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

by

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B.A., Hong Kong Baptist University, 2012
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Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in the Department of Linguistics Faculty of Arts and Social Sciences

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SIMON FRASER UNIVERSITY
Spring 2017

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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
Acknowledgements

I would first like to thank my senior supervisor Dr. Chung-hye Han, who has been a continual source of scholarly guidance and encouraging support throughout my Masters studies. This thesis has benefited enormously from her wealth of knowledge, her painstaking scrutiny, and the clear thinking she has inspired in me during our numerous meetings. I also thank my committee member Dr. Keir Moulton for his sound advice, and for pointing out ways to strengthen my thesis that I was ignorant of. To my external examiner, Dr. Edith Aldridge, I thank her for her valuable suggestions that have allowed the argumentation of the thesis to be improved. I would also like to gratefully acknowledge the financial support I have received from SSHRC Insight Grant 435-2014-0161 to Dr. Chung-hye Han and SSHRC Insight Development Grant 430-2014-01034 to Dr. Keir Moulton.

Sincere thanks are also owed to many people at the department of Linguistics. Dr. Murray Munro gave me the opportunity to conduct experiments in Applied Linguistics and to learn, for the first time as a graduate student, how experiments can inform theories. Dr. John Alderete offered me the chance to work with him on speech errors in Cantonese. In the process, I learnt more about my native language and was inspired by his boundless enthusiasm towards his work. I am also grateful to Christie Carlson, Silvana Di Tosto, Debra Purdy Kong, Judi Levang and Rita Parmar, who always went out of their way to help me with non-academic problems. I thank my fellow graduate students for their encouragement and stimulating conversations. To members at the Experimental Syntax Lab, thank you for being the audience of all of my practice talks and for your patience and constructive criticism.

Among my teachers in Hong Kong, I thank Dr. Lian-Hee Wee, who got me curious about Linguistics and encouraged me to apply for graduate school. Among friends in Hong Kong, I thank Viggo Cheng for being a great friend since we were undergraduates, for being my informant, and for putting up with my incessant messages. To my grandmother, my parents, my brother Prian, my sisters Jenny and Sharon, and
my partner Mikey, you have been a continual source of moral and emotional support throughout this process. Thank you for supporting me along the way.
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<tr>
<td>1</td>
<td>first person</td>
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<tr>
<td>2</td>
<td>second person</td>
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<tr>
<td>3</td>
<td>third person</td>
</tr>
<tr>
<td>ACC</td>
<td>accusative</td>
</tr>
<tr>
<td>AP</td>
<td>adverbial phrase</td>
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<tr>
<td>ASP</td>
<td>aspect</td>
</tr>
<tr>
<td>BCE</td>
<td>before the Common Era</td>
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<tr>
<td>CE</td>
<td>Common Era</td>
</tr>
<tr>
<td>CL</td>
<td>classifier</td>
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<tr>
<td>COMP</td>
<td>complementizer</td>
</tr>
<tr>
<td>DECL</td>
<td>declarative</td>
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<tr>
<td>EXP</td>
<td>experiential</td>
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<tr>
<td>FUT</td>
<td>future tense</td>
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<tr>
<td>I</td>
<td>inflection</td>
</tr>
<tr>
<td>IP</td>
<td>inflectional phrase</td>
</tr>
<tr>
<td>LD</td>
<td>long distance</td>
</tr>
<tr>
<td>LDA</td>
<td>long distance anaphor</td>
</tr>
<tr>
<td>LF</td>
<td>logical form</td>
</tr>
<tr>
<td>LP</td>
<td>linking particle</td>
</tr>
<tr>
<td>NEG</td>
<td>negative</td>
</tr>
<tr>
<td>NOM</td>
<td>nominative</td>
</tr>
<tr>
<td>NP</td>
<td>noun phrase</td>
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<tr>
<td>PERF</td>
<td>perfective</td>
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<td>PROG</td>
<td>progressive</td>
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<tr>
<td>PRT</td>
<td>verbal particle</td>
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<td>SG</td>
<td>singular</td>
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<tr>
<td>SPEC</td>
<td>specifier</td>
</tr>
<tr>
<td>SVC</td>
<td>serial verb construction</td>
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<tr>
<td>TOP</td>
<td>topic</td>
</tr>
<tr>
<td>VP</td>
<td>verb phrase</td>
</tr>
</tbody>
</table>
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

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

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}

\[\text{Dai-Mâhn}_{i} \text{ gohkĎak } [\text{Síu-Mîhng}_{j} \text{ jîdouh } [\text{Wàh-jái}_{k} \text{ jôngyih } \text{jihg\textsubscript{e}i}_{i/j/k}]]\]

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{s\textsubscript{i}/s\textsubscript{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: ă (high level), ă (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 *jihgei*, as well as their results and findings. The final chapter gives a general discussion of the current study, outlines relevant future work and provides concluding remarks.
Chapter 2

Literature Review

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

2.1 LDAs in Mandarin and Cantonese

Chinese is well known to have LDAs (Anand 2006; Anand & Hsieh 2005, Cole & Wang 1996; Huang 1982; Huang & Liu 2001; Matthews & Yip 2011; Mohanan 1982; Pan 1997; Tang 1989; Xue, Pollard & Sag 1994). Late Archaic Chinese (5th-3rd centuries BCE) had two reflexive pronouns—zi and ji (Aldridge 2009, 2016). Zi was always locally bound while ji could be either locally bound or LD bound. In terms of distribution, zi was always adjoined to the left of a verb, while ji could appear in various argument positions. In Middle Chinese (no later than the 4th century CE), the bisyllabification of the lexicon prompted the replacement of the monosyllabic reflexives by the modern disyllabic compound (Aldridge 2016; Wei 2004). The LDAs in modern Mandarin and modern Cantonese are ziji and jihgei respectively, which, despite their different phonological realizations, bear the same Chinese orthography.
The Cantonese LDA *jihgei*, the phenomenon of interest in this thesis, has received far less attention than its Mandarin counterpart *ziji*. As such, the current literature review mostly draws upon research on the Mandarin LDA, and makes reference to the Cantonese LDA where the poverty of the literature allows for it. While Mandarin and Cantonese have stark contrasts in their phonology and vocabulary, their grammars present more commonalities. That being said, there are still notable differences between Mandarin and Cantonese grammars (Yue-Hashimoto 1993; Matthews 1999). Thus the readers are cautioned against taking descriptions of Mandarin *ziji* below and directly applying them to Cantonese *jihgei*, unless otherwise specified.

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

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

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

### 2.1.1 Monomorphemicity

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

(5) Mandarin

a. *John$_i$ zhidao Bill$_j$ xihuan ta-ziji$_{i/j}$

   John$_i$ know Bill$_j$ like 3SG-self

   ‘John$_i$ knows that Bill$_j$ likes *him$_i$/himself$_j$.’ (Pan 1997: 14(9))
b. John zhidao Bill xihuan ziji/j
John know Bill like self
‘John knows that Bill likes him/himself.’ (Pan 1997: 14(8))

(6) Cantonese
a. Síu-Míhng, jídóuh Dái-Màhn jòngyi kěuih-jihgéi i/j
Míng know Man like 3SG-self
‘Míng knows that Man likes *him/himself.’
b. Síu-Míhng, jídóuh Dái-Màhn jòngyi jihgéi i/j
Míng know Man like self
‘Míng knows that Man likes him/himself.’

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

(7) a. Mandarin
John shuo [naben shu hai -le ta-ziji/∗]
John say that book hurt PERF 3SG-self
‘John said that that book hurt him.’ (Pan 1997: 14(10))

b. Cantonese
Síu-Míhng wah [gó bún syū jíu haam kěuih-jihgéi i/∗]
Míng say that CL book make cry 3SG-self
‘Míng says the book makes him 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, gaosu Lisi [ziji/∗ zai wenxi]
Zhangsan tell Lisi self PROG study
‘Zhangsan tells Lisi that self is studying.’

(9) Dái-Màhn, tīngjī Síu-Míhng [jihgéi/∗ tīngyat chūhjīk]
Man inform Ming self tomorrow quit
‘Man informs Ming that self is quitting his job tomorrow.’
In (8), *ziji* takes the matrix subject *Zhangsan* but not the matrix object *Lisi* as antecedent. Similarly, in (9), *jihgei* takes the matrix subject *Dai-Mahn* but not the matrix object *Siu-Mihng* as antecedent.

### 2.1.3 Blocking effects

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

(10) \textit{Zhangsan}\(_i\) renwei [\textit{ni}_j hen \textit{ziji}_{si/j}]

\begin{center}
\begin{tabular}{l}
Zhangsan thing 2SG hate self \\
\end{tabular}
\end{center}

‘Zhangsan\(_i\) thinks you\(_j\) hate *him\(_i\)/yourself\(_j\).’ (Huang & Liu 2001: 142(3d))

(11) \textit{Màhn-jái}\(_i\) gokdák [\textit{léih}_j jäng \textit{jihgéi}_{si/j}]

\begin{center}
\begin{tabular}{l}
Man thing 2SG hate self \\
\end{tabular}
\end{center}

‘Man\(_i\) thinks you\(_j\) hate *him\(_i\)/yourself\(_j\).’

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

(12) \textit{Wo}\(_i\) juede [\textit{Lisi}_j zai piping \textit{ziji}_{si/j}]

\begin{center}
\begin{tabular}{l}
1SG think Lisi at criticize self \\
\end{tabular}
\end{center}

‘I\(_i\) think that Lisi\(_j\) is criticizing me\(_i\)/himself\(_j\).’ (Huang & Liu 2001: 162(52))

(13) \textit{Ngóh}\(_i\) gokdák [\textit{Mìhng-jái}_j paipìhng gán \textit{jihgéi}_{si/j}]

\begin{center}
\begin{tabular}{l}
1SG think Ming criticize PROG self \\
\end{tabular}
\end{center}

‘I\(_i\) think that Ming\(_j\) is criticizing me\(_i\)/himself\(_j\).’

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

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

2.2.1 LD ziji and local ziji

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

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

(14) a. Pavarotti crede che i suoi pantaloni siano in fiamme.
   ‘Pavarotti believes that his pants are on fire.’ (de re reading)

   b. Pavarotti crede che i proprio pantaloni siano in fiamme.
   ‘Pavarotti believes that self’s pants are on fire.’ (de se reading)

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

---

2 Ziji and jihgei also have an emphatic use. In the case where ziji and jihgei do not have a syntactic antecedent (e.g. in a sentence-initial position), they refer to the speaker.
The *de se* interpretation thus involves Pavarotti’s self-consciousness. The important contrast between (14a) and (14b) is that the LD bound *proprio* is accepted only under the *de se* (non-*de re*) interpretation. The pronoun *suoi* allows both the *de re* and the *de se* reading, and thus is ambiguous.

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

(15) a. Zhangsan shuo [pashou tou-le ta-de pibao]  
   Zhangsan shuo pickpocket steal-PERF his purse  
   ‘Zhangsan said that the pickpocket stole his purse.’ (*de re* reading)

   b. Zhangsan shuo [pashou tou-le ziji-de pibao]  
   Zhangsan shuo pickpocket steal-PERF self’s purse  
   ‘Zhangsan said that the pickpocket stole self’s purse.’ (*de se* reading)

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

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

(16) Ta_i zheng-tian dui-zhe wo chupeng 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_i gaosu wo Lisi_k hen ziji_i/j  
   Zhangsan tell me Lisi hate self  
   ‘Zhangsan told me that Lisi hated *him_i/himself.’

   (Huang & Liu 2001: 162(54)
Huang and Liu (2001: 172) have made the following summary of the environments in which ziji appears as a locally bound anaphor, as given in (18). The only exception is (18e), where ziji may be locally or LD bound.

(18) a. When it is bound by a co-argument subject.
   
   \[
   \text{Zhangsan}_i \ \text{piping-le} \ \text{ziji}_i \\
   \text{Zhangsan} \ \text{criticize-ASP} \ \text{self} \\
   \text{‘Zhangsan criticized himself.’ (p. 166(62))}
   \]

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

\[
\text{Zhangsan}_i \ \text{piping-le} \ [NP \text{ziji}_i \ de \ \text{pengyou}] \\
\text{Zhangsan} \ \text{criticize-ASP} \ \text{self} \ \text{de} \ \text{friend} \\
\text{‘Zhangsan criticized his own friend.’ (p. 166(63))}
\]

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

\[
\text{Zhangsan}_i \ [AP \ \text{cong ziji}_i \ de \ \text{jiaodu} \ \text{pinggu} \ \text{zhe-jian} \ \text{shi} \ de \ \text{libi} \ \text{pro-and-con} \\
\text{Zhangsan} \ \text{from} \ \text{de} \ \text{angle} \ \text{assess} \ \text{this-CL} \ \text{matter} \ \text{de} \ \text{libi} \ \text{pro-and-con} \\
\text{‘Zhangsan assessed the pros and cons of this matter from his own point of view.’ (p. 168(70))}
\]

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

\[
[NP \text{Zhangsan}_i \text{-de jiaoao}] \ \text{hai-le} \ \text{ziji}_i \\
\text{Zhangsan-’s arrogance hurt-ASP self} \\
\text{‘Zhangsan’s arrogance harmed him.’ (p. 170(76))}
\]

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.

\[
\text{Zhangsan}_i \ \text{gaosu wo [ziji}_i \ \text{de erzi zui congming]} \\
\text{Zhangsan tell me self de son most clever} \\
\text{‘Zhangsan told me that his son was the cleverest.’ (p. 169(73))}
\]

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

(19) Dai-Màhn i wah bêi ngóh têng [jihgéi, i go jái jewih chöngmìhng]
     Man say to 1SG listen self CL son most clever
     ‘Man, told me that his 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.

(20) a. Zhangsan zhidao Lisi zai pian ziji
    Zhangsan know Lisi PROG lie self
    ‘Zhangsan knows Lisi is lying to self.’

    b. $[IP$ Zhangsan $[t ziji] [VP$ zhidao $[IP$ Lisi $[t t'_1] [VP$ zai pian $t_1]]]]$
    Zhangsan self know Lisi PROG lie
    ‘Zhangsan knows Lisi is lying to self.’

As can be seen in (20b), which illustrates an LF movement derived from (20a), the embedded ziji moves in LF to 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 *I₀*-to-*I₀* movement to the higher IP. In this case, *ziji* is locally bound by the matrix subject *Zhangsan* and takes a LD subject as antecedent, in reference to *ziji*’s underlying position. This successive cyclic head movement in the LF implies that the apparent LD binding of *ziji* is actually covertly local in nature. Subject orientation also follows naturally as *ziji* is c-commanded by a subject whether in the lower or higher *I₀*.

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

(21)  
\[ \text{Ég sendi Haraldi, föt á sjálfann sig,} \]
\[ \text{I sent Harald clothes for self self} \]
\[ \text{‘I sent Harald clothes for himself.’ (Cole & Sung 1994: 359(11b))} \]

(22)  
\[ \text{Zhangsan, zengsong gei Lisi yipian guanyu zijī/ₘ de wenzhang} \]
\[ \text{Zhangsan give to Lisi one about self LP article} \]
\[ \text{‘Zhangsan gave an article about himself to Lisi.} \]
\[ \text{(Adapted from Cole & Sung 1994: 360(13))} \]

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

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

(23) \[ IP_1 \text{Zhangsan} \text{renwei} IP_2 \text{woj zhidaow} IP_3 \text{Wangwu} \text{zihuan ziji} i_1 j_1 k_1 \]

Zhangsan think 1SG know Wangwu like self

‘Zhangsan thinks that I know that Wangwu likes himself.’

