Acquisition of the Mandarin *ba*-Construction by Cantonese Learners [*]

Yang Yike [**]

(The Hong Kong Polytechnic University, China)

Abstract: Optionality, defined as the coexistence of two or more variants of a given construction, has been investigated in second language studies. Following the notion of optionality, this study defines the Mandarin *ba*-construction and its corresponding non-*ba*-forms as optional variants to examine Cantonese-speaking learners' acquisition of Mandarin. We designed an elicited production task and an acceptability judgement task to test the disposal and locational displacement types of the *ba*-construction, and invited Cantonese learners and Mandarin native speakers to attend the experiments. The Cantonese learners, like learners with other language backgrounds, produced fewer *ba*-sentences compared with native speakers, but the Cantonese learners produced much more *ba*-sentences than learners with other language backgrounds and were aware of the constraints on the *ba*-construction, which is probably due to the existence of the similar *zoeng*-construction in Cantonese. Although at an advanced level, the performance of the Cantonese learners diverged from that of the native speakers in both the production and the judgement, which demonstrates the existence of optionality in the Cantonese learners' interlanguage grammars.

Keywords: acquisition, second language, optionality, Mandarin, *ba*-construction

1. Introduction

The interlanguage of second language (L2) learners is known to be different from the native language and the target language (Selinker, 1972; Adjemian, 1976; Birdsong, 1989; Yip, 1995; Yuan, 2007), and the notion of 'optionality' has been put forward to provide a

new perspective on interlanguage grammars (Sorace, 2000, 2003). Optionality, which is different from variation, refers to the linguistic competence in underlying knowledge (i.e. the speakers have the optional variants in their mind, but might not utter them in their production). The Mandarin *ba*-construction and its corresponding non-*ba*-forms are defined as two optional variants in this study to help us explore the nature of optionality.

1.1 Optionality in interlanguage

Selinker (1972) introduced the term interlanguage to represent a special language system developed by L2 learners that is independent of their first language (L1) and their L2. Interlanguage is thought to be influenced by the linguistic features of both the L1 and L2, even though it systematically behaves like a natural language (Adjemian, 1976; Yip, 1995). The differences between the end state of child learners and that of adult learners have been noticed in the literature (Coppieters, 1987; Birdsong, 1992; Sorace, 1993; Papp, 2000). A child achieves native competence in the language (L1) at the end state, whereas the end state of an adult learner always varies and is characterised by different levels of proficiency in the L2 (sometimes termed 'multicompetence') (Cook, 1995). The interlanguage may cease to develop at a certain stage if the learner reaches a steady state (Lardiere, 1998a; White, 2003). Proposed as a new perspective to capture the interlanguage grammars, optionality was defined as the coexistence of two or more variants of a given construction within an individual grammar, and the variants 'make use of the same lexical resources and express the same meaning' (Sorace, 2000:93). The syntactic movement of the adverb, as in (1a), and the drop of the complementiser 'that', as in (2b), can serve as illustrations of optionality.

    (1) a. Mary speaks very well English.

       b. Mary speaks English very well.   (Sorace, 2000:97)

    (2) a. I think that Paul is very clever.

       b. I think Paul is very clever.   (Sorace, 2003:135)

According to Sorace (2000), French speakers of English tend to produce (1a), which has undergone adverbial movement. The omission of the complementiser 'that' in (2b) is another example of optionality. Sorace (2003) further claimed that optionality differs from 'variation' in that optionality refers to 'a state of grammatical competence', which is not a necessary or sufficient condition for variable performance. Optional variants exist in speakers' minds, but this does not guarantee the occurrence of the variants in the speakers' speech.

Optionality is found in both L1 child and L2 grammars. The optionality in L2 grammars has been investigated in various studies (Sorace, 1993; Lardiere, 1998b; Papp, 2000; Parodi & Tsimpli, 2005; Domínguez & Arche, 2008). L2 optionality differs from L1 optionality in the following ways: (a) most of the L2 learners have already achieved full L1 competence,

so the L1 may serve as an additional source of L2 optionality; (b) developmental optionality in L1 may end with only one variant, whereas L2 optionality tends to persist even at advanced competence levels; and (c) residual optionality is found in L2 ultimate attainment (Sorace, 2000, 2003). Robertson (2000) investigated the acquisition of English articles by Mandarin learners. Unlike English, Mandarin does not use articles. The dialogue in (3) exhibits either adoption or avoidance of articles by Mandarin learners. In this case, Mandarin is the learners' additional source of L2 optionality.

    (3) A: . . . in a, left hand side.

      B: The left hand side.

      A: Yeah, left hand side. And, er, the distance between blue square to red square is about five cm. And, er . . .   (Robertson, 2000:159)

Unlike the optional variants in L1 acquisition, the optional variants emerge alternatively in L2 development, and the optionality still exists even when the L2 learners have reached advanced proficiency. By that stage, the target variant would be 'strongly but not categorically preferred', but the non-target variant would never be 'completely expunged'; rather, the non-target variant would still appear occasionally in near-native grammars (Sorace, 2000, 2005). Sorace (2000) also proposed that L2 grammars have a 'much greater degree of tolerance' for the optional variants than native grammars.

1.2 The *ba*-construction

The Mandarin *ba*-construction has been widely studied, but no consensus has been reached on the nature of the *ba*-construction (Chang, 1998; Chao, 1968; Cheng, 1988; Ding, 2007; Kuo, 2010; Li, 2007[1924]; Li & Thompson, 1981:463-491; Liu, 2007; Lü, 1999[1980]:53-56; Lü, 2010; Shi, 2010; Sun, 2008; Teng, 1975; Wang, 1957; Wang, 2011; Zhang, 2001; Zheng, 2002; Zou, 1993, 1995). As shown in (4a), the canonical word order in Mandarin is subject-verb-object (SVO) (Sun & Givón, 1985). One feature of the *ba*-construction lies in its syntactic order, as illustrated in (4b), where the object *chuanghu* 'window' precedes the verb *guanshang* 'close'.

