

MA Major Research Paper

Syntactic and Discourse-Pragmatic Properties of Cantonese Question Particles *maa3* and *me1* in
Canadian Heritage Speakers

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Abstract

This study investigated syntactic and discourse-pragmatic features of Sentence Final Particles *maa3* and *me1* in Cantonese heritage grammars. Studies show that syntax is easier for a Heritage Speaker (HS) to acquire than properties intersecting with discursive features, and that Age of Onset (AoO) of the dominant Societal Language (SL) has influence on nativelike proficiency. We predicted that, while HSs may exhibit some minor variations according to AoO (i.e.: earlier SL onset will lead to slightly reduced target-like performance), HS usage of narrow syntax should pattern with native speakers overall, while discursive properties will be less nativelike. Participants were given an Acceptability Judgment Task (AJT) to investigate syntactic knowledge, a forced choice Picture Selection Task (PST) to investigate knowledge of discourse properties, and a Language Background Questionnaire (LBQ) to investigate non-linguistic factors of influence and confirm AoO data and speaker type. Results from Canadian Heritage speakers were compared to baseline Native Cantonese speakers. The experiment confirmed that syntactic constraints were generally target-like among HS grammars, while discursive features were less nativelike.

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1. Introduction

Cantonese Sentence-Final Particles (SFP) are poorly understood due to their various syntactic and discourse-pragmatic properties. While studies and theories have been previously published on the subject, there is no consensus regarding the grammatical features of SFPs. A few studies have been able to document early monolingual development of SFPs (Wong, 2003; Wong, 2023) while some others have attempted to propose theoretical frameworks in syntax, semantics, or both (see Sybesma & Li, 2007; Wakefield, 2020; Wong, 2009). Lesser known is Heritage Speaker (HS) variation in the usage of these morphemes. In Cantonese linguistics alone, few studies target HS usage. The objective of this paper is to utilize available theoretical knowledge regarding Cantonese SFP grammar and Heritage language acquisition to collect and analyze heritage grammar data of interrogative SFPs, specifically regarding their syntactic constraints and discourse-pragmatic feature acquisition.

This study is particularly interested in the differences between the acquisition of narrow syntax versus the acquisition of discursive features in HS. Research has shown that narrow syntax is far easier for HS to acquire than discourse-pragmatic features (Rodríguez-Ordóñez & Sainzmaza-Lecanda, 2021; Yan, 2025). In Cantonese, SFPs 嗎 *maa3* and 咩 *me1* are both particles that have the ability to change Declarative sentences into Interrogative polarity questions when added sentence-finally (Matthews & Yip, 1994), and neither particle is grammatical after an interrogative sentence. However, these two SFPs differ in discursive features. The SFP *me1* has negative biasing properties in modern Cantonese which *maa3* does not. It is typically only used at the end of a proposition (*p*) where the speaker has a negative interpretation of *p*. Since this is a discursive feature, HSs may successfully acquire the syntactic

constraints of both *maa3* and *me1*, but they may be less successful in judging felicitous and infelicitous uses of the particle *me1*.

In order to investigate this claim, our study recruited both heritage and native Cantonese speaking participants to complete three tasks. The first task aims to investigate syntactic constraints of *maa3* and *me1* present in HS. A second task will investigate whether HS have acquired discursive features of *me1* and correctly interpret them differently than *maa3*. The last task will seek to qualify any individual differences between and among speaker groups by using responses to a background questionnaire.

2. Literature Review

2.1 Syntactic Environments of Cantonese Sentence Final Particles

The target of this study, the Cantonese Question Particle, is a type of Sentence Final Particle (SFP). SFPs have both syntactic and discursive properties, and both the syntactic and discursive properties are not the same for all SFPs. This myriad combination makes them difficult to understand and define. To better grasp the different syntactic theories that have focused on capturing these properties, we shall explore the different environments in which they exist. We include other particles than *maa3* and *me1* to better appreciate the complex task of learning the syntactic and discourse constraints of Cantonese SFPs.

2.1.1. Sentence-Final Particle Environments

Different SFPs are constrained to different environments and may suggest some type of clause-typing feature. Textbooks and SFP studies typically only show grammatical uses of SFPs (e.g.: Matthews and Yip, 1994) and not ungrammatical structures that would explicitly demonstrate their constraints. These constraints are addressed in the current section. As shown in (1), SFPs are not necessary to render a sentence as grammatical. Example (1) shows two base

sentences with an optional SFP (*aa3*) that does not alter the semantic interpretation of the utterance:

(1) Declarative and Interrogative examples

(a) Keoi5 jiu3 ceot1gaai1 (*aa3*) (Declarative)

3P must exit.street AA

‘S/he must go out’

(b) Keoi5 dim2gaai2 jiu3 ceot1gaai1 (*aa3*)? (Interrogative)

3P why must exit.street AA

‘Why must s/he go out?’

Both the Declarative and Interrogative sentences can be modified with SFPs, but are not required.

The primary interest of this paper are SFPs which have the ability to add a [+Q] feature when added to Declarative sentences, turning them into an interrogative sentence (see (2a)), and which are ungrammatical with *wh*-phrases (see 2b)):

(2) Compatible with Declarative only, change to [+Q]

(a) Keoi5 jiu3 ceot1gaai1 **me1**?

3P must exit.street SFP.me1

‘Must s/he go out?’

(b) Keoi5 dim2gaai2 jiu3 ceot1gaai1 (***me1**)?

3P why must exit.street SFP.me1

‘Why must s/he go out?’

Let us call these types of SFPs Question Particles (QP). The sentences in (2a) and (2b) demonstrate the addition of the QP *me1* to the Declarative and Interrogative sentences from (1a)

and (1b), respectively. The addition of *meI* in (2a) is grammatical after a Declarative and results in a *Yes-No* question. It is ungrammatical after an Interrogative, and the resulting polarity question conflicts with the *wh*-phrase of (2b). Some exceptions exist for certain QPs, but this generalization is true of most [+Q] SFPs, as will be discussed in detail in Sections 2.1.2 and 2.13.

Next are SFPs that have been described in both Declarative and Interrogative environments, as demonstrated in (3) below:

(3) Compatible with either Declarative or Interrogative

(a) Keoi5 jiu3 ceot1gaai1 laa3

3P must exit.street LAA

‘He/she must go out (?now)’

(b) Keoi5 dim2gaai2 jiu3 ceot1gaai1 laa3

3P why must exit.street LAA

‘Why does he/she have to go out (?now)?’

These SFPs have no influence on [+Q] features and may follow either type of clause. Their primary function is to add discourse-pragmatic features. For example, *laa3* in (3) can mark a change or realization of state (Sybesma & Li, 2007). This feature changes its interpretation, adding information akin to “it is now the case that”. (3a) and (3b) include the word ‘now’ to reflect this, but the SFP itself does not have any semantic meaning of ‘now’. On the other hand, the discourse-pragmatic features of *meI* in example (2) have no similarity to *laa3* since the discursive features of *meI* primarily show negative biasing interpretation of *p*. This latter feature will be discussed in more detail in Section 2.2, as it is one of the primary SFPs under investigation. In short, SFPs are not simply syntactic markers; they can have a wide variation of discourse-pragmatic properties that differ between particles.

Finally, there are also SFPs that have only been described in Declarative environments and never in Interrogative environments, as seen in (4):

(4) Compatible with Declarative only, no change in [Q] feature

(a) Keoi5 jiu3 ceot1gaai1 lo1

3P must exit.street LO

‘He/she must go out’

(b) *Keoi5 dim2gaai2 jiu3 ceot1gaai1 lo1

3P why must exit.street LO

*‘Why does he/she have to go out?’

In the case of *lo1*, Sybesma and Li (2007) also describe it to be a “realization of state” as they did with *laa3*, but also add the labels “noteworthiness, evasive”. Hara and McCready (2017) propose that the particle “indicates expectedness of the propositional content or the current discourse move”. These differing interpretations of *lo1* show that discourse-pragmatic features of SFPs are not only highly varied, but also divergently interpreted, making them further elusive in their acquisition.

In terms of heritage acquisition, it may be relevant to understand how the syntax of QPs is mapped and organized in heritage and native grammars and whether their organization differs in either groups. Despite the above examples demonstrating clausal restrictions, we cannot definitively say that all SFPs have clause-typing functions, as conflicting theory exists. Some have argued that SFPs have clause-typing ability (Sybesma and Li, 2007) while others have refuted this (Wakefield, 2020). If SFPs do have clause-typing ability, then [Q] features should be structurally simple to acquire. Especially in heritage grammars that are vulnerable to influence from the dominant societal language, the mapping of a [+/-Q] feature to all SFPs would be fairly

straightforward as both HS and CN would interpret QPs as interrogatives in a straightforward manner. However, if they are not true clause typers—as Wakefield would suggest—and they are just SFPs with complex discourse-pragmatic features, then their properties would be more difficult to acquire. Theories on these constraints will be explored in detail in section 2.1.3. Since we are interested in the interaction of QPs and interrogative sentences, let us first investigate how interrogatives are formed.

2.1.2. *Question Formation*

In Cantonese, there are four strategies used for question formation. Ranging from the least to most structurally complex are intonation questions, particle questions, *wh*-phrases, and A-not-A structures. All of these, except *wh*-phrases and some particle questions, will result in *Yes-No* type polarity questions.

Intonation questions are formed when the pitch at the end of a phrase or sentence is raised sentence-finally, as shown with the contrast between the declarative sentence in (5a) and the question in (5b):

- (5) (a) Nei5 sik6 ngau4juk6
 2P eat cow.meat
 ‘You eat beef’ / ‘You’re having beef’
- (b) Nei5 sik6 ngau4juk6/¹
 2P eat cow.meat
 ‘You eat beef?’ / ‘Are you having beef?’

This strategy is similar to English rising intonation questions, with the additional requirement to produce a lexical tone of the appropriate pitch height before rising. This paper will not be exploring the usage of intonation questions. However, due to the existence of rising tones in

¹ The forward slash represents a rising intonation after the established tone of the morpheme

Cantonese, this detail must be considered when designing any investigation regarding interrogatives and creating elicitation sentences that may potentially have rising tone morphemes sentence-finally.

Particle questions occur when a QP is added sentence-finally to form an interrogative sentence. Some literature has made the generalization that QPs are added to the end of Declarative sentences to form an Interrogative (Matthews and Yip, 1994; Sybesma & Li, 2007), but this is not always the case. Exceptions of this rule exist, such as with the particles *ge2* and *ne1* (more on this in section 2.1.3.). To narrow our focus for this study, we are focusing on particles *maa3* and *me1*, for which typical use is described with the aforementioned generalization: Declarative + QP > Interrogative.

Cantonese *wh*-phrases are compound words created by various morpheme combinations. For example, complex *wh*-words, like *which* queries, are formed by the particle *bin1* with an appropriate classifier (i.e.: *bin1* + classifier + noun):

(6) Nei5 jiu3 bin1-go3 (ping4gwo2)?

2SG want which-CL (apple)?

‘Which (apple) do you want?’

(7) Nei5 jiu3 bin1-faa13 (daan6gou1)?

2SG want which-slice² (cake)

‘Which slice (of cake) do you want?’

² Morphemes for Chinese classifiers can have arbitrary categorization or specific semantic meaning, such as with certain container or shape-type nouns. Some lexical words that describe shape can take the syntactic position of the classifier, as with *faai3* here. Another example would be the word ‘cup’ *bui1*, where *bui1* can be the noun of the DP *jat1 zek3 bui1* (one CL box) but also be a classifier and measure word in a different DP, *jat1 bui1 seoi2* (one cup water). The latter can be used in other classifier-specific functions like as a complement of the demonstrative (e.g.: *ni1 bui1 seoi2* (this cup water) ‘this cup of water’) or in a possessive structure (e.g.: *ngo5 bui1 seoi2* (1sg cup water) ‘my cup of water’).

(6) and (7) demonstrate the Cantonese use of *wh in situ* for *wh* questions. Since a classifier is required following *bin1* and hundreds of Cantonese classifiers exist, *bin1* type interrogatives vary greatly based on their noun complements.

Lastly, Cantonese polarity questions can also be formed using the A-not-A structure. This strategy uses a duplication rule on the first syllable/morpheme of the respective adjective or verb phrase to create Yes-No questions:

(8) Nei5 sik6 m4 sik6 faan6?

2SG eat NEG eat rice

‘Are you eating (rice)?’

(9) Ngo5 faai3 min6 hung4 m4 hung4?

1SG CL face red NEG red?

‘Is my face red?’

(10) Nei5 zung1 m4 zung1ji3 daan6taat1?

2SG like NEG like egg.tart

‘Do you like egg tart?’

(11) Nei5 ting1jat6 faan1 m4 faan1gung1?

2SG tomorrow return NEG return.work

‘Are you going to work tomorrow?’

(8) demonstrates the structure with verbs, (9) with adjectives, (10) with a 2-character verb, and (11) with a verb-object compound word. To answer A-not-A questions, one should only use the respective adjective or verb phrase from which the question is structured. As a result, there is no generic word for *yes* or *no*. This answer strategy is also typical of all Yes-No type questions, including those formed by intonation and particle questions. Interestingly, while responses to

A-not-A questions are restricted to their respective phrases, Hara (2024) has found that native speakers will sometimes allow generic *yes/no* answers using phrases like ‘You are right’ when answering certain particle questions. Though these particle questions are also polarity questions, Hara’s finding suggests that they do not function equally to A-not-A questions. If we are to find syntactic discrepancies between native and heritage grammars in the interpretation of A-not-A questions with QPs, this difference may be relevant to explore.

2.1.3. *QP Syntactic Constraints*

Though SFPs with a [+Q] feature vary greatly in syntactic constraints, for simplicity we shall henceforth define any such SFP as a QP. At least 6 QPs have been identified in the literature: *maa3*, *me1*, *aa4*, *ge2*, *ho2*, *ne1*. As mentioned in 2.1.1, different QPs exhibit different syntactic constraints. Although most QPs can be added to Declaratives sentence-finally to turn the sentence into an Interrogative (see Matthews & Yip, 1994; Sybesma & Li, 2007), some are also grammatical after certain Interrogative sentences. This complication makes the acquisition of SFPs less straightforward, especially for heritage speakers who have to acquire the language with a reduced quality and quantity of input.

Both *maa3* and *me1* can be used after Declaratives to form an Interrogative sentence. They are also both derived from the negation marker *m4* which is evident from their *m-* initial (Sybesma & Li, 2007; Yiu, 2021). Since they are related to the negator *m4*, studies have also related them to A-not-A structure. For example, Yiu notes that in responses to A-not-A questions, *m4* is a bound structure and cannot be used without a verb, suggesting this property as “the driving force behind the fusion of *m4* and *ni1*”, *m4+ni1* being the predecessor of *me1*.

The QP *maa3* is considered to be a loan word from Mandarin (Sybesma & Li, 2007; Wakefield, 2020). Evidence of *maa3* use in Cantonese dates at least as far back as the 19th

century, with significant increased usage through the 20th century (Yiu, 2021). However, Cantonese and Mandarin speakers have demonstrated some divergent interpretations of the particle. In a study on L2/L3-Mandarin speakers (Guo & Yuan, 2024), Cantonese-speaking participants (both high and low proficiency Mandarin) rated A-not-A + *ma*³ sentences as grammatical at significantly higher rates than non-Cantonese speaking groups, including those of the L1-English L2-Mandarin group. These results have been interpreted as transfer from Cantonese through the non-interrogative and phonetically similar SFP *maa5*. Neither Cantonese nor Mandarin allow double Q-marking, so Cantonese speakers are expected to interpret A-not-A + *ma* as ungrammatical. However, Guo and Yuan suggest that the similar sounds and sentence-final function of *maa3* and *maa5* could lead to erroneous mapping of a [-Q] feature from *maa5* to Mandarin *ma*, thereby allowing the ungrammatical sentence. Alternatively, the use of *me1* following an Interrogative clause in any context has not been attested (albeit, there is no Mandarin equivalent of *me1*).