(Cole & Sung 1994: 372(20))

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

### 2.2.3 The logophoric approach

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

(24)  

a. John, expects that *he* 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. (p. 457)

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

(27) a. Lisi, 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.’ (p. 156(35))

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

Huang and Liu (2001) note that the acceptability of (27c) ranges from acceptable to somewhat marginal. They conclude that while the LD ziji takes a Source or Self
antecedent readily, as in (27a) and (27b), a Pivot-only discourse environment prompts the infelicity of \textit{Lisi}, the Pivot, as \textit{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 \textit{ziji} in Mandarin (Huang and Liu (2001) did not specify in their work the variety of Mandarin they were investigating, except that it is not Singapore Mandarin (p. 186, note 10)). Cole, Hermon and Lee (2001b) compare LDAs in two Chinese languages—Singapore Mandarin \textit{ziji} and Teochew \textit{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 \textit{ziji} and Teochew \textit{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 \textit{ziji}. In Teochew, however, the antecedent of \textit{kaki} must be either Source or Self.

As described in §2.1, Pan (1997) and Huang and Liu (2001) recognize that LD \textit{ziji} is a \textit{de se} anaphor. Pan (1997) suggests that this \textit{de se} property of \textit{ziji} is constrained by “self-ascription” (p. 145).\footnote{The idea of “self-ascription” goes back to Lewis (1979) and Chierchia (1989).} Pan proposes that in a sentence containing a clausal complement such as (28), there exists three parts—an \textit{ascriber}, an \textit{ascribee} and a \textit{property}. An ascribee is ascribed a property by an ascriber. In (28), \textit{John} is the ascriber, \textit{Bill} is the ascribee and \textit{likes Mary} is the property. Thus, \textit{John} ascribes the property of \textit{liking Mary} to \textit{Bill}.

(28) John thinks [Bill likes Mary].

Self-ascription occurs when an ascriber consciously attributes a property to oneself. Since \textit{ziji} is a \textit{de se} anaphor and \textit{de se} belief involves self-consciousness, Pan (1997) argues that \textit{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 \textit{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))
In (29c), John the ascriber could ascribe either a \textit{de se} belief or a \textit{de re} belief to himself. This makes him a self-ascriber in the former scenario and not a self-ascriber in the latter scenario. On the other hand, the \textit{de re} interpretation is impossible for (29a) and (29b), since \textit{I} and \textit{you} must have \textit{de se} beliefs about themselves, which makes both of them self-ascribers. Therefore, the first and second person NPs in (29a) and (29b) are obligatory self-ascribers, while the third person NP in (29c) is an optional self-ascriber. Pan accounts for the blocking effect by proposing that LD binding to a remote optional self-ascriber (LD third person subject NP) can be blocked when there exists an obligatory self-ascriber (a first/second person NP) closer to the embedded \textit{ziji}. Given Pan’s proposition, he would account for the absence of the blocking effect in (12) by noting that a local optional self-ascriber cannot block a remote obligatory self-ascriber.

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

(30) a. \textit{Zhangsan} juede \textit{wo} j \textit{zai piping ziji}_{i/j} Zhangsan think 1SG PROG criticize \textit{self} ‘Zhangsan\textsubscript{i} thinks that I\textsubscript{j} am criticizing \textit{self}_{i/j}.’
   (Intended: ‘Zhangsan\textsubscript{i} thinks that I am criticizing \textit{self}_{i}.’)

b. \textit{Zhangsan} juede, ‘\textit{wo} j \textit{zai piping wo}’
Zhangsan think 1SG PROG criticize 1SG ‘Zhangsan thinks, “I am criticizing me.”’ (Huang & Liu 2001: 161(49))

There are two occurences of \textit{wo} in (30b). The first \textit{wo} refers to the external speaker (the external Source), while the second \textit{wo}, under the intended interpretation, refers to \textit{Zhangsan} (the internal Source). However, it is impossible for the first person pronoun \textit{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. \textit{Zhangsan} juede \textit{ni} j \textit{zai piping ziji}_{i/j} Zhangsan think 2SG PROG criticize \textit{self} ‘Zhangsan\textsubscript{i} thinks that you\textsubscript{j} are criticizing \textit{self}_{i/j}.’
   (Intended: ‘Zhangsan\textsubscript{i} thinks that you are criticizing \textit{self}_{i}.’)
b. Zhangsan juede, “ni zai piping wo”
Zhangsan think 2SG PROG criticize 1SG
‘Zhangsan thinks, “you are criticizing me.” (Huang & Liu 2001: 162(50))

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

Recall in §1 that ziji has three core properties—monomorphemicity, subject orientation and blocking effects. The syntactic approach accounts for each of the three properties through I\(^0\)-to-I\(^0\) 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 I\(^0\)-to-I\(^0\) head movement in the LF across clause boundaries. The landing site for ziji at each IP layer is always I\(^0\), 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 I\(^0\) is also crucial for explaining the blocking effect, which follows from φ-features disagreement between I\(^0\) 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\(\ast_i/\ast_j/k\)]
Baoyu think 1SG ‘student’ not like self
‘Baoyu\(\ast\) thinks that my\(j\) student\(k\) does not like self\(\ast_i/\ast_j/k\).’ (Pan 1997: 167(55))

In (32), the first person possessor wo in the embedded clause does not c-command I\(^0\), the purported landing site for ziji. Wo-de xuesheng ‘my student’, which is in third person, c-commands I\(^0\). However, the embedded ziji is prohibited from being...
LD bound by the matrix subject *Baoyu*. The blocking effect exhibited cannot be explained by \( \phi \)-features disagreement between \( I^0 \) and SpecIP, since the NPs occupying SpecIPs have non-distinct \( \phi \)-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) \([\text{John}_{j} \text{ de hua}_{j}] \text{ gaosu Bill}_{k} [s \text{ ziji}_{i/sj/k} \text{ de jihua xingbutong}]\)

\(\text{John} \quad \text{DE words tell} \quad \text{Bill} \quad \text{self} \quad \text{DE plan} \quad \text{carry-not-through}\)

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

(34) \(\text{Wo wen guo ta}_{j} \text{ ji} \quad \text{bian} [\text{ziji}_{j} \text{ de} \text{ mingzi}]\)

\(\text{I} \quad \text{ask} \quad \text{ASP he} \quad \text{several time} \quad \text{self} \quad \text{GEN name}\)

‘I asked him his name several times.’ (Xu 1993: 118)

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

(35) a. *Yuli*-nun *Swuni*-eykey \([\text{caki}_{i/sj/ka} \text{ iki-lke-lako}] \quad \text{malha-yess-ta}\)

\(*Yuli-TOP \text{ Swuni-to} \quad \text{self-NOM} \quad \text{win-FUT-comp say-PAST-DECL}\)

‘Yuli said to Wuni that self_{i/sj} would win the race.’

18
b. Yuli-nun Swuni\textsubscript{j}-lopwuthe \textsubscript{[caki\textsubscript{i}/\textsubscript{j}-ka iki-lke-lako]} tul-ess-ta  
Yuli-TOP Swuni-from self-NOM win-FUT-comp hear-PAST-DECL  
‘Yuli, heard from Swuni\textsubscript{j} that self\textsubscript{i/\textsubscript{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>Say/self</td>
<td>Main predicate is a say-verb while the embedded subject position contains the self anaphor jihgei.</td>
</tr>
<tr>
<td>Say/pronoun</td>
<td>Main predicate is a say-verb while the embedded subject position contains the third person pronoun keuih.</td>
</tr>
<tr>
<td>Hear/self</td>
<td>Main predicate is a hear-verb while the embedded subject position contains the self anaphor jihgei.</td>
</tr>
<tr>
<td>Hear/pronoun</td>
<td>Main predicate is a hear-verb while the embedded subject position contains the third person pronoun keuih.</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

\[A-Yân wah bêi Méi-lihng têng jîhêi jeui lêk jyû hôisîn\]

Yan say give Meiling listen self most clever cook seafood

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

b. **Say/pronoun** condition

\[A-Yân wah bêi Méi-lihng têng kêuih jeui lêk jyû hôisîn\]

Yan say give Meiling listen 3SG most clever cook seafood

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

c. **Hear/self** condition

\[A-Yân têng Méi-lihng gông wah jîhêi jeui lêk jyû hôisîn\]

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

\[A-Yân têng Méi-lihng gông wah kêuih jeui lêk jyû hôisîn\]

Yan listen Meiling talk say 3SG most clever cook seafood

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

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

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

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\(^1\)The serial say-verbs can be represented in eight ways: (i) *wah bêî...têng* say give...listen’, (ii) *gông bêî...têng* talk give...listen, (iii) *wah bêî...jî* say give...know’, (iv) *gông bêî...jî* ‘talk give...know’, (v) *wah...têng* ‘say...listen’, (vi) *gông...têng* ‘talk...listen’, (vii) *wah...jî* ‘say...know’ and (viii) *gông...jî* ‘talk...know’. The serial hear-verbs can be represented in two ways: (i) *têng...gông wah* ‘listen...talk say’ and (ii) *têng...gông* ‘listen...talk’.
below revolves around the forms *góng...têng* ‘talk...listen’ for *say* and *têng...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 ‘*NP* _1 V_1 NP _2 V_2’ for both *góng...têng* ‘talk...listen’ and *têng...góng* ‘listen...talk’, the clause structure of the Cantonese serial *say*- and *hear*-verbs can be one of the following:

(39) i Monoclausal. ([_] _1 NP _1 V_1 NP _2 V_2] )
    ii Bi-clausal. ([_] _1 NP _1 [_] _2 NP _2 V_2] )

The two different clause structures have different implications for the argument status of NP _1 and NP _2, as stated in (40) below.

(40) i **Monoclausal**: NP _1 is subject and NP _2 is object.
    ii **Bi-clausal**: NP _1 and NP _2 are subjects of the clause they appear in.

The discussion below provides four diagnostics to demonstrate that the Cantonese serial *say*- and *hear*-verbs have a monoclausal structure, which in turn implies that NP _1 and NP _2 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) [IP _1 Sîu-Mîhng wuih syûnbou [IP _2 Dài-Mànn hóyi teuihyâu] ]
    ‘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 V _1 for both serial *say*-verbs and *hear*-verbs, as illustrated in (42a) and (42b) below.

(42) **Auxiliary**
    a. Sîu-Mîhng wuih góng Dài-Mànn *hóyi têng [têngyat lok yûh] 
       ‘Ming will tell Man that it is going to rain tomorrow.’
    b. Sîu-Mîhng wuih têng Dài-Mànn *hóyi góng [têngyat lok yûh] 
       ‘Ming will hear from Man that it is going to rain tomorrow.’
In (42a) and (42b), a second auxiliary is not allowed to appear before $V_2$. Each of the sentences in (42a) and (42b) contains only one slot for a single auxiliary. This suggests that the serial *say*- and *hear*-verbs both have a monoclausal structure.

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

(43) $[IP_1 \text{Síu-Mìhng syūnbou } gán \ [IP_2 \text{Dai-Màn chih } jó \ jīk]]$

Ming announce PROG Man quit PFV job

‘Ming is announcing that Man has quit (his job).’

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

(44) Aspect

a. $\text{Síu-Mìhng góng } gán \ Dai-Màn tēng \ *jó \ [tīngyat \ lok \ yūh]}$

Ming talk PROG Man listen PFV tomorrow fall rain

‘Ming is telling Man that it is going to rain tomorrow.’

b. $\text{Síu-Mìhng tēng } gán \ Dai-Màn góng \ *jó \ [tīngyat \ lok \ yūh]}$

3SG listen PROG Man talk PFV tomorrow fall rain

‘Ming is hearing from Man that it is going to rain tomorrow.’

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

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

(45) $[IP_1 \text{Síu-Mìhng móu syūnbou } [IP_2 \text{Dai-Màn móu chih } jīk]]$

Ming NEG announce Man NEG quit job

‘Ming did not announce that Man did not quit (his job).’

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

(46) Polarity

24
a. Síu-Mìhng móu góng Dai-Màn *móu têng [têngyat lok yûh]
   Ming NEG talk Man NEG listen tomorrow fall rain
   ‘Ming didn’t tell Man that it is going to rain tomorrow.’

b. Síu-Mìhng móu têng Dai-Màn *móu góng [têngyat lok yûh]
   Ming NEG listen Man NEG talk tomorrow fall rain
   ‘Ming didn’t hear from Man that it is going to rain tomorrow.’

In (46a) and (46b), a second negative marker is prohibited from appearing before 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 Síu-Mìhng chòuhséng Dai-Màn tûhngmài [IP ∅ gûklûu Mâh-Leih]
   Ming wake Man and ∅ anger Mary
   ‘Ming woke Man up and (Ming/*Man) angered Mary.’

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

(48) [IP Síu-Mìhng ìjîdou [IP Dai-Màn tûasihk]] tûhngmài [IP ∅ [beihûi kéûih
   Ming know Man cheat and ∅ avoid his lóupôh]]
   wife
   ‘Ming knows that Man cheated (on his wife) and (Ming) is avoiding his wife.’

(49) [IP Síu-Mìhng ìjîdou [IP Dai-Màn j tûasihk] tûhngmài [IP ∅ j beihûi kéûih
   Ming know Man cheat and ∅ avoid his lóupôh]]
   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.

[^2]: This 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 NP\textsubscript{1}.

(50) Subject ellipsis

a. Ṣíu-Mìhng\textsubscript{i} góng Dai-Màn\textsubscript{j} têng gāmyahtlohkyú têhungmai ∅\textsubscript{i/s} máai
   Ming listen Man talk today rain and buy
   jò bá jê
   PFV CL umbrella
   ‘Ming tells Man that it is going to rain today and (Ming/*Man) bought an umbrella.’

b. Ṣíu-Mìhng\textsubscript{i} têng Dai-Màn\textsubscript{j} góng gāmyahtlohkyú têhungmai ∅\textsubscript{i/s} máai
   Ming listen Man talk today rain and buy
   jò bá 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 NP\textsubscript{2} suggests that NP\textsubscript{2} 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 NP\textsubscript{1} but never NP\textsubscript{2} 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.\textsuperscript{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.

\textsuperscript{3}Given 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. NP\textsubscript{1} is in specvP, while NP\textsubscript{2} 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.

\[ \text{Ga-Yan wah béi A-Hàh téng A-Hàh hahchí dap díksí} \]

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.

\[ \text{Ji-Mìhng téng Hou-Yìhn góng wah Ji-Mìhng wúih mái bán sìusyuk} \]

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.

\[ \text{Síu-Sì giu Méi-Hàh háhn mahn díii} \]

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).