    (4) a. *ta*   *guanshang-le*   *chuanghu*

        he/she   close-LE   window

        'He/she closed the window.'

      b. *ta*   *ba*   *chuanghu*   *guanshang-le*

        he/she   BA   window   close-LE

        'He/she closed the window.'

    (5) Subject + *ba* + object + verb + others

(5) illustrates the word order of the typical *ba*-construction, wherein the *ba*-Nominal Phrase (henceforth, *ba*-NP) and the *ba*-Verb Phrase (henceforth, *ba*-VP) refer to the noun phrase immediately following *ba* and the constituency of 'verb + others', respectively.

According to Li (2007[1924]: 41-43), which is the first analysis on the *ba*-construction, the function of *ba* is to introduce the object and place it before the verb. Following Li's study, linguists have examined the *ba*-construction from various approaches (see Mullie (1932: 178-185) for an accusative approach; Wang (1985[1943]: 124-130) and Lü (2002[1955]) for a disposal approach, Thompson (1973) for a transitivity approach, Tsao (1987) for a topic-comment approach, Liu (1997) for an aspectual approach, Sybesma (1999) for a syntactic-semantic approach, and Bender (2000) for a lexical functional grammar approach).

Apart from the distinction in word order, there are further constraints on the *ba*-NP and *ba*-VP. The *ba*-NP must be either definite or generic (Cui, 1995; Lü, 2002[1955]; Mullie, 1932: 178-185). The constraint on the *ba*-VP is that bare verbs are prohibited; namely, the VP must be morphologically complex, and should be either (a) a resultative verbal complement (RVC), (b) a verb plus an aspect marker, or (c) a verb plus a locative prepositional phrase (PP) (Li & Thompson, 1981: 463-491; Liu, 1997). An alternative view comes from Feng (1995, 2001), who argued that the *ba*-construction might be under one kind of prosodic constraint and thus a bare-verb construction might also be allowed. Moreover, Yang (1998a, 1998b) proposed that the *ba*-construction must satisfy the aspectual feature of [+telic] and [+perfective], so the VP must be complex to indicate the telicity of the activity.

Wang (1987[1943]: 124-130) put forward the notion of disposal and suggested that the *ba*-construction must carry a semanteme that deals with something. The *ba*-construction may also be used in other cases (see Lü (1994) for a summary). Lü (1994) classified 1,094 *ba*-sentences into six semantic types and calculated the proportion of each type. The results showed that the disposal and locational displacement (location) types occurred the most frequently, with the former constituting 49.8% of all the sentences (546 out of 1094) and the latter 27.8% (305 out of 1094). Based on Lü's classification, this study investigated these two kinds of *ba*-construction: the location *ba*-construction as illustrated in (6a) and the disposal *ba*-construction as illustrated in (6b). The *ba*-NPs in the location type undergo locational displacement as 'being moved away' in (6a), while the *ba*-NPs in the disposal type are affected by the action as 'being erased' in (6b).

(6) a. *ta*   *ba*   *zhuozi*   *banzou-le*
  he/she BA desk   move away-LE
  'He/she moved the desk away.'

 b. *ta*   *ba*   *heiban* *ca*   *ganjing-le*
  he/she BA blackboard erase clean-LE
  'He/she erased the blackboard.'

Previous studies on L2 acquisition of the *ba*-construction mainly focused on the

development of the *ba*-construction in L2 grammars (Du, 2006; Huang & Yang, 2004; Jin, 1993; Jin, 2010; Wen, 2012; Yu, 2000). Mandarin belongs to the Sino-Tibetan language family, but the L1s of participants from the previous studies were either Indo-European Languages (English and Norwegian) or Altaic languages (Japanese and Korean). Also, different methods were adopted in these studies, among which the elicited production task was the most popular. In general, these studies showed that although participants of different levels exhibited certain awareness of the constraints on the *ba*-construction and were able to produce correct *ba*-sentences, their percentages of adoption were much lower than those of the native control groups. However, no satisfactory explanations were provided for this finding.

In Cantonese, the *zoeng*-construction is regarded as the counterpart of the Mandarin *ba*-construction (Tang, 2002). As shown in (7) and (8), the *zoeng*-construction shares a very similar syntactic structure with the *ba*-construction, but there are some apparent differences between them (Cheung, 1992; Chen, 2005). For example, the *ba*-construction accepts all kinds of subject nouns, but the subject of the *zoeng*-construction must be an [+animate] agent. Also, while the *ba*-construction is a widely used construction in Mandarin, the usage of the *zoeng*-construction is very restricted, i.e. it occurs only in disposal cases and in very formal situations. Still, the Cantonese *zoeng*-construction may have some effects on the interlanguage of Cantonese learners and serve as a source of L2 optionality.

(7) Subject + *zoeng* + object + verb + others

(8) *keoi   zoeng   dou   mun   saan-maai*
    he/she   ZOENG   CL   door   close-MAAI
    'He/she closed the door.'

1.3 This study

To fill the gaps in the field, this study attempts to observe and explain the acquisition data from a different perspective, namely, by positing the existence of optionality in the participants' interlanguage grammars. We define optionality as two variants (the *ba*-construction, as in (4b), and the non-*ba*-construction, as in (4a)) and investigate whether optionality exists in the acquisition of the Mandarin *ba*-construction by the Cantonese speakers. The following are the research questions this study attempts to address:

1) Do the L2 learners have a preference for the *ba*-construction or the non-*ba*-construction?

2) Is there any difference between the acquisition of the disposal *ba*-construction and the acquisition of the location *ba*-construction?

3) How is the L2 learners' tolerance for *ba*-sentences and corresponding non-*ba*-sentences?

