A Structural Priming Study of the Information Function of the Chinese *Ba* Construction

Bingxian Chen and Yu-Yin Hsu (✉)

The Department of Chinese and Bilingual Studies, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong SAR, China.
chenbingxian1012@163.com, yu-yin.hsu@polyu.edu.hk

Abstract. Much research on the function of the *ba* construction in Mandarin Chinese has been conducted. However, there is a controversy about the *ba* NP regarding whether it expresses a topic denotation, a focus denotation, or neither. To study its information function, the present study has adopted a structural priming paradigm in a self-paced reading experiment to investigate whether Mandarin native speakers' reaction times (RTs) when reading *ba* sentences can be influenced after reading a priming sentence of the following three types: topic, focus, and subject-verb-object (SVO). The results revealed that the information conditions had a significant effect on the RT of processing the *ba* sentence ($p < .001$), while the RT for the *ba* NP in the condition of the priming focus sentences was significantly faster than the others. As priming effects occurred in the condition of priming focus sentences, processing the *ba* NP may be more similar to processing focus than to topic and canonical sentences in language comprehension.

Keywords: The *Ba* Construction, Structural Priming, Information Function.

1 Introduction

The *ba* construction is a structure that is peculiar to Chinese and can be regarded as an object preposing construction representing a subject-object-verb (SOV) word order sentence with the particle *ba*. The *ba* construction can be summarized as [Subject + *Ba* + Object + Verb (+ Other Elements)]. The preposed object NP in the *ba* construction is often referred to as the *ba* NP. Although many previous studies have focused on the syntactic and semantic functions of the *ba* NP, there is still no consensus regarding whether it expresses the topic, the focus, or neither. Several researchers [1-3] have argued that the *ba* NP is a type of topic, while others [4-6] have considered it to be a focus. Nonetheless, these points of view do not accord with those of LaPolla [7], who stated that the *ba* NP was neither the topic nor the focus.

Most discussions about the function of the *ba* NP have been from the perspectives of grammatical form and grammatical meaning. Unlike previous research, the present study adopted a structural priming paradigm in a self-paced reading experiment to explore the information function of the *ba* NP. We investigated whether 60 native Mandarin speakers' reaction times (RTs) when reading *ba* sentences could be

influenced after reading three different types of sentences, namely topic sentences, focus sentences, and the canonical active SVO sentences (baseline).

2 Literature Review

2.1 Views on the Information Function of the *ba* NP

Deciding whether the message conveyed by a sentence in a discourse expresses a topic or a focus role is an important issue in grammar and in language comprehension [8-10]. Following Li & Thompson [11], many scholars have assumed that Chinese is a topic-prominent language, and the notion topic is generally expressed by a definite noun phrase occupying the sentence-initial position [11-13]. Although the *ba* NP is often referential, its position is not at the beginning of the sentence, which appears to be inconsistent with the definition of the topic. However, some researchers have maintained that Chinese allows for a topic that appears in the middle domain of a sentence [1, 14-15]. Meng [2] also pointed out that whether the topic appeared in the sentence-initial position depended on its nature, and the secondary topic may be allowed depending on the verb's property, suggesting that the *ba* NP can belong to the latter.

The focus often expresses the key message that the speaker intends to convey [8]. In Chinese, the focus is generally expressed via intonation emphasis and syntactic structure (for a review, see [16]). Unlike the topic, which is usually located at the beginning of a sentence, the position of the focus is not fixed. As a sign of new information, it strengthens the semantics of the relevant components [17]. Focus can be divided into two categories according to the type, namely unmarked focus (also called natural focus) and marked focus [18]. The unmarked focus in Chinese is usually on the sentence-final position, while the position of the marked focus is more flexible and can appear at the beginning, middle, or end of a sentence, and is often realized via the focus marker [18]. For example, many researchers [19-21] have identified the focus marker "*lian* (even).....*dou* (also)". Similar to the preposed object in the *ba* construction, the object focus sentence marked by the focus marker "*lian* (even).....*dou* (also)" also requires the object to be marked in a preverbal position, as shown by the contrast shown between (1) and (2).

(1)	Zhexie	ren	lian	**yi dian**	**xiaoshi**	dou	bu	yuanyi	zuo.
	these	people	LIAN	a little	thing	DOU	not	want	do.

'These people don't even want to do the little things.'

(2)*	Zhexie	ren	lian	dou	bu yuanyi	zuo	**yi dian**	**xiaoshi**.	
	these	people	LIAN	DOU	not want	do	a little	thing.	

'These people don't even want to do the little things.'

Several scholars have studied the *ba* construction from the perspective of language

information structure. Tsao [1] proposed that the function of the *ba* was to mark the object NP as a secondary topic. By comparing the characteristics of the regular topic NP and the *ba* NP, Tsao [1] found that the *ba* NP shared most of the properties of the regular topic NP and proposed four aspects in his topic theory. First, He claimed that the referential constraint of the *ba* NP resembled that of the sentence-initial topic. As is the case for the topic NP, the *ba* NP is specific, definite, or generic. Second, Tsao [1] revealed that the *ba* NP could be separated from the rest of the sentence by the pause particle *a*/*ya*, which is the same as for the regular topic. Third, Tsao [1] stated that the property of the *ba* NP occupying the sentence-initial position in the first sentence in a topic chain was the same as that of the topic. An example is presented below:

(3) Ta ba shu zhang-le jia zai mai gei women.
She BA book raise-ASP price then sell to us.
'She raised the price of the book before selling it to us.'

