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The interface of linguistic difficulty and task type on the use of the Chinese *ba* construction by L2 learners

Abstract: This study investigates the effects of linguistic difficulty and task type on the use of Chinese *ba* construction by second language learners. One hundred and ten adult learners completed four tasks orally (i.e., an oral production task prompted by video clips, an oral imitation task, a grammaticality judgement task and a correction task), as well as a background questionnaire and a one-on-one post-task interview. Twenty-two native speakers of Chinese served as baseline. Results demonstrate that the variable type of the Chinese *ba* construction which is subject to functional constraints is harder to learn than the obligatory type which is subject to obligatory syntactic constraints, and that the oral tasks were more challenging to perform than the metalinguistic tasks. The findings suggest that a series of factors including functional value and discourse context contribute to the linguistic difficulty of Chinese grammar features. The processing constraints of completing tasks and their interaction with linguistic characteristics explain the learning difficulty of the two types of the *ba* construction.

Keywords: Chinese *ba* construction, variation, linguistic difficulty, task type, oral and metalinguistic tasks

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1 Introduction

The primary goals of second language acquisition (SLA) research are to describe and explain the development of interlanguage, which is characterised by systematicity and variability (see N. Ellis and Larsen-Freeman 2006, R. Ellis 2008c, Romain 2003, Tarone 1982, 1983, 1985, 1988). While systematicity emphasizes that the development of the learners' second language (L2) follows certain rules, variability describes the characteristic of learners' L2 which is far less stable than native speakers' use and is full of variations. In spite of many debates on the universality of the dual characteristics, it has been generally agreed that L2 learners' interlanguage is dominated by pervasive variation although taxonomies

of variation differ depending on research paradigms (e.g., Bayley 1996, Bayley and Lucas 2007, N. Ellis and Larsen-Freeman 2006, R. Ellis 2008, Preston 1996, Romaine 2003, Tarone 1982, 1983, 1985, 1988). Variations are classified as either *internal variation* or *external variation* depending upon whether the sources of variation are linguistic in nature or not (Adamson 1988, R. Ellis 1985, 1994, 2008c, Preston 1989, Tarone 1988), or either *vertical variation* or *horizontal variation* depending on whether variations in interlanguage occur over time or at any one point in time, or either *systematic variation* or *free variation* depending on whether they are regular and predictable or not (R. Ellis 1984, 1985, 1994, 2008c, Larsen-Freeman and Long 1991, Tarone 1988, Young 1996). This study adopts the classification of *intra-learner variation* and *inter-learner variation* by taking learners as the focus of inquiry (see R. Ellis 2008c). The former refers to the variation which occurs in each individual learner's interlanguage, while the latter refers to the variation that exists among the interlanguages of groups of learners. This paper focuses on two sources of intra-learner variation – linguistic difficulty and tasks – although variations in L2 learners' interlanguage have been attributed to other sources such as individual factors (e.g., L1 and length of study) and social factors (e.g., social contexts) (see Gao 2011). The focus on these two factors makes it easier to explain the relationship of the dual characteristics of interlanguage and their underlying mechanism since linguistic difficulty serves as a key determinant of systematicity and task is a major source of variability of interlanguage.

In addition to the above theoretical concerns, this study makes a number of methodological contributions to SLA research particularly on Chinese as a target language. First, the target features of this study were divided as two types of *BC* – an obligatory type and a variable type – according to four selection criteria including native speakers' spoken corpora. This makes it easier to explain the relative difficulty of obligatory and variable types of *BC* in terms of the results. Second, six instruments were administered with a large group of L2 learners (n = 110) in a one-on-one setting and 22 native speakers were tested as baseline, which increased the validity and reliability of the data. Third, self-produced video clips accompanied by prompt questions effectively elicited the two types of *BC* by providing contexts for using the target feature, which can be used to teach *BC* in the classroom context and benefit teaching practice. Finally, all tasks adopted a spoken output mode, which mitigated the impact of learners' character writing ability on the measurement of oral and metalinguistic competencies.

The rest of the paper is organised as follows. It starts with a brief introduction of the target structure, the Chinese *ba* construction (*BC*) and the classification of the two *BC* types in this study, a review of theories and empirical studies on the effects of linguistic difficulty and tasks on the acquisition of L2 grammar features. It is followed by the demonstration of the methods used to collect and analyse

data, the report of the results, and discussion of the effects of linguistic difficulty, task types and their interaction. The paper finally concludes by highlighting the significance of the research for variability studies and the limitations of the study.

2 The *ba* construction

The Chinese *ba* construction (*BC*) is the only non-canonical word order structure (SOV) in Mandarin Chinese. It was chosen as the target structure of this study for three reasons. First, this structure has received perhaps most debate in Chinese linguistics (see W. Hu 2004, Hsueh 1987, Sun 1995, 2006, Sun and Givón 1985, Tai 1985, Tsao 1987, L. Wang 1943). The controversies lie mainly in the overarching function for all types of *BC* and the conditions for their use, particularly, for those subject to a variable rule (e.g., Liu 2009). Second, *BC* has been found notoriously difficult for L2 learners to acquire (e.g., Shi 1998), so it has practical implications to find out the influential factors on L2 learners' use of *BC*. Third, some subtypes of *BC* are subject to obligatory use, while others follow variable rules. This contrast makes *BC* the perfect target feature to explore the effect of linguistic difficulty on the use of BC, that is, whether the obligatory type or the variable type is easier to learn. Findings will advance relevant theories in SLA and expand them to the application in Chinese, so as to benefit the teaching and learning of Chinese as a second language.