2. Methodology

We designed an elicited production experiment and an acceptability judgement experiment, which were conducted one-on-one in a quiet room. All the participants gave their written informed consent prior to the experiments, and the production experiment always preceded the judgement experiment.

2.1 Participants

The same participants were recruited for the two experiments. Their background information is provided in Table 1.

Table 1. Background information of the participants

Group	No	Age	L1	Place of birth and growth
Can	30 (14 males, 16 females)	18 - 22 (M = 19.7)	Cantonese	Hong Kong
Man	20 (9 males, 11 females)	20 - 25 (M = 23.4)	Mandarin	Northern China

Note: Can = Cantonese-speaking learner group; Man = Mandarin-speaking control group

The Cantonese group consisted of 30 Cantonese-speaking undergraduates from the Chinese University of Hong Kong who were born and raised in Hong Kong. A background questionnaire was prepared to assess the participants' language backgrounds and guarantee their proficiency in Mandarin. Additionally, an independent test of Mandarin listening and comprehension was administered at the end of each experiment. The highest possible score for the independent test was 20, and participants' scores ranged from 17 to 20 (M = 18.97), from which we can conclude that the Mandarin proficiency of the participants was at the advanced level. Twenty native speakers of Mandarin formed the control group. Since the Chinese spoken in Northern China is closest to Standard Mandarin, only those who were born and raised in Northern China were recruited.

2.2 Experiment 1: Elicited production

The first experiment was an elicited production test with 24 sets of pictures as the stimuli. Among the 24 sets of pictures, 12 describe one situation that involves either the case of location or the case of disposal as target sentences (six sets for each case), and the other 12 are fillers. Figures 1 and 2 are examples of the stimuli for the target sentences, and Figure 3 illustrates a case of the fillers. The picture stimuli used in this test were prepared and originally designed by the author and our artists.

Because students in Hong Kong are required to learn written Chinese (which generally follows the grammar of Mandarin), the data were collected orally to avoid the influence of the written form (Chinese characters). During the experiment, the participants were instructed to describe each set of pictures in one sentence in Mandarin. They were allowed to repeat or correct the sentences they produced. Before the experiment, there was a practice session with another two sets of pictures for the participants to get familiar with

the task. The entire task was audio-recorded to guarantee that the answers were recorded accurately.

Figure 1. An example of stimuli for target sentences (disposal)
Target sentence: *ta ba heiban ca ganjing-le* 'She erased the blackboard.'

Figure 2. An example of stimuli for target sentences (location)
Target sentence: *ta ba shubao fangdao-le zhuo shang* 'She put her schoolbag on the table.'

Figure 3. An example of fillers that do not elicit *ba*-sentences
This filler sentence does not relate to any disposal or locational meaning,
and the main verb, *mengjian* 'to dream of', rarely occurs in native speakers' *ba*-sentences.

To process the data, the target sentences in the recordings were first transcribed to text. Next, the author manually coded all the sentences and identified whether each sentence was a *ba*-sentence or a non-*ba*-sentence. The *ba*-sentences were coded as '*ba*' (labelled as '1') and the non-*ba*-sentences as 'non-*ba*' (labelled as '0'). For the data analysis, we fitted linear mixed-effects models using the 'lme4' package (Bates, Mächler, Bolker & Walker, 2015) in R (R Core Team, 2018). In model construction, *Response* ('*ba*' or 'non-*ba*') was the dependent variable. *Language* (i.e., L1, 'Mandarin' or 'Cantonese') and *Type* ('Disposal' or 'Location') were included as the fixed effects, and *Participant* and *Trial* were added as the random effects. Likelihood ratio tests were used to determine whether the effects of independent variables reached significance. Besides the quantitative analysis, we also examined the *ba*-NP and *ba*-VP in detail to see whether the constraints of *ba*-construction are acquired.

2.3 Experiment 2: Acceptability judgement

In the acceptability judgment test, there were 48 trials in total. Twelve of them were sentences with the *ba*-construction, as in (4b), and another 12 were simple declaratives, as in (4a). The remaining 24 were filler sentences. There were six disposal *ba*-sentences and six location *ba*-sentences, all of which are grammatical, while their corresponding simple declaratives are either barely acceptable or unacceptable. The grammaticality of the fillers also varies. All the stimuli were randomised and recorded by two native speakers of Mandarin prior to the experiment.

During the experiment, the participants were presented with the audio stimuli and asked to make a judgment after listening to each Mandarin sentence. Since linguistic data occasionally fail to provide a 'clear-cut division' between fully acceptable/grammatical and fully unacceptable/ungrammatical, and there always exists gradience as a result of the data's varying in degrees of acceptability/grammaticality (Sorace & Keller, 2005), we designed a rating scale in which the participants were required to rate each sentence on a five-point Likert scale (Likert, 1932) from 'Completely unacceptable' (marked as '1') to 'Completely acceptable' (marked as '5'). Our rating scale of acceptability judgement was similar to that used in Ma (2008), except for that no specific description of the levels 2, 3 and 4 was provided to the participants in our experiment.

For the data analysis, we employed ordinal logistic regression modelling to the rating responses. Although we presented a five-point rating scale to the participants, it would be dangerous to claim that the distance from '1' to '2' is equivalent to the distance from '2' to '3'. The advantage of using the ordinal logistic regression is that this model assumes only the hierarchy of the responses while not considering the distance of them (Harrell, 2015). In the models, *Response* was included as the dependent variable, and *Ba* ('*ba*' *or* '*non-ba*'), *Language* ('Mandarin' or 'Cantonese') and *Type* ('Disposal' or 'Location') were the

independent variables. The models were fitted with the 'MASS' package (Venables & Ripley, 2002) and the figures were plotted with the 'ggplot2' package (Wickham, 2016). Similarly, likelihood ratio tests were used to determine whether the effects of dependent variables reached significance.