The QP *ge2* is also allowed to follow Interrogatives, but its use is restricted to the interrogative *why*, as illustrated in (12):

(12) Keoi5 (dim2gaai2) m4 sik6 ge2?

3SG (why) NEG eat GE

‘Why isn’t s/he eating?’

However, *ge2* is ungrammatical after other *wh*-phrases (Fung, 2000). Sybesma and Li (2007) do not consider *ge2* to be a true interrogative marker and propose that it is only an “externalization of the surprise subsequently [giving] rise to the apparent need for an explanation”. They note that the SFP *ge2* surfaces as two forms: one declarative and one interrogative. While tone 2 indicates a high rising tone, the interrogative *ge2* has a more abrupt pitch rise while the declarative has a

³ Both Mandarin *ma* and Cantonese *maa3* are equivalent and represented by the same Chinese character 嗎

“prolonged” rise (p. 1474). As a result, the authors consolidate these differences by demoting *ge2* from a particle with a [+Q] feature to merely an expression of strong surprise. This theory bears similarity to Wakefield’s (2020), that QPs are actually not Interrogative but operate more similarly to intonation questions, for which a question can be formed without a relevant [Q] feature checked by a specific morpheme.

The next QP *aa4* can also be found following interrogative structures like in (13), but the preceding clause is actually quotative, making the question rhetorical in nature.

(13) Sentences with QP *aa4*

(a) Nei5 zau2 aa4?

2SG leave AA4

‘You’re leaving?’

(b) Ngo5 sik6 m4 sik6 aa4?

1SG eat NEG eat AA4

‘Am I eating?’ (Are you asking if I’m eating?)

(c) Keoi5 dim2gai2 faan1gung1 aa4?

3SG why return.work AA4

‘Why is he going to work?’ (Are you asking why he’s going to work?)

The QP *aa4* sentence-finally also results in a Yes-No Interrogative question. (13a) shows how *aa4* is used in the general rule of Declarative + QP > Interrogative and (13b) shows it being used after an A-not-A structure. However, it is also grammatical after *wh*-phrases as in (13c) and can only be interpreted as a polarity question. Though it can appear after questions, the echo in the sentence is not interrogative. Therefore, the examples in (13) actually only show one Interrogative marker, which is on *aa4*.

Lastly are the particles *ho2* and *ne1*, which both have syntactic properties unique from the aforementioned SFPs. Although the particle *ho2* has been described as a QP with Declarative-to-Interrogative transformational ability (Hara, 2024; Wakefield, 2020), it has also been described as a tag for “adhortative-reminding” (Sybesma & Li, 2007), similar to the use of ‘okay?’ or ‘isn’t that right?’ in English.

In the literature, *ne1* is also classified as a QP (Wakefield, 2020), but it differs in that it can be used with all Interrogatives and, additionally, does not result in a polarity question. To illustrate, (14a) demonstrates *ne1* after an A-not-A sentence and (14b) after a *wh*-question, where *ne1* does not affect the interpretation of the question and is optional:

(14) Declarative + *ne1*

(a) Nei5 sik6 m4 sik6faan6 (ne1)?

2SG eat NEG eat.rice NE

‘Are you eating?’

(b) Nei5 dim2gaai2 sik6faan6 ne1?

2SG why eat.rice NE

‘Why are you eating?’

(c) Nei5 sik6faan6 ne1?

2SG eat.rice NE1

‘*Are you eating?’ / ‘What if you eat?’

(d) Keoi5 m4 lai4 ne1?

3SG NEG come NE1

‘What if he doesn’t come?’ (Sybesma & Li, 2007)

(e) Nei5 ne1?

You NE1

‘How about you?’

While *ne1* is optional after interrogatives (14a-b) and ungrammatical after declaratives as a polarity question as demonstrated in (14c), its addition allows the sentence to be interpreted as a ‘what if’ question even though *ne1* itself does not semantically mean ‘what if’. Examples (14d) and (14e) demonstrate the interpretation of *ne1* to extend to *what if* and *what/how about* propositions (Sybesma & Li, 2007) when following a declarative or simple phrase, respectively.

As we can see, QPs pose many theoretical challenges towards a general analysis of the syntax of QPs. According to Sybesma and Li (2007) *m-* initial SFPs (i.e.: *maa3*, *me1*) and *aa4* are clause typers, but they reject *ge2* and *ne1* from this group. On the other hand, Wakefield postulates that SFPs have no clause-typing ability at all since [+Q] features do not necessarily co-occur with [+Interrogative] features. Specifically, he suggests that the [+Q] feature does not type the clause and that it is the job of a separate [+Interrogative] feature to do so. Using the examples of *aa4*, *me1*, *ho2*, *ne1* and *ge2* (excluding *maa3* due to its Mandarin origin), he highlights that since some [+Q] particles can be compatible with interrogatives, [+Q] and [+Interrogative] are not used in complementary distribution for Cantonese QPs.

All in all, QPs (as in SFPs with [+Q] features) are syntactically diverse (see Table 1). They have varying grammatical constraints and accept different syntactic environments. Though all can be grammatical after Declaratives, they are not all ungrammatical after Interrogatives. They also do not always result in polarity questions. Because they do not all behave the same, the task of acquiring these constraints in heritage grammars is made all the more difficult. These variations make comparison difficult if we are to compare syntactic and discourse-pragmatic

acquisition. Since QPs *maa3* and *me1* share the same syntactic constraints, they have been chosen as our focus of this study as they minimally contrast in discursive traits.

Table 1

Summary of QP syntactic constraints

QP	<i>Grammatical after Declarative</i>	<i>Question type when after Declarative</i>	<i>Grammatical after A-not-A</i>	<i>Grammatical after wh-phrase</i>
<i>maa3</i>	Yes	Yes-no	No	No
<i>me1</i>	Yes	Yes-no	No	No
<i>ge2</i>	Yes	Why	No	Yes - only <i>why</i> questions
<i>aa4</i>	Yes	Yes-no	Yes - results in echo question	Yes - results in echo question
<i>ho2</i>	Yes	Yes-no	No	No
<i>ne1</i>	Yes	What if; what/how about	Yes	Yes

2.2 Semantics and Discourse-Pragmatic Features of QPs *me1* and *maa3*

Different SFPs have different semantic or pragmatic properties. Since there are too many possible interpretations of discourse-pragmatic features across all QPs that may be irrelevant to this paper's goals, we will limit the literature to the two QPs that will be investigated in our experiment: 嗎 *maa3* and 咩 *me1*. In Cantonese learning materials and textbooks (e.g.: Matthews & Yip, 1994), *me1* is explained as a negative-biasing QP while *maa3* has been described as an uncommon formal particle with some common lexicalized uses.

The negative biasing property of *me1* has been investigated in a study on Cantonese-English in online chat (Wong, 2009). The corpus acquired for this investigation features many sentences that are primarily English but end with a Cantonese SFP. An example

that illustrates the discursive use of *meI* can be illustrated using the text message “u don’t have any midterm meh?”, translated as ‘You don’t have any midterm exams?’. The Cantonese-English hybrid sentence, which adds *meI* sentence-finally, is interpreted in English as a “doubtful” proposition. The lack of Subject-Auxiliary Inversion in combination with the question mark in the English can mark that the speaker is doubtful of the situation and that “you” does indeed have midterm exams. Therefore, the addition of *meI* in the text message is meant to reflect the discourse-pragmatic context where proposition *p* (“u don’t have any midterm”) is considered dubious by the texter.

This is in line with the idea that QPs create propositions that require confirmation, as in a query (Wakefield, 2020), and that *meI* adds a negative assumption from the speaker (Wong, 2009). Variations of these “query” properties could be categorized within a semantic network. In Wong’s system, *meI* is a query with the properties of **[assumptive]** and **[ask]**, where the speaker holds an assumption of the proposition and seeks information in the form of an ask. The establishment of this system is used to explain how an assumption, such as the assumption that the speaker is doubtful of *p* and seeks further information, can be expressed using *meI* in the Cantonese-English hybrid sentence.

Historically, *meI* has been described both as a discourse marker and a question marker, and was once used in both biased and unbiased contexts (Yiu, 2021). Yiu shows unbiased usage of *meI* from Cantonese corpus dating until the early 20th century, but notes only biased usage is evident in modern Cantonese. She suggests that *meI* is a contraction involving a negator, namely *m4* with the obsolete SFP *niI*. Historically, the combined *m4 ni* appeared sentence-finally to show a negative tone from the speaker, and both *m4 niI* and *meI* existed sentence-finally through the 19th to early 20th century. However, Yiu notes an inverse correlation in usage

frequency across this same time period, namely a significant decrease of *m4 nil* and significant increase of *meI*, with the former becoming obsolete in modern Cantonese. Along with this development, *meI* was increasingly used alongside negative sentences (sentences with negators) from 1900-1940, perhaps lending a negative tone to sentences. While the co-occurrence of *meI* and negative sentences decreased in the late-20th century, the unbiased usage fell out of favour and the negative bias accompanying *meI* remains. This negative interpretation of *p* is compatible with Wong's theory of *meI* as having an assumptive semantic feature.

Additionally, this modern negative biasing is confirmed in a recent perception study by Hara (2024). In this study, native speakers performed a forced-choice task and naturalness rating task on QPs *meI*, *ho2*, and *aa4*, and A-not-A structures without SFPs. In the forced-choice task, participants were given a context and asked to choose one of four sentences, reflecting each individual target, that suited the context best. QP *meI* was chosen as most appropriate in negative biasing contexts significantly more than the other structures. In the naturalness rating task, QPs *ho2*, *aa4*, and A-not-A sentences were all found comparably natural in all 3 contexts (Positive, Negative, Neutral). Contrastively, *meI* was consistently rated the most natural in negative biasing contexts, as well as consistently less natural in positive and neutral contexts⁴. These data confirm textbook assertions of *meI* having negative-biasing discourse-pragmatic features in modern usages of Cantonese.

As for QP *maa3*, Cantonese corpora do not show evidence that this particle is either positive or negative biasing. Yiu's (2021) study on historical *meI* mentions *maa3* use in the 19th and 20th century, and shows only unbiased usages of *maa3* in Cantonese. She mentions possible negative biasing only in its Mandarin counterpart, which should not be conflated with the

⁴ Data for the other targets in this study: QP *ho2* had comparable Neutral rating with A-not-A and *aa4* with a somewhat low Negative naturalness rating; QP *aa4* was rated natural in all 3 contexts with a slightly higher rating in Negative contexts; and A-not-A had the highest Neutral naturalness rating (Hara, 2024).

Cantonese interpretation. In fact, the discourse-pragmatic features of modern Cantonese *maa3* may have more to do with register of formality rather than biasing. Matthews and Yip's (1994) oft-cited textbook claims that *maa3* is infrequent and unnatural in most situations, save for more formal contexts and lexicalized phrases like *Nei5 hou2 maa3* 'How are you?'. Wakefield (2020) believes that these claims prove *maa3* "is not a neutral clause-typing marker; otherwise, its use would not be context-based". Therefore, though *maa3* could be unnatural in certain informal contexts or in everyday use, our experiment is only concerned with positive-negative biasing features, which Cantonese *maa3* is not attested to have.

2.3 Heritage Language (HL) Acquisition

Heritage Speakers (HS) are described as individuals whose home language differs from a dominant Societal Language (SL) that is introduced in early childhood, usually before school age and before adultlike proficiency is achieved (Montrul, 2008). As a result, a reduction in use of the HL often leads to incomplete or interrupted acquisition. In the case of Cantonese SFP acquisition, speakers must acquire the various syntactic and discourse-pragmatic features previously discussed to use them at a nativelike proficiency. For QPs *maa3* and *me1*, both have similar syntactic constraints with a simple rule (i.e.: use after Declaratives to form an Interrogative) and differ in discourse-pragmatic features, where *me1* has negative biasing and *maa3* does not. Features that interact at the syntax-semantic interface (like *me1* negative biasing) may require more exposure and be more difficult to acquire, whereas narrow syntax (like the Declarative + QP > Interrogative rule) is more simple to acquire.

Current literature specific to HL Cantonese includes research on phonetic variation (Tse, 2016) and grammatical development (Liang & Mai, 2025). Other studies on general English-Cantonese bilingual development include syntactic transfer (Yip & Matthews, 2009),

morphosyntactic usage (Nagy & Lo, 2019), and effects of L1-Cantonese on L2-English development (Li et al, 2021). Due to a poverty of Cantonese-specific inquiry on HL syntactic development, it is necessary to investigate cross-linguistic examples of bilingual and heritage language development and discourse marker development.

2.3.1 Heritage languages and Incomplete acquisition

A HS is characterized as an individual with an L1 home language that differs from the dominant language of their environment (Montrul, 2008). They can either be simultaneous bilinguals (one who has learned the HL and SL at the same time) or sequential bilinguals (one who is essentially monolingual until school age exposure to the SL). Many studies have found that the key variable for proficiency in the HS is the Age of Onset (AoO) of the societal language, where early AoO has shown detrimental effects on future proficiency of the HL. This effect could result from either an individual's interrupted development of their HL, from transfer effects of the SL, or simply attrition of the HL after significant SL usage over time. Since HSs are often only studied by the time they are adults, it is difficult to conclude whether differences between HS and monolingual speakers is a result of so-called "incomplete" acquisition, transfer, or attrition.

Regardless, HSs produce their HL in a variety of ways that diverge from the monolingual input they received in their childhood. Most commonly, their grammars may demonstrate a simplification of the HL's linguistic features. For example, for languages with gender assignment, superset L1s with 3-way distinction of gender may end up with a 2-way distinction in HS grammar, where unmarked forms (such as neuter) are assigned marked forms (such as feminine) (Rodríguez-Ordóñez & Sainzmaza-Lecanda, 2021). Generalizations like this are very common in heritage grammars.

Furthermore, syntactic phenomena are typically acquired earlier than discourse properties. Thus, infelicitous variations may not always result in incomprehensibility, as HSs have already acquired syntax before the introduction of a SL. Semantic and discourse-pragmatic features are, on the other hand, usually acquired later in both monolingual and bilingual speakers, possibly after the onset of SL acquisition. This can consequently interrupt or reduce acquired semantic and discourse-pragmatic features, which can then lead to discourse-pragmatic errors when HSs interpret context-dependent structures.

Montrul (2002) shows this in her study of Spanish HS usage of the imperative and preterite verbal forms. Although HSs were able to use all verbal forms at similar rates of frequency as their baseline monolingual counterparts in an oral narrative (production) task, the perception tasks showed significant differences between groups. In Spanish, the aspectual use of either the imperfect or the preterite can create a semantic shift. For example, the verb *know* with the imperfective is the stative ‘knew’, whereas with the preterite, it becomes ‘found out’. Montrul discovered in the perception task that, although half of the late-bilingual HSs performed monolingual-like, only 13% of the early-bilingual HSs were able to do so. Additionally, another 13% of the latter group detected no semantic shift whatsoever.

These results fall in line with Montrul’s earlier assertions of SL AoO as a dominating factor for HL proficiency in HS grammars. They also reveal that syntactic knowledge is more difficult to acquire when semantic and pragmatic features are involved. In this case, lack of distinction by HS groups in the semantic shift provided by the different verbal forms results in a lost interpretation of the proposition. Therefore, though HSs may acquire much syntax in their early years, as expected across both monolinguals’ and early bilinguals’ childhood development, semantic conditions and discourse-pragmatic information may require a longer time to develop,

and early bilinguals are more likely than their late bilingual counterparts not to acquire these features.

