Fōng hái heiyún, kéuìhdei āamāam
Jing Suk-fan and Fong at movie-theatre they just
chéh dāi jó
sat down EXP
‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’
b. **A-Jǐng tēng Suk-Fān gòng wah Síu-Fōng hahchī wúih bēi jūnggān**
   Jing listen Suk-fan talk say Fong next-time will give middle wāi kéuih
   seat 3SG
   'Jing hears from Suk Fan that Fong will give s/he the middle seat next time.'

c. **A-Jǐng tēng gòng wah Síu-Fōng hahchī wúih bēi jūnggān wāi bīngo?**
   Jing listen talk say Fong next-time will give middle seat who
   'Who did Jing hear Fong will give the middle seat next time?'

d. Jing / Suk Fan

(11) a. **A-Yān, Méi-līhng túhng Síu-Chīng hái chyu%fōng, kéuhihdei kíng gán**
   Yan Meiling and Ching at kitchen they discuss PROG jyú syūn lat tōng ge beikyt
   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-līhng gòng wah Síu-Chīng hahchī wúih chíng 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 gòng wah Síu-Chīng hahchī wúih chíng gao bīngo?**
   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. **Jìng-Yīh, A-Sāan túhng Gā-Bīk hái gūngyān, kéuhihdei hái douh**
   Jing-ye San and Ga-bik at park they at there yēchāan
   picnic
   'Jing Yee, San and Ga Bik are at the park. They are having a picnic there.'

b. **Jìng-Yīh tēng A-Sāan gòng wah Gā-Bīk hahsingkèih yēchāan wūih**
   Jing-ye listen San talk say Ga-bik next-week picnic will ngaai màaìh kéuih
   call PRT 3SG
   'Jing Yee hears from San that Ga Bik will invite s/he to picnic next week.'
c. Jing-Yih têng gông wah Gā-Bīk hahsingkêih yéhchāan wúih ngaai
Jing-yee listen talk say Ga-bik next-week picnic will call
màaih bīng?
PRT who
‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’
d. Jing Yee / San

(13) a. Lai-Gyùn, A-Fūhng Tūhng Siú-Tòhng hái sōfá douh chó, kéuíhdei
Lai-gyun Fung and Tong at couch there sit they
tái táí 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-Gyùn têng A-Fūhng gông wah Siú-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-Gyùn têng gông wah Siú-Tòhng hahchi wúih ngaai séng
Lai-gyun listen talk say Tong next-time will call awake
bīng?
who
‘Who did Lai Gyun hear Tong will wake next time?’
d. Fung / Lai Gyun

(14) a. Siú-Làhm, A-Liìng tūhng Siú-Lei hái gāisi, kéuíhdei 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. Siú-Làhm têng A-Liìng gông wah Siú-Lei chai dòu kéuih
Lum listen Ling talk say Lei step PRT 3SG
‘Lum hears from Ling that Lei stepped on s/he.’
c. Siú-Làhm têng gông wah Siú-Lei chai dòu bīng?
Lum listen talk say Lei step PRT who
‘Who did Lum hear Lei stepped on?’
d. Ling / Lum

(15) a. Síu-Fā, A-Jān tūhng Bīk-Yûk hái dihnheí póu, kéuíhdei
Fa Jan and Bik-yuk at electric-appliance store they
tái gán mēihbōlōuh
watch PROG microwave
'Fa, Jan and Bik Yuk are at the electric appliance store. They are looking at microwaves.'

b. **Síu-Fā têng A-Jān góng wah Bīk-Yūk jangāan bêî jēung gáó**

Fa listen Jan talk say Bik-yuk later give CL nine jik kāat kéuíh
discount card 3SG

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

c. **Síu-Fā têng góng wah Bīk-Yūk jangāan bêî jēung gáó jik kāat bīngō?**

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-Yûk, Síu-Fān tûhng Jing-Hêung hái sêungcheung, kéuíhdei**

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-Yûk têng Síu-Fān góng wah Jing-Hêung ganpái beihōi kéuíh**

Yuk listen Fan talk say Jing-heung lately avoid 3SG

'Yuk hears from Fan that Jing Hueng has been avoiding s/he lately.'

c. **Síu-Yûk têng góng wah Jing-Hêung ganpái beihōi bīngō?**

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-Hùhng, Hou-Làhm tûhng Gihn-jái hái gēipóu, kéuíhdei 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-Hùhng wah bêî Hou-Làhm têng Gihn-jái syû jó bêî**

Dai-hung say give Ho-lam listen Geen lose EXP to Daih-Hùhng

Dai-hung
‘Dai Hung tells Ho Lam that Geen lost to Dai Hung.’