3. Results
3.1 Elicited production

Table 2 is an overview of the production data. The Cantonese learners produced 252 *ba*-sentences, which constituted 70% of the 360 sentences they produced in total. The Mandarin speakers produced 212 *ba*-sentences, accounting for 88% of all their sentences. We first fitted linear mixed-effects models with all the data we collected. There was an effect of *Language* ($\chi^2(1) = 8.684$, *p* = .003), suggesting that the Mandarin group outperformed the Cantonese group in the production. The effect of *Type*($\chi^2(1) = .513$, *p* = .474) or the interaction of *Language* and *Type* ($\chi^2(1) = 1.379$, *p* = .240) did not reach significance, from which we can infer that the participants did not distinguish between the two types of *ba*-sentences in their production.

Table 2. An overview of the sentences produced

Group	Semantic type	No. of sentences produced	No. of *ba*-sentences	Percentage of *ba*-sentences
Can	Overall	360	252	70.00%
	Type 1	180	123	68.33%
	Type 2	180	129	71.67%
Man	Overall	240	212	88.33%
	Type 1	120	100	83.33%
	Type 2	120	112	93.33%

Note: Type 1 = location; Type 2 = disposal

Next, we compared the production data of each group separately. Again, the models showed that both groups had similar performance in the production of the two types of *ba*-sentences (for the Mandarin group: $\chi^2(1) = 1.313$, *p* = .252; for the Cantonese group: $\chi^2(1) = .123$, *p* = .726). Lastly, we separated the data into different types of *ba*-sentences to see whether there were differences in the two groups. According to the models, the Mandarin group had higher accuracy scores than the Cantonese group for both the disposal type ($\chi^2(1) = 9.545$, *p* = .002) and the location type ($\chi^2(1) = 5.728$, *p* = .017).

We then examined the *ba*-NPs and *ba*-VPs in detail. Table 3 shows the different types of *ba*-NPs produced by the two groups of participants, the distribution of which was similar across groups. More than half of the *ba*-NPs were bare nouns, which normally refer to the

objects already known by both the speaker and the listener, so bare nouns are well in line with the [+definite] constraint on the *ba*-NP. In addition, the participants replaced the nouns with pronouns in multiclausal sentences. The remaining *ba*-NPs were all combinations of a modifier and a head noun, where the modifier was either a possessive element or a relative clause preceding the noun. Both the pronouns and the modified nouns are definite. Therefore, no error has been found concerning the semantic requirement of the *ba*-NP.

Table 3. Distribution of *ba*-NPs

Group	Bare Noun	Possessive DP	Num + Cl + N	Pron	Relative Clause	Others
Can	54.15%	22.13%	5.14%	9.49%	3.16%	5.93%
Man	65.42%	14.02%	8.88%	5.61%	5.61%	0.47%

Table 4 presents the distribution of *ba*-VPs produced by the two groups. A similar distribution pattern was also observed for the two groups. Of all the types, 'RVC (+ le)' was the most frequently used type of *ba*-VP, followed by 'V + P (+ le) + L', 'V + P (+ le) + N' and 'V + le + (C)'. These four types constituted 95.07% of all the *ba*-sentences (95.26% for the Cantonese group and 94.86% for the Mandarin group). They clearly indicated the results of changes to the objects, which fit the semantic and pragmatic requirements of the *ba*-construction.

Table 4. Distribution of *ba*-VPs

Group	RVC + le	V +P (+ le) + L	V + P (+ le) + N	V + le (+ C)	Bare verb	Others
Can	65.22%	19.76%	5.14%	5.14%	1.19%	3.56%
Man	59.35%	24.30%	7.01%	4.21%	0.00%	5.14%

A closer examination on the *ba*-NPs and *ba*-VPs showed that the Cantonese learners have acquired the constraint on the *ba*-construction and are able to produce appropriate *ba*-sentences. Despite the fact that the Mandarin speakers produced more *ba*-sentences than the Cantonese learners at the group level, there were three Cantonese speakers that produced 12 *ba*-sentences in their data, that is, they used *ba*-construction for all the target sentences, which is even more frequent than some native speakers. At the end of the next section, we will compare the rating of these three participants with the Mandarin group.

3.2 Acceptability judgement

This part reports the results of the acceptability judgement task. The responses to the 24 target sentences (12 *ba*-sentences and 12 corresponding non-*ba*-sentences) were analyzed and presented in Figure 4. There were significant effects of the variables *Ba* ('ba' or 'non-ba'; ($\chi^2(1) = 185.734$, $p < .001$)) and *Language* ('Mandarin' or 'Cantonese'; type ($\chi^2(1) = 5.638$, $p = .018$)) but not any effect of the variable *Type* ('Disposal' or 'Location'; type ($\chi^2(1) = 0.692$, $p = .405$)). Interaction between *Ba* and *Language* was also found ($\chi^2(1) = 55.142$, $p < .001$), suggesting divergence between the two groups in the rating of the

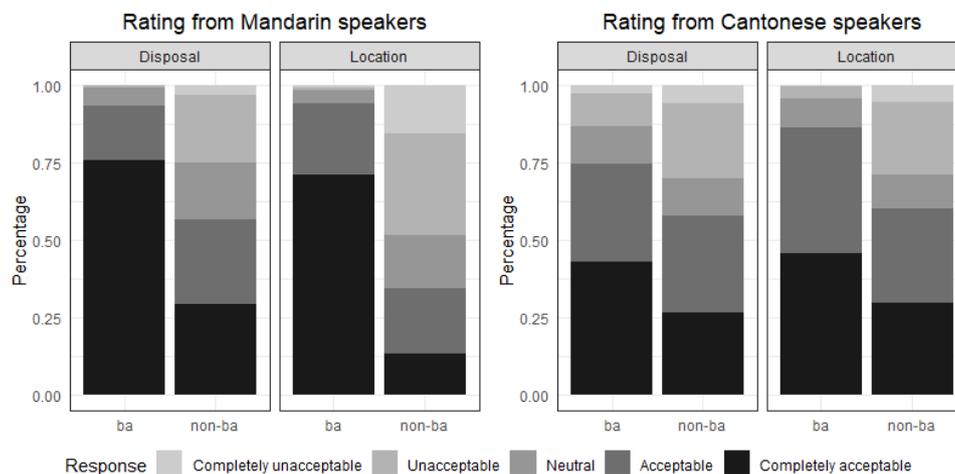*ba*-sentences and non-*ba*-sentences.