Figure 3.1: Screenshot of a test trial in Experiment 1

(52) i.   A-Yán tâuhng Méi-lihng hái chêuhfông kéuhih-dei kîng  gán
          Yan and Meiling at kitchen they discuss PROG
gâmmâan jéui mè
tonight  cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’

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

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

iv.   A-Yán / 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

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

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

\(^5\)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 じげい in the embedded object position. Bi-clausal samples containing じげい in the embedded object position were tested. In a forced-choice task where antecedent choices were restricted to either the matrix subject or matrix object, participants were asked to interpret these embedded じげい. Similar to Experiment 1, high subject selection scores across the board would be evidence of the putative subject orientation of じげい, while lower subject selection scores would be registered if じげい has non-subject antecedent potential. Experiment 2 answers two questions—(i) can じげい take a non-subject antecedent? And (ii) how does じげい 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>Say/self</td>
<td>Main predicate is a say-verb while the embedded object position contains the self anaphor jihgei.</td>
</tr>
<tr>
<td>Say/pronoun</td>
<td>Main predicate is a say-verb while the embedded object position contains the third person pronoun keuih.</td>
</tr>
<tr>
<td>Hear/self</td>
<td>Main predicate is a hear-verb while the embedded object position contains the self anaphor jihgei.</td>
</tr>
<tr>
<td>Hear/pronoun</td>
<td>Main predicate is a hear-verb while the embedded object position contains the third person pronoun keuih.</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

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

b. Say/pronoun condition

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

c. Hear/self condition

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

d. Hear/pronoun condition

Síu-Làhm tēng A-Lìhng góng wah Síu-Lei chái dóu kéuih
Lum listen Ling talk say Lei step PRT 3SG
‘Lum hears from Ling that Lei stepped on her.’
Each of the test sentences contained three characters, which occupied the matrix subject, matrix object and embedded subject positions. The three characters in each of the test sentences were of the same gender. The 3SG pronoun *keuih* is gender neutral.

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

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

**Fillers**

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

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

\[ Gā-Yān \text{ wāh bḗi } A-Ḥāh \text{ tḗng } Ngá-Tīhng \text{ hahchi } gāo \ A-Ḥāh \text{ dāp} \]

\[ Gā-Yan say give Ha listen Nga-Ting next-time teach Ha take bāsí bus \]

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

b. Five bi-clausal sentences where the main predicate is a *hear*-verb. Embedded object is a proper noun which repeats either the matrix subject or the matrix object.
Síu-Yín têng Wing-Yân góng wah Gā-Yīh chyun yím bêi Wing-Yân
Yin listen Wing-Yan talk say Ga-Yee send infect to Wing-Yân

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

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

Ji-Màhn giu A-Fái mái fêi bêi A-Jóu
Jee-Man ask Fai buy ticket to Jo

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

4.1.3 Procedure

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

The procedure of Experiment 2 was identical to that of Experiment 1. The computer screen displayed a context sentence, a target sentence, a comprehension question and two answer choices with a delay between each line. These delays were slightly longer than those in Experiment 1 to compensate for the longer sentences in Experiment 2. First, a context sentence describing a particular scene appeared near the top of the screen. After a delay of two-and-a-half seconds, a target sentence automatically appeared below the context sentence. After another delay of three-and-a-half seconds, participants were presented with a comprehension question, which asked to identify the internal argument in the embedded clause. Finally, after a delay of another three-and-a-half seconds, two answer choices appeared. These forced choices restricted participants’ response for the comprehension question to either the matrix subject or the matrix object. The positions of the answer choices were counterbalanced. The third character occupying the embedded subject position in the target sentence was never provided as an answer choice. A screenshot of a test trial is given in Figure 4.1, while translations are given in (55).
(55)  i.  **Síu-Làhm, A-Lìhng tûhng Síu-Lei hái gãisí, kêuih-dei mái gán**  
    Lum  Ling  and  Lei  at  wet-market  they  buy  PROG  sôhng  
grocery  
    ‘Lum, Ling and Lei are at the wet market. They are getting grocery.’  

  ii. **Síu-Làhm wah bêi  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 bîngo?**  
    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-
The high average accuracy score suggests the participants were attentive while completing the task and that the method of the experiment was appropriate.

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

4.3 Discussion

The results in Experiment 2 revealed that in the embedded object position, the preference for a matrix subject antecedent is stronger in the say/self condition than in the hear/self condition. This tendency in antecedent selection coincides with where the logophoric centre rests—in the matrix subject in the say/self condition and in the matrix object in the hear/self condition. While participants predominantly selected the matrix subject as antecedent in the say/self condition (subject selection score = .98), their preference for subject/object antecedent appeared ambivalent in the hear/self condition, where the subject selection score was .48. This distribution
could not be due to a bimodal inter-speaker variation (i.e. the participants having two distinct grammars), since the majority of the participants (n=22) demonstrated variability in their antecedent selection in the hear/self condition. For the remaining ten participants, four of them consistently selected the matrix subject as antecedent while six of them consistently selected the matrix object as antecedent in the hear/self condition.

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

Also of interest in the findings of Experiment 2 is how participants interpreted the 3sg pronoun keuih. In the say/pronoun and the hear/pronoun conditions, there was not enough syntactic or semantic information for the reference resolution of keuih. The gender-neutral pronoun is linguistically ambiguous as it could refer to either the matrix subject or the matrix object, which are of the same gender and number. Also, the context sentences and test sentences were designed in a way such that the reference of the embedded pronoun was not biased towards either argument in the matrix clause. Comparing the two pronoun conditions, participants had a greater tendency towards a matrix subject reference in the say/pronoun condition than in the hear/pronoun condition. This tendency was observed between the two self conditions as well. In the say/pronoun condition, the subject selection score was .53, denoting that participants preferred matrix subject and matrix object antecedent almost equally. A bimodal inter-speaker variation cannot explain this distribution in the say/pronoun condition, since most of the participants (n=23) displayed variability in their reference selection. Among the remaining nine participants, six of them consistently preferred a matrix subject reference while three of them consistently preferred a matrix object reference. That the distribution is a result of chance due to
the poverty of syntactic and semantic information for reference resolution is, however, dubious, since *keuih* in the *hear/pronoun* condition referred to the matrix object at levels above chance. While the discussion of pronoun resolution is beyond the scope of the current thesis, the 3SG pronoun *keuih* offers a base-line of subject selection scores within the test conditions. Although no statistical significance was found, the numerical trends in the response latency seem to be inversely correlated with subject selection score—the longer the response time, the lower the subject selection score (i.e. greater tendency to select object antecedent); conversely, the shorter the response time, the higher the subject selection score (i.e. greater tendency to select subject antecedent). In other words, object antecedent selection seemed to be more difficult for participants, hence the increase in response time. In general, anaphors seem to have a tendency to go for a subject during reference resolution. Given the mean subject selection score results, *jihgei* seems to have a ‘heightened’ preference for subject antecedent compared to the pronoun. Hence, in each of the *predicate* conditions, *jihgei* has a shorter response time than its pronoun counterpart. In the case of *hear*-conditions, the effects of logophoricity pulled up the response time in general, due to the matrix object being the logophoric centre. Even so, a shorter response time was still registered in the *jihgei*-sentences than the pronoun sentences.

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

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4.4 Summary

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

Experiment 2 demonstrated that, contrary to the putative subject orientation of jihgei in the literature, jihgei does have non-subject antecedent potential. While jihgei behaves very similarly to the pronoun in antecedent resolution in the embedded subject position, as in Experiment 1, Experiment 2 found that a subject preference that is modulated by logophoric conditions is present when jihgei is in the embedded object position. In the next chapter, possible accounts of jihgei’s subject-object asymmetry are provided in the General Discussion.
Chapter 5

General Discussion and Conclusion

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

5.1 Summary of the findings

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

### 5.2 Theoretical implication

The experimental findings from the current study are valuable in the evaluation of LDA theories in the Chinese literature. Two competing approaches make different predictions of an LDA’s antecedent. The syntactic approach proposes that *ziji* undergoes $i_0$-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)  *Síu-Làhm tèng  A-Lìhng góng wah [Síu-Lei chíi dòu jihgei]*

\begin{verbatim}
Lum    listen Ling    talk say Lei    step PRT self
\end{verbatim}

‘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.

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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


Chou, Xiao-Li. 1992. An alternative approach to Chinese reflexives. *MA report, the University of Texas at Austin, USA*.


Appendix A

Test sentences from Experiment 1

A.1 Condition 1: say/jihgei

(1) a. Wâh-jái tûhng Wáih-mîhng hái chântêng, kéuihdei jêunbeih ngai yeh
   Wah and Wai-ming at restaurant they prepare call thing sîhk
eat
   ‘Wah and Wai Ming are at the restaurant. They are about to order food.’
b. Wâh-jái wah béi Wáih-mîhng 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. Wâh-jái wah bîngo wúih ngai yîfán?
   Wah say who will call pasta
   ‘Who did Wah say will order pasta?’
d. Wah / Wai Ming

(2) a. Sîu-mîhng tûhng Gâ-lok hái sêjihlàuh, kéuihdei jêun-beih gán
   Ming and Ga-lok at office they prepare PROG têngyat go wuihyé
tomorrow CL meeting
   ‘Ming and Ga Lok are at the office. They are preparing for a meeting the
next day.’
b. Sîu-mîhng wah béi Gâ-lok têng jihgéi gàmmâan 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. Sîu-mîhng wah bîngo gàmmâan 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 tūhung A-Bông hài ngànhhòhung, kéuhihdei pàih jó hóu loi

Wai and Bong at bank they queue PERF very long
déui

time

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

b. Wáih-jái wah bêí A-Bông têng jiḥgéi wúih gaḥm mbak

Wai say give Bong listen self will withdraw five-hundred
màn
money

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

c. Wáih-jái wah bêngō wúih gaḥm mbak mān?

Wai say who will withdraw five-hundred money

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

d. Wai / Bong

(4)  a. A-Kêuḥng tūhung A-Hôuh hài boujídong, kéuhihdei tāi gān dī

Keung and Ho at newsstand they watch PROG CL
tāoḥtíū

tàoḥtíū

headline

‘Keung and Ho are at the newsstand. They are looking at the headlines.’

b. A-Kêuḥng wah bêí A-Hôuh têng jiḥgéi tūngsèuḥng sëungmóng tāi

Keung say give Ho listen self usually online watch
sānmān
news

‘Keung tells Ho that self usually reads the news online.’

c. A-Kêuḥng wah bêngō tūngsèuḥng sëungmóng tāi sānmān?

Keung say who usually online watch news

‘Who did Keung say usually reads the news online?’

d. Keung / Ho

(5)  a. A-Mìhng tūhung Kèuḥng-jái hài bokmatgūn, kéuhihdei tāi gān

Ming and Keung at museum they watch PROG
húŋgľū̀ng fasēhk
dinosaur fossil

‘Ming and Keung are at the museum. They are looking at dinosaur fossil.'
b. A-Mìhng wah běi Kèuhng-jái tēng jiḩgēi hahchī wúih dāi Ming say give Keung listen self next-time will bring sèunggēi camera

‘Ming tells Keung that self will bring a camera next time.’

c. A-Mìhng wah bīngō hahchī wúih dāi sèunggēi?
Mìhng say who next-time will bring camera

‘Who did Ming say will bring a camera next time?’

d. Keung / Mìhng

(6) a. Dai-Màhn tūhng Sīu-Jī hái sāandéng kēuīhei jėnbeih hählen 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 běi Sīu-Jī tēng ji-checkbox wūih fūh jyu dī syu lēi Man say give Jee listen self will hold PROG CL tree come hählen walk

‘Man tells Jee that self will hold onto the trees while walking.’

c. Dai-Màhn wah bīngō wūih fūh jyu dī syu lēi hählen?
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, kēuīhei hah yāt tōhng
Jee-ho and Ga-keung at classroom they next one class
souhokh chākyihm
Math test

‘Jee Ho and Ga Keung are in the classroom. They are having a Math test next lesson.’

b. Ji-Hòuh wah běi Gā-Kèuhng tēng ji-checkbox hahchī wūih jōu dī
Jee-ho say give Ga-keung listen self next-time will early more hōichī wānsyū
start revision

‘Jee Ho tells Ga Keung that self will start revising earlier next time.’

c. Ji-Hòuh wah bīngō hahchī wūih jōu dī hōichī 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
a. Wái-Màhn tūhng Gihk-jái hái básí, kěuíhdei sāk gán chē
   Wai-man and Gik at bus they congested PROG car
   ‘Wai Man and Gik are on the bus. They are stuck in traffic.’

b. Wái-Màhn wah bèi Gihk-jái tēng jihgéi hahchi wúih jóu dī
   Wai-man say give Gik listen self next-time will early more sāugūng
   finish-work
   ‘Wai Man tells Gik that self will get off work earlier next time.’

c. Wái-Màhn wah bíngo hahchi wúih jóu dī sāugūng?
   Wai-man say who next-time will early more finish-work
   ‘Who did Wai Man say will get off work earlier next time?’

d. Wai Man / Gik

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

d. Jing / Suk Fan

(11) a. A-Yán tūhng Méi-Lìhng hái chèuhfóng, kéuhhdei kíng gán
Yan and Meiling at kitchen they discuss PROG
gāmnāan jyú mē
tonight cook what
‘Yan and Meiling are in the kitchen. They are discussing what to cook tonight.’
b. A-Yán wah béi Méi-Lìhng tēng jiḥgéi jeui lēk jyú hóisīn
Yan say give Meiling listen self most clever cook seafood
‘Yan tells Meiling that self is best at cooking seafood.’
c. A-Yán wah bīngō 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 gūngyún, kéuihdei 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 béi A-Sāan tēng jiḥgéi hahchi wúih jíng bōlōh
Jing-yee say give San listen self next-time will make pineapple chēūngjái
sausage
‘Jing Yee tells San that self will make pineapple and sausage skewers next time.’
c. Jing-Yìh wah bīngō hahchi wúih jíng bōlōh chēūngjái?
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-Fūhung 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 wah béi A-Fūhung tēng jiḥgéi máhnmāhn táí
Lai-guen say give Fung listen self every-night watch
gēiūlkpín
documentary
‘Lai Geun tells Fung that self watches documentaries every night.’

c. *Lai-Gêun wah bîngo 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 tühng A-Lîhng hái gásí, kéuihnðei táí 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 têng jihgêi lám jyu mái yâohyû*
   Lum say give Ling listen self think PROG buy squid
   ‘Lum tells Ling that self is planning to buy squids.’

c. *Síu-Làhm wah bîngo lám jyu mái yâohyû?*
   Lum say who think PROG buy squid
   ‘Who did Lum say is planning to buy squids?’

d. Ling / Lum

(15) a. *Síu-Fâ tühng A-Jân hái dihnhei póu, kéuihnðei táí gán*
   Fa and Jan at electric-appliance store they watch PROG
   méihbólouh microwave
   ‘Fa and Jan are at the electric appliance store. They are looking at microwaves.’

b. *Síu-Fâ wah béi A-Jân têng jihgêi yáo jêung gáó jik kâit*
   Fa say give Jan listen self has CL nine discount card
   ‘Fa tells Jan that self has a ten percent discount card.’

c. *Síu-Fâ wah bîngo yáo jêung gáó jik kâí?*
   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 tühng Síu-Fân hái yeukfûhng, kéuihnðei táí gán wâihtåming*
   Yuk and Fan at pharmacy they buy PROG vitamin
   yûn pills
   ‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’

b. *Síu-Yúk wah béi Síu-Fân têng jîhgêi sîhngyat sêungfûng gámmou*
   Yuk say give Fan listen self always cold Flu
   ‘Yuk tells Fan that self is always sick.’
c.  Síu-Yük wah bǐngō sīhngyat sèungfūng gǎmmou?
Yuk say who always cold Flu
‘Who did Yuk say is always sick?’