2.3.2 Transfer Effects and Interface Hypothesis (IH)

HSs may also experience a variety of transfer effects from the HL to the SL or vice versa. Transfer becomes especially likely when the HL and SL have shared linguistic features and require the speaker to reassemble highly similar but unidentical categories (Chen & Ionin, 2023; Guo, 2022). Transfer in language acquisition studies is typically discussed through the process of L1 influence on the L2. For example, Yip and Matthews's (2009) study shows syntactic transfer in a young bilingual child from Hong Kong, who demonstrates null object in his L2-English, among other syntactic structures that are only acceptable in the L1-Cantonese. The opposite can also be true. As for QP acquisition, English does not have SFPs, so HSs may be more successful in acquiring SFPs syntactically since there are no overlapping categories.

On the other hand, the Interface Hypothesis (IH) proposes that early bilinguals are less likely to acquire structures that require interaction at the interfaces of discourse and syntax due to these structures requiring additional discourse information for syntactic grammaticality (Chamorro & Sorace, 2019). The IH framework lends an explanation to why narrow syntactic development can be strong in HL groups, but falter when syntax meets at the semantic and/or discourse interfaces. This discrepancy in development could result in less nativelike outcomes for HSs when they must interpret discourse-pragmatic features of a SFP. Especially for QPs, speakers would have to acquire the unique context-dependent features of that particular particle in order to use it grammatically. Therefore, while we might expect HSs to acquire syntactic features of *maa3* and *me1* similarly to monolinguals, negative biasing features of *me1* may less likely be acquired.

2.3.3 *Monolingual and Bilingual Acquisition of Cantonese Interrogative Structures*

QPs have an early Age of Emergence (AoE) and are among the first types of question formation to be produced. Wong and Ingram's (2003) study of 8 monolingual Cantonese children found that particle and intonation questions (Type I) were consistently first to emerge in their participants, ranging from ages 1;08 to 2;04 (year;month). A-not-A questions (Type II) and *wh*-questions (Type III) did not emerge in a consistent order. Additionally, different *wh*-phrases emerged in different order among the participants, with *why* appearing up to a year after Type I questions. The study does not remark on the grammaticality of participant usage; however, it does provide evidence that HSs should have acquired QP syntax during preschool age prior to major SL exposure.

A follow-up study was conducted by Wong (2023) on grammatical development in Hong Kong Cantonese-speaking pre-school children. The author concludes that both QPs and *wh*-questions have an approximate AoE of age 2;6. These results suggest that L1-Cantonese children in monolingual or close-to-monolingual Cantonese environments acquire QP syntax well before school age, which is usually around 4;0. As for A-not-A questions, the chosen corpus in this study generally did not observe many questions. Only one speaker demonstrated A-not-A usage; therefore, AoE of A-not-A structures is inconclusive.

For better evidence of age effects in grammatical acquisition is Liang and Mai's (2023) study on the grammatical development of L1-Cantonese L2-English early- and late-onset bilinguals from Hong Kong aged 5;8. Age effects were attested for detrimental L1 development even though Cantonese is the societal-dominant language of the region. Early-onset bilinguals (EB) received an average of 37% L2-English exposure by 3;0 while the baseline group, late-onset bilinguals (LB), received less than 10% English input before age 3;0 and frequent

English input at school after 3;0. Both particle questions and *wh*-questions had significant between-group differences in grammatical development between EB and LB, where LBs statistically outperformed EBs. A-not-A questions were not included in the analysis. The authors found that early development of the L2 did detriment L1 development, but also noted that this developmental “cost” was not equally detrimental across all grammatical structures. For example, although the LB baseline had a slightly higher subscore for simple serial verb constructions, its mean score was comparable to the EB group. This study demonstrates that L1 development in bilinguals does not only vary based on age of exposure to the L2, but also varies across different structures. Considering that this study took place in a Cantonese-dominant environment, it is possible that detrimental effects could be even more pronounced in HL groups where the SL is not Cantonese.

As for the interpretation of syntax-semantic features in QPs, one study on Mandarin Chinese revealed judgment differences between heritage learners, non-heritage learners, and a native speaker baseline (Yan, 2025). Participants performed an Acceptability Judgment Task of 4 sentence structures (Declarative, Declarative + QP, *wh*-phrase, *wh*-phrase + QP) with the QP options of either *ma* or *ne*. Both *ma* and *ne* have non-identical but similar counterparts in Cantonese *maa3* and *ne1*, respectively. As discussed earlier, *maa3* is a loaned QP from Mandarin *ma* with a simple One Form-One Function (OFOF) feature: when added to a declarative, it forms an interrogative. It cannot co-occur with *wh*-phrases. However, *ne1* usage is more ambiguous; although Cantonese *ne1* and Mandarin *ne* are used slightly differently, this ambiguity holds true for the latter. Mandarin QP *ne* has more complex form-function features, as it can appear after certain types of interrogatives; it can be ungrammatical for certain propositions after Declarative sentences, meaning that *ne* interacts at the syntax-semantic interface. Likewise in the experiment,

the baseline group showed acceptable judgments of all structures except for *wh*-phrase+*ma* and Declarative+*ne*. All groups were able to make comparable unacceptability judgments of *wh*-phrase+*ma*, across heritage and non-heritage participants of high and low proficiency. However, Declarative+*ne* was judged with significant variability, where only high proficiency heritage learners performed nativelike.

Yan's (2025) study demonstrates that syntax-semantic complexity influences QP acquisition in HSs across different proficiency levels and the order of acquisition of these particles. When syntax and semantics interact in a QP acceptability judgment task, L2 speakers may never be nativelike and HSs are not guaranteed to interpret QP syntax at a nativelike level unless they have advanced proficiency. Yan's results are in line with IH on bilingual development, as discussed in Section 2.3.2.

3. Methodology

3.1 Research Questions

This paper aims to investigate heritage grammars of Cantonese QPs at both the syntactic and discourse-pragmatic levels. As we established earlier, HL speakers are diverse in their proficiency of their HL due to the various resources and environments in which they grow up. However, certain linguistic features may still consistently be acquired despite these different environments, depending on the structure and the AoO of the SL. Though narrow syntax such as QP syntactic constraints may be acquired by bilinguals at an early age, discourse-sensitive properties like negative biasing may not be acquired as well by individuals with an earlier AoO compared to later AoO individuals.

Since QP emergence has been attested in Cantonese monolingual groups by the preschool age of 2;6 (Wong, 2023), it is highly likely that Cantonese-English HSs will have also

successfully acquired QP syntax. Syntactically grammatical placement of all QPs, including *maa3* and *me1*, should be present in the youngest of speakers, especially since they are the first type of interrogative to emerge (Wong, 2003). At an early age, HSs should have acquired the generalization that QPs go after declarative sentences to form an interrogative and are overall ungrammatical after interrogatives. The acquisition of this rule is especially probable if the speaker is a consecutive bilingual who was not dominantly exposed to English until school age (i.e.: Junior Kindergarten, approximately 3-4 years old in Canada).

However, since QPs are also discursively complex, IH predicts that the features at the interface between discourse and syntax are more difficult to acquire. Furthermore, although QPs are confirmed to emerge in preschool years, only *ge2* has been explicitly cited as emerging in early lexicon (Wong, 2003). As QP *ge2* is often used in conjunction with or in substitution of *why*-type questions, their form-meaning mapping is relatively simple. Contrastively, QP *me1* is mostly only felicitous in negative biasing propositions and requires a speaker to interpret contextual constraints correctly in order for them to be monolingual-like. Consequently, if a HS has reduced input of their HL at an early age due to the increase in input of the SL, they may be susceptible to the incomplete acquisition of the discourse-pragmatic properties present in *me1*. Whether this is a result of interrupted acquisition or attrition is impossible to ascertain (Montrul, 2008), but unfelicitous interpretation of *me1* will regardlessly indicate a lack of knowledge of discourse-pragmatic features related to the particle.

This experiment aims to answer the following questions:

Question 1: Will both HS and Cantonese Native (CN) groups reject QPs *maa3* and *me1* at the same rate when following an interrogative sentence (either *wh*-phrase or A-not-A)?

Question 2: Are speakers with a later onset of bilingualism more target-like in their acceptability judgments than their early onset counterparts?

Question 3: Will HSs identify felicitous use of *me1* in negative biasing contexts and reject it otherwise? How will they compare to CNs?

Question 4: Does AoO correlate with these results and is it predictive of the HL grammar outcome?

The experiment will utilize an acceptability judgment task to address Question 1 and 2; a felicity judgment task for Question 3, and a language background questionnaire for Question 4.

For Question 1, I predict that HSs and CNs will reject ungrammatical sentences (Interrogative + QP) at a similar rate, with some exceptions. As CN have been observed to interpret A-not-A phrases with *ma* as grammatical in Mandarin (Guo & Yuan, 2024), it is possible some participants will apply the same syntactic leniency to A-not-A phrases with the Cantonese equivalent *maa3*. However, since this judgment is an exception to the generalization that QPs go after declaratives only, and *maa3* is not a high-frequency particle like *ge2* (for which its *why* question is commonly used), I believe that HS will apply the generalization to *maa3* as ungrammatical after all interrogatives—including A-not-A phrases. HS and CN groups will, therefore, interpret A-not-A with *maa3* asymmetrically. On the other hand, QP *me1* has only been observed after declaratives and never after interrogatives. I predict, therefore, that both types of speakers will reject *me1* after both A-not-A and *wh*-phrases.

In regards to Question 2, variation is common among HS groups and grammaticality judgments will probably not be equal across HS. Although QP syntax is attested to emerge in very early childhood, data for the acquisition of a variety of QPs is lacking and HSs may have unequal or incomplete exposure to all QPs. Considering that *maa3* is a lower frequency

morpheme that is typically used in formal environments or lexicalized phrases (e.g.: *nei5 hou2 maa3* ‘How are you?’), the opportunity to hear and/or use *maa3* would be scarce for a HS, who will mostly be exposed to informal environments that do not require *maa3* usage other than in lexicalized forms like the aforementioned. Crucially, AoO is the critical component to predicting monolingual-like proficiency in HL grammars (Montrul, 2008). Therefore, HS grammaticality judgments are hypothesized to vary with some significance.

Next, I hypothesize for Question 3 that only some HSs will reject unfelicitous use of *me1*, where most CN will prefer a negative interpretation of *p* for *me1*-final sentences. Hara’s (2024) experiment of Hong Kong native Cantonese speakers shows strong preference of negative bias contexts for *me1* sentences. It should follow that this experiment will be able to reflect Hara’s results from its own CN participants.

Lastly, it is predicted for Question 4 that Age of Onset will show some correlation with results. Since AoO is cited as the most important factor for HL variation in HSs, late-onset HS bilinguals are predicted to perform more nativelike in both an acceptability judgment task and a picture selection task, which test syntactic knowledge and discourse knowledge, respectively; while early-onset bilinguals will show some variation in syntactic awareness and demonstrate significantly less nativelike discourse-pragmatic interpretation of *me1*.

3.2 Experimental Design

3.2.1 Participants

38 participants (26 female and 12 male) aged 25-74 years of age (mean age 40.1) completed an online survey hosted on Qualtrics. Participants were recruited by word-of-mouth and social media. Eligible participants are either heritage or native adult Cantonese speakers who have lived in the Greater Toronto Area (GTA) or another English-speaking major city in Canada.

As most native Cantonese speakers are from Hong Kong where English language education is introduced in elementary school, all participants are expected to be Cantonese-English bilinguals who have learned English before the age of 18.

Participants have been divided into three speaker groups based on their place of birth and migration history: Group 1 are individuals born in Canada or immigrated to Canada before the age of 5; Group 2 consists of those who immigrated to Canada from a Cantonese-dominant community between ages 5 to 17; and Group 3 are the baseline group, consisting of native Cantonese speakers who immigrated to Canada at the age of 18 or later.

Of the 19 participants in Group 1, 17 were born in Canada, 1 in Mainland China, and 1 in Malaysia. Three members of Group 1 lived in Hong Kong for 5 years or less. Group 2 is the smallest group, consisting of participants who immigrated to Canada from the ages of 5-15 (mean 8.43). Group 3 counts 12 participants, one of whom was born in Canada but grew up in Hong Kong from 1-18 years of age. 32 of the 38 participants currently live in the GTA and 6 do not. Two individuals from this latter group are native speakers who had lived in the GTA previously, and four are Group 1 speakers born and raised elsewhere in Canada.

3.2.2. Tasks and Materials

The experiment was hosted on the online survey platform Qualtrics. Participants completed 3 tasks: an Acceptability Judgment Task (AJT), a Picture Selection Task (PST), and a Language Background Questionnaire (LBQ). The AJT tests for awareness of syntactic constraints (re: Question 1 and 2), the PST is a felicity task designed to test perception bias of QP *meI* (Question 3), and the LBQ collects non-linguistic data to analyze for various background factors that may affect performance in the AJT and PST results (Question 4).

Acceptability Judgment Task: In total, 9 unique sentence types were tested, varying in the following structures (Table 2): Declarative with QP, Declarative without QP, *wh*-phrase with QP, *wh*-phrase without QP, A-not-A phrase with QP, and A-not-A phrase without QP. Sentences with QPs vary by *maa3* or *me1*. Sentences without QP end with the “neutral” SFP *aa3*. Though SFPs are not required for grammaticality, having no SFP at all in a “control” sentence adjacent to QP sentences may make the QPs in the target sentences too salient. Since *aa3* has no “clause-typing” ability and is acceptable after both interrogatives and declaratives, it is suitable for a baseline comparison. Additionally, 16 distractor sentences were created.

Table 2

Sentence types (Set 1: 小明鐘意睇書 Siu2ming4 zung1ji3 tai2syu1 ‘Siuming likes to read’)

Sentence type	With QP	Without QP
Declarative	<u>Declarative + <i>maa3</i></u> 小明鐘意睇書嗎 ? Siu2ming4 zung1ji3 tai2syu1 maa3 Siuming like watch.book MAA ‘Does Siuming like to read?’ <u>Declarative + <i>me1</i></u> 小明鐘意睇書咩 ? Siu2ming4 zung1ji3 tai2syu1 me1 Siuming like watch.book ME ‘Does Siuming like to read?’	<u>Declarative + <i>aa3</i></u> 小明鐘意睇書啊 Siu2ming4 zung1ji3 tai2syu1 aa3 Siuming like watch.book AA ‘Siuming likes to read.’
Wh-phrase	<u>*Wh-phrase + <i>maa3</i></u> 小明點解鐘意睇書嗎 ? Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 maa3 Siuming why like watch.book MAA *‘Why does Siuming like to read?’ <u>*Wh-phrase + <i>me1</i></u> 小明點解鐘意睇書咩 ? Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 me1 Siuming why like watch.book ME *‘Why does Siuming like to read?’	<u>Wh-phrase + <i>aa3</i></u> 小明點解鐘意睇書啊 Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 aa3 Siuming why like watch.book AA ‘Why does Siuming like to read?’