Figure 4. Rating from the acceptability judgement experiment

We then separated the data into two language groups and fitted different models to examine the effects of *Ba* and *Type* on the rating scores. For the data of Mandarin speakers, there were effects of *Ba* ($\chi^2(1) = 181.491$, $p < .001$) and *Type* ($\chi^2(1) = 9.554$, $p = .002$) as well as interaction between the two variables ($\chi^2(1) = 5.335$, $p = .021$). Post-hoc tests revealed two points: (a) the Mandarin speakers rated the *ba*-sentences higher than the non-*ba*-sentences ($p < .001$); and (b) for the non-*ba*-sentences, the Mandarin speakers rated the Location type lower than the Disposal type ($p < .001$). For the Cantonese speakers, only the effect of *Ba* reached significance ($\chi^2(1) = 44.195$, $p < .001$). Although Cantonese speakers also gave higher scores to the *ba*-sentences than the non-*ba*-sentences ($p < .001$), they did not distinguish the Location and Disposal types for the non-*ba*-sentences ($p = .594$).

Next, we divided the data into *ba*- and non-*ba*-sentences, and tested whether the effects of *Language* and *Type* on the rating scores reached significance. For the *ba*-sentences, there was an effect of *Language* ($\chi^2(1) = 55.113$, $p < .001$) and the Mandarin speakers rated the *ba*-sentences higher than the Cantonese learners ($p < .001$). No effect of *Type* or interaction between *Language* and *Type* was found, suggesting that both groups gave consistently high scores to the two types of *ba*-sentences. For the non-*ba*-sentences, there were effects of *Language* ($\chi^2(1) = 8.245$, $p = .004$) and *Type* ($\chi^2(1) = 5.424$, $p = .020$) as well as an interaction between the two variables ($\chi^2(1) = 13.919$, $p < .001$), indicating that both groups gave higher scores to the Location type non-*ba*-sentences and that the Mandarin speakers gave lower scores than the Cantonese learners. Although both groups did not show any difference when rating the Disposal type non-*ba*-sentences ($p = .585$), the Mandarin

speakers gave lower scores when rating the Location type non-*ba*-sentences ($p < .001$).
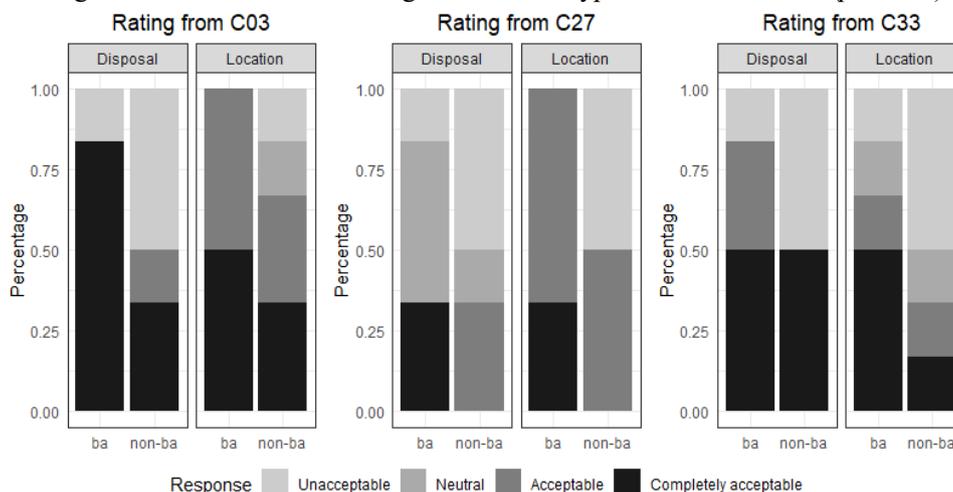

Figure 5. Rating from selected individual Cantonese learners

Lastly, we extracted the rating data from the three Cantonese learners (C03, C27 and C33) that produced 12 *ba*-sentences in the production experiment to compare them with the Mandarin rating data. The results are presented in Figure 5. We first fitted models with data from the three learners as a group, and then fitted models for each learner separately. At the group level, there was a marginal effect of *Language* on the rating scores ($\chi^2(1) = 2.675$, $p = .102$), suggesting that the three learners still behaved differently from the Mandarin speakers. Also, compared with the three Cantonese learners, the Mandarin speakers gave higher scores in the rating to the *ba*-sentences ($\chi^2(1) = 9.845$, $p = .002$). At the individual level, Participant C03 did not differ from the Mandarin group ($\chi^2(1) = .136$, $p = .712$), either for the *ba*-sentences ($\chi^2(1) = .285$, $p = .593$) or for the non-*ba*-sentences ($\chi^2(1) = .944$, $p = .331$), while the other two participants' rating to the *ba*-sentences differed from the Mandarin group ($\chi^2(1) = 9.845$, $p = .002$ for Participant C27 and $\chi^2(1) = 9.845$, $p = .002$ for Participant 33). However, an obvious difference can be seen from the data. The three learners, unlike the native speakers, only use four of the five points on the rating scale. The one they did not choose is 'completely unacceptable' (as shown in Figure 5), indicating that the learners were more tolerant to the non-*ba*-sentences than the native speakers, as predicted by Sorace (2000).