A.2  Condition 2: say/pronoun

(1) a.  Wàh-jái tūnhg Wáih-mìhng hái chântēng, kēuihdei jéunbeih ngai yeh
Wah and Wai-ming at restaurant they prepare call thing
sihk
eat
‘Wah and Wai Ming are at the restaurant. They are about to order food.’
b.  Wàh-jái wah bēi  Wáih-mìhng tēng kēuih wūih ngai yīhfān
Wah say give Wai-ming listen 3SG will call pasta
‘Wah tells Wai Ming that s/he will order pasta.’
c.  Wàh-jái wah bǐngō wūih ngai yīhfān?
Wah say who will call pasta
‘Who did Wah say will order pasta?’
d.  Wah / Wai Ming

(2) a.  Síu-mìhng tūnhg Gā-lok hái séjihlàuh, kēuihdei jéun-beih gán
Ming and Ga Lok at office they prepare PROG
tīngyat go wūihyī
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 kēuih gǎmmāan wūih gǎodimh go
Ming say give Ga-loc listen 3SG tonight will finish CL bougou
report
‘Ming tells Ga Lok that s/he will finish the report tonight.’
c.  Síu-mìhng wah bǐngō gǎmmāan wūih gǎodimh 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 tūnhg A-Bōng hái ngànhhòhng, kēuihdei pàih jō hòu 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 têng kéuih wúih gahm măn núbak
Wai say give Bong listen 3SG will withdraw five-hundred mân
money
‘Wai tells Bong that s/he will withdraw five hundred dollars.’
c. Wáih-jái wah bīngo wúih gahm núbak mân?
Wai say who will withdraw five-hundred money
‘Who did Wai say will withdraw five hundred dollars?’
d. Wai / Bong

(4) a. A-Kèuhung tûhung A-Hòuh hái boujídong, kéuivhei táí gân dī
Keung and Ho at newsstand they watch PROG CL táohtíu
headline
‘Keung and Ho are at the newsstand. They are looking at the headlines.’
b. A-Kèuhung wah běi A-Hòuh têng kéuih tûngsèuhng sèungmóng táí
Keung say give Ho listen 3SG usually online watch sǎnmmán
news
‘Keung tells Ho that s/he usually reads the news online.’
c. A-Kèuhung wah bīngo tûngsèuhng sèungmóng táí sǎnmmán?
Keung say who usually online watch news
‘Who did Keung say usually reads the news online?’
d. Keung / Ho

(5) a. A-Mìhng tûhung Kèuhung-jái hái bokmatgún, kéuihdei táí gán
Ming and Keung at museum they watch PROG húngláhung fasehk
dinosaur fossil
‘Ming and Keung are at the museum. They are looking at dinosaur fossil.
b. A-Mìhng wah běi Kèuhung-jái têng kéuih hahchi wúih dai
Ming say give Keung listen 3SG next-time will bring séunggēi
camera
‘Ming tells Keung that s/he will bring a camera next time.’
c. A-Mìhng wah bīngo 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 tǔ hung Síu-Jí hái sāandéng kēuihdei 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-Māhn wah béi Síu-Jí tēng kēuih wúih fūh jyu dī syu lēi**
Man say give Jee listen 3SG will hold PROG CL tree come hāhn walk
‘Man tells Jee that s/he will hold onto the trees while walking.’
c. **Dai-Māhn wah bīngō wūih fūh jyu dī syu lēi 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 tǔ hung Gā-Kèuching hái fosāk, kēuihdei hah yāt tōhng**
Jee-ho and Ga-keung at classroom they next one class 
souhokh 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-Kèuchiing tēng kēuih hahchī wūih jōu dī**
Jee-ho say give Ga-keung listen 3SG next-time will early more 
hōichī wānsyū
start revision
‘Jee Ho tells Ga Keung that s/he will start revising earlier next time.’
c. **Ji-Hòuh wah bīngō hahchī wūih jōu dī hōichī 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-Māhn tǔ hung Gīhk-jái hái bāśí, kēuihdei 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-Māhn wah béi Gīhk-jái tēng kēuih hahchī wūih jōu dī**
Wai-man say give Gik listen 3SG next-time will early more
sāugūŋ
finish-work
‘Wai Man tells Gik that s/he will get off work earlier next time.’
c. **Wái-Māhn wah bīngō hahchī wūih jōu dī sāugūŋ?**
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 tìhng Yuk-Lìhng hái tpusyūgán, kévuihei 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-Yìh wah béi Yuk-Lìhng tèng kévuih hahchi wùih 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-Yìh wah bìngo hahchi wùih 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-Jìng tìhng Suhk-Fàng hái heiýán, kêuuihei āamāam chóh dāi
Jing and Suk-fan at movie-theatre they just sat down
jó PERF
‘Jing and Suk Fan are at the movie theatre. They just sat down.’
b. A-Jìng wah béi Suhk-Fàng tèng kêuuih hahchi wùih máí jūnggān
Jing say give Suk-fan listen 3SG next-time will buy middle
wái seat
‘Jing tells Suk Fan that s/he will buy middle seats next time.’
c. A-Jìng wah bìngo hahchi wùih máí jūnggān wāi?
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 tìhng Méi-Lìhng hái chèuhfông, kêuuihei kīng gán
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-Yăn wah bĕi Méi-Lìhng tĕng kĕuìh jeui lĕk jyú hóîsîn
   Yan say give Meiling listen 3SG most clever cook seafood
   ‘Yan tells Meiling that s/he is best at cooking seafood.’

c. A-Yăn wah bîng jeui lĕk jyú hóîsîn?
   Yan say who most clever cook seafood?
   ‘Who did Yan say is best at cooking seafood?’

d. Yan / Meiling

(12) a. Jing-Yìh tûhng A-Săan hái gṳngyûn, kĕuìhdei hái douh yĕhchāan
   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 bĕi A-Săan tĕng kĕuìh hahchí wûih jîng bôlôh
   Jing-yee say give San listen 3SG next-time will make pineapple
   chéungjái
   sausage
   ‘Jing Yee tells San that s/he will make pineapple and sausage skewers
   next time.’

c. Jing-Yìh wah bîng hahchí wûih 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-Gēun tûhng A-Fúhng hái sôfá douh chò, kĕuìhdei táí gân
   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 bĕi A-Fúhng tĕng kĕuìh máhnmáhn táí
   Lai-guen say give Fung listen 3SG every-night watch
géilukpîn
   documentary
   ‘Lai Geun tells Fung that s/he watches documentaries every night.’

c. Lai-Gēun wah bîng máhnmáhn táí géilukpîn?
   Lai-guen say who every-night watch documentary
   ‘Who did Lai Geun say watches documentaries every night?’

d. Fung / Lai Geun

(14) a. Sú-Làhm tûhng A-Lihng hái găsí, kĕuìhdei máì gân 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 téng kéuih lám jyu mái yào hyú*
   Lum say give Ling listen 3SG think PROG buy squid
   ‘Lum tells Ling that s/he is planning to buy squids.’

c. *Síu-Làhm wah bīngo lám jyu mái yào hyú?*
   Lum say who think PROG buy squid
   ‘Who did Lum say is planning to buy squids?’

d. Ling / Lum

(15) a. *Síu-Fà túhng A-Jàn hái diánhwei pou, kéuihdei táí gán*
   Fa and Jan at electric-appliance store they watch PROG
   méihbōlóuh microwave
   ‘Fa and Jan are at the electric appliance store. They are looking at micro-
   waves.’

b. *Síu-Fà wah béi A-Jàn téng kéuih yáo jéung 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-Fà wah bīngo yáo jéung 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 túhng Síu-Fān hái yeukfòhng, kéuihdei mái gán wàihtāming*
   Yuk and Fan at pharmacy they buy PROG vitamin gán
   yún pills
   ‘Yuk and Fan are at the pharmacy. They are getting some vitamins.’

b. *Síu-Yúk wah béi Síu-Fān téng kéuih sīhngyat sèungfūng gāmmou*
   Yuk say give Fan listen 3SG always cold Flu
   ‘Yuk tells Fan that s/he is always sick.’

c. *Síu-Yúk wah bīngo sīhngyat sèungfūng gāmmou?*
   Yuk say who always cold Flu
   ‘Who did Yuk say is always sick?’

A.3 Condition 3: hear/jihgei

(1) a. *Wàh-jái túhng Wáih-mìhng hái chàntēng, kéuihdei jéunbeih ngai yeh*
   Wah and Wai-ming at restaurant they prepare call thing sihk
   eat
‘Wah and Wai Ming are at the restaurant. They are about to order food.’

b. Wàh-jái têng Wáih-mîhng gông wah jihgéi wúih ngai yîhfán
   Wah listen Wai-ming talk say self will call pasta
   ‘Wah hears from Wai Ming that self will order pasta.’

c. Wàh-jái têng gông wah bîngo wúih ngai yîfân?
   Wah listen talk say who will call pasta
   ‘Who did Wah hear will order pasta?’

d. Wah / Wai Ming

(2) a. Síu-mîhng tûhng Gā-lok hái séjìhlâuh, kéuìhdei jéun-beih gân
   Ming and Ga-lok at office they prepare PROG
   tîngyat go wuihyî
tomorrow CL meeting
   ‘Ming and Ga Lok are at the office. They are preparing for a meeting the next day.’

b. Síu-mîhng têng Gā-lok gông wah jihgéi gâmmâan wúih gâódîmh go
   Ming listen Ga-lok talk say self tonight will finish CL
   bougou report
   ‘Ming hears from Ga Lok that self will finish the report tonight.’

c. Síu-mîhng têng gông wah bîngo gâmmâan wúih gâódîmh 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. Wàih-jái tûhng A-Bông hái ngàhnhòhng, kéuìhdei pàih jó hóu loi
   Wai and Bong at bank they queue PERF very long
   déui time
   ‘Wai and Bong are at the bank. They have been queuing for a very long time.’

b. Wàih-jái têng A-Bông gông wah jihgéi wúih gahm mûbak
   Wai listen Bong talk say self will withdraw five-hundred
   mân money
   ‘Wai hears from Bong that self will withdraw five hundred dollars.’

c. Wàih-jái têng gông wah bîngo wúih gahm mûbak 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-Kèuhng tùhng A-Hóuh hái boujídong, kêuìhdei tái gán 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 têng A-Hóuh góng wah jìhgéi tōngsèuhng séungmóng tái Keung listen Ho talk say self usually online watch sānmán news
‘Keung hears from Ho that self usually reads the news online.’
c. A-Kèuhng têng góng wah bǐngō tōngsèuhng séungmóng tái Keung listen talk say who usually online watch sānmán?
‘Who did Keung hear usually reads the news online?’
d. Keung / Ho

(5) a. A-Mìhng tùhng Kèuhng-jái hái bokmatgún, kêuìhdei 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 jìhgéi hahchi wǔih dai Ming listen Keung talk say self next-time will bring séunggēi camera
‘Ming hears from Keung that self will bring a camera next time.’
c. A-Mìhng têng góng wah bǐngō hahchi wǔih dai séunggēi?
Ming listen talk say who next-time will bring camera
‘Who did Ming hear will bring a camera next time?’
d. Keung / Ming

(6) a. Dai-Màhn tùhng Síu-Ji hái sāandéng kêuìhdei 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 têng Síu-Ji góng wah jìhgéi wǔih jyu dī syu lèi Man listen Jee talk say self will hold PROG CL tree come hāhn walk
‘Man hears from Jee that self will hold onto the trees while walking.’
c. Dai-Māhn tēng gōng wáh bīngō wúih fūh jyu dī syu lēi 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 tūhng Gā-Kèuhng hái fosāk, kēuíhdei hah yāt tōhng
Jee-ho and Ga-keung at classroom they next one class
sóuhokh chākyihm
Math test
‘Jee Ho and Ga Keung are in the classroom. They are having a Math test
next lesson.’
b. Ji-Hòuh tēng Gā-Kèuhng gōng wah jihgéi hahchí wúih jōu dī
Jee-ho listen Ga-keung talk say self next-time will early more
hōíchí wānṣyū
start revision
‘Jee Ho hears from Ga Keung that self will start revising earlier next
time.’
c. Ji-Hòuh tēng gōng wah bīngō hahchí wúih jōu dī hōíchí
Jee-ho listen talk say who next-time will early more start
wānṣyū?
revision
‘Who did Jee Ho hear will start revising earlier next time?’
d. Ga Keung / Jee Ho

(8) a. Wái-Màhn tūhng Gīhk-jái hái bāsī, kēuíhdei 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 tēng Gīhk-jái gōng wah jihgéi hahchí wūih jōu dī
Wai-man listen Gik talk say self next-time will early more
sāuğūŋ
finish-work
‘Wai Man hears from Gik that self will get off work earlier next time.’
c. Wái-Màhn tēng gōng wah bīngō hahchí wūih jōu dī sāuğūŋ?
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-Yīh tūhng Yuk-Līhng hái tōusyūgún, kēuíhdei pāüh gān déuì
Suk-ye and Yuk-ling at library they line PROG queue
wāhń syū
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 jihgéi hahchi wúih jéunsi
Suk-yee listen Yuk-ling talk say self next-time will punctual
wàhn syūeturn book

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

c. Suk-Yìh t¯ eng góng wah bīngo hahchi wúih jéunsi wàhn syū?
Suk-yee listen talk say who next-time will punctual return book

‘Who did Suk Yee hear will return books on time next time?’

d. Suk Yee / Yuk Ling

(10) a. A-J¯ing tùhng Suhk-F¯ an hái heiyán, kéu̍t̍hdei āâmāam 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 jihgéi hahchi wúih máih jānggān
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 bīngo hahchi wúih máih jānggān wái?
Jing listen talk say who next-time will buy middle seat

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

d. Jing / Suk Fan

(11) a. A-Y¯ an tùhng Méi-Lìhng hái chèuhfóng, kēuhkdei kīng gán
Yan and Meiling at kitchen they discuss PROG
gāmmbān jyú 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 jihgéi jeui lēk jyú hóisīn
Yan listen Meiling talk say self most clever cook seafood

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

c. A-Y¯ an t¯ eng góng wah bīngo jeui lēk jyú hóisīn?
Yan listen talk say who most clever cook seafood?