There are at least 17 types of *BC* although classifications differ in terms of syntactic or semantic categories (see Gao 2010). Because different acquisition studies adopted different classifications, the acquisition orders of *BC* found in those studies are incomparable (see Gao 2010). Due to limited space, this study focuses on only two types of *BC*: *BC1* – a locative nominal *BC* whose post-verbal components contain a noun phrase (NP), and *BC2* – a directional verbal *BC* whose post-verbal components contain only directional verb(s) but no NP. They both follow the same syntactic sentence order (S + ba + NP + V + R), realise the same semantic structural meaning (i.e., the causer's motion makes the causee undergo a change in location or direction and stay in the final state), and contain the same four semantic elements (i.e., causer, causee [or theme], cause [or motion], and effect) (W. Hu 2004, Sun 1995, Ye 2004, B. Zhang 2000). In addition, both are subject to other functional constraints, such as discourse constraints (e.g., ba-NP [O] is a sub-topic) (Tsao 1990), and semantic or pragmatic constraints (e.g., definite or specificity related to ba-NP [O]) (H. Wang 1985). The two types of *BC* were chosen based on five criteria: high frequency of use by native speakers of Chinese, high productivity, prototypicality, early presentation in the textbooks, and early acquisition by L1 and L2 learners. That is, *BC1* and *BC2* are early acquired types as

described in previous studies (Gao 1999, Zhang 2000, Cheng 2006) and appear relatively early in L2 textbooks. Based on native speakers' actual use, this study categorised the two types of *BC* as follows:

BC1 consists of two subtypes: *BC1a* (see Example 1) and *BC1b* (see Example 2). The primary difference between the two subtypes is that the post-verbal components consist of a coverb (also called a preposition) (i.e., *zai* 'at' or *dao* 'to') and a NP2 in *BC1a* but a directional verb and a NP2 in *BC2*. The NP2 indicates the final position or destination of the movement of NP1 (i.e., ba-NP). A locative noun (LN) (e.g. *shang* [*bian /mian /tou*] 'top', *li [bian /mian /tou]* 'inside') must be included following NP2 in *BC1a* (unless NP2 refers to a location, say *tushuguan* 'library'), but it is not necessary in *BC1b*.

1.	S	BA	NP1	V	**P**	**NP2**	**LN**	(PFV)
	他	把	书	放	在	桌子	上	(了)
	Tā	bǎ	shū	fàng	***zài***	***zhuōzi***	***shàng***	*(le)*
	He	BA	book	put	**at**	**desk**	**top**	(PFV)
	'He put the book on the desk'							

2.	S	BA	NP1	V	**Vdi**	**LN**	**Vdi(come / go)**	(PFV)
	他	把	书	拿	出	教室	(去)	(了)
	Tā	bǎ	shū	ná	***chū***	***jiàoshì (qù)***		*(le)*
	He	BA	book	take	**out**	**classroom 'away from the speaker'**		(PFV)
	'He took the book out of the classroom'							

BC2's post-verbal position only contains a single or compound directional verb which indicates the direction of the movement of the *ba*-NP. *BC2* consists of two subtypes – *BC2a* (Example 3) and *BC2b* (Example 4) – depending on whether it contains a single or a compound directional verb. There are no major differences between *BC2a* and *BC2b* in their functions.

3.	S	BA	NP	**V**	**V_{di}**	(PFV)
	他	把	书	拿	来	(了)
	Tā	bǎ	shū	***ná***	***lái***	*(le)*
	'He	BA	book	**carry 'towards the speaker'**		(PFV)
	'He brought the book'					

4.	S	BA	NP	**V**	**(V_{di})V_{di}**	(PFV)
	他	把	书	拿	(进)来	(了)
	Tā	bǎ	shū	***ná***	***(jìn)lái***	*(le)*
	He	BA	book	**carry**	**in**	(PFV)
	'He brought the book in'					

5.	S	V	**(V_{di})**	**V_{di}**	**NP**		(PFV)
	他	*拿*	*(进)*	*来*	*书*		*(了)*
	Tā	*ná*	***jìn***	***lái***	***shū***		*le*
	He	carry	**(in)**	**come**	**book**		(PFV)
	'He brought a book in'						

6.1	*S	V_{dy}	NP1	**PN**	**P2**	**LN**		(PFV)
	他	*放*	*书*	*在*	*桌子*	*上*		*(了)*
	Tā	*fàng*	*shū*	***zài***	***zhuōzi***	***shàng***		*le*
	He	put	book	**at**	**desk**	**top**		(PFV)
	'He put a book on the desk'							

6.2	*S	V	NP1	**V_{di}**	**NP2**	**(come/go)**		(PFV)
	他	*拿*	*书*	*出*	*教室*	*(去)*		*了*
	Tā	*ná*	*shū*	***chū***	***jiàoshì***	***qù***		*le*
	He	carry	book	**out**	**classroom**	**'away from the speaker'**		(PFV)
	'He took a book out of the classroom'							

The major difference between *BC1* and *BC2* is that *BC2* can be freely transformed into a grammatical SVO structure (Example 5) retaining the original meaning but *BC1* cannot (Example 6.1 and Example 6.2). *BC1* is an economical expression for the dynamic cause-effect process in which a causer does an action on the causee and makes it change in location or direction. The choice of *BC1* is subject to syntactic constraints since no alternative single sentence structure is available for this context. In contrast, whether speakers choose the *BC2 or SVO* structure mainly depends on the speakers' expression intentions or preference, and the constraints of the discourse context. In this sense, *BC1* is considered as an obligatory type, and *BC2* an optional type. According to the criteria for the prototype of linguistic structures (*cf.* Bates and MacWhinney 1982, 1987, G. Hu 2002, Taylor 2003), *BC1* can be considered as a prototypical form and *BC2* a peripheral form of *BC*. This is because 1) *BC1* has the maximum distance from its competing word order, SVO, while *BC2* can be freely transformed into a SVO structure, and 2) *BC1* is encountered most frequently in the *Lancaster Corpus of Mandarin Chinese*.