c.  *Daih-Hùhng wah Gihn-jái syū jó běi bǐngo?*

   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, Gwŏk-Duḥng tṳhng A-Fāi hái gáfẽdim, kěuíhdei yán*

Ga-ming  Gwok-dung  and  Fai  at  coffee-shop  they  drink

   gán  gáfẽ

   PROG  coffee

   ‘Ga Ming, Gwok Dung and Fai are at the coffee shop. They are having coffee.’

b.  *Gā-Míng wah běi Gwŏk-Duḥng tèng A-Fāi hahchi chéng Gā-Míng*

Ga-ming  say  give  Gwok-dung  listen  Fai  next-time  treat  Ga-ming

   yám  gáfẽ

   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 bǐngo yán gáfẽ?*

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 tʉhng Wåhung-jái hái bṳpōu, kěuíhdei jíng gán*

Ga-bo  Jee-wai  and  Wang  at  watch-shop  they  fix  PROG

   bū

   watch

   ‘Ga Bo, Jee Wai and Wang are at the watch shop. They are getting a watch fixed.’

b.  *Gā-Bóu wah běi Ji-Wái tẽng Wåhung-jái tîngyáht lĩng go lîhnggín*

Ga-bo  say  give  Jee-wai  listen  Wang  tomorrow  bring  CL  parts

   běi  Ji-Wáí

to  Jee-wai

   ‘Ga Bo tells Jee Wai that Wang will bring some (watch) parts for Jee Wai tomorrow.’

c.  *Gā-Bóu wah tîngyáht lĩng go lîhnggín běi bǐngo?*

Ga-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


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.
   Ga-yan say give Ha listen Nga-ting next-time teach Ha take
   bâsí
   ‘Ga Yan tells Ha that Nga Ting will teach Ha how to take the bus next
time.’
c. *Gá-Yán wah Ngá-Tihng hahchi gao bîngo dap bâsí?*
   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

   Kay Man and Sin-yee at department-store they look
   jong tông yat gin sāam
   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 bèi A-Mán tông Sin-Yih jāan yêhng 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-Yih jāan yêhng bîngo?*
   Kay say Sin-yee fight win who
   ‘Who did Kay say Sin Yee wins over?’
d. Man / Kay

(6) a. *Gá-Mïhng, Jì-Gín tông A-Hòuh hái bihnleihdim, kéuihdei sìhk*
   Ga-ming Jee-geen and Ho at convenience-store they eat
   gán yûhdán
   PROG fish-ball
   ‘Ga Ming, Jee Geen and Ho are at the convenience store. They are eating
fish balls.’
b. *Gá-Mïhng tông Jì-Gín gông wa A-Hòuh hahchi dûk yûhdán*
   Ga-ming listen Jee-geen talk say Ho next-time poke fish-ball
   joi yeuk Gá-Mìhng
   again meet Ga-ming
   ‘Ga Ming hears from Jee Geen that Ho will meet Ga Ming for fish balls
again next time.’
c. *Gá-Mïhng tông gông wa A-Hòuh hahchi dûk yûhdán joi yeuk*
   Ga-ming listen Jtalk say Ho next-time poke fish-ball again meet
   bîngo?
   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 tūhng Lóng-jái hái syūdim, kéuihdei táí 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 gōng wa Lóng-jái hahchi máí maanwá
Jee-ming listen Ho-yeen talk say Long next-time buy comics
wúih 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 gōng wa Lóng-jái hahchi máí maanwá wúih gān
Jee-ming listen talk say Long next-time buy comics will follow
bīngo?
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 tūhng Tīhng-Fān hái fatyihngngōuk, kéuihdei jīn gān
Sin Ga-man and Ting-fan at hair-salon they cut PROG tāohfat
hair
‘Sin, Ga Man and Ting Fan are at the hair salon. They are having a hair cut.’
b. Síu-Sin tēng Gā-Mán gōng wa Tīhng-Fān hahchi jyun fatyihng
Sin listen Ga-man talk say Ting-fan next-time change hairstyle
wúih man há Síuu-Sin yigin
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 gōng wa Tīhng-Fān hahchi jyun fatyihng wúih man
Sin listen talk say Ting-fan next-time change hairstyle will ask
há bīngō yigin?
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-San, Yún-Tíhng tóuhng Ján-Lèih hái méiyŏhngyún, kéuîhdei 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 teng Yún-Tíhng góng wa Ján-Lèih gán sīk gó ján**  
Pui-san listen Yun-ting talk say Jan-lei choose colour that time  
mahn Yún-Tíhng dín 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 teng góng wa Ján-Lèih gán sīk gó ján mahn bīngó**  
Pui-san listen talk say Jan-lei choose colour that time ask who  
dín táí?  
how look  
‘Who did Pui San hear Jan Lei asks (for opinion) when picking a colour?’
d. Pui San / Yun Ting