‘Who did Yan hear is best at cooking seafood?’

d. Yan / Meiling
(12) a. Jing-Yìh tùhng A-Sāan hái güngyún, kêuihdei hái douh yēchāan
   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-Yīhtīng běi A-Sāan góng wah jiǎnié hahchi wúih jìng
   Jing-yee listen San talk say self next-time will make
   bōlòh chéungjíí
   pineapple sausage
   ‘Jing Yee hears from San that self will make pineapple and sausage skewers
   next time.’
c. Jing-Yìh tīng góng wah bīng hahchi wúih jìng bōlòh
   Jing-yee listen talk say who next-time will make pineapple
   chéungjíí?
   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 chō, kêuihdei 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 tīng A-Fúhng góng wah jìnhéi máhnmáhn táí
   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 tīng góng wah bīng 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-Lìhng hái gàsí, kêuihdei máí gán 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 tīng A-Fúhng góng wah jìnhéi lám jìu máí 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 tīng góng wah bīng lám jìu máí 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 dihnhèi póu, kêuihdèi tāi 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 mi-
   crowaves.’
b. Síu-Fā tēng A-Jān góng wah jihgēi yāo jēung gáo jik kāt
   Fa listen Jan talk say self has CL nine discount card
   ‘Fa hears from Jan that self has a ten percent discount card.’
c. Síu-Fā tēng góng wah bīngō yāo jēung gáo jik kāt?
   Fa listen talk say who have CL nine discount card
   ‘Who did Fa hear has a ten percent discount card?’

d. Jan / Fa

(16) a. Síu-Yūk tūhng Síu-Fān hái yeukfōhng, kêuihdèi mái gán wā ihtāming
   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-Yūk tēng Síu-Fān góng wah jihgēi sǐhngyät sēungfūng gámmou
   Yuk listen Fan talk say self always cold Flu
   ‘Yuk hears from Fan that self is always sick.’
c. Síu-Yūk tēng góng wah bīngō sǐhngyät 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 tūhng Wāih-mihng hái chāntēng, kêuihdèi jēunbeih ngai yeh
   Wah and Wai-ming at restaurant they prepare call thing
   sīhk eat
   ‘Wah and Wai Ming are at the restaurant. They are about to order food.’
b. Wāh-jái tēng Wāih-mihng góng wah kêuih wūih ngai yīhfān
   Wah listen Wai-ming talk say 3SG will call pasta
   ‘Wah hears from Wai Ming that s/he will order pasta.’
c. Wah-jái têng góng wah bīngo wúih ngai yīfán?
   Wah listen talk say who will call pasta
   ‘Who did Wah hear will order pasta?’

d. Wah / Wai Ming

(2) a. Siū-miîng têng Gā-lok hái séjihläuh, kéuihdei jëun-beih gán
   Ming and Ga Lok at office they prepare PROG têngyat go wuhyi
   tomorrow CL meeting
   ‘Ming and Ga Lok are at the office. They are preparing for a meeting the
   next day.’

b. Siū-miîng têng Gā-lok góng wah kéuih gāmmaän wúih gáodimh go
   Ming listen Ga-loc talk say 3SG tonight will finish CL bougou
   report
   ‘Ming hears from Ga Lok that s/he will finish the report tonight.’

c. Siū-miîng têng góng wah bīngo gāmmaän 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 têung A-Bōng hái ngånhhöhng, kéuihdei pàih jó hòu loí
   Wai and Bong at bank they queue PERF very long
déuï
   time
   ‘Wai and Bong are at the bank. They have been queuing for a very long
   time.’

b. Wáih-jái têung A-Bōng góng wah kéuih wúih gahm män
   Wai listen Bong talk say 3SG will withdraw five-hundred
   män
   money
   ‘Wai hears from Bong that s/he will withdraw five hundred dollars.’

c. Wáih-jái têung góng wah bīngo wúih gahm män?
   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-Kêuhng têung A-Hòuh hái boujídong, kéuihdei tái gán 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-KēuNG tēNG A-Hòuh góngh wáh kéuIH tōngsèuhng séungmóNG táI
Keung listen Ho talk say 3SG usually online watch sānNmán
news
‘Keung hears from Ho that s/he usually reads the news online.’

c. A-KēuNG tēNG góngh wáh bīngo tōngsèuhng séungmóNG táI
Keung listen talk say who usually online watch sānNmán?
news
‘Who did Keung hear usually reads the news online?’

d. Keung / Ho

(5) a. A-Mīhng tūhng KēuNG-Jái hái bokmatgún, kéuIHdei táI gán
Ming and Keung at museum they watch PROG hūnglūhng fasehk
dinosaur fossil
‘Ming and Keung are at the museum. They are looking at dinosaur fossil.

b. A-Mīhng tēNG KēuNG-Jái góngh wáh kéuIH hāhchí wúih dāI
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-Mīhng tēNG góngh wáh bīngo hāhchí wúih dāI sēunggēi?
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-Māhn tūhng Sīu-Ji hái sānandēng kéuIHdei jēunbeih hāhn fāan
Man and Jee at peak they prepare walk back
lok sāan
downhill
‘Man and Jee are at the peak. They are about to walk downhill.

b. Dai-Māhn tēNG Sīu-Ji góngh wáh kéuIH wūih fūh jyu dī syu lēi
Man listen Jee talk say 3SG will hold PROG CL tree come hāhn
walk
‘Man hears from Jee that s/he will hold onto the trees while walking.’

c. Dai-Māhn tēNG góngh wáh bīngo wūih fūh jyu dī syu lēi 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-Hôuh tühung Gâ-Kêuhng hái fosāk, kéuìhdei hah yât tühung
Jee-ho and Ga-keung at classroom they next one class
Math test
‘Jee Ho and Ga Keung are in the classroom. They are having a Math test
next lesson.’
b. Ji-Hôuh têng Gâ-Kêuhng gông wah kéuíh hahchi wúih jóu dî
Jee-ho listen Ga-keung talk say 3SG next-time will early more
hôìchî wànsyû
start revision
‘Jee Ho hears from Ga Keung that s/he will start revising earlier next
time.’
c. Ji-Hôuh têng gông wah bîngo hahchi wúih jóu dî hôïchî
Jee-ho listen talk say who next-time will early more start
wànsyû?
revision
‘Who did Jee Ho hear will start revising earlier next time?’
d. Ga Keung / Jee Ho

(8) a. Wái-Màhn tühung Gîhk-jái hái bâsi, kéuìhdei sâk gân 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 têng Gîhk-jái gông wah kéuíh hahchi wúih jóu dî
Wai-man listen Gik talk say 3SG next-time will early more
sâugûng
finish-work
‘Wai Man hears from Gik that s/he will get off work earlier next time.’
c. Wái-Màhn têng gông wah bîngo 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 tühung Yuk-Lîhng hái tòusyûgûn, kéuìhdei pâih 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 têng Yuk-Lîhng gông wah kéuíh hahchi wúih jéunsi
Suk-yee listen Yuk-ling talk say 3SG next-time will punctual
wàhn syû
return book
‘Suk Yee hears from Yuk Ling that s/he will return books on time next time.’

c. *Suk-Yìh t¯ eng gόng wah bīngo hahchi wúih jéunsi wàhn syū?*
   Suk-ye oh 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-Jíng tūhung Suhk-Făn hái heiýún, kéuithdei āamāam chóh dāi*
   Jing and Suk-fan at movie-theatre they just sat down
   jó
   perf
   ‘Jing and Suk Fan are at the movie theatre. They just sat down.’

b. *A-Jíng tēng Suhk-Făn gόng wah kēuih hahchi wúih mái jünngān*
   Jing listen Suk-fan talk say 3sg next-time will buy middle
   wái
   seat
   ‘Jing hears from Suk Fan that s/he will buy middle seats next time.’

c. *A-Jíng tēng gόng wah bīngo hahchi wúih mái jünngān wāi?*
   Jing listen talk say who next-time will buy middle seat
   ‘Who did Jing hear will buy middle seats next time?’

d. Jing / Suk Fan

(11) a. *A-Yān tūhung Méi-Lìhng hái chèuhfóng, kéuikhdei kíng gán*
   Yan and Meiling at kitchen they discuss PROG
   gámmāan jyú mē
tonight cook what
   ‘Yan and Meiling are in the kitchen. They are discussing what to cook
   tonight.’

b. *A-Yān tēng Méi-Lìhng gόng wah kēuih jéui lēk jyú 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-Yān tēng gόng wah bīngo jéui lēk jyú hōisīn?*
   Yan listen talk say who most clever cook seafood?
   ‘Who did Yan hear is best at cooking seafood?’

d. Yan / Meiling

(12) a. *Jíng-Yǐh tūhung A-Sāan hái gúngyūn, kéuithdei hái douh yēhchüan*
   Jing-ye oh and San at park they at there picnic
   ‘Jing Yee and San are at the park. They are having a picnic there.’
b. Jing-Yìhténg běi A-Sāan góng wah kéuīh 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 skewers next time.’

c. Jing-Yīh tèng 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 tǔhg A-Fúhng hái sōfá douh chó, kēuihdei 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 těng A-Fúhng góng wah kéuīh 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 těng 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 tǔhg A-Lihng hái gāsi, kēuihdei máí 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 těng A-Fúhng góng wah kéuīh lâm jyu máí 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 těng góng wah bīngo lâm jyu máí 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 dāhnhei póu, kēuīhdei táí gān*
   Fa and Jan at electric-appliance store they watch PROG
   microwave
   ‘Fa and Jan are at the electric appliance store. They are looking at mi-
   crowaves.’

b. *Síu-Fā tēng A-Jān góng wah kēuīh 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 góng wah bīngo 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-Yúk tūhng Síu-Fān hái yeukfōng, kēuīhdei máí 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-Yúk tēng Síu-Fān góng wah kēuīh sīhngyat sēungfūng gāmmou*
   Yuk listen Fan talk say 3SG always cold Flu
   ‘Yuk hears from Fan that s/he is always sick.’

c. *Síu-Yúk tēng góng wah bīngo 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, kēuīhdei 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 máí 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 bìngo séung mái jëung daih dī ge?
   Dai-hung say who want buy CL big a-bit LP
   ‘Who did Dai Hung say wants to buy a bigger desk?’

d. Dai Hung / Ho Lam

(2) a. Ga-Míng tühng Gwók-Duhng hái gáfédim, këuíhdei yám gán
   Ga-ming and Gwok-dung at coffee-shop they drink PROG
gáfē coffee
   ‘Ga Ming and Gwok Dung are at the coffee shop. They are having coffee.’

b. Ga-Míng wah běi Gwók-Duhng tèng Ga-Míng hahchi wúih ngaai
   Ga-ming say give Gwok-dung listen Ga-ming next-time will order
jài fē plain coffee
   ‘Ga Ming tells Gwok Dung that Ga Ming will order black coffee next time.’

c. Ga-Míng wah bìngo hahchi wúih ngaai jài fē?
   Ga-ming say who next-time will order plain coffee
   ‘Who did Ga Ming say will order black coffee next time?’

d. Gwok Dung / Ga Ming

(3) a. Ga-Bóu tühng Ji-Wái hái bǐupó, këuíhdei jìng gán bǐu
   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. Ga-Bóu wah běi Ji-Wái tèng Ji-Wái hahchi wúih héui daihyih
   Ga-bo say give Jee-wai listen Jee-wai next-time will go second
 douh jìng bǐu place fix watch
   ‘Ga Bo tells Jee Wai that Jee Wai will go elsewhere to get watches fixed next time.’

c. Ga-Bóu wah bìngo hahchi wúih héui daihyih douh jìng bǐu?
   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. Ga-Yăn tühng A-Hàh hái deih-tik, këuíhdei gón sìhgan
   Ga-yan and Ha at train they rush time
   ‘Ga Yan and Ha are on the train. They are in a hurry.

b. Ga-Yăn wah běi A-Hàh tèng A-Hàh hahchi dap díksí
   Ga-yan say give Ha listen Ha next-time take cab
   ‘Ga Yan tells Ha that Ha will take a cab next time.’
c.  
Gā-Yān wah bīngo hahchi dap dīksī?
 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 bakfogūngsi, kéuihdei táí gán
 Kay and Man at department-store they look PROG sāam
clothes
 ‘Kay and Man are at the department store. They are looking at clothes.’

b.  
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-Gǐn hái binleidīm, kéuihdei sihk gán
 Ga-ming and Jee-geen at convenience-store they eat PROG yūhdān
clothes
 ‘Ga Ming and Jee Geen are at the convenience store. They are eating fish balls.’

b.  
Gā-Mìhng tēng Jī-Gǐn gōng 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 gōng 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.  
Jī-Mīhng tūhng Hou-Yihn hái syūdim, kéuihdei táí gán syū
 Jee-ming and Ho-Yeen at bookstore they look PROG book
 ‘Jee Ming and Ho Yeen are at the book store. They are looking at books.’
b. Ji-Mìhng tèng Hou-Yìhn góng wa Ji-Mìhng wúih mái bún sīusyuk
   Ji-ming listen Ho-yeen talk say Ji-ming will buy cl novel
   ‘Jee Ming hears from Ho Yeen that Jee Ming will buy a novel.’

c. Ji-Mìhng tèng góng wa bīngo wúih mái bún sīusyuk?
   Ji-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-Sín tùhng Gā-Mán hái fátyǐhńgngūk, kēuíhdei jín gán tàohfāt
   Sin and Ga-man at hair-salon they cut PROG hair
   ‘Sin and Ga Man are at the hair salon. They are having a hair cut.’

b. Síu-Sín tèng Gā-Mán góng wa Síu-Sín hahchí wúih jín dyün 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-Sín tèng góng wa bīngo hahchí wúih jín dyün 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-Sǎn tùhng Yún-Tǐhng hái méiyōhngyún, kēuíhdei sǎo 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-Sǎn tèng Yún-Tǐhng góng wa Yún-Tǐhng gàmchí chàh hòhngsǐk
   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-Sǎn tèng góng wa bīngo gàmchí chàh hòhngsǐk?
   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-Yǐn tùhng Wing-Yán hái chánsó, kēuíhdei dáng gán táí yǐsāng
    Yin and Wing-yan at clinic they wait PROG watch doctor
    ‘Yin and Wing Yan are at the clinic. They are waiting to see the doctor.'
b. Síu-Yin t¯ eng Wing-Y¯ an góng wa Wing-Y¯ an yiu dai f¯ an go háojao
Yin listen Wing-yan talk say Wing-yan need wear back CL mask

‘Yin hears from Wing Yan that Wing Yan needs to wear a face mask.’

c. Síu-Yin t¯ eng góng wa b¯ ingo yiu dai f¯ an go háojao?
Yin listen talk say who need wear back CL mask
‘Who did Yan hear needs to wear a face mask?’

d. Wing Yan / Yin

(11) a. Wai-Màhn tùhng Wíng-H¯ ong hái hakt¯ eng, 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-H¯ ong gao daih s¯ eng d¯ i go dinsi
Wai-man ask Wing-hong adjust big volume a-bit CL television
‘Wai Man asks Wing Hong to turn up the volume of the television.

c. Wai-Màhn giu b¯ ingo gao daih s¯ eng d¯ i go dinsi?
Wai-man ask who adjust big volume a-bit CL television
‘Who did Wai man ask to turn up the volume of the television?’

d. Wai Man / Wing Hong

(12) a. Ji-Màhn tùhng A-F¯ ai hái taih¯ ohnggún, kéuihdei kéi jó hái
Jee-man and Fai at space-museum they stand EXP at
mùhnháo entrance
‘Jee Man and Fai are at the space museum. They are standing at the
entrance’

b. Ji-Màhn giu A-F¯ ai máí fèi
Jee-man ask Fai buy ticket
‘Jee Man asks Fai to buy tickets.’

c. Ji-Màhn giu b¯ ingo máí fèi?
Jee-man ask who buy ticket
‘Who did Jee Man ask to buy tickets?’

d. Jee Man / Fai

(13) a. G¯ a-Lók tùhng Jí-H¯ ong hái ginsãnsãk, kéuihdei páo gán bou
Ga-llok and Jee-hong at gym they run PROG step
‘Ga Lok and Jee Hong are at the gym. They are running.’
b. Ga-Lok giu Jí-Hóng yám sǐhk yiu gwānhāhng
   Ga-lok ask Jee-hong drink eat need balance
   ‘Ga Lok asks Jee Hong to have a balanced diet.’

c. Ga-Lók giu bîngo yám sǐhk yiu gwānhāhng?
   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. Chuei-Săn tūhng Gā-Lái hái chīukāpsíchèuhng, kéuihdei tái gán
    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. Chuei-Săn giu Gā-Lái gán chòilíu jîng hóisîn châofahn
    Chui-san ask Ga-lai choose ingreident make seafood fried-rice
    ‘Chui San asks Ga Lai to choose ingredients for making seafood fried rice.

c. Chuei-Săn giu bîngo gán chòilíu jîng hóisîn châofahn?
    Chui-san ask who choose ingreident make seafood fried-rice
    ‘Who did Chui San ask to choose ingredients for making seafood fried rice?’

d. Chui San / Ga Lai

(15) a. Síu-Sī tūhng Méi-Hàh hái sèungchèuhng, kéuihdei hàhng gán gāi
    Si and Mei Ha at mall they walk PROG street
    ‘Si and Mei Ha are at the mall. They are shopping.’