<i>Sentence type</i>	<i>With QP</i>	<i>Without QP</i>
<i>A-not-A phrase</i>	<u>#A-not-A phrase + <i>maa3</i></u> 小明鐘唔鐘意睇書嗎 ? Siu2ming4 zung1 m4 zung1ji3 tai2syu1 maa3 Siuming like NEG like watch.book MAA #‘Does Siuming like to read?’ <u>*A-not-A phrase + <i>me1</i></u> 小明鐘唔鐘意睇書咩 ? Siu2ming4 zung1 m4 zung1ji3 tai2syu1 me1 Siuming like NEG like watch.book ME *‘Does Siuming like to read?’	<u>A-not-A phrase + <i>aa3</i></u> 小明鐘唔鐘意睇書啊 ? Siu2ming4 zung1 m4 zung1ji3 tai2syu1 aa3 Siuming like NEG like watch.book AA ‘Does Siuming like to read?’

Sentences were divided into 3 lists which were distributed equally at random on Qualtrics (see Appendix A for full list). In each set, participants were shown 48 of the 108 target and control sentences; therefore, they only saw the same sentence type 2 times. Each set consists of 12 varying *maa3* sentences with 12 *aa3* counterparts, and 12 varying *me1* sentences with 12 *aa3* counterparts. Including the distractor sentences, participants were shown 64 sentences in each AJT trial. For each sentence, participants were instructed to rate its naturalness on a 6-point Likert scale. Three practice questions preceded the task to ensure that participants understood the rating system.

Picture Selection Task: Participants were tested on negative bias perception of QP *me1* in a forced choice picture selection task. A total of 12 picture sets were created using Canva, each set accompanied by one written context and respective audio to accommodate participants who cannot read Jyutping romanization or traditional Chinese characters (see Figure 1).

Each context ends with a target sentence spoken by a character in the picture set. Each picture set has two pictures, both of which can be interpreted by the set’s single context, differing where one depicts a positive interpretation of *p* in the target sentence of the context, and the other depicts the negative. Of the 12 sets, sentences vary by the target QP *me1* and control QP *maa3*.

Since *maa3* discourse-pragmatic features do not include a positive-negative biasing interpretation, *maa3* is an appropriate choice as a control.

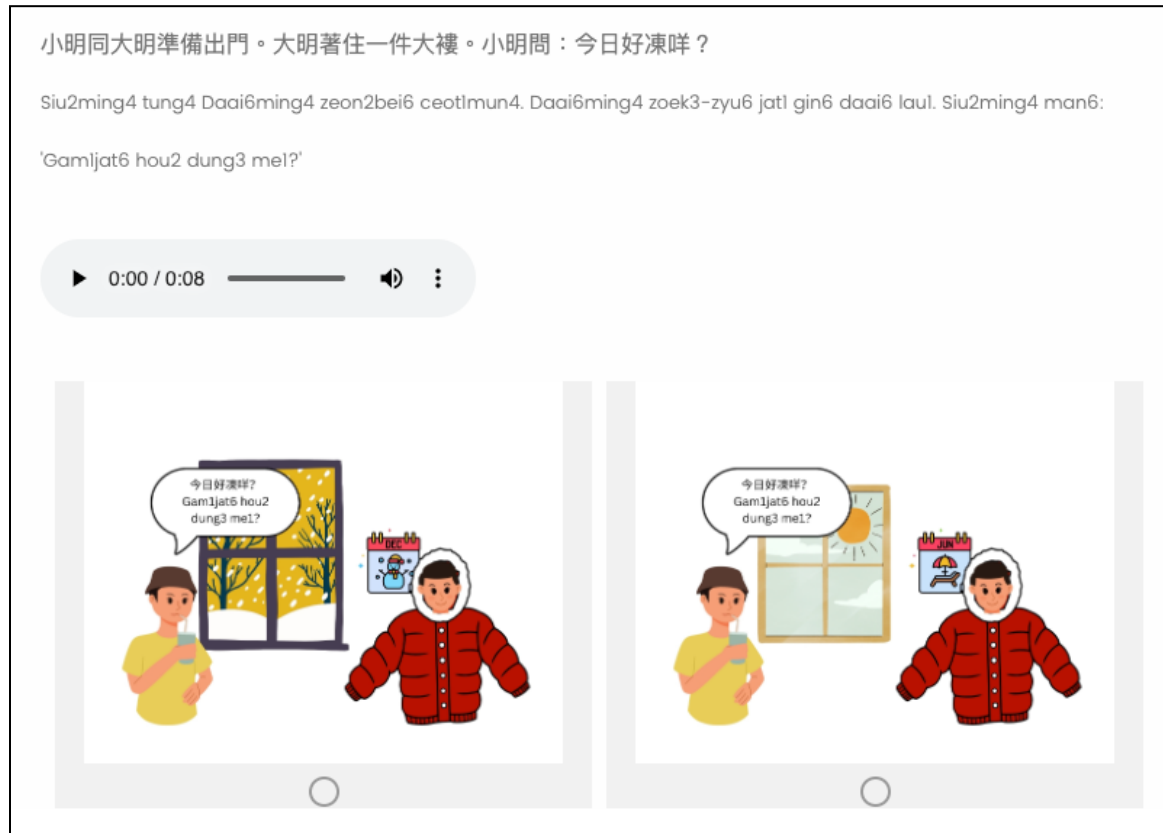


Figure 1

PST sample. (From top to bottom) Written context in traditional Chinese characters followed by Jyutping romanization, and audio player for read-aloud of text. English translation of this prompt: 'Siuming and Daiming are getting ready to leave the house. Daiming is wearing a large jacket. Siuming asks: "Is it very cold today?"' (From left to right) Positive interpretation of *p* depicting it is cold outside in December; negative interpretation of *p* depicting sunny weather in June.

In total, 24 images were created for this task, divided equally into two lists that are distributed equally at random (see Appendix B for full list with image descriptions). Each participant is shown 12 positive-negative image pairs (6 targeting *mei* and 6 targeting *maa3*) and

must select the image they deem most appropriate to both the given context and visual clues. The purpose of the PST is to test whether HS participants perform nativelike and choose the negative biasing picture for *meI* contexts.

Language Background Questionnaire: The last task of this experiment is an in-depth language background survey. Before beginning the questionnaire, participants must choose to self-identify as a Heritage speaker or Native speaker. Self-identified Native speakers may choose to complete a shorter Chinese questionnaire (CQ) since CN are proficient native Cantonese speakers with low variation. This researcher acknowledges the risk of a HS self-identifying as CN and choosing the CQ. However, HS participants are unlikely to both self-identify as Native speakers and be literate enough to complete the survey in Chinese text; therefore, this risk is mitigated. Both the English questionnaire (EQ) and CQ share the first 36 questions, and 45 more questions are asked in the EQ alone.

The LBQ covers the following question categories: Migration, Education, Occupation, Language Acquisition, Family and Community Background, Language Attitude Towards Cantonese, and Cultural Identity (see Appendix C for full list of questions). Only the first four categories are present in both EQ and CQ, as these categories help to assess a participant's qualification as CN or HS and degree of bilingualism⁵. The latter three categories assess English-dominant participants in the case of any other factors beyond AoO of bilingualism that might affect HS performance.

3.3 Results

The results will be discussed in order of completion by the participants. First is the AJT which collected data for syntactic acceptability judgments. Next is the PST that tested negative

⁵ The vast majority of Hong Kong native Cantonese speakers have received English education since childhood at varying levels of immersion and are all, therefore, late-onset Cantonese-English bilinguals of highly varying proficiencies. Non-nativelike Hong Kong speakers are possible and should be considered in any data collection.

biasing judgments of the particle *meI*. Lastly, we shall qualitatively present some of the observations made from the LBQ in relation to performance on the two tasks.

3.3.1. Acceptability Judgment Task

A total of 1824 observations were collected for the AJT (excludes distractor and practice sentences) and calculated for mean ratings and standard deviation across speaker groups and sentence types. Mean ratings (MR) (Table 3) are based on the 6-point Likert scale given to participants in this task, where 1.0 is least acceptable and 6.0 is most acceptable.

Table 3

AJT Results. Mean ratings and standard deviation (sd) of each speaker group, sentences with QP

Sentence Type	<i>Group 1</i> (early onset bilinguals)		<i>Group 2</i> (late onset bilinguals)		<i>Group 3</i> (native speakers)	
	<i>mean rate</i>	<i>sd</i>	<i>mean rate</i>	<i>sd</i>	<i>mean rate</i>	<i>sd</i>
Declarative + <i>aa3</i>	5.1	1.2	5.4	1.1	5.3	1.1
Declarative + <i>maa3</i>	4.9	1.4	5.2	1.0	5.0	1.6
Declarative + <i>meI</i>	5.0	1.3	5.6	0.7	5.5	0.9
<i>Wh</i> -phrase + <i>aa3</i>	5.3	1.1	5.3	1.2	5.2	1.3
<i>Wh</i> -phrase + <i>maa3</i>	2.1	1.4	1.7	1.2	1.7	1.3
<i>Wh</i> -phrase + <i>meI</i>	1.9	1.2	2.0	1.5	1.6	1.3
A-not-A + <i>aa3</i>	5.6	1.0	5.5	1.0	5.3	1.2
A-not-A + <i>maa3</i>	2.7	1.6	1.7	1.3	1.7	1.1
A-not-A + <i>meI</i>	1.8	1.1	1.9	1.7	1.5	1.2

Predictably, all control sentences ending with SFP *aa3* had high acceptability ratings across all groups (>5.1 MR). Participants across all groups also rated all Declarative sentences with a high naturalness rating overall (>4.8 MR). Also as expected, *Wh*-phrases ending with

maa3 (<2.1 MR) and *me1* (<2.0 MR) and A-not-A phrases ending with *me1* (<1.9 MR) had low acceptability ratings across all groups, and CN participants had the lowest mean rating for these sentence types. However, results for A-not-A phrases ending with *maa3* differed slightly from our hypothesis. All groups had a low acceptability overall, Group 1 having the highest MR (2.7) and Group 2 and 3 at a comparable lower rate (1.7).

Group 1 had the highest standard deviation overall in its results, with the widest variation found in A-not-A + *maa3* sentences. This result is in line with the theory of greater variation among early onset bilinguals (Montrul, 2008). The highest standard deviation in one subset is for A-not-A + *me1* sentences in Group 2. Group 3 rated Declarative + *maa3* at a standard deviation of 1.6, but the mean rate was still within the predicted range. The structure with the least standard deviation overall is Declarative + *me1*, where mean ratings were also highest among all structures within each group.

Furthermore, there are some notable differences in the mean ratings among groups (Figure 2). Firstly, the results from Group 1 differ from the other groups as they rated A-not-A with *maa3* 1 point higher and *wh*-phrase with *maa3* 0.5 point higher than the other groups. Group 1 also rated Declarative with *me1* lower than Group 2 and 3 by about 0.5. Their mean rating is also consistently lower than the other groups for all 3 Declarative structures.

Secondly, where variation between groups is stronger, Group 2 performs similarly to Group 1 for some structures and Group 3 for others. In both interrogative sentences with QP *maa3*, Group 2 means ratings pattern with Group 3, but pattern with Group 1 for *me1*. In the case of Declaratives, Group 2 also has the highest mean ratings across all 3 sentence types among all groups, and patterns with Group 3 for Declarative + *me1*.

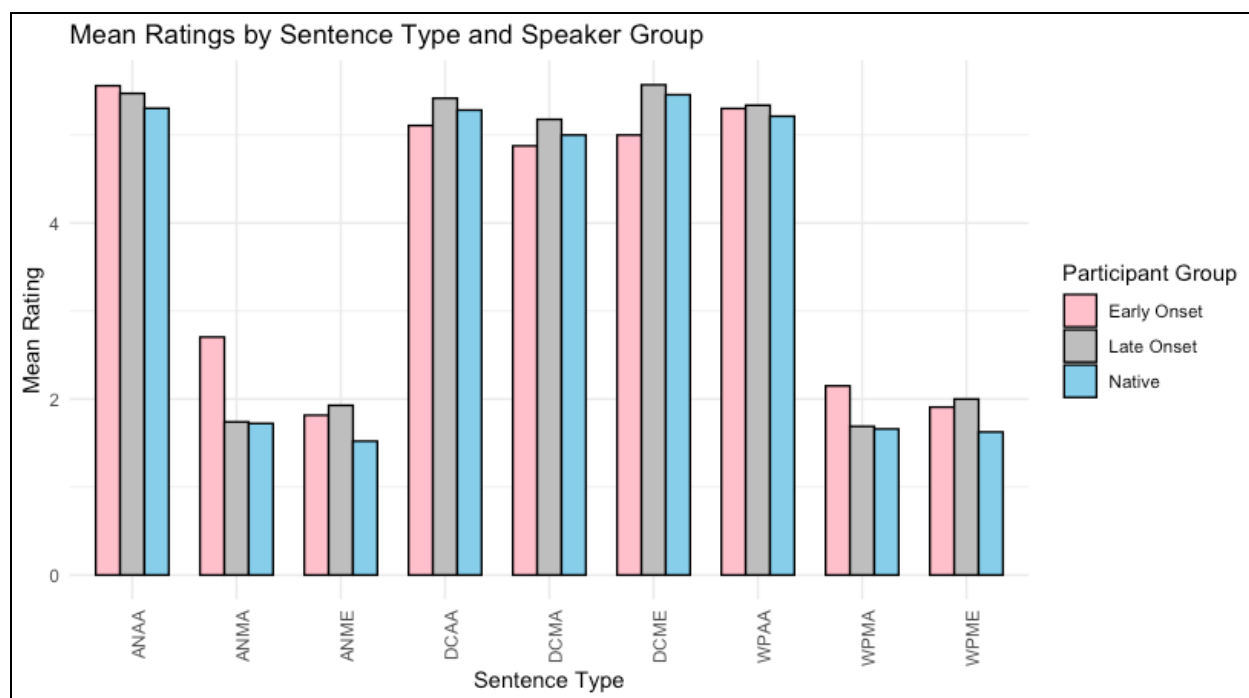


Figure 2

AJT results. Mean ratings of each speaker group across sentence types. The x-axis is labeled in the following code: (first two letters, structure) AN = A-not-A; DC = Declarative; WP = *wh*-phrase; (last two letters, SFP) AA = *aa3*; MA = *maa3*; ME = *me1*.

Overall, all groups distinguished grammatical and ungrammatical sentences similarly. Although there is a greater divergence in results for the early onset bilingual Group 1 for A-not-A sentences with *maa3*, these sentences are still rated as ungrammatical.

3.3.2. Picture Selection Task

456 observations were collected in total for the forced choice task in the PST. Each data point shows the negative or positive biasing visual context chosen by participants. The target sentences included either the QP *maa3* or *me1*. Data was organized and analyzed by speaker groups and QP conditions (Table 4).

Table 4

PST results. Percentage of chosen biasing contexts across each group and binary standard deviation.

QP Condition	<i>Group 1</i>		<i>Group 2</i>		<i>Group 3</i>	
	%	<i>sd</i>	%	<i>sd</i>	%	<i>sd</i>
<i>maa3</i>						
Positive	62.3	0.48	50.0	0.50	37.5	0.48
Negative	37.7		50.0		62.5	
<i>mel</i>						
Positive	33.3	0.47	38.1	0.49	19.4	0.40
Negative	66.7		61.9		80.6	

As predicted, the baseline group (Group 3) overwhelmingly chooses the felicitous negative biasing contexts for *mel* utterances. This group also carries the lowest binary standard deviation. Although the negative biasing pattern of *mel* is not as strong in Group 1 and Group 2, it is still present. To be specific, both HS groups chose the negative biasing image for *mel* contexts about two-thirds of the time. For the control contexts with *maa3* target sentences, there is less commonality across groups. Since *maa3* is not supposed to carry any particular positive/negative biasing at the discourse-pragmatic level, participants were expected to choose at random. Interestingly, however, *maa3* conditions seem to decrease in Positive bias interpretation with later L2-onset (Group 1>Group 2>Group 3) (Figure 3).