However, *BC1* and *BC2* are pragmatically related to each other. *BC2b* can be considered as variants under the condition where the post-verbal NP2 in *BC1b* is implied in the context and doesn't need to be explicitly mentioned. Including *BC2* which is subject to a variable rule to this study will advance theories on variability in interlanguage through broadening the variable target feature from morphemes to sentence order structures because previous studies mainly focused on acquisition order of the *BC*.

3 Linguistic difficulty

Linguistic difficulty of grammar structures has been an appealing issue in SLA research. It is partly due to the primary goals of SLA research mentioned above, and partly owing to the reality that L2 learners encounter major difficulties in learning linguistic features. Previous research has raised four sets of determinants of linguistic difficulty of L2 grammatical structures. First, Goldschneider and DeKeyser (2001) proposed that five determinants (i.e., perceptual salience, semantic complexity, morphophonological regularity, syntactic category, and frequency in input) best explained the acquisition orders of six L2 English morphemes (e.g., regular past *-ed*, articles, and plural *-s*) in their meta-analysis study. Second, DeKeyser (2005), drawing on empirical evidence in a wide variety of L2s, refined the determinants as complexity of form, complexity of meaning, complexity of meaning-form relationships, frequency of input, and salience. Third, R. Ellis (2004, 2005a, 2006) differentiated determinants of linguistic difficulty as either difficulty in acquiring grammar features as implicit knowledge (i.e., frequency, saliency, functional value, regularity, and processability) or those in learning grammar features as explicit knowledge (i.e., conceptual clarity and meta-language). Moreover, Pienemann (1998, 2005), drawing on the psychological model of language processing and Lexical-Functional Grammar, proposed a universal framework – Processability Theory[1] – to predict L2 development. Given that Processability Theory is based on emergence order rather than accuracy order that the current study is concerned with, the study is closely related to the first three sets of determinants.

Learning difficulty occurs where empirical studies are conducted to examine the acquisition order of L2 grammatical features, for example, 'natural order' studies of English morphemes (e.g., Dulay and Burt 1974), and studies on relative difficulty of grammar features in terms of implicit knowledge and explicit knowledge (e.g., DeKeyser 2003, R. Ellis 2006, 2008a). However, it is not yet clear whether the difficulties are caused by the inherent properties of grammatical structures (i.e., linguistic difficulty or objective difficulty) or by the learning process (i.e., learning difficulty or subjective difficulty). With regards to the acquisition order of *BC*, empirical studies yielded different orders in the case of learning the *ba* construction in L2 Chinese (e.g., Gao 1999, 2008, Jin 1993, Cheng 2006). For example, some showed *BC1* was acquired first, while others found that *BC2* was acquired earliest. However, the different classifications of *BC* that the studies

1 Pienemann (1998, 2005)'s hierarchical procedures of Processability Theory include 1) Word/lemma access, 2) Category procedure (lexical category), 3) Phrasal procedure (head), 4) S-procedure and word order rules, and 5) Matrix / subordinate clause procedure.

were based on and various data collection methods that they used make the results incomparable. It would be insufficient to explain the discrepancies by only considering linguistic features of the different types of *BC*. Rather, task effects need to be considered.

4 Task effect

Tasks have been recognised as one of the major sources of variation in interlanguage (N. Ellis and Larsen-Freeman 2006, R. Ellis 1985, 1987, 1992, 2008c, Skehan 1998). In literature, however, definitions of tasks vary considerably ranging from any elicitation activity (e.g. Tarone 1988) to a language-teaching activity where meaning is primary and learners' use of their own linguistic resources is necessary (Bygate, Skehan, and Swain 2001, R. Ellis 2005, 2008c). The current study uses the general meaning of tasks.

The current study adopted two types of tasks – clinically elicited oral production tasks and metalinguistic tasks – to elicit the target *BC*. Clinically elicited tasks (as described by Corder 1981) were adopted because they could elicit structures that rarely occur in a naturally occurring situation and thus make the process of data collection 'practical and less arduous', and the data collected reflect an essential quality of naturally-occurring data' (R. Ellis and Barkhuizen 2005: 36). Tasks used to elicit clinical oral production include focused interviews, narrative tasks, picture or video description tasks, and 'spot-the-difference' tasks. Metalinguistic knowledge tasks were used because they invite or encourage learners to access their analysed knowledge of an L2. This group of tasks include preference decision tasks, acceptability or grammaticality judgement or rating tasks, error identification or correction tasks, and rule explanation tasks (see Chaudron 2003, R. Ellis and Barkhuizen 2005, Loewen 2009). Among them, the grammaticality judgement task (GJT) is most widely used since it is efficient for examining the acquisition of the target features which seldom appear in naturally occurring conversations. Controversies, however, remain regarding what GJTs measure. Some argue that GJT data reflect learners' intuitions of the target language or learners' linguistic knowledge, whereas others claim that GJT data may only tap learners' analysed knowledge. Therefore, some researchers believe that GJTs are a reliable method to collect data about learners' L2 performance, whereas others challenge the validity of GJTs on the grounds that learners rely on translation or explicit knowledge rather than implicit knowledge when performing GJTs (e.g., Chaudron 2003, Gass 1994).

Clinically elicited oral production and grammaticality judgement tasks have been widely used to study the acquisition of grammar features in different L2s.