b. Síu-Sī giu Méi-Hàh hàhn mahn dī
    Si ask Mei-ha walk slow a-bit
    ‘Si asks Mei Ha to walk a bit slower.’

c. Síu-Sī giu bîngo hàhn mahn dī?
    Si ask who walk slow a-bit
    ‘Who did Si ask to walk slower?’

d. Mei Ha / Si

    Ga-yee and Suk-man at home they prepare out entrance
    ‘Ga Yee and Suk Man are home. They are about to head out.’

b. Gā-Yîh giu Súk-Mán jeuk dō gin săam
    Ga-yee ask Suk-man wear more CL clothes
    ‘Ga Yee asks Suk Man to wear more clothes.’
c. Ga-Yih giu bīngo jeuk dō gin sāam?
   Ga-yee ask who wear more 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 tūhng Sìu-Ji hái chāantēng, kēuihdei ăamāam
   Wah  Wa-i-ming and  Je-ee  at  restaurant  they  just
   dòusēh jō  hólok
   spill  EXP  coke
   ‘Wah, Wa-i Ming and Je-ee are at the restaurant. They just spilt some
   Coke.’
b. Wàh-jái wah bêi  Wáih-Mìhng tēng  Sìu-Ji jōng  dōu jihgéi
   Wah  say  give  Wa-i-ming  listen  Je-ee  collide  PRT  self
   ‘Wah  tells  Wa-i  Ming  that  Je-ee  bumped  against  self.’
c. Wàh-jái wah Sìu-Ji jōng  dōu bǐngō?
   Wa-i  say  Je-ee  collide  PRT  who
   ‘Who  did  Wah  say  Je-ee  bumped  against?’
d. Wah / Wai Ming

(2) a. Sìu-Mìng, Gā-Lok tūhng Jín-Pàhng hái séi jihlahuh, kēuihdei kyutdīhng
   Ming  Ga-lok  and  Jeen-pang  at  office  they  decide
   gán  hah  go  sīngkèih  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. Sìu-Mìng wah bêi  Gā-Lok tēng  Jín-Pàhng jantūhng jihgéi
   Ming  say  give  Ga-lok  listen  Jeen-pang  agree  self
   ‘Ming tells Ga Lok that Jeen Pang agrees with self.’
c. Sìu-Mìng wah Jín-Pàhng jantūhng bǐngō?
   Ming  say  Jeen-pang  agree  who
   ‘Who  did  Ming  say  Jeen  Pang  agrees  with?’
d. Ming / Ga Lok

(3) a. Wáih-jái, A-Bông tìhng A-Jihng hái ngânhòhng, kêuihdei pài hóu jô
Wai Bong and Jing at bank they queue ASP 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-Jihng jâan jiègei mû-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 mû-bak mân?
Wai say Jing owe who five-hundred money
‘Who did Wai say Jing owes five hundred dollars?’
d. Wai / Bong

(4) a. A-Kèuhng, A-Hòuh tìhng A-Jóu hái boujídong, kêuihdei tóulun gân
Keung Ho and Jo at newsstand they discuss PROG sihsei 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-Kèuhng wah A-Jóu sihngyat fáanbok bîngo?
Keung say Jo always argue who
‘Who did Keung say Jo always argue with?’
d. Keung / Ho

(5) a. A-Mîhng, Kèuhng-jâi tìhng A-Lóhng hái bokmahtgûn, kêuihdei táí
Ming Keung and Long at museum they watch gân hùnglûhng faselk PROG dinosaur fossil
‘Ming, Keung and Long are at the museum. They are looking at dinosaur fossils.’
b. A-Mîhng wah bêí Kèuhng-jâi têng A-Lóhng hahchi dai jiègei
Ming say give Keung listen Long next-time bring self heui fohokgûn
go science-museum
‘Ming tells Keung that Long will take self to the Science Museum next time.’

c. A-Mihn wah A-Lóhng hahchi dai bǐngō heui fōhokgiân?
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, Sîu-Jî tūhng Chèuhng-jái hái sāandéng, kēuihdei jēunbeih
Man Jei and Cheung at peak they prepare
hâhn fâan lok sāan
walk back down hill
‘Man, Jei and Cheung are at the peak. They are about to walk downhill.’

b. Dai-Màhn wah bèi Sîu-Jî têng Chèuhng-jái wūih fūh jyu jihgéi
Man say give Jei listen Cheung will hold PROG self
‘Man tells Jei that Cheung will hold onto self.’

c. Dai-Màhn wah Chèuhng-jái wūih fūh jyu bǐngō?
Man say Cheung will hold PROG who
‘Who did Man say Cheung will hold onto?’

d. Jei / Man

(7) a. Ji-Hòuh, Gā-Kèuhng tūhng Màhn-jái hái fosâk, kēuihdei hah yât
Jee-ho, Ga-Keung and Man at classroom they next one
tòhng souohk 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 bèi Gā-Kèuhng têng Màhn-jái hahchi gao jihgéi
Jee-ho say give Ga-Keung listen Man next-time teach self
mèihjǐkñan
calculus
‘Jee Ho tells Ga Keung that Man will teach self calculus next time.’

c. Ji-Hòuh wah Màhn-jái hahchi gao bǐngō mèihjǐkñan?
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, Gîhk-jái tūhng A-Jàahk hái bâsî, kēuihdei sâk gán
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.’

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b. Wái-Màhn wah bēi Gihk-jáî tēng A-Jàahk hahchì 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 hahchì wúih chē bīngō?
   Wai-man say Jak next-time will drive who
   ‘Who did Wai Man say Jak will drive next time?’

d. Wai Man / Gik

(9) a. Suk-Yìh, Yuk-Lìhng tṳhng Síu-Bīk hái tòuhsyūgún, kēuihdei 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 wah bēi Yuk-Lìhng tēng hahchì dī syū dōukēih Síu-Bīk
   Suk-yee say give Yuk-ling listen next-time CL book due Bik
   wúih tāihséng 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 hahchì dī syū dōukēih Síu-Bīk wúih tāihséng bīngō?
   Suk-yee say next-time CL book due Bik will remind who
   ‘Who did Suk Yee say Bik will remind when the books are due next time?’

d. Suk Yee / Yuk Ling

(10) a. A-Jìng, Suk-Fān tṳhng Síu-Fōng hái heiyún, kēuihdei āamaāam
   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 bēi Suk-Fān tēng Síu-Fōng hahchì wúih bēi jūnggān
   Jing say give Suk-fan listen Fong next-time will give middle
   wāi jihgéi seat self
   ‘Jing tells Suk Fan that Fong will give self the middle seat next time.’

c. A-Jìng wah Síu-Fōng hahchì wúih bēi jūnggān wāi bīngō?
   Jing say Fong next-time will give middle seat who
   ‘Who did Jing say Fong will give the middle seat next time?’

d. Jing / Suk Fan
(11) a. A-Yân, Méi-lîhng tûhng Sîu-Chîng hái chyûfông, 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-Yân wah bêی Méi-lîhng têng Sîu-Chîng hahchî wúih 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-Yân wah Sîu-Chîng hahchî wúih chîng gao bîingo?
Yan say Ching next-time will ask teach who
‘Who did Yan say Ching will ask next time?’
d. Yan / Meiling

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-Yîh wah bêі A-Sâan têng Gâ-Bîk hahsingkêih yéhchâan wûiah
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. Jing-Yîh wah Gâ-Bîk hahsingkêih yéhchâan wûiah ngaai màaih bîingo?
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 chô, kéuihdei
Lai-gyun Fung and Tong at couch there sit they
tài tài hah dihnshih fan juehk 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 bêі A-Fûhng têng Sîu-Tôhng hahchî wûiah 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-Gyùn wah Síu-Tòhng hahchi wúih ngaai séng bĩngo?
    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 tǔhng Síu-Lei hái gäisi. kéuihdei mái gán
    Lum Ling and Lei at wet-market they buy PROG song
grocery
    ‘Lum, Ling and Lei are at the wet market. They are getting grocery.’

b. Síu-Làhm wah béi A-Lìhng têng 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 bǐngo?
    Lum say Lei step PRT who
    ‘Who did Lum say Lei stepped on?’

d. Ling / Lum

(15) a. Síu-F¯ a, A-J¯ an tǔhng Bìk-Yúk hái dihnhei póu, kéuihdei
    Fa Jan and Bik-yuk at electric-appliance store they
tái gán mèihbölòuh
    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 têng Bìk-Yúk janggàan béi jëung gão 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 Bìk-Yúk janggàan béi jëung gão jik 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-F¯ an tǔhng Jing-Héung hái sëungcheung, kéuihdei
    Yuk Fan and Jing-heung at mall they
gamāam jong dóu
    coincidental collide PRT
    ‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’
b. **Síu-Yúk wah běi Síu-Fān tēng Jing-Hēung ganpái beihōi jīhgei**
   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-Hēung ganpái beihōi bīngǒ?**
   Yuk say Jing-heung lately avoid who
   ‘Who did Yuk say Jing Heung has been avoiding lately?’

d. Fan / Yuk

B.2  **Condition 2: say/pronoun**

(1) a. **Wāh-jái, Wāih-Mīhng tūhng Síu-Jī hái chāantēng, kéuihdei āamāam**
   Wah Wai-ming and Jee at restaurant they just
dóuséh jó hōlok
   spill EXP coke
   ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’

b. **Wāh-jái wah běi Wāih-Mīhng tēng Síu-Jī jōng dóu kēuih**
   Wah say give Wai-ming listen Jee collide PRT 3SG
   ‘Wah tells Wai Ming that Jee bumped against s/he.’

c. **Wāh-jái wah Síu-Jī jōng dóu bīngǒ?**
   Way say Jee collide PRT who
   ‘Who did Wah say Jee bumped against?’

d. Wah / Wai Ming

(2) a. **Síu-Mīng, Gā-Lok tūhng Jín-Pàhng hái séjihlàuh, kéuihdei kyutdíhng**
   Ming Ga-lok and Jeen-pang at office they decide
gán hah go sīngkèih go wūhyí 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-Mīng wah běi Gā-Lok tēng Jín-Pàhng jantūhng kēuih**
   Ming say give Ga-lok listen Jeen-pang agree 3SG
   ‘Ming tells Ga Lok that Jeen Pang agrees with s/he.’

c. **Síu-Mīng wah Jín-Pàhng jantūhng bīngǒ?**
   Ming say Jeen-pang agree who
   ‘Who did Ming say Jeen Pang agrees with?’

d. Ming / Ga Lok
(3) a. Wáih-jái, A-Bông tühng A-Jihng hái ngânhôhng, kéuihdei pâih jó
   Wai and Jing at bank they queue ASP
   hóu loi déuí
   very long line
   ‘Wai, Bong and Jing are at the bank. They have been queuing for a very
   long time.’

b. Wáih-jái wai bêi A-Bông têng A-Jihng jâan kéuih mân-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 wai A-Jihng jâan bîngo mân-bak?
   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.’

b. A-Kèuhng wah bêi A-Hòuh têng A-Jóu sihngyat fúanbok kéuih
   Keung say give Ho listen Jo always argue 3SG
   ‘Keung tells Ho that Jo always argues with s/he.’

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

d. Keung / Ho

(5) a. A-Mìhng, Kèuhng-jâi tühng A-Lóhng hái bokmahtgûn, kéuihdei tàí
   Ming Keung and Long at museum they watch
   gân hânglûhng fasehk
   PROG dinosaur fossil
   ‘Ming, Keung and Long are at the museum. They are looking at dinosaur
   fossils.’

b. A-Mìhng wah bêi Kèuhng-jâi têng A-Lóhng hahchi dai kéuih
   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.’
c. A-Mìhng wah A-Lóhng hahchi dai bǐngo heui fōhokgún?
   Ming say Long next-time bring who go science-museum
   ‘Who did Ming say Long will take to the Science Museum next time?’

d. Keung / Ming

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

b. Dai-Màhn wah béi Síu-Ji tēng Chèuhng-jái wúih fūh jyu kéuih
   Man say give Jee listen Cheung will hold PROG 3SG
   ‘Man tells Jee that Cheung will hold onto s/he.’

c. Dai-Màhn wah Chèuhng-jái wúih fūh jyu bǐngo?
   Man say Cheung will hold PROG who
   ‘Who did Man say Cheung will hold onto?’

d. Keung / Ming

   (7) a. Ji-Hòuh, Gā-Kèuhng tühng Måhn-jái 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-jái hahchi gao kéuih
   Jee-ho say give Ga-keung listen Man next-time teach 3SG
   méihjīkfan
   calculus
   ‘Jee Ho tells Ga Keung that Man will teach s/he calculus next time.’

c. Ji-Hòuh wah Måhn-jái hahchi gao bǐngo méihjīkfan?
   Jee-ho say Man next-time teach who calculus
   ‘Who did Jee Ho say Man will teach calculus next time?’

d. Ji-Hòuh / Man

   (8) a. Wái-Màhn, Gíhk-jái tühng A-Jàahk hái bāsi, kéuihdei 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-Màhn wah béi Gíhk-jái tēng A-Jàahk hahchi wúih chē kéuih
   Wai-man say give Gik listen Jak next-time will drive 3SG
‘Wai man tells Gik that Jak will drive s/he next time.’

c. **Wái-Mành wah A-Jàahk hahchì wúih chē bìngo?**
   Wái-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 túhng Súu-Bìk hái tòuhsyūgán, kéuihdei páih 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 wah bèi Yuk-Lìhng tèng hahchì dī syū dòukēih Súu-Bìk**
   Suk-yee say give Yuk-ling listen next-time CL book due Bik wúih tàihséng kéuih
   will remind 3SG
   ‘Suk Yee tells Yuk Ling that Bik will remind s/he when the books are due next time.’

c. **Suk-Yìh wah hahchì dī syū dòukēih Súu-Bìk wúih tàihséng bìngo?**
   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-Fành túhng Síu-Fòng hái heiyún, kéuihdei ảamáam**
   Jing Suk-fan and Fong at movie-theatre they just
   chóh dái jò	sat down EXP
   ‘Jing, Suk Fan and Fong are at the movie theatre. They just sat down.’

b. **A-Jìng wah bèi Suk-Fành tèng Síu-Fòng hahchì wúih bèi jùnggàn**
   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-Jìng wah Síu-Fòng hahchì wúih bèi jùnggàn wái bìngo?**
   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-Yàn, Méi-liàng túhng Síu-Chìng hái chỳfông, kéuihdei king gán**
   Yan Meiling and Ching at kitchen they discuss PROG
   jyù syún lat tông ge beikyut
   cook sour spicy soup LP secret

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

b. A-Yân wah béi Méi-lihng téng Síu-Chîng hahchî wúih chíng gao
Yan say give Meiling listen Ching next-time will ask teach
kéuih
3SG
‘Yan tells Meiling that Ching will ask s/he (for tips) next time.’

c. A-Yân wah Síu-Chîng hahchî wúih chíng 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. Jing-Yìh, A-Sāan tûng Gā-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. Jing-Yìh wah béi A-Sāan tûng Gā-Bîk hahsingkêih yéhcháan wúih
Jing-yee say give San listen Ga-bik next-week picnic will
ngaai màaih kéuih
call PRT 3SG
‘Jing Yee tells San that Ga Bik will invite s/he to picnic next week.’

c. Jing-Yìh wah Gā-Bîk hahsingkêih yéhcháan 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-Fûhung Tûhung Síu-Tôhung hái sôfá douh chó, kéuihdei
Lai-gyun Fung and Tong at couch there sit they
tái 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-Fûhung tûng Síu-Tôhung 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-Tôhung 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 tòuhng Síu-Lei hái gāisi, kéuihdei mái gán

Lum Ling and Lei at wet-market they buy PROG song
grocery
‘Lum, Ling and Lei are at the wet market. They are getting grocery.’

b. Síu-Làhm wah běi A-Lìhng tòng Síu-Lei chai dōu kéuih

Lum say give Ling listen Lei step PRT 3SG
‘Lum tells Ling that Lei stepped on s/he.’

c. Síu-Làhm wah Síu-Lei chai dōu bǐngó?