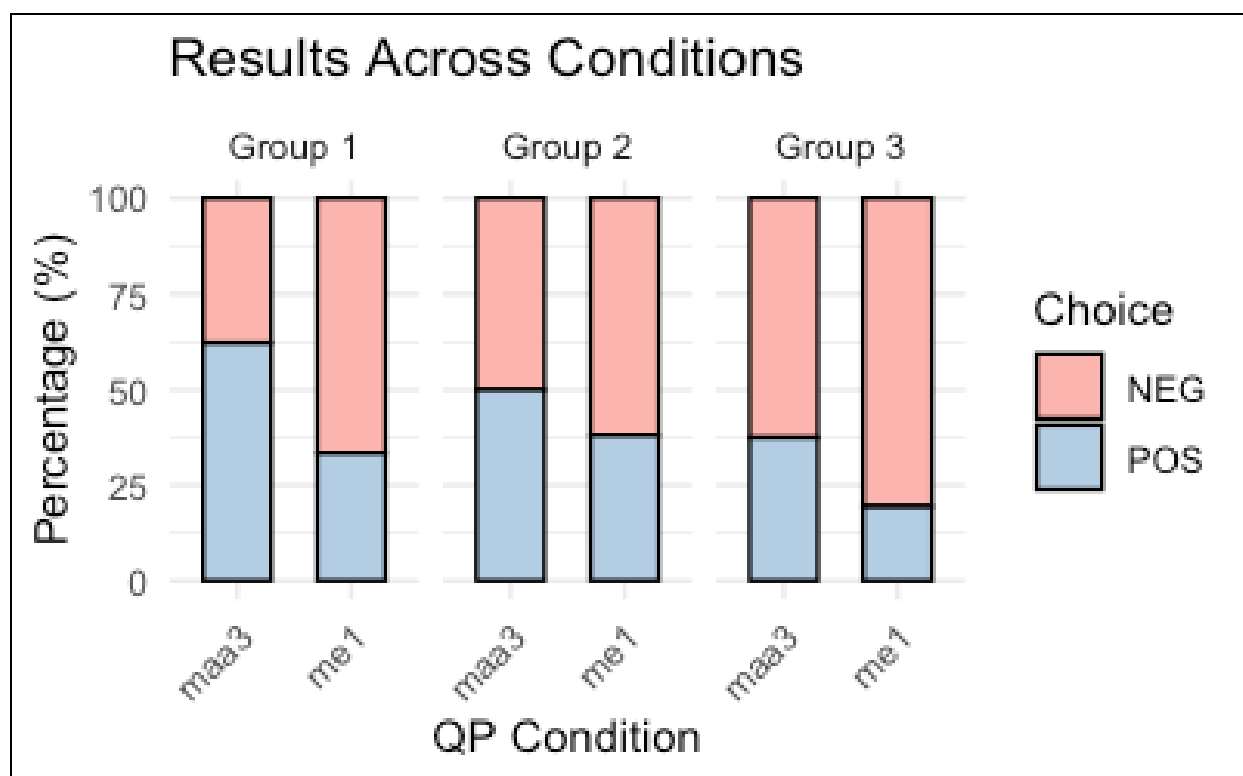


Figure 3

PST percentages. Visual percentages of each biasing choice across QP conditions of each speaker group

3.3.3. Language Background Questionnaire

This section discusses the responses from the LBQ that relate most to AoO of SL acquisition and participant experiences with Cantonese during early childhood as they relate to the research questions. Since there were two versions of the questionnaire, we shall first break down participant self-identification of their language group and, for self-identified native speakers, preferences for English or written Chinese completion of the questionnaire.

Before beginning the LBQ, participants were asked to self-identify as either a heritage speaker or a native speaker. They were given the following definitions: a heritage speaker is an individual who was born in Canada or migrated to Canada in early childhood, and a native

speaker as one who arrived in Canada in late childhood or adulthood. Participants who chose “heritage speaker” were given a longer English survey. Those who chose “native speaker” were allowed to choose to complete the questionnaire in either written Standard Chinese or English. As mentioned in section 3.2.2, the Chinese questionnaire (CQ) was shorter since only baseline group participants were expected to be proficient enough in Chinese literacy to make this choice and this questionnaire contained fewer questions about early childhood experience. Only one Group 1 participant chose Native speaker, whose Age of Arrival (AoA) in Canada was at age 3; and only one Group 2 participant self-identified as a Heritage speaker, having arrived at age 5. Both these participants completed the longer EQ. Among the six Group 2 participants who chose Native speaker, three chose to and were able to complete the shorter CQ. These individuals have an AoO of 7, 11, and 15. Contrastively, two Group 3 participants chose to complete the survey in English. One of these individuals was born in Canada and lived in Hong Kong at age 1-18, returning to Canada thereafter, while the other’s AoO is age 19.

Of interest are HS participants with divergent responses who may not be as targetlike. As discussed earlier, Group 1 participants rated A-not-A + *maa3* sentences as ungrammatical, but higher overall compared to Groups 2 and 3. Group 1 was filtered for divergent individuals that rated this sentence type as higher than 3.0. In the AJT, 37% of Group 1 (7 out of 19) rated this sentence type higher than 3.0 (range of 3.2–4.5), compared to 14% in Group 2 (1 out of 7) and 8% in Group 3 (1 out of 12). These individuals shall be referred to as DAM1 (Divergent A-not-A + *maa3* Group 1). DAM1 participants ranged in ages 25-45. Two of the three Group 1 individuals not born in Canada were in the DAM1 group, specifically in Mainland China and Malaysia. Of the twelve Group 1 participants that performed targetlike for A-not-A + *maa3* (TAM), three reported to have lived in Hong Kong while none in the DAM1 group had ever

lived in Hong Kong. This suggests that time spent in Hong Kong, a Cantonese-dominant society, possibly correlates with targetlike use of QPs.

Also, All DAM1 participants had once attended Chinese language school, whereas two TAMs had not, suggesting that attendance at language schools alone is not correlative with targetlike syntactic proficiency. Overall experience ratings of Chinese language school were higher for TAM than DAM1 by approximately 1 point in every category (Table 5). This result may reflect a correlation between positive experiences of Chinese language school and targetlike performance.

Table 5

DAM1 language school ratings. Average ratings on a scale of 1-6 of Chinese language school attitudes in Divergent (DAM1) and Targetlike (TAM) Group 1 participants

Group	Educativeness	Enjoyment	Practicality/Usefulness	Engagement/Motivation
DAM1	3.2	2.3	3.1	2.1
TAM	4.1	3.3	4.0	3.1

Of interest is the AoO among speaker groups. Though we have described the data for AoA in individuals who arrived after preschool age to confirm individuals' age of exposure to an English dominant environment, it is otherwise difficult or near impossible to pinpoint exact age of SL onset in early bilinguals like Heritage speakers. Instead, participants were asked to list their known languages in acquisition order and order of dominance. One DAM1 listed English as first acquired then Cantonese while a second DAM1 listed their languages as Vietnamese, English, and Cantonese in order of acquisition. Two TAMs listed their order of acquisition identically as English>Cantonese>French. As for self-reported language dominance, though all

Group 1 participants reported English as their most dominant language, only one TAM had Cantonese as their 3rd most dominant language after French, whereas two DAM1s listed Cantonese 3rd after Vietnamese and French, individually. One interesting data point from the Family background section is the difference between DAM1 and TAM individuals' time spent with grandparents. None of the DAM1 participants have ever spent time with any grandparent except for one individual who had once lived with a grandparent. On the other hand, only half of the TAM participants have never spent time with grandparents, four had once lived with grandparents, and two had never lived with them but occasionally saw them. Time spent with grandparents could be indicative of higher rates of exposure to Cantonese and, therefore, successful acquisition of Cantonese QP syntactic constraints.

As for the PST, eight of the nineteen Group 1 participants (42%) chose the unfelicitous positive-biasing images for *meI* target sentences 50% or more of the time, 3 out of 7 did so from Group 2 (43%), and 2 out of 12 in Group 3 (17%). Percentage-wise, Group 1 and Group 2 performed proportionately similar in unfelicitous answers. Of these 11 individuals, which we shall label UHS (Unfelicitous Heritage Speaker), four are also in the DAM1 group. The two DAM1 participants who were not born in Canada are also in this UHS group. Both DAM1s who had listed Cantonese as their 3rd most dominant language are also in the UHS group. While all Group 2 participants reported Cantonese as their first acquired language, four considered Cantonese their most dominant language, and two of these individuals were in the UHS group. No significant difference between UHS and other HS was found for time spent with grandparents. To address possible links to AoO, individuals from Group 2 had close AoA to Canada, with the average age of the unfelicitous Group 2 late-onset bilinguals at 6.7 and the felicitous group at 9.

Lastly, not previously discussed are divergent ratings of A-not-A + *maa3* from Group 2 (late onset bilinguals). Only two Group 2 participants diverged strongly, with MRs of 4.7 and 3.0. Only the latter of these two individuals were also in the UHS group. This individual had migrated to Canada at age 11, and had listed Cantonese as their most dominant language, followed by English, Mandarin, and French. The former individual listed English as their most dominant language and migrated at an early age of 5.

4. Discussion

Overall, some patterns were found within both linguistic tasks (AJT and PST) that corroborate most of the predictions made for our research questions. We shall first summarize our findings from each task, then discuss the results in the context of the respective research questions each task seeks to answer.

Firstly, the AJT results demonstrate that the syntactic development of QPs is relatively stable among HSs. While Group 1 early-onset bilinguals showed highest standard deviation across all structures and higher acceptability ratings than other groups for ungrammatical A-not-A with *maa3*, this structure was still rated ungrammatical overall. All groups rejected both interrogatives with *me1* similarly. Group 2 late-onset bilinguals did not diverge significantly from CN in any sentence type. Both HS groups were able to perform relatively targetlike, demonstrating that syntactic constraints may be developed at an early age before the SL has opportunity to interfere with HL development. These results confirm our hypothesis for Question 1 that all groups will similarly reject all interrogatives with either QPs *maa3* or *me1*.

Additionally, to address A-not-A with *maa3* use among CN, the results show that native speakers do not accept interrogatives (A-not-A and *wh*-phrase) to be followed by QPs *maa3* and *me1*. The low acceptability MR of these structures support Guo and Yuan's (2024) suggestion

that the grammatical ratings of A-not-A with Mandarin equivalent *ma* is specific to Mandarin usage and likely a mapping error from Cantonese speakers. Our study confirms that this is not allowed in native Cantonese grammars.

Lastly, the AJT found that Group 1 ratings of ungrammatical Interrogative + *maa3* sentences had higher MRs than the other two groups for both A-not-A and *wh*-phrases. In comparison, Group 2 was completely targetlike in these contexts. As predicted for Question 2, HSs with later onset of bilingualism do perform more nativelike. This difference is most prominent with *maa3* and insignificant with *me1*. Due to the infrequent usage of *maa3* previously discussed in Sections 2.1.3 and 2.2, early onset bilinguals who are bilingual from an earlier age may make more errors in accepting these ungrammatical sentences.

The next task, the PST, successfully demonstrates that discursive properties are more difficult for a HS to develop. Although both HS groups 1 and 2 felicitously chose a negative biasing image for *me1* target sentences most of the time (66.7% and 61.9%, respectively), neither group was close to matching the baseline (80.9%) (Table 2). In regards to Question 3, these results show that, while CNs strongly prefer negative biasing usage of *me1*, only some HSs have acquired awareness of these discourse-pragmatic features.

One interesting pattern found in the PST is the data for *maa3* target contexts. A pattern for more positive biasing seemed to correlate with later onset of bilingualism (i.e.: from most positive biasing, Group 3>Group 2>Group 1). This is possibly an artefact of the experiment since *maa3* is not known to have any positive biasing. Since only two types of target QPs were presented (*me1* and *maa3*), participants could have been mistakenly primed to choose positive biasing images for *maa3* in an effort to contrast with *me1* negative biasing images. A future

study of these properties could include at least a third variation and see whether it mitigates this phenomenon.

Lastly, the LBQ provides some insight into non-linguistic influences on the results of the first two tasks. To address Question 4, AoO only showed some correlation with the AJT and not as much with the PST. No DAM1 participant had ever lived in a Cantonese-dominant society (i.e.: Hong Kong) while three targetlike Group 1 participants had. Also, Group 1 early onset bilinguals had much higher acceptability ratings for ungrammatical structures than Group 2 late onset bilinguals, demonstrating some AoO effects.

The LBQ also revealed some other patterns that may be interesting for further research. Participants with slightly more positive experiences of Chinese language school also had more targetlike results for the AJT. Our data is unable to show whether positive HL classroom experiences result in more targetlike syntactic proficiency or whether targetlike syntax encourages individuals to have more enjoyable learning experiences. To address this, a longitudinal study could be conducted comparing HL classroom experiences with syntactic development.

In addition, our results suggest that family language use, specifically from a grandparent, could have a potential influence on HL syntactic grammar. To reiterate from our Results section, while the vast majority of the DAM participants had never spent time with any grandparent, half of the targetlike Group 1 participants had. One possibility is that grandparents of these individuals are monolingual or, at the very least, are not proficient in the SL. Individuals who spend time with such grandparents may be faced with more situations where they are limited to HL speaking and listening, hence prolonging both their input and output opportunities in the HL. Further research should be conducted in HL syntactic studies where grandparent interaction is

included for data analysis. In contrast, this effect was not evident in our discourse-pragmatic investigation in the PST, which highlights the difficulty of acquiring these particular features once a SL is involved.

5. Conclusion

Discourse-pragmatic properties are more difficult for HS individuals to acquire than it is to acquire narrow syntax. This experiment sought to compare these different types of acquisition through the usage of Cantonese QPs and their unique interaction of syntactic and discourse-pragmatic constraints. While early onset HS bilinguals showed some minor Age of Onset effects in their higher acceptability ratings of interrogatives with QP *maa3* in comparison to their late onset counterparts, they were still able to judge these structures as ungrammatical overall. Ultimately, they did not diverge greatly in syntactic judgments from the CN group. On the other hand, both HS groups failed to perform nativelike in their judgment of *me1* as a negative biasing particle. In this study, AoO was unable to predict proficiency in discursive properties among HSs, which suggests the inherent difficulty of acquiring these structures once the SL takes over in the majority of the input.

One major limitation of this study is its inability to accurately pinpoint AoO data. In order to do so, future investigations should consider longitudinal data that involves participants with starting ages ranging from preschool to high school. The current Canadian and GTA population can provide a fertile testing ground for Cantonese research of this methodology. The federal department of the IRCC (Immigration, Refugees, and Citizenship Canada) reported a 50% increase in Hong Kong migrants in 2022 compared to pre-Covid times (El-Assal, 2022). This new stream of migrants could potentially, in the long-term, translate to a wide age range of HSs with varying AoO of English as the societal language.

Cantonese SFPs provide an interesting area of study for those interested in the interface between syntax and semantics. As discussed earlier, many of these properties remain elusive and inconclusive among scholars. Any study on Cantonese SFPs, whether among native or heritage grammars, would be worth pursuing in order to increase theoretical knowledge of these morphemes and its implications within the wider possibilities of human language at large.

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Appendices

Appendix A: Acceptability Judgment Task

List 1

小明鐘意睇書咩

Siu2ming4 zung1ji3 tai2syu1 me1

Does Siuming like to read?

小明點解鐘意睇書啊

Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 aa3

Why does Siuming like to read?

小明點解鐘意跑步咩

Siu2ming4 dim2gaai2 zung1ji3 paau2bou6 me1

Why does Siuming like to run?