Examples of this include verb ellipsis in English coordinate structures and six English grammar features including the English article (Tarone 1985, Tarone and Parrish 1988, M. Schmidt 1980), Swedish syntactic features (i.e., pronominal copies in relative clauses and sentence negation) (Hyltenstam 1983), six Italian grammatical structures (e.g., perfect and imperfect) (Sorace 1985), and Spanish agreement between nouns/noun phrases and adjectives or past particles (functioning like adjectives in Spanish) (Leow 1996). By adopting the two types of tasks, R. Ellis's seminal large-scale studies (R. Ellis 2005, 2006, 2008b, 2009a,b) probed the grammatical difficulty of 17 English grammatical structures in terms of L2 learners' implicit knowledge and explicit knowledge. All the studies above observed the learners' variable task performances although the results were used to support different theoretical concerns. It can be seen that addressing the effects of tasks is of great methodological and theoretical significance to SLA research.

The above review of theoretical frameworks and empirical evidence for task effects not only provides a theoretical foundation for designing tasks in the current study, but also benefits the data interpretation. Although evident task effects have been found in the acquisition of Indo-European languages, little has been done on learning Chinese as an L2. This study aims to fill the gap by examining the effect of tasks on the acquisition of *BC*.

5 Research questions

This study seeks to answer two research questions:

1. Is there any difference in the learners' use of *BC* in terms of *BC* type? If so, what are the sources of linguistic difficulty?
2. Is there any difference in the learners' use of *BC* in terms of task type? If so, what are the sources of task effect?

6 Method

6.1 Participants

A total of 110 adult learners of Chinese (51 females and 59 males) participated in the study, plus 22 native Mandarin speakers. They consisted of 56 English and 54 Korean native speakers. The participants were recruited from two universities in Auckland and six universities and five institutions in Beijing China through connections with local institutions and advertisements on public websites. The L2

learners were selected according to three criteria: 1) they had studied Chinese for more than one year by the time of investigation; 2) they were native speakers of English or Korean; 3) they had not lived in China, a target language environment, before the age of 17 to ensure the learners were adult learners who have passed the critical period for learning a foreign language demonstrated in the literature. The participants had a mean age of 23 (range 17-41) and mixed proficiency in Chinese varying from an upper-elementary level to an advanced level.

6.2 Instruments and materials

Six instruments were administered to collect data on participants' language background, oral and metalinguistic performances, and perceptions about task difficulty.

A written background questionnaire was administered orally to obtain information including the participants' age, gender, languages spoken most frequently at home, their study majors, proficiency in Chinese, and previous study of Chinese.

An oral production task prompted by video clips (OPTV) was administered to elicit the learners' oral production of *BC* with a primary focus on the meaning rather than on linguistic form. The researcher created 24 video clips (approximately 4 MB and 10 seconds long each) by using basic vocabulary that had been learned by elementary learners in New Zealand. After piloting them with native speakers of Chinese in two preliminary studies, 16 video clips and accompanying 'prompt questions' were used to elicit 8 sentences for each type of *BC,* while the remaining 8 served as fillers. The video clips displayed such episodes as 'a woman put a book on the desk', and 'she took out a mobile phone from her bag, had a look at the time, and then put it back in her bag'.

An oral imitation task (OIT) was designed to elicit the learners' oral production of *BC* under the conditions requiring attention to meaning. If there was the opportunity to focus on phonological form when processing auditory stimuli, it was secondary. The OIT contained 20 items, as well as 5 training examples in the form of SVO structures. Each item consisted of two clauses. The first clause contained 3 to 8 Chinese characters (i.e., syllables) and provided the context for using *BC*, while the second clause consisted of 6 to 11 Chinese characters (i.e., syllables) and was related to the use of the target *BC*. The participant was asked to state the sentence clause in good Chinese after hearing the whole sentence and the first clause again. For example, after hearing the whole sentence, '*Wàimiàn hěn lěng, kuài bǎ yīfú. chuān shàng*' and the first clause '*wàimiàn hěn lěng*' again, the participant was asked to state the second clause in good Chinese. This was designed

to test the participants' implicit knowledge about discourse context for using the target *BCs* and to prevent them from rote memorising the target structure. The sentences were composed with words that elementary learners had learned. The 20 stimuli contained 8 *BCs* and 12 (S) VO structures. The *BCs* included 2 grammatical, 1 mis-formed and 1 overused *BC* structures for each type of *BC* and 12 (S)VO structures which need to be changed to 8 *BCs* and 4 distractors. The items were audio recorded by a female who spoke Standard Mandarin, with a 15 second gap between stimuli.

A grammaticality judgment task (GJT) was designed to assess participants' metalinguistic competence to use the target type of *BC*. Participants were asked to judge whether or not the sentences in written form (i.e., Chinese characters and their Romanised orthography – *Pinyin*) were correct or not immediately after reading each sentence aloud. The GJT contained 30 items (10 related to each type of *BC* and 10 distractors in SVO structures) and 4 training examples.

A grammaticality correction task (GCT) was designed to assess participants' metalinguistic knowledge on the target type of *BC*. The participants were asked to correct each item in the GJT and explain reasons for judging them wrong in any language that they preferred (e.g., English or Chinese). The spoken mode was maintained for both judgements and corrections to eliminate the influence of Chinese character writing ability and minimise the participants' chance to monitor answers.

Finally, a semi-structured follow-up interview was conducted to gather information on the extent to which the participants were aware of the target features in the various tasks, and their perceptions about the difficulty of the tasks.