Lum say Lei step PRT who
‘Who did Lum say Lei stepped on?’

d. Ling / Lum

(15) a. Síu-Fà, A-Jàn tòuhng Bīk-Yúk hái dīhnhei póu, kéuihdei

Fa Jan and Bik-yuk at electric-appliance store they
táí gán mēihbōlōuh
watch PROG microwave
‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking
at microwaves.

b. Síu-Fà wah běi A-Jàn tòng Bīk-Yúk jangāan běi jēung gāo jik

Fa say give Jan listen Bik-yuk later give CL nine discount
kāat kéuih
card 3SG
‘Fa tells Jan that Bik Yuk will give s/he a ten percent discount card later.’

c. Síu-Fà wah Bīk-Yúk jangāan běi jēung gāo jik kāat bǐngó?

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 tòuhng Jing-Hēung hái sēungcheung, kéuihdei

Yuk Fan and Jing-heung at mall they
gamāam jong dōu
coincidental collide PRT
‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

b. Síu-Yúk wah běi Síu-Fān tīng Jing-Hēung yampái bēihōi kéuih

Yuk say give Fan listen Jing-heung lately avoid 3SG
‘Yuk tells Fan that Jing Hueng has been avoiding s/he lately.’
c. **Síu-Yúk wah Jing-Heung ganpái beihōi bīng?**
   Yuk say Jing-heung lately avoid who
   ‘Who did Yuk say Jing Heung has been avoiding lately?’

d. Fan / Yuk

### B.3 Condition 3: hear/jihgei

1. **Wàh-jái, Wáih-Mìhng tùhng Síu-Ji hái cháantēng, kēuihdei āamāam**
   Wah Wai-ming and Jee at restaurant they just
dóuséh jō hōlok
   ‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’

2. **Síu-Mìng, Gā-Lok tùhng Jín-Pàhng hái séjīhlàuh, kēuihdei kyutdīhng**
   Ming Ga Lok and Jeen Pang at office they decide
gān hah go sīngkèih go wuihyí go jyūtāih
   ‘Ming, Ga Lok and Jeen Pang are at the office. They are deciding on a theme for a meeting next week.’

3. **Wáih-jái, A-Bōng tùhng A-Jihng hái ngànhnhōhng, kēuihdei páih jō**
   Wai Bong and Jing at bank they queue ASP
   hōu loi déui
   ‘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-Jîhng jàan jîhgéi nî-bak
Wai listen Bong talk say Jing owe self five-hundred mân money
‘Wai hears from Bong that Jing owes self five hundred dollars.’

c. Wáih-jái têng gông wah  A-Jîhng jàan bîngo nî-bak mân?
Wai listen talk say Jing owe who five-hundred money
‘Who did Wai hear Jing owes five hundred dollars?’

d. Wai / Bong

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

b. A-Kèuhng têng  A-Hòuh gông wah A-Jîo suîngyat fàânbok jîhgéi
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-Jîo suîngyat fàânbok bîngo?
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 tûhng A-Lôhng hái bokmahtgún, kéuihdei táí
Ming Keung and Long at museum they watch PROG gân húnglûhng fâsehk
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-Lôhng hahchi dai jîhgéi
Ming listen Keung talk say Long next-time bring self PROG 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-Lôhng hahchi dai bîngo 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-Màhn, Sú-Ji tūhng Chèuhng-jái hái sāandéng, kēuihdei jéunbeih
   Man, Jee and Cheung are at peak. They prepare
   hàhn fāan lok sāan
   walk back down hill
   ‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’

b. Dai-Màhn tīng Sú-Ji gòng wah Chèuhng-jái wúih jyu jīhgéi
   Man listens to Jee talk say Cheung will hold PROG self
   ‘Man hears from Jee that Cheung will hold onto self.’

c. Dai-Màhn tīng gòng wah Chèuhng-jái wúih jyu bīngo?
   Man listens talk say Cheung will hold PROG who
   ‘Who did Man hear Cheung will hold onto?’

d. Jee / Man

(7) a. Ji-Hòuh, Gā-Kèuhng tūhng Māhn-jái hái fosāk, kēuihdei hah yāt
   Jee-Ho, Ga-Keung and Man are in the classroom. They next one
   tūhng souohhk chākyihm
   classroom Math test
   ‘Jee Ho, Ga Keung and Man are in the classroom. They are having a
   Math test next lesson.’

b. Ji-Hòuh tīng Gā-Kèuhng gòng wah Māhn-jái hahchi gao jīhgéi
   Jee-Ho listens to Ga-Keung talk say Man next-time teach self
   mēihjīkfān
   calculus
   ‘Jee Ho hears from Ga Keung that Man will teach self calculus next time.’

c. Ji-Hòuh tīng gòng wah Māhn-jái hahchi gao bīngo mēihjīkfān?
   Jee-Ho listens 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-Jāahk hái bāsī, 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-Màhn tīng Gihk-jái gòng wah A-Jāahk hahchi wūih chē
   Wai-Man listens to Gik talk say Jak next-time will drive
   jīhgéi
   self
   ‘Wai man hears from Gik that Jak will drive self next time.’
c. Wái-Màhn têng góng wah A-Jàahk hahchi wúih chê bîngo?
   ‘Who did Wai Man hear Jak will drive who next-time?’

d. Wai Man / Gik

(9) a. Suk-Yìh, Yuk-Lìhng tûhng Sû-Bîk hái tòuhsyûgûn, kéuihdei pâih gân
   Suk-yee, Yuk-ling and Bik at library they line PROG
   déui wâhn 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 dî syû dôukêih Sû-Bîk
   Suk-yee listen Yuk-ling talk say next-time CL book due Bik
   wúih tâihsêng jîhgêî 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 dî syû dôukêih Sû-Bîk wúih
   Suk-yee listen talk say next-time CL book due Bik will
   tâihsêng bîngo?
   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-Fânh tûhng Sûu-Fông hái heiyûn, kéuihdei ââmâm
    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-Fân góng wah Sûu-Fông hahchî wúih bêî jînggân
    Jing listen Suk-fan talk say Fong next-time will give middle
    wâi jîhgêî seat self
    ‘Jing hears from Suk Fan that Fong will give self the middle seat next
    time.’

c. A-Jìng têng góng wah Sûu-Fông hahchî wúih bêî jînggân wâi
    Jing listen talk say Fong next-time will give middle seat
    bîngo?
    who
    ‘Who did Jing hear Fong will give the middle seat next time?’
d. Jing / Suk Fan

(11) a. A-Yān, Méi-lìhng tūhng Síu-Chīng hái chyūfóng, kéuïhdei king gán
Yan Meiling and Ching at kitchen they discuss PROG
jjú syūn lat tōng ge beikyut
cook sour spicy soup LP secret
‘Yan, Meiling and Ching are in the kitchen. They are discussing the secret
to making hot and sour soup.’
b. A-Yān tēng Méi-lìhng góng wah Síu-Chīng hahchī wúih chīng gao
Yan listen Meiling talk say Ching next-time will ask teach
jīh̄éi
self
‘Yan hears from Meiling that Ching will ask self (for tips) next time.’
c. A-Yān tēng góng wah Síu-Chīng hahchī wúih chīng 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. Jing-Yīh, A-Sāan tūhng Gā-Bīk hái gūngyūn, kéuïhdei hái douh
Jing-yee San and Ga-bik at park they at there
yēhchāan
picnic
‘Jing Yee, San and Ga Bik are at the park. They are having a picnic
there.’
b. Jing-Yīh tēng A-Sāan góng wah Gā-Bīk hahsingkèih yēhchāan wūih
Jing-yee listen San talk say Ga-bik next-week picnic will
ngaaì màaih jīh̄éi
call PRT self
‘Jing Yee hears from San that Ga Bik will invite self to picnic next week.’
c. Jing-Yīh tēng góng wah Gā-Bīk hahsingkèih yēhchāan wūih ngaaì
Jing-yee listen talk say Ga-bik next-week picnic will call
màaih bīngo?
PRT who
‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’
d. Jing Yee / San

(13) a. Lai-Gyūn, A-Fūhng Tūhng Síu-Tōhng hái sōfá douh cháó, kéuïhdei
Lai-gyun Fung and Tong at couch there sit they
tái táí hah dihnsih fan juehk 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-Gyun tēng A-Fūhng góng wah Sīu-Tòhng hahchi wúih ngaai séng jīhɡéi*
   Lai-gyun listen Fung talk say Tong next-time will call awake self
   Lai Gyun hears from Fung that Tong will wake self next time.

c. *Lai-Gyun tēng góng wah Sīu-Tòhng hahchi wúih ngaai séng bīnɡo?*
   Lai-gyun listen talk say Tong next-time will call awake bīnɡo?
   who
   ‘Who did Lai Gyun hear Tong will wake next time?’

d. *Fung / Lai Gyun*

   (14) a. *Sīu-Làhm, A-Lìhng tùhng Sīu-Lei hāi gāisi, kéuihdei mái gán*
   Lum Ling and Lei at wet-market they buy PROG song grocery
   ‘Lum, Ling and Lei are at the wet market. They are getting grocery.’

   b. *Sīu-Làhm tēng A-Lìhng góng wah Sīu-Lei chai dōu jīhɡéi*
   Lum listen Ling talk say Lei step PRT self
   ‘Lum hears from Ling that Lei stepped on self.’

   c. *Sīu-Làhm tēng góng wah Sīu-Lei chai dōu bīnɡo?*
   Lum listen talk say Lei step PRT who
   ‘Who did Lum hear Lei stepped on?’

d. *Ling / Lum*

   (15) a. *Sīu-Fā, A-Jān tùhng Bik-Yúk hāi dihnhei póu, kéuihdei*
   Fa Jan and Bik-yuk at electric-appliance store they
   tāi gān mēihbōlòuh watch PROG microwave
   ‘Fa, Jan and Bik Yuk are at the electric appliance store. They are looking
   at microwaves.

   b. *Sīu-Fā tēng A-Jān góng wah Bik-Yúk jangāan bēi jēung gāo jīk kāat jīhɡéi*
   Fa listen Jan talk say Bik-yuk later give CL nine discount card self
   ‘Fa hears from Jan that Bik Yuk will give self a ten percent discount card
   later.’

   c. *Sīu-Fā tēng góng wah Bik-Yúk jangāan bēi jēung gāo jīk kāat bīnɡo?*
   Fa listen talk say Bik-yuk later give CL nine discount card bīnɡo?
   who
   ‘Who did Fa hear Bik Yuk will give a ten percent discount card later?’
d. Jan / Fa

(16) a. Síu-Yúk, Síu-Fàn tūhng Jing-Héung hái sēungcheung, kéuihdei
Yuk Fan and Jing-heung at mall they
gamāam jong dóu
coincidental collide PRT
‘Yuk, Fan and Jing Heung are at the mall. They just ran into one another.’

b. Síu-Yúk téng Síu-Fàn góng wah Jing-Héung ganpái beihōi jihgēi
Yuk listen Fan talk say Jing-heung lately avoid self
‘Yuk hears from Fan that Jing Hueng has been avoiding self lately.’

c. Síu-Yúk téng góng wah Jing-Héung 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.4 Condition 4: hear/pronoun

(1) a. Wàh-jái, Wáih-Mìhng tūhng Síu-Ji hái cháantēng, kéuihdei āamāam
Wah Wai-ming and Jee at restaurant they just
dóuséh jō hólok
spill EXP coke
‘Wah, Wai Ming and Jee are at the restaurant. They just spilt some Coke.’

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

c. Wàh-jái téng góng wah Síu-Ji jong dóu bīngō?
Way 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-Pàhng hái sējihlăuh, kéuihdei kyutđihng
Ming Ga-loc and Jeen-pang at office they decide
gân hah go sīŋkēih go wuǐyhí go jyūtăiūh
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 téng Gā-Lok góng wah Jín-Pàhng jantūhng kéuīh
Ming listen Ga-loc talk say Jeen-pang agree 3SG
‘Ming hears from Ga Lok that Jeen Pang agrees with s/he.’
c. Síu-Mìng têng góng wah Jín-Pàhng jantùhng bīngo?
Ming listen talk say Jeen-pang agree who
‘Who did Ming hear Jeen Pang agrees with?’
d. Ming / Ga Lok

(3) a. Wáih-jái, A-Bông tûhng A-Jîhng hái ngûnhôhng, kéuìhdei pàih jó
Wai Bong and Jing at bank they queue ASP hóu loi déui
very long line
‘Wai, Bong and Jing are at the bank. They have been queuing for a very
long time.’
b. Wáih-jái têng A-Bông góng wah A-Jîhng jān kéuìh nû-bak
Wai listen Bong talk say Jing owe 3SG five-hundred
mân
money
‘Wai hears from Bong that Jing owes s/he five hundred dollars.’
c. Wáih-jái têng góng wah A-Jîhng jān bîngo nû-bak mân?
Wai listen talk say Jing owe who five-hundred money
‘Who did Wai hear 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 listen Ho talk say Jo always argue 3SG
‘Keung hears from Ho that Jo always argues with s/he.’
c. A-Kèuhng têng góng wah A-Jóu sîhngyat fúānbok bîngo?
Keung listen talk say Jo always argue who
‘Who did Keung hear Jo always argue with?’
d. Keung / Ho

(5) a. A-Mìhng, Kèuhng-jâi tûhng A-Lóhng hái bokmahtgán, kéuìhdei táí
Ming Keung and Long at museum they watch
gán húngbûhng fasehk
PROG dinosaur fossil
‘Ming, Keung and Long are at the museum. They are looking at dinosaur
fossils.’
b. A-Mìhng têng Kèuhng-jái góng wah A-Löhng hahchi dai kêuìh
Mìng listen Keung talk say Long next-time bring 3SG
go science-museum

‘Ming hears from Keung that Long will take s/he to the Science Museum
next time.’

c. A-Mìhng têng góng wah A-Löhng hahchi dai bìngo kêuìh
Mìng listen talk say Long next-time bring who go
föhokgün?
science-museum

‘Who did Ming hear Long will take to the Science Museum next time?’

d. Keung / Ming

(6) a. Dai-Mâhn, Sîu-Ji tühng Chêuhng-jái hái sâandéng, kêuìhdei jéunbeih
Man and Cheung at peak they prepare
hâhn fân lok sâan
walk back downhill

‘Man, Jee and Cheung are at the peak. They are about to walk downhill.’

b. Dai-Mâhn têng Sîu-Ji góng wah Chêuhng-jái wúìh jyu kêuìh
Man listen Jee talk say Cheung will hold PROG 3SG

‘Man hears from Jee that Cheung will hold onto s/he.’

c. Dai-Mâhn têng góng wah Chêuhng-jái wúìh jyu bìngo?
Man listen talk say Cheung will hold PROG who

‘Who did Man hear Cheung will hold onto?’