小明鐘唔鐘意跑步啊

Siu2ming4 zung1 m4 zung1ji3 paau2bou6 aa3

Does Siuming like to run?

美美鐘意畫畫啊

Mei5mei5 zung1ji3 waak6waa2 aa3

Meimei likes to draw

美美鐘唔鐘意畫畫咩

Mei5mei5 zung1 m4 zung1ji3 waak6waa2 me1

Does Meimei like to draw?

美美鐘意游水咩

Mei5mei5 sik1 jau4seoi2 me1

Does Meimei like to swim?

美美點解鐘意游水啊

Mei5mei5 dim2gaai2 sik1 jau4seoi2 aa3

Why does Meimei like to swim?

大明點解識彈琴咩

Daai6ming4 dim2gaai2 sik1 taan4kam4 me1

Why does Daiming know how to play piano?

大明識唔識彈琴啊

Daai6ming4 sik1 m4 sik1 taan4kam4 aa3

Does Daiming know how to play piano?

大明識唱歌啊

Daai6ming4 sik1 coeng3go1 aa3

Daiming knows how to sing

大明識唔識唱歌咩

Daai6ming4 sik1 m4 sik1 coeng3go1 me1

Does Daiming know how to sing?

小明要返學啊

Siu2ming4 jiu3 faan1hok6 aa3

Siuming has to go to school

小明要唔要返學咩

Siu2ming4 jiu3 m4 jiu3 faan1hok6 me1

Does Siuming have to go to school?

小明想買衫咩

Siu2ming4 soeng2 maai5saam1 me1

Does Siuming want to buy clothes?

小明點解想買衫啊

Siu2ming4 dim2gaai2 soeng2 maai5saam1 aa3

Why does Siuming want to buy clothes?

美美點解要返工咩

Mei5mei5 dim2gaai2 jiu3 faan1gung1 me1

Why does Meimei have to go to work?

美美要唔要返工啊

Mei5mei5 jiu3 m4 jiu3 faan1gung1 aa3

Does Meimei have to go to work?

美美點解想旅行咩

Mei5mei5 dim2gaai2 soeng2 leoi5hang4 me1

Why does Meimei want to travel?

美美想唔想旅行啊

Mei5mei5 soeng2 m4 soeng2 leoi5hang4 aa3

Does Meimei want to travel?

大明要洗碗啊

Daai6ming4 jiu3 sai2wun2 aa3

Daiming has to wash dishes

大明要唔要洗碗咩

Daai6ming4 jiu3 m4 jiu3 sai2wun2 me1

Does Daiming have to wash dishes?

大明想瞓覺咩

Daai6ming4 soeng2 fan3gaau3 me1

Does Daiming want to sleep?

大明點解想瞓覺啊

Daai6ming4 dim2gaai2 soeng2 fan3gaau3 aa3

Why does Daiming want to sleep?

小明點解鐘意睇書嗎

Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 maa3

Why does Siuming like to read?

小明鐘唔鐘意睇書啊

Siu2ming4 zung1 m4 zung1ji3 tai2syu1 aa3

Does Siuming like to read?

小明鐘意跑步啊

Siu2ming4 zung1ji3 paau2bou6 aa3

Siuming likes to run

小明鐘唔鐘意跑步嗎

Siu2ming4 zung1 m4 zung1ji3 paau2bou6 maa3

Does Siuming like to run?

美美鐘意畫畫嗎

Mei5mei5 zung1ji3 waak6waa2 maa3

Does Meimei like to draw?

美美點解鐘意畫畫啊

Mei5mei5 dim2gai2 waak6waa2 aa3

Why does Meimei like to draw?

美美識游水啊

Mei5mei5 sik1 jau4seoi2 aa3

Meimei likes to swim

美美識唔識游水嗎

Mei5mei5 sik1 m4 sik1 jau4seoi2 maa3

Does Meimei like to swim?

大明識彈琴嗎

Daai6ming4 sik1 taan4kam4 maa3

Does Daiming know how to play piano?

大明點解識彈琴啊

Daai6ming4 dim2gai2 sik1 taan4kam4 aa3

Why does Daiming know how to play piano?

大明點解識唱歌嗎

Daai6ming4 dim2gai2 sik1 coeng3go1 maa3

Why does Daiming know how to play piano?

大明識唔識唱歌啊

Daai6ming4 sik1 m4 sik1 coeng3go1 aa3

Does Daiming know how to play piano?

小明點解要返學嗎

Siu2ming4 dim2gaai2 jiu3 faan1hok6 maa3

Why does Siuming have to go to school?

小明要唔要返學啊

Siu2ming4 jiu3 m4 jiu3 faan1hok6 aa3

Does Siuming have to go to school?

小明想買衫啊

Siu2ming4 soeng2 faan1hok6 aa3

Siuming wants to buy clothes

小明想唔想買衫嗎

Siu2ming4 soeng2 m4 soeng2 faan1hok6 maa3

Does Siuming want to buy clothes?

美美要返工啊

Mei5mei5 jiu3 faan1gung1 aa3

Meimei has to go to work

美美要唔要返工嗎

Mei5mei5 jiu3 m4 jiu3 faan1gung1 maa3

Does Meimei have to go to work?

美美想旅行嗎

Mei5mei5 soeng2 leoi5hang4 maa3

Does Meimei want to travel?

美美點解想旅行啊

Mei5mei5 dim2gaai2 soeng2 leoi5hang4 aa3

Why does Meimei want to travel?

大明要唔要洗碗啊

Daai6ming4 jiu3 m4 jiu3 sai2wun2 aa3

Does Daiming have to wash dishes?

大明點解要洗碗嗎

Daai6ming4 dim2gaai2 jiu3 sai2wun2 maa3

Why does Daiming have to wash dishes?

大明想瞓覺啊

Daai6ming4 soeng2 fan3gaau3 aa3

Daiming wants to sleep

大明想唔想瞓覺嗎

Daai6ming4 soeng2 m4 soeng2 fan3gaau3 maa3

Does Daiming want to sleep?

List 2

小明鐘意睇書啊

Siu2ming4 zung1ji3 tai2syu1 aa3

Siuming likes to read

小明鐘唔鐘意睇書咩

Siu2ming4 zung1 m4 zung1ji3 tai2syu1 me1

Does Siuming like to read?

小明鐘意跑步咩

Siu2ming4 zung1ji3 paau2bou6 me1

Does Siuming like to run?

小明點解鐘意跑步啊

Siu2ming4 dim2gaai2 paau2bou6 aa3

Why does Siuming like to run?

美美點解鐘意畫畫咩

Mei5mei5 dim2gaai2 zung1ji3 waak6waa2 me1

Why does Meimei like to draw?

美美鐘唔鐘意畫畫啊

Mei5mei5 zung1 m4 zung1ji3 waak6waa2 aa3

Does Meimei like to draw?

美美點解鐘意游水咩

Mei5mei5 dim2gaai2 sik1 jau4seoi2 me1

Why does Meimei like to swim?

美美鐘唔鐘意游水啊

Mei5mei5 sik1 m4 sik1 jau4seoi2 aa3

Does Meimei like to swim?

大明識彈琴啊

Daai6ming4 sik1 taan4kam4 aa3

Daiming knows how to play piano

大明識唔識彈琴咩

Daai6ming4 sik1 m4 sik1 taan4kam4 me1

Does Daiming know how to play piano?

大明識唱歌咩

Daai6ming4 sik1 coeng3go1 me1

Does Daiming know how to sing?

大明點解識唱歌啊

Daai6ming4 dim2gaai2 sik1 coeng3go1 aa3

Why does Daiming know how to sing?

小明要返學咩

Siu2ming4 jiu3 faan1hok6 me1

Does Siuming have to go to school?

小明點解要返學啊

Siu2ming4 dim2gaai2 jiu3 faan1hok6 aa3

Why does Siuming have to go to school?

小明點解想買衫咩

Siu2ming4 dim2gaai2 soeng2 maai5saam1 me1

Why does Siuming want to buy clothes?

小明想唔想買衫啊

Siu2ming4 soeng2 m4 soeng2 maai5saam1 aa3

Does Siuming want to buy clothes?

美美要返工啊

Mei5mei5 jiu3 faan1gung1 aa3

Meimei has to go to work

美美要唔要返工咩

Mei5mei5 jiu3 m4 jiu3 faan1gung1 me1

Does Meimei have to go to work?

美美想旅行咩

Mei5mei5 soeng2 leoi5hang4 me1

Does Meimei want to travel?

美美點解想旅行啊

Mei5mei5 dim2gaai2 soeng2 leoi5hang4 aa3

Why does Meimei want to travel?

大明點解要洗碗咩

Daai6ming4 dim2gaai2 jiu3 sai2wun2 me1

Why does Daiming have to wash dishes?

大明要唔要洗碗啊

Daai6ming4 jiu3 m4 jiu3 sai2wun2 aa3

Does Daiming have to wash dishes?

大明想瞓覺啊

Daai6ming4 soeng2 fan3gaau3 aa3

Daiming wants to sleep

大明想唔想瞓覺咩

Daai6ming4 soeng2 m4 soeng2 fan3gaau3 me1

Does Daiming want to sleep?

小明鐘意睇書啊

Siu2ming4 zung1ji3 tai2syu1 aa3

Siuming likes to read

小明鐘唔鐘意睇書嗎

Siu2ming4 zung1 m4 zung1ji3 tai2syu1 maa3

Does Siuming like to read?

小明鐘意跑步嗎

Siu2ming4 zung1ji3 paau2bou6 maa3

Does Siuming like to run?

小明點解鐘意跑步啊

Siu2ming4 dim2gaai2 paau2bou6 aa3

Why does Siuming like to run?

美美點解鐘意畫畫嗎

Mei5mei5 dim2gaai2 zung1ji3 waak6waa2 maa3

Why does Meimei like to draw?

美美鐘唔鐘意畫畫啊

Mei5mei5 zung1 m4 zung1ji3 waak6waa2 aa3

Does Meimei like to draw?

美美點解識游水嗎

Mei5mei5 dim2gaai2 sik1 jau4seoi2 maa3

Why does Meimei like to swim?

美美識唔識游水啊

Mei5mei5 sik1 m4 sik1 jau4seoi2 aa3

Does Meimei like to swim?

大明識彈琴啊

Daai6ming4 sik1 taan4kam4 aa3

Daiming knows how to play piano

大明識唔識彈琴嗎

Daai6ming4 sik1 m4 sik1 taan4kam4 maa3

Does Daiming know how to play piano?

大明識唱歌嗎

Daai6ming4 sik1 coeng3go1 maa3

Does Daiming know how to play piano?

大明點解識唱歌啊

Daai6ming4 dim2gai2 sik1 coeng3go1 aa3

Why does Daiming know how to play piano?

小明要返學啊

Siu2ming4 jiu3 faan1hok6 aa3

Siuming has to go to school

小明要唔要返學嗎

Siu2ming4 jiu3 m4 jiu3 faan1hok6 maa3

Does Siuming have to go to school?

小明想買衫嗎

Siu2ming4 soeng2 faan1hok6 maa3

Does Siuming want to buy clothes?

小明點解想買衫啊

Siu2ming4 dim2gai2 soeng2 faan1hok6 aa3

Why does Siuming want to buy clothes?

美美要返工嗎

Mei5mei5 jiu3 faan1gung1 maa3

Does Meimei have to go to work?

美美點解要返工啊

Mei5mei5 dim2gai2 jiu3 faan1gung1 aa3

Why does Meimei have to go to work?

美美想旅行啊

Mei5mei5 soeng2 leoi5hang4 aa3

Meimei wants to travel

美美想唔想旅行嗎

Mei5mei5 soeng2 m4 soeng2 leoi5hang4 maa3

Does Meimei want to travel?

大明要洗碗嗎

Daai6ming4 jiu3 sai2wun2 maa3

Does Daiming have to wash dishes?

大明點解要洗碗啊

Daai6ming4 dim2gai2 jiu3 sai2wun2 aa3

Why does Daiming have to wash dishes?

大明點解想瞓覺嗎

Daai6ming4 dim2gai2 soeng2 fan3gaau3 maa3

Why does Daiming want to sleep?

大明想唔想瞓覺啊

Daai6ming4 soeng2 m4 soeng2 fan3gaau3 aa3

Does Daiming want to sleep?

List 3

小明點解鐘意睇書咩

Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 me1

Why does Siuming like to read?

小明鐘唔鐘意睇書啊

Siu2ming4 zung1 m4 zung1ji3 tai2syu1 aa3

Does Siuming like to read?

小明鐘意跑步啊

Siu2ming4 zung1ji3 paau2bou6 aa3

Siuming likes to run

小明鐘唔鐘意跑步咩

Siu2ming4 zung1 m4 zung1ji3 paau2bou6 me1

Does Siuming like to run?

美美鐘意畫畫咩

Mei5mei5 zung1ji3 waak6waa2 me1

Does Meimei like to draw?

美美點解鐘意畫畫啊

Mei5mei5 dim2gaai2 waak6waa2 aa3

Why does Meimei like to draw?

美美鐘意游水啊

Mei5mei5 sik1 jau4seoi2 aa3

Meimei likes to swim

美美鐘唔鐘意游水咩

Mei5mei5 sik1 m4 sik1 jau4seoi2 me1

Does Meimei like to swim?

大明識彈琴咩

Daai6ming4 sik1 taan4kam4 me1

Does Daiming know how to play piano?

大明點解識彈琴啊

Daai6ming4 dim2gaai2 sik1 taan4kam4 aa3

Why does Daiming know how to play piano?

大明點解識唱歌咩

Daai6ming4 dim2gaai2 sik1 coeng3go1 me1

Why does Daiming know how to sing?

大明識唔識唱歌啊

Daai6ming4 sik1 m4 sik1 coeng3go1 aa3

Does Daiming know how to sing?

小明點解要返學咩

Siu2ming4 dim2gaai2 jiu3 faan1hok6 me1

Why does Siuming have to go to school?

小明要唔要返學啊

Siu2ming4 jiu3 m4 jiu3 faan1hok6 aa3

Does Siuming have to go to school?

小明想買衫啊

Siu2ming4 soeng2 maai5saam1 aa3

Siuming wants to buy clothes

小明想唔想買衫咩

Siu2ming4 soeng2 m4 soeng2 maai5saam1 me1

Does Siuming want to buy clothes?

美美要返工咩

Mei5mei5 jiu3 faan1gung1 me1

Does Meimei have to go to work?

美美點解要返工啊

Mei5mei5 dim2gaai2 jiu3 faan1gung1 aa3

Why does Meimei have to go to work?

美美想旅行啊

Mei5mei5 soeng2 leoi5hang4 aa3

Meimei wants to travel

美美想唔想旅行咩

Mei5mei5 soeng2 m4 soeng2 leoi5hang4 me1

Does Meimei want to travel?

大明要洗碗咩

Daai6ming4 jiu3 sai2wun2 me1

Does Daiming have to wash dishes?

大明點解要洗碗啊

Daai6ming4 dim2gaai2 jiu3 sai2wun2 aa3

Why does Daiming have to wash dishes?

大明點解想瞓覺咩

Daai6ming4 dim2gaai2 soeng2 fan3gaau3 me1

Why does Daiming want to sleep?

大明想唔想瞓覺啊

Daai6ming4 soeng2 m4 soeng2 fan3gaau3 aa3

Does Daiming want to sleep?

小明鐘意睇書嗎

Siu2ming4 zung1ji3 tai2syu1 maa3

Does Siuming like to read?

小明點解鐘意睇書啊

Siu2ming4 dim2gaai2 zung1ji3 tai2syu1 aa3

Why does Siuming like to read?