6.3 Procedure

The six instruments were conducted orally in a one-on-one setting following a fixed order. After obtaining consent at the beginning of each meeting, the researcher interviewed participants based on a written background questionnaire. The OPTV started immediately after the participants were briefed on procedures. They were required to start the video clips on a laptop themselves. After watching each video clip, they were asked to answer what objects they saw on the screen and what the actress did to/with them in complete sentences. The OIT then followed. The participants were trained with four examples until they were clear about the requirements. After hearing each sentence and its first clause again, the participant needed to state the second clause in good Chinese. For the items in the GJT, the participants were asked to read aloud the whole sentence presented on paper and then to tell the researcher if its second clause is grammatically cor-

rect. In the GCT, the participants were asked to correct the items which they judged as unacceptable and explain their rationale. Finally, the participants were asked if they knew what was tested in the tasks, and their feelings about the difficulty of the tasks and their performance. The interviews were audio-recorded and transcribed by the researcher afterwards.

7 Data coding and analysis

The accurate use of *BC* in the four tasks was calculated using Pica's (1983) formula for target-like analysis with overused *BC* concerned (R. Ellis and Barkhuizen 2005). Accuracy was calculated by dividing the total number of accurate suppliance by the total number of obligatory occasions and the number of overused *BC* (see the following formula).

$$\frac{\text{\# correct use in contexts}}{\text{\# obligatory contexts} + \text{\# overuse}} \times 100 = \text{percent accuracy}$$

The obligatory contexts for the target type of *BC* were established based on the native speakers' baseline data. In consideration of learners' limited vocabulary, misuse of lexical nouns (e.g. NP2) was not accepted, but misuse of the locative nouns (LN) in *BC1a* (e.g. top *'shang'*, inside *'li'*) was accepted since the LN is one of the determinants of a correct *BC*.

To ensure the validity and reliability of the instruments, 15 percent of transcribed written data randomly selected from each task were double coded by two Chinese native speakers with expertise in applied linguistics or Chinese. Inter-rater reliability for all measures calculated by the Pearson Product Moment Correlation Coefficients achieved above 85% agreement after negotiation. The percentage scores were computed using Statistical Package for Social Science version 17 (SPSS).

8 Results

The first research question investigates the effect of *BC* type on the learners' accurate use of *BC*. The descriptive statistics for the 110 learners' accuracy scores for *BC1* and *BC2* in the four tasks are shown in Table 1.

The large ranges suggest that the learners exhibited dramatic variation in their accurate use of *BC* in terms of both *BC* type and task measures. The largest ranges occurred in oral production and the smallest in oral imitation. Skewness and kurtosis were calculated to show whether the distribution of the data is normal.

Table 1: Descriptive statistics: Accuracy for *BC1* and *BC2* across the four measures (n = 110)

Type of BC	Task	M	SD	Range	Skewness	Kurtosis
BC1	OPTV	40.23	34.43	0-100	.22	−1.43
	OIT	27.82	23.44	0-90	.69	−.39
	GJT	73.73	19.60	10-100	−1.01	1.07
	GCT	55.45	24.50	0-100	−.23	−.49
BC2	OPTV	16.73	28.09	0-100	1.81	2.40
	OIT	19.77	18.96	0-75	1.03	.62
	GJT	62.95	21.60	0-100	−.48	−.18
	GCT	48.64	22.20	0-90	−.35	−.49

Note. OPTV = an oral production task prompted by video clips; OIT = an oral imitation task; GJT = a grammaticality judgement task; GCT = a grammaticality correction task; *BC1* = a (locative) nominal *BC* whose complement contains a NP; *BC2* = a directional verbal *BC* whose complement contains a directional verb but no NP.

Paired-samples *t*-tests were calculated to examine the effect of *BC* type. After Bonferroni adjustment, accuracy scores are significantly higher for *BC1* than for *BC2* on all four measures, $p < .0005$ (two-tailed). The largest difference between the mean accuracy for *BC1* and *BC2* occurred in the OPTV: MD = .24, $t(109) = 7.99$, $p < .0005$ (two-tailed), while the smallest difference occurred in the error correction in the GJT: MD = .06, $t(109) = 4.61$, $p < .0005$ (two-tailed). The effect sizes (i.e., the magnitude of the effect) calculated by the *eta* squared statistic ($r = 0.37$ in OPTV, $r = 0.23$ in OIT, $r = 0.26$ in GJT, $r = 0.16$ in GCT) indicate a large effect in all four measures according to Cohen's guideline (1988: 284–287).

Research question two is concerned with the effect of the task type on the learners' accurate use of *BC*. After checking normality and homogeneity of covariance of the data, a one-way repeated measure ANOVA was performed to compare the mean accuracy scores for *BC1* across the four measures. The Friedman Test was conducted to compare the median accuracy scores for *BC2* because of a biased distribution in the data caused by the avoidance of using *BC2*. Bonferroni *post-hoc* tests were applied on both tests to avoid type I error caused by conducting multiple comparisons.

Both the one-way repeated measures ANOVA and its Bonferonni *post-hoc* test suggest that task type has an effect on the learners' accuracy scores for *BC1*. That is, accuracy scores for *BC1* are significantly different in terms of tasks. The Friedman Test showed statistically significant differences in the accuracy scores for *BC2* across the four tasks, χ^2 (3, n = 110) = 214.36, $p < .005$. After adopting the Bonferonni alpha value which was adjusted (.05/6 = .01), however, the difference between the scores in the OIT and the OPTV is no longer significant ($p > .01$). The

effect size *r* for the differences between OPTV, GJT and GCT remain large. The result suggests that accuracy scores for *BC2* differ in terms of oral tasks (OIT and OPTV) and metalinguistic tasks (GJT and GCT).

9 Discussion

9.1 Potential causes of linguistic difficulty

Research question one investigates the effect of the linguistic type of *BC*. The results of the Paired-samples *t*-tests study suggest that learners' accuracy scores for *BC* significantly varied in terms of linguistic difficulty. More specifically, *BC2* which is subject to variable rule is harder to learn than *BC1* which is subject to an obligatory rule. This finding was accounted for by considering seven dimensions: discourse context, functional value, saliency, regularity, potential for L1 transfer, ease of elicitation and prototypicality. The accuracy scores encompass two components: the decision to choose the target feature and the accuracy of its use. The former is related to external factors determined by the discourse context outside the target feature, while the latter is related to internal syntactic and semantic constraints between components within the target structure.