d. Jee / Man

(7) a. Ji-Hòuh, Gâ-Kèuhng tühng Mâhn-jái hái fosâk, kêuìhdei hah yâì
Jee-ho, Ga-keung and Man at classroom they next one
töhng souoho 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 têng Gâ-Kèuhng góng wah Mâhn-jái hahchi gao kêuìh
Jee-ho listen Ga-keung talk say Man next-time teach 3SG
mèihjìkfân
calculus

‘Jee Ho hears from Ga Keung that Man will teach s/he calculus next time.’

c. Ji-Hòuh têng góng wah Mâhn-jái hahchi gao bìngo mèihjìkfân?
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, kéûihdei 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 kéûih
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 bīngo?
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 tòuhsyūgún, kéûihdei pāih gán
Suk-yee, Yuk-ling and Bik at library they line PROG déui wàhn syū
queue return book
‘Suk Yee, Yuk Ling and Bik are at the library. They are lining up to return some books.’
b. Suk-Yìh tēng Yuk-Lìhng góng wah hahchi dī syū dōukēih Sīu-Bīk
Suk-yee listen Yuk-ling talk say next-time CL book due Bik
wúih tāihséng kéûih
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 dōukēih Sīu-Bīk wúih
Suk-yee listen talk say next-time CL book due Bik will tāihséng bīngo?
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 heigún, kēûihdei 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-Jīng teng Suk-Fān góng wah Sīu-Fōng hahchī wúih bēi jūnggān**  
Jīng listen Suk-fan talk say Fong next-time will give middle wāi kēuih  
seat 3SG  
‘Jing hears from Suk Fan that Fong will give s/he the middle seat next time.’

c. **A-Jīng teng góng wah Sīu-Fōng hahchī wúih bēi jūnggān wāi**  
Jīng listen talk say Fong next-time will give middle seat bīngō?  
who  
‘Who did Jing hear Fong will give the middle seat next time?’

d. Jing / Suk Fan

(11) a. **A-Yān, Méi-līhng tūhng Sīu-Chīng hái chỳfüng, kēuihdei king gán**  
Yān Meiling and Chīng at kitchen they discuss PROG jyu syūn lat tōng ge bēikyut  
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 teng Méi-līhng góng wah Sīu-Chīng hahchī wúih chīng gao**  
Yān listen Meiling talk say Chīng next-time will ask teach kēuih  
3SG  
‘Yan hears from Meiling that Ching will ask s/he (for tips) next time.’

c. **A-Yān teng góng wah Sīu-Chīng hahchī wúih chīng gao bīngō?**  
Yān listen talk say Chīng next-time will ask teach who  
‘Who did Yan hear Ching will ask next time?’

d. Yan / Meiling

(12) a. **Jīng-Yīh, A-Sāan tūhng Gā-Bīk hái gūngyūn, kēuihdei hái douh**  
Jīng-ye San and Ga-bik at park they at there yēhchāan  
picnic  
‘Jing Yee, San and Ga Bik are at the park. They are having a picnic there.’

b. **Jīng-Yīh teng A-Sāan góng wah Gā-Bīk hahsingkèih yēhchāan wūih**  
Jīng-ye listen San talk say Ga-bik next-week picnic will ngāai màaih kēuih  
call PRT 3SG  
‘Jing Yee hears from San that Ga Bik will invite s/he to picnic next week.’
c. Jing-Yih teng gong wah Gā-Bīk hahsingkēih yēhchāan wūih ngaai
   Jing-yee listen talk say Ga-bik next-week picnic will call
   māaīh bīingo?
   PRT who
   ‘Who did Jing Yee hear Ga Bik will invite to picnic next week?’

d. Jing Yee / San

   (13) a. Lai-Gyün, A-Fūhung Tūhng Sīu-Tōhng hái sōfá douh chó, kēuīhdei
      Lai-gyun Fung and Tong at couch there sit they
tái táí hah dihnsih fan jeu hk 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-Gyün teng A-Fūhung góng wah Sīu-Tōhng hahchi wūih ngaai
      Lai-gyun listen Fung talk say Tong next-time will call
      sēng kēuih
      awake 3SG
      Lai Gyun hears from Fung that Tong will wake s/he next time.
   c. Lai-Gyün teng góng wah Sīu-Tōhng hahchi wūih ngaai sēng
      Lai-gyun listen talk say Tong next-time will call awake
      bīingo?
      who
      ‘Who did Lai Gyun hear Tong will wake next time?’
   d. Fung / Lai Gyun

   (14) a. Sīu-Làhm, A-Līhung tūhng Sīu-Lei hái gāisi, kēuīhdei 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. Sīu-Làhm teng A-Līhung góng wah Sīu-Lei chai douh kēuih
      Lum listen Ling talk say Lei step PRT 3SG
      ‘Lum hears from Ling that Lei stepped on s/he.’
   c. Sīu-Làhm teng góng wah Sīu-Lei chai douh bīingo?
      Lum listen talk say Lei step PRT who
      ‘Who did Lum hear Lei stepped on?’
   d. Ling / Lum

   (15) a. Sīu-Fā, A-Jān tūhng Bīk-Yúk hái dihnhei póu, kēuīhdei
      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-Fà tèng A-Jān gòng wah Bik-Yúk jangăan béi jēung gāo
Fa listen Jan talk say Bik-yuk later give CL nine jik kāat kéuīh
discount card 3SG

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

c. Síu-Fā tèng gòng wah Bik-Yúk jangāan béi jēung gāo jik kāat
Fa listen talk say Bik-yuk later give CL nine discount card bīngō?
who

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

d. Jan / Fa

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

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

b. Síu-Yúk tèng Síu-Fān gòng wah Jing-Hēung ganpái beihōi kéuīh
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-Yúk tèng gòng wah Jing-Hēung 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-Lāhm tūhng Gihn-jái hái gēipōu, kéuīhdei dā gān
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 béi Hou-Lāhm tēng Gihn-jái syū jō béi
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 bēi bīngo?*
   Dai-hung say Geen lose EXP to who
   ‘Who did Dai Hung say Geen lost to?’

d. Dai Hung / Ho Lam

(2) a. *Gā-Míng, Gwŏk-Duhng tūhng A-Fāi hái gáfēdim, kēuühdei yám*
   Ga-ming Gwok-dung and Fai at coffee-shop they drink
   gán gáfē
   PROG coffee
   ‘Ga Ming, Gwok Dung and Fai are at the coffee shop. They are having coffee.’

b. *Gā-Míng wah bēi Gwŏk-Duhng tēng A-Fāi hahchi chéng Gā-Míng*
   Ga-ming say give Gwok-dung listen Fai next-time treat Ga-ming
   yám gáfē
   drink coffee
   ‘Ga Ming tells Gwok Dung that Fai will treat Ga Ming a coffee next time.’

c. *Gā-Míng wah A-Fāi hahchi chéng bīngo yám gáfē?*
   Ga-ming say Fai next-time treat who drink coffee
   ‘Who did Ga Ming say Fai will treat a coffee next time?’

d. Gwok Dung / Ga Ming

(3) a. *Gā-Bóu, Ji-Wái tūhng Wàhng-jái hái bīupóu, kēuühdei jíng gán*
   Ga-bo Jee-wai and Wang at watch-shop they fix PROG
   bīu watch
   ‘Ga Bo, Jee Wai and Wang are at the watch shop. They are getting a watch fixed.’

b. *Gā-Bóu wah bēi Ji-Wái tēng Wàhng-jái tīngyāht līng go līhnggín*
   Go-bo say give Jee-wai listen Wang tomorrow bring CL parts
   bēi Ji-Wái to Jee-wai
   ‘Ga Bo tells Jee Wai that Wang will bring some (watch) parts for Jee Wai tomorrow.’

c. *Gā-Bóu wah tīngyāht līng go līhnggín bēi bīngo?*
   Go-bo say tomorrow bring CL parts to who
   ‘Who did Ga Bo say Wang will bring some (watch) parts for tomorrow?’

d. Ga Bo / Jee Wai

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

c. **Gā-Yān wah Ngá-Tīhng hahchi gao bīngo dap bāsī?**
   Ga-yan say Nga-ting next-time teach who take bus
   ‘Who did Ga Yan say Nga Ting will teach how to take the bus next time?’

d. Ga Yan / Ha

(5) a. **Síu-Kèih, A-Mán tūhng Sin-Yīh hái bakfōngšī, kéuihdei táí**
   Kay Man and Sin-yee at department-store they look
   jong tūhng yāt 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 běi A-Mán tēng Sin-Yīh jāan yēhng 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-Yīh jāan yēhng bīngo?**
   Kay say Sin-yee fight win who
   ‘Who did Kay say Sin Yee wins over?’

d. Man / Kay

(6) a. **Gā-Mīhng, Jí-Gīn tūhng A-Hòuh hái bīhnleihdim, kéuihdei sihk**
   Ga-ming Jee-geen and Ho at convenience-store they eat
   gàn yūhdán
   PROG fish-ball
   ‘Ga Ming, Jee Geen and Ho are at the convenience store. They are eating fish balls.’

b. **Gā-Mīhng tēng Jí-Gīn gōng wa A-Hòuh hahchi dūk yūhdán**
   Ga-ming listen Jee-geen talk say Ho next-time poke fish-ball
   joï yeuk Gā-Mīhng
   again meet Ga-ming
   ‘Ga Ming hears from Jee Geen that Ho will meet Ga Ming for fish balls again next time.’

c. **Gā-Mīhng tēng gōng wa A-Hòuh hahchi dūk yūhdán joï yeuk**
   Ga-ming listen Jtalk say Ho next-time poke fish-ball again meet bīngo?
   who
'Who did Ga Ming hear Ho will meet for fish balls again next time?'

d. Ga Ming / Jee Geen

(7)  
a. Ji-Mìhng, Hou-Yìhn tùhng Lóng-jài hái syūdim, kéuihdei táí gán  
Jee-ming Ho-yeen and Long at bookstore they look PROG  
syū  
‘Jee Ming, Ho Yeen and Long are at the book store. They are looking at  
books.’

b. Ji-Mìhng t¯eng Hou-Yìhn góng wa Lóng-jài hahchi mái maanwá  
Jee-ming listen Ho-yeen talk say Long next-time buy comics  
wúih gán 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 t¯eng góng wa Lóng-jài hahchi mái maanwá wúih gán  
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 tùhng Tihsng-Fān hái fatyihngngūk, kéuihdei jín gán  
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 t¯eng Gā-Mán góng wa Tihsng-Fān hahchi jyun fatyihng  
Sin listen Ga-man talk say Ting-fan next-time change hairstyle  
wúih man há Síu-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 t¯eng góng wa Tihsng-Fān hahchi jyun fatyihng wúih man  
Sin listen talk say Ting-fan next-time change hairstyle will ask  
há bīngo yigin? PRT who opinion  
‘Who did Sin hear Ting Fan will ask (for opinion) before changing hairstyle  
next time?’

d. Ga Man / Sin
a. Pui-Sàn, Yún-Tìhng tāng Jān-Lēih hái méiyòhngyún, kěuihdei sāo
Pui-san Yun-ting and Jan-lei are 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-Sàn tĕng Yún-Tìhng gòng wa Jān-Lēih gán sīk gó jān
Pui-san listen Yun-ting talk say Jan-lei choose colour that time
mahn Yún-Tìhng dīn táí
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-Sàn tĕng gòng wa Jān-Lēih gán sīk gó jān mān bǐngó
Pui-san listen talk say Jan-lei choose colour that time ask who
dīn 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-Yin, Wing-Yān tūhng Gā-Yīh hái chánsó, kěuihdei beng jō dáng
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-Yin tĕng Wing-Yān gòng wa Gā-Yīh chyun yīm 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-Yin tĕng gòng wa Gā-Yīh chyun yīm bēi bǐngó?
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 tūhng Jūng-jái hái haktēng, kěuihdei tāí
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 sêng  dī  go dinsi  bēi
Wai-man  ask  Wing-hong  adjust  big  volume  a-bit  CL  television  to
Jühng-jái
Jung
‘Wai man asks Wing Hong to turn up the volume of the television for
Jung.’

c. Wai-Màhn  giu bīngo  gao  dai sêng  dī  go dinsi?
Wai-man  ask  who  adjust  big  volume  a-bit  CL  television
‘Who did Wai Man ask to turn up the volume of the television?’

d. Wai Man / Wing Hong

(12) a. Ji-Màhn, A-Fāi  tùhng  A-Jóu  hái  taihūnggūn,  kéuihdei  kēi  jó  hái
Jee-man  Fai  and  Jo  at  space-museum  they  stand  EXP  at
mūnhháo
entrance
‘Jee Man, Fai and Jo are at the space museum. They are standing at the
entrance.’

b. Ji-Màhn  giu A-Fāi  mái  fēi  bēi  A-Jóu
Jee-man  ask  Fai  buy  ticket  to  Jo
‘Jee Man asks Fai to buy tickets for Jo.’

c. Ji-Màhn  giu bīngo  mái  fēi?
Jee-man  ask  Fai  buy  ticket
‘Who did Jee Man ask to buy tickets?’

(13) a. Gā-Lok, Ji-Hōng  tùhng  Dai-Màhn  hái  ginsānsāk,  kéuihdei  páo  gán
Ga-lok  Jee-hong  and  Man  at  gym  they  run  PROG
bou
step
‘Ga Lok, Jee Hong and Man are at the gym. They are running.’

b. Gā-Lok  giu  Ji-Hōng  ló  go  ngālíhng  bēi  Dai-Màhn
Ga-lok  ask  Jee-hong  grab  CL  dumbbell  to  Man
‘Ga Lok asks Jee Hong to grab a dumbbell for Man.’

c. Gā-Lok  giu bīngo  ló  go  ngālíhng?
Ga-lok  ask  who  grab  CL  dumbbell
‘Who did Ga Lok ask to grab a dumbbell?’

(14) a. Cheui-Sān, Gā-Lai  tùhng  Yuk-Līhng  hái  chūkāpsíchēuhng,  kéuihdei
Chui-san  Ga-lai  and  Yuk-ling  at  supermarket  they
táí  gán  hōisīn
look  PROG  seafood
‘Chui San, Ga Lai and Yuk Ling are at the supermarket. They are looking at seafood.’

b. Cheuī-Sān giu Gä-Lai gán chòihlíu jíng hōisīn cháofan bēi 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. Cheuī-Sān giu bīngo gán chòihlíu jíng hōisīn 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. Sīu-Sī, Méi-Hàh tūhng Fān-múi hái sēungchêuhng, kéuihdei hāhng Si Mei-ha and Fan at mall they walk gān gāi PROG street
‘Si, Mei Ha and Fan are at the mall. They are shopping.’

b. Sīu-Sī giu Méi-Hàh hàhn mān dī dāng màih Fān-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. Sīu-Sī giu bīngo hàhn mān dī? Si ask who walk slow a-bit
‘Who did Si ask to walk slower?’

d. Mei Ha / Si

(16) a. Gā-Yīh, Suhk-Mán tūhng Sīu-Jān hái ngūkkēi, kéuihdei jéunbeih chēut Ga-yee Suk-man and Jan at home they prepare out mùhnháo entrance
‘Ga Yee, Suk Man and Jan are home. They are about to head out.’

b. Gā-Yīh giu Suhk-Mán dāi dō gin lāo bēi Sīu-Jān Ga-yee ask Suk-man bring more CL jacket to Jan
‘Ga Yee asks Suk Man to bring an extra jacket for Jan.’

c. Gā-Yīh giu bīngo dāi dō gin lāo? Ga-yee ask who bring more CL jacket
‘Who did Ga Yee ask to bring an extra jacket?’

d. Suk Man / Ga Yee