小明點解鐘意跑步嗎

Siu2ming4 dim2gaai2 zung1ji3 paau2bou6 maa3

Why does Siuming like to run?

小明鐘唔鐘意跑步啊

Siu2ming4 zung1 m4 zung1ji3 paau2bou6 aa3

Does Siuming like to run?

美美鐘意畫畫啊

Mei5mei5 zung1ji3 waak6waa2 aa3

Meimei likes to draw

美美鐘唔鐘意畫畫嗎

Mei5mei5 zung1 m4 zung1ji3 waak6waa2 maa3

Does Meimei like to draw?

美美識游水嗎

Mei5mei5 sik1 jau4seoi2 maa3

Does Meimei like to swim?

美美點解識游水啊

Mei5mei5 dim2gaai2 sik1 jau4seoi2 aa3

Why does Meimei like to swim?

大明點解識彈琴嗎

Daai6ming4 dim2gaai2 sik1 taan4kam4 maa3

Why does Daiming know how to play piano?

大明識唔識彈琴啊

Daai6ming4 sik1 m4 sik1 taan4kam4 aa3

Does Daiming know how to play piano?

大明識唱歌啊

Daai6ming4 sik1 coeng3go1 aa3

Daiming knows how to play piano

大明識唔識唱歌嗎

Daai6ming4 sik1 m4 sik1 coeng3go1 maa3

Does Daiming know how to play piano?

小明要返學嗎

Siu2ming4 jiu3 faan1hok6 maa3

Does Siuming have to go to school?

小明點解要返學啊

Siu2ming4 dim2gaai2 jiu3 faan1hok6 aa3

Why does Siuming have to go to school?

小明點解想買衫嗎

Siu2ming4 dim2gaai2 soeng2 faan1hok6 maa3

Why does Siuming want to buy clothes?

小明想唔想買衫啊

Siu2ming4 soeng2 m4 soeng2 faan1hok6 aa3

Does Siuming want to buy clothes?

美美點解要返工嗎

Mei5mei5 dim2gaai2 jiu3 faan1gung1 maa3

Why does Meimei have to go to work?

美美要唔要返工啊

Mei5mei5 jiu3 m4 jiu3 faan1gung1 aa3

Does Meimei have to go to work?

美美點解想旅行嗎

Mei5mei5 dim2gaai2 soeng2 leoi5hang4 maa3

Why does Meimei want to travel?

美美想唔想旅行啊

Mei5mei5 soeng2 m4 soeng2 leoi5hang4 aa3

Does Meimei want to travel?

大明要洗碗啊

Daai6ming4 jiu3 sai2wun2 aa3

Daiming has to wash dishes

大明要唔要洗碗嗎

Daai6ming4 jiu3 m4 jiu3 sai2wun2 maa3

Does Daiming have to wash dishes?

大明想瞓覺嗎

Daai6ming4 soeng2 fan3gaau3 maa3

Does Daiming want to sleep?

大明點解想瞓覺啊

Daai6ming4 dim2gai2 soeng2 fan3gaau3 aa3

Why does Daiming want to sleep?

Appendix B: Picture Selection Task

List 1

小明同朋友美美話最近想買一部新車。美美問：「你夠錢咩？」

Siu2ming4 tung4 pang4jau5 Mei5mei5 waa6 zeoi3gan6 soeng2 maa2 jat1 bou6 san1 ce1.

Mei5mei5 man6: “Nei5 gau3 cin2 me1?”

Siuming tells his friend Meimei that he’s recently been thinking of getting a new car. Meimei asks, “Do you have enough money?”

Image A: Siuming is pictured with a mansion and fancy car in the background.

Image B: Siuming is pictured in a dilapidated bedroom.

美美想入油，小明諗返起琴日嘅油價問美美：「今日啲油平咩？」

Mei5mei5 soeng2 jap6jau2, Siu2ming4 nam2-faan1 hei2 kam4jat6 ge3 jau4gaa3 man6

Mei5mei5: “Gam1jat6 di1 jau2 peng4 me1?”

Meimei wants to fill up on gas. Siuming thinks back to yesterday’s gas prices and asks Meimei, “Is the gas inexpensive today?”

Image A: Siuming and Meimei are in a car together. A thought bubble from Siuming shows yesterday's gas price is almost 100 cents/L and a happy emoji.

Image B: Siuming and Meimei are in a car together. A thought bubble from Siuming shows yesterday's gas price is over 200 cents/L and a crying emoji.

美美同小明話大明整蛋糕畀大家食。小明諗返起大明以前煮過嘅嘢，小明問：「佢識整蛋糕咩？」

Mei5mei5 tung4 Siu2ming4 waa6 Daai6ming4 zing1 daan6gou1 bei2 daai6gaa1 sik6.

Siu2ming4 nam2-faan1hei2 Daaiming ji5cin4 zyu2-gwo3 ge3 je5, Siu2ming4 man6: "Keoi5 sik1 zing2 daan6gou1 me1?"

Meimei tells Siuming that Daiming is baking a cake for everyone. Siuming thinks about the food that Daiming has made in the past and he asks, "Does he know how to make cake?"

Image A: A speech bubble from Meimei shows Daiming holding a birthday cake. A thought bubble from Siuming shows Daiming in a fancy chef hat beside a beautiful turkey and strawberry shortcake.

Image B: A speech bubble from Meimei shows Daiming holding a birthday cake. A thought bubble from Siuming shows Daiming with food stains on his shirt holding a spatula. Beside Daiming are images of burnt toast and bloody chicken.

小明喺銀行搵到份新工，要買新衫返工。佢見到一件佢鐘意嘅衫。大明問：「你鐘意呢件咩？」

Siu2ming4 hai2 ngan4hong4 wan2 dou2 fan6 san1gung1, jiu3 maa15 san1saam1 faan1gung1.

Keoi5 gin3-dou2 jat1 gin6 keoi5 zung1ji3 ge3 saam1. Daai6ming4 man6: 'Nei5 zung1ji3 ni1gin6 me1?'

Siuming got a new job at the bank and is looking for new work clothes. He sees a top he likes.

Daiming asks: "Do you like this one?"

Image A: Siuming sees a simple dress shirt.

Image B: Siuming sees a bright pink shirt with clowns and flowers.

美美去小明屋企，見到一幅相，係小明同埋一隻狗。美美問小明：「你有養狗咩？」

Mei5mei5 heoi3 siu2ming4 uk1kei5, gin3 dou2 jat1 fuk1 soeng1, hai6 Siu2ming4 tung4-maa14 jat1 zek3 gau2. Mei5mei5 man6 Siu2ming4: 'Nei5 jau5 joeng5 gau2 me1?'

Meimei is at Siuming's house and sees a photo of Siuming with a dog. She asks: "Do you have a dog?"

Image A: Siuming's house is littered with dog toys and his couch is covered in fur.

Image B: Siuming's house is spotless.

大明同美美今晚想食白菜。佢哋去買餸之前一齊睇過雪櫃有乜嘢。喺超級市場，大明話唔使買白菜。美美問：「屋企有白菜嗎？」

Daai6ming4 tung4 Mei5mei5 gam1maan1 soeng2 sik6 baak6coi3. Keoi5dei6 heoi3 maai5sung3 zi1cin4 jat1cai4 tai2-gwo3 syut3gwai6 jau5 mat1je5. Hai2 ciu1kap1si5coeng4, Daai6ming4 wai6 m4 sai2 maai2 baak6 coi3. Mei5mei5 man6: "Uk1kei5 jau5 baak6coi3 maa3?"

Daiming and Meimei want bok choy for dinner. Before doing their groceries, Daiming looks in the fridge and sees what they already have. At the grocery store, Daiming tells Meimei they don't need to buy bok choy. Meimei asks, "Do we have bok choy at home?"

Image A: Daiming and Meimei have eggs and bok choy in the fridge. At the grocery store, Daiming reaches for meat. A giant red 'x' goes over the bok choy.

Image B: Daiming and Meimei have nothing in the fridge. At the grocery store, Daiming reaches for meat. A giant red 'x' goes over the bok choy.

小明同大明想買蛋糕慶祝美美生日。大明想買榴槤蛋糕。小明記得美美鐘意嘅蛋糕味，問大明：「美美鐘意榴槤嗎？」

Siu2ming4 tung4 Daai6ming4 soeng2 maaai2 daan6gou1 hing3zuk1 Mei5mei5 saang1jat6. Daai6ming4 soeng2 maai2 lau4lin4 daan6gou1. Siu2ming4 gei3dak1 Mei5mei5 zung1ji3 ge3 daan6gou1 mei6, man6 Daaiming: "Mei5mei5 zung1ji3 lau4lin4 maa3?"

Siuming and Daiming want to buy a cake for Meimei's birthday. Daiming wants to buy a durian cake. Siuming remembers what cake flavour Meimei likes and asks Daiming, "Does Meimei like durian?"

Image A: Daiming is holding an odorous durian cake. A thought bubble comes from Siuming that shows Meimei with a heart symbol next to a durian.

Image B: Daiming is holding an odorous durian cake. A thought bubble comes from Siuming that shows Meimei with a heart symbol next to a durian.

小明著住一套西裝準備出門口。大明問：「你要返工嗎？」

Siu2ming4 zoe3-zyu6 jat1 tou3 sai1zong1 zeon2bei6 ceot1 mun4hau2. Daai6ming4 man6:
‘Nei5 jiu3 faan1gung1 maa3?’

Siuming is in a suit and getting ready to go out. Daiming asks, “Do you have to go to work?”

Image A: Siuming is wearing a blue suit and tie. Daiming is in a regular shirt. The window shows a sunny day.

Image B: Siuming is wearing a blue suit and tie. Daiming is wearing a nightcap and pyjamas. The window shows a night sky.

美美好想同大明去日本玩，同大明講日本有咩好食。大明問：「去日本好嗎？」

Mei5mei5 hou2 soeng2 tung4 Daai6ming4 heoi3 jat6bun2 waan5, tung4 Daai6ming4 gong2
jat6bun2 jau5 me1 hou2sik6. Daai6ming4 man6: 'Heoi3 jat6bun2 hou2 maa3?'

Meimei really wants to go to Japan with Daiming and tells him about all the delicious food in Japan. Daiming asks, "Would it be good to go to Japan?"

Image A: Above Daiming is a cloud showing he loves sushi.

Image B: Above Daiming is a cloud showing he is disgusted by sushi.

小明話自己做好晒家務，所以打嚟機。大明問小明：「你有執房嗎？」

Siu2ming4 waa6 zi6gei2 zou6hou2-saa3 gaa1mou6, so2ji5 daa2-gan2 gei1. Daai6ming4 man6
Siu2ming4: ‘Nei5 jau5 zap1fong2 maa3?’

Siuming says he finished his chores, so he is now playing video games. Daiming asks Siuming:
‘Did you clean your room?’

Image A: Siuming is playing video games in his room, which has no garbage and the bed is made.

Image B: Siuming is playing video games in his room, which is full of garbage and the bed is not made.

食飯之後，美美問侍應有咩甜品。大明問美美：「你仲食到甜品口尸尸手火？」

Sik6faan6 zi1hau6, Mei5mei5 man6 si6jing3 jau5 me1 tim4ban2. Daai6ming4 man6 Mei5mei5:
‘Nei5 zung6 sik6-dou2 tim4ban2 maa3?’

After dinner, Meimei asks the waiter what desserts are available. Daiming asks Meimei: “Do you still have room for dessert?”

Image A: Daiming and Meimei are at a restaurant and their table is clear.

Image B: Daiming and Meimei are at a restaurant and their table is stacked with many empty dirty plates. They are holding their full bellies.

小明同大明準備出門。大明著住一件大褸。小明問：「今日好凍咩？」

Siu2ming4 tung4 Daai6ming4 zeon2bei6 ceot1 mun4hau2. Daai6ming4 zoek6-zyu6 jat1 gin6 daai6 lau1. Siu2ming4 man6: 'Gam1jat6 hou2 dung3 me1?'

Siuming and Daiming are getting ready to go out. Daiming is wearing a large coat. Siuming asks, "Is it very cold today?"

Image A: Behind Daiming is a calendar marked June with a beach chair.

Image B: Behind Daiming is a calendar marked January with a snowman.

List 2

小明同朋友美美話最近想買一部新車。美美問：「你夠錢嗎？」

Siu2ming4 tung4 pang4jau5 Mei5mei5 waa6 zeoi3gan6 soeng2 maai2 jat1 bou6 san1 ce1. Mei5mei5 man6: "Nei5 gau3 cin2 maa3?"

Siuming tells his friend Meimei that he's recently been thinking of getting a new car. Meimei asks, "Do you have enough money?"

Image A: Siuming is pictured with a mansion and fancy car in the background.

Image B: Siuming is pictured in a dilapidated bedroom.

美美想入油，小明諗返起琴日嘅油價問美美：「今日啲油平嗎？」

Mei5mei5 soeng2 jap6jau2, Siu2ming4 nam2-faan1hei2 kam4jat6 ge3 jau4gaa3 man6 Mei5mei5: "Gam1jat6 di1 jau2 peng4 maa3?"

Meimei wants to fill up on gas. Siuming thinks back to yesterday's gas prices and asks Meimei, "Is the gas inexpensive today?"

Image A: Siuming and Meimei are in a car together. A thought bubble from Siuming shows yesterday's gas price is almost 100 cents/L and a happy emoji.

Image B: Siuming and Meimei are in a car together. A thought bubble from Siuming shows yesterday's gas price is over 200 cents/L and a crying emoji.

美美同小明話大明整蛋糕畀大家食。小明諗返起大明以前煮過嘅嘢，小明問：「佢識整蛋糕嗎？」

Mei5mei5 tung4 Siu2ming4 waa6 Daai6ming4 zing1 daan6gou1 bei2 daai6gaa1 sik6.

Siu2ming4 nam2-faan1hei2 Daaiming ji5cin4 zyu2-gwo3 ge3 je5, Siu2ming4 man6: “Keoi5 sik1 zing2 daan6gou1 maa3?”

Meimei tells Siuming that Daiming is baking a cake for everyone. Siuming thinks about the food that Daiming has made in the past and he asks, “Does he know how to make cake?”

Image A: A speech bubble from Meimei shows Daiming holding a birthday cake. A thought bubble from Siuming shows Daiming in a fancy chef hat beside a beautiful turkey and strawberry shortcake.

Image B: A speech bubble from Meimei shows Daiming holding a birthday cake. A thought bubble from Siuming shows Daiming with food stains on his shirt holding a spatula. Beside Daiming are images of burnt toast and bloody chicken.

小明喺銀行搵到份新工，要買新衫返工。佢見到一件佢鐘意嘅衫。大明問：「你鐘意呢件嗎？」

Siu2ming4 hai2 ngan4hong4 wan2 dou2 fan6 san1gung1, jiu3 maa5 san1saam1 faan1gung1.

Keoi5 gin3-dou2 jat1 gin6 keoi5 zung1ji3 ge3 saam1. Daai6ming4 man6: 'Nei5 zung1ji3 nil gin6 maa3?"

Siuming got a new job at the bank and is looking for new work clothes. He sees a top he likes.

Daiming asks: “Do you like this one?”

Image A: Siuming sees a simple dress shirt.

Image B: Siuming sees a bright pink shirt with clowns and flowers.

美美去小明屋企，見到一幅相，係小明同埋一隻狗。美美問小明：「你有養狗嗎？」

Mei5mei5 heoi3 siu2ming4 uk1kei5, gin3 dou2 jat1 fuk1 soeng1, hai6 Siu2ming4 tung4-maa4 jat1 zek3 gau2. Mei5mei5 man6 Siu2ming4: ‘Nei5 jau5 joeng5 gau2 maa3?’