4. Discussion

This study asked the following research questions: (a) Do the L2 learners have a preference for the *ba*-construction or the non-*ba*-construction? (b) Is there any difference between the acquisition of the disposal *ba*-construction and the acquisition of the location

ba-construction? (c) How is the L2 learners' tolerance for *ba*-sentences and corresponding non-*ba*-sentences? The L2 learners produced 70% *ba*-sentences in the production task with very few errors, and the result revealed a clear preference for the *ba*-construction over the non-*ba*-construction. In regard to the two types of *ba*-construction tested in this study, the L2 learners did not show any difference between the disposal and location *ba*-sentences in both tasks. When they were required to mark the acceptance of the Mandarin sentences, the L2 learners, like the native speakers, gave higher scores to the *ba*-sentences than the non-*ba*-sentences, but divergence was found in the rating: the L2 learners did not rate the *ba*-sentences as high as the native speakers; nor did they rate the non-*ba*-sentences as low as the native speakers.

It can be seen from our data that the Cantonese learners performed relatively well in the two tasks; they produced more target *ba*-sentences than the non-target-forms in production, and they also gave higher marks to the *ba*-sentences in the acceptability judgment task. Our data proves that the *ba*-construction is learnable and acquirable for the Cantonese learners. Although the frequency of using *ba*-construction by the L2 learners was not as high as the L1 speakers, the L2 learners were aware of the constraints on the *ba*-construction and were able to express themselves with the appropriate *ba*-sentences.

Compared with the previous studies on the L2 acquisition of the *ba*-construction, the Cantonese learners' performance in this study was much better, as they produced noticeably more *ba*-sentences than learners with other L1s (e.g. only 27.1% were produced by advanced English learners in Wen (2012)). A plausible explanation is that the similarities in linguistic features between Cantonese and Mandarin may have contributed to the more successful acquisition of the *ba*-construction by the Cantonese learners, whereas the absence of a counterpart in the L1s may result in less successful acquisition by learners with other language backgrounds (Mai, 2016). Without any prior knowledge of such a structure in their L1s, it is very difficult (if not impossible) for learners to acquire the complex structure and the constraints of the *ba*-construction, and this consequently makes the learners tend to avoid using it (Yu, 2000). However, one might argue that the observed divergence between the Cantonese learners and English learners may result from the differences in the test design while not from the L1s. To test whether the claim of L1 influence holds true, speakers with other L1s should attend the same experiment for a direct comparison with our data from Cantonese learners.

Although the Cantonese learners in our study outperformed the learners from previous studies, there was still divergence between the Cantonese learners and native speakers in both the production and judgement tasks, suggesting that the Cantonese learners have not reached nativelike competence in the use of the *ba*-construction. In the production task, three Cantonese learners adopted the *ba*-construction for all the target trials, which may be

a counterexample of this claim. But when we examined the judgement data of the three learners in details, we found that none of them rejected the non-*ba*-sentences as strongly as the native speakers (as shown above, they did not choose 'completely unacceptable'). Thus, 'residual optionality' in our data provided evidence to the existing literature on incompleteness in L2 ultimate attainment (Cheng & Tang, 2016; Zheng, 2018). According to the Interface Hypothesis (Sorace, 2011; Sorace & Filiaci, 2006), narrow syntactic properties can be fully acquired by L2 learners, while properties at the interface of different linguistic domains (e.g. syntax-pragmatics interface) are particularly challenging and may not reach nativelike competence in ultimate attainment. The *ba*-construction, as reviewed above, has syntactic and semantic constraints and is not a purely syntactic structure. It is not surprising that the advanced learners of Mandarin did not show nativelike performance in our tasks.

5. Conclusion

In this study, we conducted an elicited production experiment and an acceptability judgement experiment to explore the acquisition of Mandarin *ba*-construction by Cantonese learners. The Cantonese learners, like learners with other language backgrounds, produced fewer *ba*-sentences compared with native speakers, but the Cantonese learners produced much more *ba*-sentences than learners with other language backgrounds and were aware of the constraints on the *ba*-construction, which is probably due to the existence of the similar *zoeng*-construction in Cantonese. Although at an advanced level, the performance of the Cantonese learners diverged from that of the native speakers in both the production and the judgement experiments, which demonstrates the existence of optionality in the Cantonese learners' interlanguage grammars.

References

Adjemian, C. 1976. On the Nature of Interlanguage System [J]. *Language Learning*, 26(2):297-320.
Bates, D., M. Mächler, B. Bolker & S. Walker. 2015. Fitting Linear Mixed-Effects Models Using lme4 [J]. *Journal of Statistical Software*, 67(1):1-48.
Bender, E. 2000. The Syntax of Mandarin *ba*: Reconsidering the verbal analysis [J]. *Journal of East Asian Linguistics*, 9(2):105-145.
Birdsong, D. 1989. *Metalinguistic Performance and Interlinguistic Competence* [M]. Berlin: Springer Berlin Heidelberg.
Birdsong, D. 1992. Ultimate Attainment in Second Language Acquisition [J]. *Language*, 68(4):706-755.
Chang, X-F. 1998. *A Comprehensive Analysis of the ba-Construction in Mandarin Chinese* [D]. Ph.D. Dissertation, Columbia University.
Chao, Y. R. 1968. *A Grammar of Spoken Chinese* [M]. Berkeley: University of California Press.
Chen, S-M. 2005. The Weak Condition of *ba*-Sentences in Cantonese [J]. *Journal of Zhanjiang Normal College*, 26(4):48-52.
Cheng, L. L-S. 1988. Aspects of the *ba*-Construction [A]. In C. Tenny (ed.), *Studies in Generative Approaches to Aspect, Lexicon Project Working Papers 24* [C]. Cambridge, MA: MIT Working Papers

in Linguistics, 73-84.