Discourse context. The discourse context is the external determinant of the use of the target feature, which is related to the discourse function of the target feature and determined by the background information or components outside the target feature. The learners' ability to use *BC* in appropriate discourse contexts could be clearly identifiable in the two oral tasks, which required the learners' access to their own linguistic resources. While all native speakers attempted the two types of *BC*, the learners' attempts of *BC1* and *BC2* varied from task to task, with the largest difference in the OPTV, where 75% of the learners attempted *BC1* but only 41% attempted *BC2*. Therefore, the lower accuracy scores for *BC2* in the two oral tasks were more likely due to greater avoidance than incorrect use since the percentage of the incorrect use was smaller for *BC2* than for *BC1*. Generally, the learners' overuse of *BC* in the OPTV was far less than in the OIT and GJT. This may be because the OIT and GJT contained stimuli with overused errors. This finding suggests that the lower accuracy scores for *BC2* were mainly caused by the learners' difficulty in identifying the discourse context for using it, rather than in composing the structurally correct form.

Functional value. Functional value mainly concerns the form-function mapping of a grammatical feature. Both *BC1* and *BC2* have a complex one-to-many

form-function mapping. However, the selection of *BC1* is primarily determined by syntactically obligatory constraints, while the selection of *BC2* is determined by multiple implicit functions such as semantic and pragmatic functions, discourse context, and the speaker's intention. The result in this regard suggests that a syntactic structure subject to obligatory syntactic constraints (e.g., *BC1*) might be easier to learn than a structure subject to implicit semantic or discourse functional constraints (e.g., *BC2*, or English *article*). Moreover, a grammar feature which is only subject to internal constraints may be easier to acquire than one which is subject to external constraints.

Saliency. Saliency refers to the ease with which formal features attract attention (e.g., phonological property and structural position). It is a cognitive construct which relates to L2 learners' language processing procedures. The saliency of *BC1* and *BC2* is distinguished here according to two factors which influence how easy a feature is to be noticed in the input: 1) perceptual or more specifically phonological salience (i.e., how easy it is to hear or perceive a given structure) and 2) syntactic category (i.e., the lexical or functional property of a given structure (cf. R. Ellis 2006, Goldschneider and DeKeyser 2001).

Since *BC1b* (e.g., *Ni ba zhuozi na dao/jin fangjian li* [lit. You BA table move to room inside]) and *BC2b* (e.g., *Ni ba zhuozi na jin lai* [lit. You BA table move in (towards the speaker who is in the room)]) are considered variants with the only differences occurring in their post-verbal components, the saliency of *BC1* and *BC2* will be analysed in terms of their post-verbal components. Structurally, the complement of *BC1*, the locative NP, consists of 'a preposition/directional verb + noun + (a locative noun or a directional verb *lai/qu* which indicates towards/away the speaker) (e.g., *dao/jin fangjian li* [lit. to/in room inside]). The directional verbal complement in *BC2* consists of a single or compound directional verb (e.g., *jin* 'in', *jinlai* [lit. *in-come* indicating towards the speaker].

The perceptual salience of the complement of *BC1* and *BC2* is contrasted in terms of three sub-factors: number of phones (cf., Goldschneider and DeKeyser 2001), number of syllables, and stress. The complement of *BC1* generally contains more phones and syllables (i.e., at least six phones and three syllables) than that of *BC2* (i.e., at most four phones and two syllables). The stress lengthens the sound and makes it more salient by means of "lengthening the duration" or "expanding the tonal range" on the noun in the complement of *BC1*, whereas the directional complement in *BC2* is normally not stressed[2] (Chao 1968, Lamarre 2008, Lin

2 According to Chao (1968), the directional complement is pronounced as a neutral tone unless it functions as a potential complement.

2001). Hence, *BC1* is more salient than *BC2* based on the assumption that the more phones or syllables, or stressed components, the more likely the structure is to draw learners' attention.

With regards to syntactic category, the complement of *BC1* encompasses both a functional category (i.e., a preposition/directional verb) and a lexical category (i.e., a noun phrase), but the directional complement in *BC2*, to a large extent, executes a functional category (cf. Lamarre 2008). According to Goldschneider and Dekeyser's assumption that a lexical category is more salient than a functional category, the complement of *BC1* is more salient than that of *BC2*. Thus, it can be concluded that the higher accuracy score for *BC1* may have been due to the fact that the *BC1* is more salient phonologically and syntactically than *BC2*.

Regularity. Regularity concerns the regularity of the grammatical rule. The regularity of *BC1* and *BC2* are distinguished according to two factors defined by Hulstijin and de Graaf (1994) and R. Ellis (2006: 436): *scope* (i.e., "number of the cases covered by a particular rule") and *regularity* (i.e., "the extent to which a rule holds true"). Here, the rules relating to the use of *BC* comprise three levels: the rules that govern the entire *BC*, the construction of the complement, and the collocation of V-Complement.

First, *BC1* which is subject to an obligatory rule is more regular than *BC2* which is subject to an optional rule. In turn, the obligatory use of *BC1* may make the scope of *BC1* (cases of use) broader than that of *BC2*.

Second, although the rules for constructing the complement are relatively regular for both *BC1* and *BC2*, the scope of the complement of *BC1* is relatively broad. That is, the complement of *BC1* contain a nominal phrase which is in open class, while the directional verbs forming the complement of *BC2* is a closed word class (including 9 single or 13 compound and dative directional verbs).