10. a. **Síu-Yìn, Wing-Yān tóuhng Gā-Yīh hái chánsó, kéuîhdei beng jó dúáng**  
Yin Wing-yan and Ga-yee at clinic they sick EXP wait  
gán táí 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-Yìn teng Wing-Yān góng wa Gā-Yīh chyun yím bēi 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. **Síu-Yìn teng góng wa Gā-Yīh chyun yím bēi bīngó?**  
Yin listen talk say Ga-yee send infect to who  
‘Who did Yin hear Ga Yee infected?’
d. Wing Yan / Yin

11. a. **Wai-Māhn, Wíng-Hōng tóuhng Júnh-jái hái haktēng, kéuîhdei táí**  
Wai-man Wing-hong and Jung at living-room they watch  
gán dinsi  
PROG television  
‘Wai man, Wing Hong and Jung are in the living room. They are watching the television.’
b. Wai-Màhn giu Wíng-Hông gao dai sēng dī go dînsi bêi
Wai-man ask Wing-hong adjust big volume a-bit CL television to
Jührng-jái
Jung
‘Wai man asks Wing Hong to turn up the volume of the television for
Jung.’
c. Wai-Màhn giu bîngō gao dai sēng dī go dînsî?
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-Făi tūhng A-Jóu hái taihūnggūn, kéuïhdei kēi jō hái
Jee-man Fai and Jo at space-museum they stand EXP at
mûnhhăo
entrance
‘Jee Man, Fai and Jo are at the space museum. They are standing at the
entrance.’
b. Ji-Màhn giu A-Făi mái fēi bêi A-Jóu
Jee-man ask Fai buy ticket to Jo
‘Jee Man asks Fai to buy tickets for Jo.’
c. Ji-Màhn giu bîngō mái fēi?
Jee-man ask Fai buy ticket
‘Who did Jee Man ask to buy tickets?’
d. Jee Man / Fai

(13) a. Gă-Lok, Ji-Hōng tūhng Dai-Măhn hái ginsănsâk, kéuïhdei păo găn
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. Gă-Lok giu Ji-Hōng ló go ngălíhng bêi Dai-Măhn
Ga-lok ask Jee-hong grab CL dumbbell to Man
‘Ga Lok asks Jee Hong to grab a dumbbell for Man.’
c. Gă-Lok giu bîngō ló go ngălíhng?
Ga-lok ask who grab CL dumbbell
‘Who did Ga Lok ask to grab a dumbbell?’
d. Jee Hong / Ga Lok

(14) a. Chui-Săn, Gă-Lai tūhng Yuk-Lìhng hái chūkâpsíchêuhng, kéuïhdei
Chui-san Ga-lai and Yuk-ling at supermarket they
tái găn hōisîn
look PROG seafood
‘Chui San, Ga Lai and Yuk Ling are at the supermarket. They are looking at seafood.’

b. *Chuei-Săn giū Gă-Lai găn chòihlíu jîng hóisîn 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. *Chuei-Săn giū bĭngô găn chòihlíu jîng hóisîn 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. *Sîu-Sī, Méi-Hăh tûhng Făn-múi hái sêungchêuhng, kêuihdei hâhng*
Si Mei-ha and Fan at mall they walk
găn gâi
PROG street
‘Si, Mei Ha and Fan are at the mall. They are shopping.’

b. *Sîu-Sī giū Méi-Hăh hâhn mahn dî dâng màih Făn-múi*
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. *Sîu-Sī giū bĭngô hâhn mahn dî?*
Si ask who walk slow a-bit
‘Who did Si ask to walk slower?’

d. Mei Ha / Si

(16) a. *Gă-Yîh, Suhk-Mán tûhng Sîu-Jăn hái ngûkkêî, kêuihdei jéunbeih chêut*
Ga-yee Suk-man and Jan at home they prepare out
mûnhháo
entrance
‘Ga Yee, Suk Man and Jan are home. They are about to head out.’

b. *Gă-Yîh giū Suhk-Mán dâi dô gin läo béi Sîu-Jăn*
Ga-yee ask Suk-man bring more CL jacket to Jan
‘Ga Yee asks Suk Man to bring an extra jacket for Jan.’

c. *Gă-Yîh giū bĭngô dâi dô gin läo?*
Ga-yee ask who bring more CL jacket
‘Who did Ga Yee ask to bring an extra jacket?’

d. Suk Man / Ga Yee