Cheng, Q. & G. Tang. 2016. On the L2 Ultimate Attainment of Mandarin Additive and Distributive Operators by Cantonese Learners [A]. In D. Stringer, et al. (eds.), *Proceedings of the 13th Generative Approaches to Second Language Acquisition* [C]. Cascadilla Press, 31-44.

Cheung, S. H-N. 1992. The Pretransitive in Cantonese [A]. In D-H. Ho & C-Y. Tseng (eds.), *Proceedings of the International Symposium on Chinese Languages and Linguistics* [C]. Taipei: Academia Sinica, 241-303.

Cook, V. 1995. Multi-competence and the Learning of Many Languages [J]. *Language, Culture and Curriculum*, 8(2):93-98.

Coppieters, R. 1987. Competence Differences between Native and Near-Native Speakers [J]. *Language*, 63(3):544-573.

Cui, X-L. 1995. Some Syntactic and Semantic Puzzles Concerning the *ba*-Construction [J]. *Chinese Teaching in the World*, 33(3):12-21.

Ding, P. S-Z. 2007. *Studies on ba Resultative Construction: A comprehensive approach to mandarin ba sentences* [M]. Munich: Lincom Europa.

Domínguez, L. & M. J. Arche. 2008. Optionality in L2 Grammars: The acquisition of SV/VS contrast in Spanish [A]. In H. Chan, H. Jacob & E. Kapia (eds.), *Proceedings of the 32nd Annual Boston University Conference on Language Development* [C]. Somerville, MA: Cascadilla Press, 96-107.

Du, H. 2006. *The Acquisition of the Chinese ba-Construction* [M]. Munich: Lincom Europa.

Feng, S-L. 1995. *Prosodic structure and prosodically constrained syntax in Chinese* [D]. Ph.D. Dissertation, University of Pennsylvania.

Feng, S-L. 2001. Prosodically Constrained Bare-Verb in *ba* Constructions [J]. *Journal of Chinese Linguistics*, 29(2):243-280.

Harrell, F. E. 2015. *Regression Modeling Strategies: With applications to linear models, logistic and ordinal regression, and survival analysis* [M]. New York: Springer.

Huang, Y-Y. & S-Y. Yang. 2004. The L2 Acquisition of the Chinese *ba*-Construction [J]. *Chinese Teaching in the World*, 67(1):49-59.

Jin, F-F. 2010. Ultimate L2 Acquisition of the Chinese *ba* Construction: Two case studies [A]. In C. Wilder & T. A. Åfarli (eds.), *Chinese Matters: From grammar to first and second language acquisition* [C]. Trondheim: Tapir Academic Press, 191-209.

Jin, H-G. 1993. Pragmaticization and the L2 Acquisition of Chinese *ba* Constructions [J]. *Studies in Language and Linguistics*, 25(2):83-91.

Kuo, P-J. 2010. Transitivity and the *ba* Construction [J]. *Taiwan Journal of Linguistics*, 8(1):95-128.

Lardiere, D. 1998a. Case and Tense in the 'fossilized' Steady State [J]. *Second Language Research*, 14(1):1-26.

Lardiere, D. 1998b. Dissociating Syntax from Morphology in a Divergent L2 End-State Grammar [J]. *Second Language Research*, 14(4):359-375.

Li, C-N. & S. A. Thompson. 1981. *Mandarin Chinese: A functional reference grammar* [M]. Berkley and Los Angeles: University of California Press.

Li, J-X. 2007[1924]. *The New Grammar of Chinese* [M]. Changsha: Hunan Education Press.

Likert, R. 1932. A Technique for the Measurement of Attitudes [J]. *Archives of Psychology*, 140:1-55.

Liu, F-H. 1997. An Aspectual Analysis of *ba* [J]. *Journal of East Asian Linguistics*, 6(1):51-99.

Liu, F-H. 2007. Word Order Variation and *ba* Sentences in Chinese [J]. *Studies in Language*, 31(3):649-682.

Lü, B-S. 2010. The *ba*-Phrase and the *ba*-Sentence, and the Teaching of the *ba*-Sentence [J]. *Chinese Language Learning*, (5):76-82.

Lü, S-X. 2002[1955]. The Study of the Usage of *ba* [A]. In S-X. Lü, *Papers on Chinese Grammar* [C]. Shenyang: Liaoning Education Press, 169-191.

Lü, S-X. 1999[1980]. *Eight Hundred Words of Contemporary Chinese* [M]. Beijing: Commercial Press.

Lü, W-H. 1994. The Syntactic Semantics of *ba*-Construction [J]. *Chinese Language Learning*, 82(4):26-28.

Ma, Q-H. 2008. Compensation: A Kind of Synchronous Dynamic Mechanism of Language [J]. *Rhetoric*

Learning, (4):1-13.

Mai, Z-Y. 2016. L2 Chinese: Grammatical development and processing [J]. *Second Language Research*, 32(1):123-141.

Mullie, J. 1932. *The Structural Principles of the Chinese Language* [M]. Peiping: Bureau of Engraving and Printing.

Papp, S. 2000. Stable and Developmental Optionality in Native and Non-native Hungarian Grammar [J]. *Second Language Research*, 16(2):173-200.

Parodi, T. & I. M. Tsimpli. 2005. 'Real' and Apparent Optionality in Second Language Grammars: Finiteness and pronouns in null operator structures [J]. *Second Language Research*, 21(3):250-285.

R Core Team. 2018. *R: A Language and Environment for Statistical Computing* [OL]. Vienna: R Foundation for Statistical Computing. (https://www.r-project.org)

Robertson, D. 2000. Variability in the Use of the English Article System by Chinese Learners of English [J]. *Second Language Research*, 16(2):135-172.