Third, the rule for constructing VR is more regular for *BC1* than for *BC2*. More specifically, the prepositions, *zai* 'at' and *dao* 'to' in the complement of *BC1* are relatively productive since they can be collocated with a large number of action verbs which serve as the main verb, while nouns serve as objects. In contrast, the collocation of the directional verb in the complement of *BC2* and the main verb is more fixed and often forms idiomatic expressions (e.g., *chuan shang* 'put on [a coat]'). In this sense, the V-complement structure in *BC2* seems subject to item-based learning. Therefore, *BC1* presents more regular characteristics than *BC2* in terms of scope and regularity of rules.

Potential for L1 transfer. Potential for L1 transfer deals with the transfer caused by the similarities or differences between the equivalent structures in L1 and L2. *BC* is a unique word order structure in Chinese. Undoubtedly, there is no completely

equivalent structure performing the same functions as *BC* in the learners' L1s (i.e., English or Korean). Since the major difference between *BC1* and *BC2* lies in their complements, I will be mainly concerned with the relationships between the complements of *BC1* and *BC2* and their equivalent structures in English and Korean.

It is assumed that the simpler the corresponding relationship, the easier to learn the target feature. More specifically, the greater difficulty in using *BC2* may be attributable to the complexity of corresponding relationships between the complements of *BC1* and *BC2* and their equivalent structures in the L1. The difference between the locative nominal complement in *BC1* and its equivalent structures in English and Korean mainly lies in the differences in structural construction and positions of the corresponding structures in a sentence. In contrast, the correspondence between the directional complement in *BC2* and its equivalent structures in English and Korean involve both structural and lexical categories, and so are relatively complex. Particularly, lexical categories are involved in conceptual formulation (Levelt 1989). The direction of an action or movement is sometimes encompassed in the meaning of a single verb in English and Korean, so learners might have not perceived the need to use a directional complement, nor have considered using *BC2*. The relatively complex mapping of the directional verbal complement in *BC2* and its equivalents in English and Korean may have increased the difficulty in using *BC2*. The potential conceptual L1 transfer might have contributed to the lower accuracy scores for *BC2*.

Ease of elicitation. Ease of elicitation refers to ease with which the target structure can be elicited in the tasks. The difference between accuracy scores for *BC1* and *BC2* was much larger in the OPTV than in the other three task measures. This may be because the complement of *BC1* contains a nominal component which is relatively easy to elicit by means of visual images in the video clips. Nouns denoting locations are generally represented by concrete entities in the real world, so that they are more likely to attract the learners' attention than the abstract directions involved in *BC2*.

Prototypicality. Prototypicality mainly concerns whether the target feature is prototypical or peripheral here. As explained above, *BC1* can be considered as a prototypical form due to its maximum distance from SVO and most encounters in the corpus of native speakers' use. *BC2* seems more peripheral than *BC1.* Therefore, the result of the first research question (the learners' accuracy scores for *BC1* are higher than those for *BC2*) lends support to the argument that a prototypical form is easier to acquire than a peripheral form.

9.2 Causes of task variation for *BC1*

Research question two investigates the effect of tasks on the accurate use of *BC*. The results suggested that task type had significant effects on the learners' accuracy scores for *BC1*. The learners' judgement and correction scores on the two metalinguistic tasks, GJT and GCT, were significantly higher than those on the two oral tasks, and the OIT proved the most difficult task. The complexity of three pairs of tasks (i.e., oral vs. metalinguistic tasks, the OIT vs. the OPTV, and the GJT vs. the GCT) will be explained by considering the nature of the learner's response, attention, resources, time pressure, and processing pressure.

Oral versus metalinguistic tasks. The differences between the two oral tasks and the two metalinguistic tasks were explained by three factors: the nature of the learner's response, a focus on form, and instant vs. delayed response. First, the nature of the response required by a task might have potentially influenced the difficulty which the learners experienced. Arguably, a task that simply requires a learner to judge the grammaticality of sentences (i.e., GJT) would be easier than a task that requires learners to produce sentences. Also, a task where the only production required is that of correcting an ungrammatical sentence (as in the GCT) is likely to be easier than a task that requires them to produce complete sentences. This proved true since the learners scored higher on the error correction in the GJT than on the other production tasks.

Second, whether or not the learners could focus on form may have affected scores on the different measures. The metalinguistic tasks allowed a greater degree of attention to form than the oral tasks. In particular, the items shown in written form were more stable than those provided in auditory form. In the OPTV, the participants had to search for the linguistic resources they needed to express their meanings. In the OIT the learners had to process the stimuli they heard which may have directed their attention to meaning before imitating the target clause. Decoding the linear phonological signals proved harder than recognising the written form. However, it is likely that the OIT induced greater attention to form than the OPTV. Given that greater accuracy is likely to occur when learners pay more attention to form, I would have expected that the learners would be more accurate in the OIT. However, focus on form did not increase their accuracy since the learners to a large extent copied the ungrammatical items in the OIT, more than they could do in the OPTV.

Finally, time pressure on the learners' response might be a crucial factor for explaining the difference between the two groups of tasks. Both oral tasks (i.e. OPTV and OIT) required instant responses, with less opportunity for learners to search their explicit knowledge of L2 Chinese. The metalinguistic tasks (i.e., GJT

and GCT), on the other hand, allowed for a delayed response although the learners generally made judgments and corrections immediately after they finished reading each item.

Grammaticality judgments versus error correction. The differences between the two metalinguistic measures will be explained by considering whether the learners could borrow resources or had to use their own. The grammaticality judgements required learners to make judgements about the grammaticality and appropriateness about the sentences. The learners had a 50% chance of getting the right answer by guessing. In contrast, in the error correction learners had to rely on their own resources. This may be why the error correction resulted in lower scores than the grammaticality judgments.