Meimei is at Siuming’s house and sees a photo of Siuming with a dog. She asks: “Do you have a dog?”

Image A: Siuming’s house is littered with dog toys and his couch is covered in fur.

Image B: Siuming’s house is spotless.

大明同美美今晚想食白菜。佢哋去買餸之前一齊睇過雪櫃有乜嘢。喺超級市場，大明話唔使買白菜。美美問：「屋企有白菜咩？」

Daai6ming4 tung4 Mei5mei5 gam1maan1 soeng2 sik6 baak6coi3. Keoi5dei6 heoi3 maai5sung3 zi1cin4 jat1cai4 tai2-gwo3 syut3gwai6 jau5 mat1je5. Hai2 ciu1kap1si5coeng4, Daai6ming4 waa6 m4 sai2 maai2 baak6 coi3. Mei5mei5 man6: “Uk1kei5 jau5 baak6coi3 me1?”

Daiming and Meimei want bok choy for dinner. Before doing their groceries, Daiming looks in the fridge and sees what they already have. At the grocery store, Daiming tells Meimei they don't need to buy bok choy. Meimei asks, “Do we have bok choy at home?”

Image A: Daiming and Meimei have eggs and bok choy in the fridge. At the grocery store, Daiming reaches for meat. A giant red 'x' goes over the bok choy.

Image B: Daiming and Meimei have nothing in the fridge. At the grocery store, Daiming reaches for meat. A giant red 'x' goes over the bok choy.

小明同大明想買蛋糕慶祝美美生日。大明想買榴槿蛋糕。小明記得美美鐘意嘅蛋糕味，問大明：「美美鐘意榴槿咩？」

Siu2ming4 tung4 Daai6ming4 soeng2 maaai2 daan6gou1 hing3zuk1 Mei5mei5 saang1jat6. Daai6ming4 soeng2 maai2 lau4lin4 daan6gou1. Siu2ming4 gei3dak1 Mei5mei5 zung1ji3 ge3 daan6gou1 mei6, man6 Daaiming: “Mei5mei5 zung1ji3 lau4lin4 me1?”

Siuming and Daiming want to buy a cake for Meimei's birthday. Daiming wants to buy a durian cake. Siuming remembers what cake flavour Meimei likes and asks Daiming, “Does Meimei like durian?”

Image A: Daiming is holding an odorous durian cake. A thought bubble comes from Siuming that shows Meimei with a heart symbol next to a durian.

Image B: Daiming is holding an odorous durian cake. A thought bubble comes from Siuming that shows Meimei with a heart symbol next to a durian.

小明著住一套西裝準備出門口。大明問：「你要返工咩？」

Siu2ming4 zoek3-zyu6 jat1 tou3 sai1zong1 zeon2bei6 ceot1 mun4hau2. Daai6ming4 man6: ‘Nei5 jiu3 faan1gung1 me1?’

Siuming is in a suit and getting ready to go out. Daiming asks, “Do you have to go to work?”

Image A: Siuming is wearing a blue suit and tie. Daiming is in a regular shirt. The window shows a sunny day.

Image B: Siuming is wearing a blue suit and tie. Daiming is wearing a nightcap and pyjamas. The window shows a night sky.

美美好想同大明去日本玩，同大明講日本有咩好食。大明問：「去日本好咩？」

Mei5mei5 hou2 soeng2 tung4 Daai6ming4 heoi3 jat6bun2 waan5, tung4 Daai6ming4 gong2
jat6bun2 jau5 me1 hou2sik6. Daai6ming4 man6: 'Heoi3 jat6bun2 hou2 me1?'

Meimei really wants to go to Japan with Daiming and tells him about all the delicious food in Japan. Daiming asks, "Would it be good to go to Japan?"

Image A: Above Daiming is a cloud showing he loves sushi.

Image B: Above Daiming is a cloud showing he is disgusted by sushi.

小明話自己做好晒家務，所以打嚟機。大明問小明：「你有執房咩？」

Siu2ming4 waa6 zi6gei2 zou6hou2-saa13 gaa1mou6, so2ji5 daa2-gan2 gei1. Daai6ming4 man6
Siu2ming4: 'Nei5 jau5 zap1fong2 me1?'

Siuming says he finished his chores, so he is now playing video games. Daiming asks Siuming: 'Did you clean your room?'

Image A: Siuming is playing video games in his room, which has no garbage and the bed is made.

Image B: Siuming is playing video games in his room, which is full of garbage and the bed is not made.

食飯之後，美美問侍應有咩甜品。大明問美美：「你仲食到甜品咩？」

Sik6faan6 zi1hau6, Mei5mei5 man6 si6jing3 jau5 me1 tim4ban2. Daai6ming4 man6 Mei5mei5:
'Nei5 zung6 sik6-dou2 tim4ban2 me1?'

After dinner, Meimei asks the waiter what desserts are available. Daiming asks Meimei: "Do you still have room for dessert?"

Image A: Daiming and Meimei are at a restaurant and their table is clear.

Image B: Daiming and Meimei are at a restaurant and their table is stacked with many empty dirty plates. They are holding their full bellies.

小明同大明準備出門。大明著住一件大褸。小明問：「今日好凍嗎？」

Siu2ming4 tung4 Daai6ming4 zeon2bei6 ceot1 mun4hau2. Daai6ming4 zoek6-zyu6 jat1 gin6

daai6 lau1. Siu2ming4 man6: 'Gam1jat6 hou2 dung3 maa3?'

Siuming and Daiming are getting ready to go out. Daiming is wearing a large coat. Siuming asks, "Is it very cold today?"

Image A: Behind Daiming is a calendar marked June with a beach chair.

Image B: Behind Daiming is a calendar marked January with a snowman.

Appendix C: Language Background Questionnaire

Migration

Were you born in Canada?

- Yes
- No:
 - Where were you born?
 - What age did you move to Canada?

Have you ever lived in another country?

- Yes
 - Please indicate the age and length of residency in this country
- No

Do you currently reside in the Greater Toronto Area (GTA)?

- Yes
 - Which area do you currently live in?
 - York Region
 - Scarborough
 - North York
 - Mississauga
 - Other: _____
 - Have you ever lived in any other neighbourhoods? If so, please indicate the age and length of residency:
 - Yes: _____
 - No

- No
 - Please indicate your age and length of residency in the GTA

Education

What is the highest level of education you have completed?

- Highschool
- College
- University, Bachelor's Degree
- University, Master's Degree
- University, Doctorate (Ph. D)
- Other: _____

Where did you complete your studies, and in what language(s)? Please list all places and languages applicable.

Occupation

Are you currently employed?

- Yes
 - What is your current occupation?
 - What language(s) did you speak at your current place of employment?
- No, I am a student
- No, I am retired
 - What was your last employment?
 - In what country were you employed?
 - What language(s) did you speak at your last place of employment?
- No, I am not currently employed.
 - What was your last employment?
 - In what country were you employed?
 - What language(s) did you speak at your last place of employment?

Language acquisition

Please list all the languages you know, including different Chinese languages/dialects, **in order of dominance**.

Please list all the languages you know, including different Chinese languages/dialects, **in order of acquisition** (native language first).

Please list what percentage of the time you are *currently* and *on average* exposed to each language.

When choosing a language to speak with a person who is equally fluent in all your languages, what percentage of time would you choose to speak each language? Please report percent of total time.

Please indicate your level of proficiency in speaking, understanding, and reading English (6-point scale)

Please indicate your level of proficiency in speaking, understanding, and reading Cantonese (6-point scale)

Please indicate your level of proficiency in speaking, understanding, and reading Mandarin (6-point scale)

Please indicate how much the following factors contributed to your learning Cantonese (6-point scale):

- Interacting with friends
- Interacting with family
- Interacting with community (e.g.: bakeries, supermarkets, restaurants)
- Reading
- Language apps/self-instruction
- Watching TV or film
- Listening to music or radio

Please indicate to what extent you are currently exposed to Cantonese in the following contexts (6-point scale):

- Interacting with friends
- Interacting with family
- Interacting with community (e.g.: bakeries, supermarkets, restaurants)
- Reading

- Language apps/self-instruction
- Watching TV or film
- Listening to music or radio

In your perception, how much of an English accent do you have when speaking Cantonese?

(6-point scale from None to Extremely Heavy)

How frequently would you say others identify you as a non-native speaker based on your accent in Cantonese? (6-point scale from Never to Always)

Family and community background

Please provide the following information about your parents. Please enter N/A where applicable.

- Rows: Father and Mother
- Columns: Country of birth, Language(s) spoken, Occupation, Highest degree completed

Do you live with your parents?

- Yes
- No:
 - How long has it been since you last lived with your parents?

Do you have siblings?

- Yes
 - How many siblings do you have and are you the oldest?
- No

Do you live with grandparents?

- Yes
 - What languages do(es) your grandparent(s) speak? Please list all languages, including different Chinese dialects, and indicate how often they speak each dialect/language with you.
- No, never
- No, but I used to
 - What languages do(es) your grandparent(s) speak? Please list all languages, including different Chinese dialects.

Please indicate how much English and Cantonese you **currently** speak to your family and how much you did in **early childhood** (before age 5): (6-point scale, from 0-Not Applicable, 1-English almost always, to 5-English almost never)

- Grandparent(s)-now
- Grandparent(s)-early childhood
- Father-now
- Father-early childhood
- Mother-now
- Mother-early childhood
- Siblings-now
- Siblings-early childhood

Please indicate how much English and Cantonese your family **currently** speaks to you and how much they did in your **early childhood** (before age 5): (6-point scale, from 0-Not Applicable, 1-English almost always, to 5-English almost never)

- Grandparent(s)-now
- Grandparent(s)-early childhood
- Father-now
- Father-early childhood
- Mother-now
- Mother-early childhood
- Siblings-now
- Siblings-early childhood

Please indicate how likely you are to use Cantonese when interacting with these other adult groups: (6-point scale, 0-Never, 1-English almost always, 2-English usually, 3-English 50% Cantonese 50%, 4-Cantonese usually, 5-Cantonese almost always)

- Extended family
- Family friends
- Restaurant workers
- Retail workers (e.g.: grocery, bakery)
- Professional services (e.g.: banker, accountant, mechanic, pharmacist)
- Community activities (e.g.: hobbies, clubs)

- Personal friends/acquaintances

Please indicate how much English and Cantonese you **currently** speak to other adult groups and how much you did in your **early childhood** (before age 5): (6-point scale, from 0-Not Applicable, 1-English almost always, to 5-English almost never)

- Extended family
- Family friends
- Restaurant workers
- Retail workers (e.g.: grocery, bakery)
- Professional services (e.g.: banker, accountant, mechanic, pharmacist)
- Community activities (e.g.: hobbies, clubs)

Please indicate how much English and Cantonese these adult groups **currently** speak to you and how much they did in your **early childhood** (before age 5): (6-point scale, from 0-Not Applicable, 1-English almost always, to 5-English almost never)

- Extended family
- Family friends
- Restaurant workers
- Retail workers (e.g.: grocery, bakery)
- Professional services (e.g.: banker, accountant, mechanic, pharmacist)
- Community activities (e.g.: hobbies, clubs)

Do you have Cantonese speaking friends or acquaintances with whom you interact?

- Yes
 - Please indicate in which language(s) you and your friends speak to each other (both when you speak to them and when they speak to you)? Think about 2 friends or acquaintances you interact with the most while answering this question.
- No

Do you have a spouse or partner?

- Yes
 - Does your spouse/partner speak Cantonese?
 - Yes
 - How well does your spouse/partner speak Cantonese? (6-point scale)

- How often do you speak Cantonese to your spouse/partner?
- How often does your spouse/partner speak Cantonese in the following circumstances: (6-point scale, 0-N/A)
 - To their family
 - To their friends
 - To you

- No

- No

Do you have children?

- Yes

- Please indicate how important each following statement is to you (6-point scale):

- My children should be completely fluent in Cantonese
- My children should be able to communicate with their grandparents and extended family
- My children should be able to navigate public situations in Cantonese with little-to-no difficulty (e.g.: restaurant, grocery store)
- My children should know about Chinese culture and/or history
- I celebrate traditional Chinese holidays with my children
- My children should grow up in a neighbourhood with other Cantonese families
- My children (will) attend Cantonese Chinese language school
- My children will have or have already had the opportunity to visit a Cantonese-speaking community in Asia

- No

- Would you like to have children in the future?

- Yes

- Please indicate how important each following statement is to you (6-point scale):

- My future children should be completely fluent in Cantonese

- My future children should be able to communicate with their grandparents and extended family
- My future children should be able to navigate public situations in Cantonese with little-to-no difficulty (e.g.: restaurant, grocery store)
- My future children should know about Chinese culture and/or history
- I will celebrate traditional Chinese holidays with my future children
- My future children should grow up in a neighbourhood with other Cantonese families
- My future children should attend Cantonese Chinese language school
- My future children should have the opportunity to visit a Cantonese-speaking community in Asia

- No

Which Cantonese-speaking communities have you visited?

- Hong Kong
- Macau
- Guangzhou
- Southeast Asia (specify which country:) _____

How often do you visit these communities? (6-point scale, 0-N/A, 1-No visits, 5-More than twice in the last 4 years)

How long do you stay during each visit? (6-point scale, 0-N/A, 1-Less than a week, 5-More than a month)

Please indicate how often you visit the following Cantonese hubs in the GTA (6-point scale, 1-Never, 5-more than twice a month):

- Midland/Finch area (Scarborough-Agincourt)
- Pacific Mall area (Southwest Markham)
- First Markham Place area (Markham-Unionville, Highway 7/Warden)
- Richmond Green area (Richmond Hill, Elgin Mills/404)

- Bayview Glen area (Thornhill, Yonge/Steeles)
- Other: _____

Language Attitudes Towards Cantonese

Please indicate to what extent you agree with the following statements: (5-point scale)

- It is a priority for me that...
 - I can understand and speak Cantonese
 - I can read and write in Cantonese
 - I know about Chinese history and traditions
 - I celebrate Chinese holidays
 - I keep in touch with my Cantonese-speaking family/relatives

Are you currently working on improving your Cantonese (actively or passively)?

- Yes
 - Please indicate to what extent you agree with the following statements: (6-point scale)
 - I learn Cantonese because...
 - Cantonese will help with my professional opportunities in Canada
 - Cantonese will help with my professional opportunities in Asia
 - I want to be independent when I visit Cantonese communities in Asia
 - It allows me to relate better to Cantonese culture (e.g.: watching movies, community events)
 - It allows me to relate better to my family
 - It allows me to navigate Cantonese-speaking businesses in Canada
 - I feel privileged knowing Cantonese
 - I worry that I will be criticized for not knowing Cantonese
- No
 - Please indicate why you are not currently improving your Cantonese (select all that apply):
 - I don't require any improvement
 - I believe my Cantonese is good enough for what I need

- I do not believe Cantonese is useful to improve
- I have no need to use Cantonese in my daily life
- I have been criticized for my Cantonese and now feel anxious using it
- I find Mandarin to be more useful to improve than Cantonese
- Other: _____

Please indicate to what extent you agree with the following statements: (6-point scale)

- I think that...
 - If I maintain close ties with Cantonese culture, I might find it harder to integrate into Canadian society
 - I will have more chances for professional development if I renounce my Cantonese culture/language

Cultural Identity

Please indicate the extent to which you identify with each culture below (6-point scale, 0-N/A, 1-None, 5-complete identification)

- Canadian
- Chinese
- Cantonese
- Hongkonger
- Vietnamese
- Other

Optional: Do you have any other comments you would like to make about your language background before completing this survey? If so, please comment below.

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