Selinker, L. 1972. Interlanguage [J]. *International Review of Applied Linguistics in Language Teaching*, 10(3):209-231.

Shi, C-H. 2010. A Study of the Grammatical Meanings of the *bǎ*-Construction and other Relevant Constructions from the Perspective of Construction Group [J]. *Chinese Teaching in the World*, 24(3):291-309.

Sorace, A. 1993. Incomplete vs. Divergent Representations of Unaccusativity in Non-native Grammars of Italian [J]. *Second Language Research*, 9(1):22-47.

Sorace, A. 2000. Syntactic Optionality in Non-native Grammars [J]. *Second Language Research*, 16(2): 93-102.

Sorace, A. 2003. Near-nativeness [A]. In J. D. Catherine & H. L. Michael (eds.), *The Handbook of Second Language Acquisition* [C]. Oxford: Blackwell Publishers, 130-152.

Sorace, A. 2005. Selective Optionality in Language Development [A]. In L. Cornips & K. P. Corrigan (eds.), *Syntax and Variation: Reconciling the biological and the social* [C]. Amsterdam: John Benjamins, 55-80.

Sorace, A. 2011. Pinning down the Concept of "interface" in Bilingualism [J]. *Linguistic Approaches to Bilingualism*, 1(1):1-33.

Sorace, A. & F. Filiaci. 2006. Anaphora Resolution in Near-native Speakers of Italian [J]. *Second Language Research*, 22(3):339-368.

Sorace, A. & F. Keller. 2005. Gradience in Linguistic Data [J]. *Lingua*, 115(11):1497-1524.

Sun, C-F. 2008. The Theory of Subjectification and the Study on the Contemporary Chinese *ba*-Construction [A]. In Shen Yang & Feng Shengli (eds.), *Contemporary Linguistic Theories and Related Studies on Chinese* [C]. Beijing: Commercial Press, 375-393.

Sun, C-F. & T. Givón. 1985. On the So-called SOV Word Order in Mandarin Chinese: A quantified text study and its implications [J]. *Language*, 61(2):329-351.

Sybesma, R. P. E. 1999. The *ba*-Construction [A]. In R. P. E. Sybesma, *The Mandarin VP* [C]. Dordrecht: Kluwer Academic Publishers, 131-182.

Tang, S-W. 2002. Focus and Dak in Cantonese [J]. *Journal of Chinese Linguistics*, 30(2):266-309.

Teng, S-H. 1975. *A Semantic Study of Transitivity Relations in Chinese* [M]. Berkeley: University of California Press.

Thompson, S. 1973. Transitivity and Some Problems with the *bǎ* construction in Mandarin Chinese [J]. *Journal of Chinese Linguistics*, 1(2):208-221.

Tsao, F-F. 1987. A Topic-Comment Approach to the *ba* Construction [J]. *Journal of Chinese Linguistics*, 15(2): l-54.

Venables, W. N. & B. D. Ripley. 2002. *Modern Applied Statistics with S-PLUS* [M]. New York: Springer.

Wang, H. 1957. *ba* Sentences [A]. In H. Wang, *ba Sentences and bei Sentences* [C]. Shanghai: New Knowledge Press, 1-27.

Wang, L. 1985[1943]. *A Modern Grammar of Chinese* [M]. Ji'nan: Shandong Education Press.

Wang, Z-H. 2011. The Relationship between Segment and Sentential/Functional Agent of the *bǎ* Construction: An analysis based on L2 Chinese instruction [J]. *Chinese Teaching in the World*,

25(3):400-411.

Wen, X-H. 2012. A Daunting Task? The Acquisition of the Chinese *ba*-Construction by Nonnative Speakers of Chinese [J]. *Journal of Chinese Linguistics*, 40(1):216-240.

White, L. 2003. Ultimate Attainment: The nature of the steady state [A]. In L. White, *Second Language Acquisition and Universal Grammar* [C]. Cambridge: Cambridge University Press, 241-272.

Wickham, H. 2016. *Ggplot2: Elegant graphics for data analysis* [M]. Cham: Springer.

Yang, S-Y. 1998a. The Analysis of the *ba*-Construction from the Viewpoint of Aspectuality (1) [J]. *Chinese Language Learning*, (2):10-13.

Yang, S-Y. 1998b. The Analysis of the *ba*-Construction from the Viewpoint of Aspectuality (2) [J]. *Chinese Language Learning*, (3):10-12.

Yip, V. 1995. *Interlanguage and Learnability: From Chinese to English* [M]. Amsterdam: John Benjamins.

Yu, W-Q. 2000. A Report of an Investigation on CSL Learner's Using of *ba*-Sentence [J]. *Chinese Language Learning*, 5:49-54.

Yuan, B-P. 2007. Behaviours of Wh-words in English Speakers' L2 Chinese Wh-questions: Evidence of no variability, temporary variability and persistent variability in L2 grammars [J]. *Bilingualism: Language and Cognition*, 10(3):277-298.

Zhang, B-J. 2001. Symmetries and Asymmetries between *bei* Construction and *ba* Construction [J]. *Studies of the Chinese Language*, 285(6):519-524.

Zheng, A. Z-R. 2018. The Interpretation of English Reflexives and Pronouns by Adult Speakers of Chinese: An analysis of language transfers [J]. *Macrolinguistics*, 6(8):139-150.

Zheng, J. 2002. A survey of the research on the *ba*-Sentence in Modern Chinese [J]. *Language Teaching and Linguistic Studies*, (5):41-47.

Zou, K. 1993. The Syntax of the Chinese *ba* Construction [J]. *Linguistics*, 31(4):715-736.

Zou, K. 1995. *The Syntax of the Chinese ba-Constructions and Verb Compounds: A morpho-syntactic analysis* [D]. Ph.D. Dissertation, University of Southern California.