OPTV versus OIT. Both OPTV and OIT involved oral production. The explanation for the learners' better performance in using *BC1* in the OPTV requires consideration of the following factors: time pressure, borrowing vs. use of own resources, and processing pressure. First, of the two oral tasks, oral imitation required more instant responses, while the response in the OPTV was, to some extent, delayed. When watching the video clips in the OPTV, learners had to produce an account of what they had seen 'online' so as to have some opportunity to plan what to say. Research (R. Ellis 2005b, Foster and Skehan 1996, F. Yuan and R. Ellis 2003) shows that pre-task planning can, at times, lead to greater accuracy.

Second, the OPTV required learners to use their linguistic resources (i.e., they were given a video prompt to discuss), whereas the OIT provided them with sentences which they had to listen to and then imitate (i.e., potentially they could 'borrow' from the input stimuli). The learners first heard the sentence before they had to produce it in the OIT. Again, one might expect, therefore, that the scores in the OIT would have been higher. Since 70 percent of the items in the OIT were ungrammatical, however, 'borrowing' could not satisfy the requirement.

Third, in the OIT the learners had to comprehend instantaneous phonological signals and then re-produce the second clause in correct form within a set time. Therefore, the learners had to complete no less than three receptive stages[3] (cf.

3 According to Curtler and Clifton (1999), comprehending spoken language involves four stages: *speech decoding* (i.e. selecting discrete speech items from other auditory input), *segmentation* (i.e. segmenting the continuous signal into its component parts), *recognition* (including *word recognition* [e.g. activation of lexical candidates, competition, and retrieval of lexical information] and *utterance interpretation* [i.e. syntactic analysis and thematic processing]), and *integration* (i.e. integrating it into discourse model). The last stage is not relevant to the OIT in this research.

Cutler and Clifton 1999) and five productive procedures[4] (Levelt, Roelofs, and Meyer 1999) spontaneously. The complex processing procedures may have taxed learners' working memory capacity (Baddeley 2000). Only the speakers who had successfully built up their implicit knowledge of *BC* could successfully complete this task. Therefore, the OIT was the most difficult task.

Fourth, the difference between the modalities involved in the two tasks may also explain the lower scores for the OIT. The OIT involved both reception and production, but the OPTV only required the latter. In the OPTV, meaning had been conveyed through images; the misuse of nouns which are not essential to *BC* was disregarded in scoring. In the OIT, misunderstanding any phonological aural form would interfere with the learners' imitation and their scores.

9.3 Causes of task variations between *BC1* and *BC2*

The accuracy scores for *BC2* follow the same order as for *BC1* (GJT > GCT > OPTV > OIT) except that there is no statistically significant difference between the OPTV and OIT (OPTV = OIT). The causes of these differences between *BC1* and *BC2* were explained by the interaction of the linguistic characteristics of *BC1* and *BC2*, the task features of the OPTV and OIT, and the characteristics of the items in the OIT.

In the OPTV, *BC1* was easier to elicit than *BC2*. This is because concrete entities in the video clips are more likely to attract the learners' attention to *BC1*. In contrast, in the OIT *BC2* was easier to imitate than *BC1* since *BC2* is shorter than *BC1* in structure (i.e., the complement usually contains at least 3 Chinese characters or syllables in *BC1* but only one or two in *BC2*). In addition, some *BC2* items might have been learned as formulaic expressions. This was supported by the fact that one grammatical *BC2* item (i.e. *Ni yao ba maoyi chuang shang* 'You'd better put on your sweater') was successfully imitated by the learners who did not even attempt any *BC* in the OIT. The greater avoidance in the OPTV and the ease of imitation in the OIT might explain the fact that the OIT was easier than the OPTV for *BC2*. Therefore, the difference between learners' performances in the two tasks was not as significant for *BC2* as it was for *BC1*.

4 According to Levelt (1989, 1999), speech production follows five procedures: *conceptual preparation*, *grammatical encoding*, *morpho-phonological encoding*, *phonetic encoding*, *articulation* and *self-perception*. The stages of conceptual preparation and self-perception may not be relevant to the OIT.

10 Conclusion

In conclusion, this study shows that *BC* which is subject to variable functional constraints is harder to learn than that which is subject to obligatory syntactic constraints, and that the oral tasks are more challenging to perform than the metalinguistic tasks. The findings suggest that a series of factors, especially functional value and discourse context, contribute to the linguistic difficulty of Chinese grammar features. Processing constraints of completing tasks and its interaction with linguistic characteristics explain the learning difficulty of the two types of *BC*.

This study has a number of theoretical and practical implications, as it contributes to our understanding of the relationship between systematicity and variability and addresses the objective difficulty of grammatical structures including those subject to a variable rule. It also benefits the understanding of the functional constraints of *BC*. The explanation of task-induced variation can benefit teaching practice as it informs teachers how to design tasks which can effectively elicit target features.

As an empirical study, its limitations are inevitable. For example, the number of sentences for each type of *BC* was limited (no more than 10) and the varying difficulty of the words was an issue to the participants who used different learning material. Furthermore, the tasks were completed in a fixed order rather than being counterbalanced to control any possible task effects. The fixed order was adopted to prevent participants from predicting the use of *BC* by exposure to the marker '*ba*' in written form in the GJT and GCT and in the spoken form in the OIT. The logistic constraints make it impossible to leave breaks between the four tasks. In addition, few participants reached an advanced level of proficiency, so it was very challenging for them to use BC and complete OIT.

This study raises a number of topics for future research such as the discourse contexts for using *BC,* the influence of function value on the acquisition of Chinese word order structures, and the effects of time constraints and grammaticality of items on the scores used in empirical studies.

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