Tsao argued that in Example (3), the *ba* topic chain contains two clauses, both of which pertain to the same topic—*shu* "book". In this sentence, *shu* "book" is the *ba* NP, and occurs at the head of the chain. In other words, the *ba* NP can head a topic chain that is embedded in a larger topic chain that is headed by a typical topic. Finally, as with the typical topic, Tsao [1] pointed out that the *ba* NP was also in control of all the pronominalization and coreferential NP omitted in a topic chain. Concerning Example (4), Tsao [1] claimed that the first *ba* NP was the controller and the second *ba* NP was the victim in the coreferential processes of pronominalization and deletion.

(4) Ta ba shu zhang-le jia zai ba ta mai gei women.
She BA book raise-ASP price then BA it sell to us.
'She raised the price of the book before selling it to us.'

In summary, Tsao [1] concluded that the *ba* NP was a special kind of topic because it had most of the characteristics of the regular topic NP. Slightly different from Tsao's [1] view, Xue [3] argued that the *ba* NP was the main topic, and the subject served as the secondary topic. Xue [3] claimed that the verb phrase in the *ba* construction was a descriptive statement about the *ba* NP's condition as a result of a certain action and that the *ba* NP was the topic of this descriptive statement. Second, he argued that the verb phrase in the *ba* construction was related more closely to the *ba* NP than it was to the subject. That is, in the *ba* construction, the sentence is still grammatical if the subject is omitted (5b), but the sentence becomes ungrammatical if the NP after *ba* is omitted (5c).

(5) a. Zaogao, wo ba zhe jian shi wang-le.
oops, I BA this classifier thing forget-ASP.
'Oops, I forget this thing.'

b. Zaogao, ba zhe jian shi wang le.

oops, BA this classifier thing forget-ASP.
'Oops, (I) forget this thing.'

c.*Zaogao, wo ba wang le.
oops, I BA forget-ASP.
'Oops, I forget.'

Nonetheless, still some researchers believed that the *ba* NP was not the topic, but the focus. Li et al. [4] proposed that the Chinese *ba* construction was a common grammatical means of attracting the listener's attention to a specific object or problem through a certain activity or object and argued that the *ba* NP was the prominent part of the *ba* sentence; therefore, it was the focus. Similarly, Zhang [5] proposed that the *ba* NP could be treated as a secondary focus. Unlike Tsao [1], who stated that the character of the *ba* NP, which is definite, was the same as that of the regular topic, Zhang [5] argued that the *ba* NP did not need to be definite as long as it was an actual or referential entity, such as "a big tree" or "two sheets of paper." Furthermore, he claimed that, although the *ba* NP preceded the main verb, it differed from the topic structure. The topic structure only concerns two dimensions, "who (what) - what result/extent" [5], while the *ba* structure has three: "who (what) - manipulates (disposes, causes) what (who) - to what result/extent" [5]. To differentiate it from the primary focus in the *ba* construction, Zhang [5] suggested that the *ba* NP could be considered to be a secondary focus, because in the *ba* construction, as *ba* can be seen as part of the entire action process, the *ba* NP can never be separated from its ensuing verbal complement; it can only be regarded as part of the rheme or comment, rather than being part of the theme or topic. Shao and Zhao [6] also proposed that, instead of stating that the *ba* NP was a topic, it could be considered as a focus. They believed that the object after *ba* was the stress, and that the *ba* not only introduced a general semantic role, but also a pragmatic marker, namely a focus marker showing the speaker's emphasis. In conclusion, these researchers believed that the *ba* NP was either a focus to emphasize the point that the speaker wanted to highlight or became a secondary focus as an integral part of the primary focus at the end of the *ba* sentence.

LaPolla [7] proposed a different view that the *ba* NP was neither a topic nor a focus and illustrated his points according to two dimensions. First, LaPolla [7] stated that *ba* could allow for new referents to be treated as a portion of the presupposition. The function of the *ba* construction was to allow part of the presupposition to be treated as being within the scope of the assertion that contained the *ba* NP and everything that followed it. Therefore, the *ba* NP could be regarded as a new referent. However, this only occurred when the *ba* NP was not treated as salient new information because it was not placed in the neutral focal position; that is, the sentence-final position. According to LaPolla [7], the *ba* NP was not a typical focus (correlated with new information) or a topic (correlated with old information). In addition, LaPolla [7] argued that many *ba* NPs were neither topics nor second topics. He confirmed that the *ba* NP did not have the same distribution characteristics as the regular topic. The examples he gave are as follows.

(6) Ta ba xiezi tuo-le, cai jin-lai.
He BA shoes Take-off-ASP, then enter come.
'He took off his shoes, then came in.'

(7)*Ta xiezi tuo-le, cai jin-lai.
He shoes Take-off-ASP, then enter come.
'He took off his shoes, then came in.'

(8)*Xiezi ta tuo-le, cai jin-lai.
Shoes he Take-off-ASP, then enter come.
'He took off his shoes, then came in.'

(9) Ta tuo-le xiezi, cai jin-lai.
He Take-off-ASP shoes then enter come.
'He took off his shoes, then came in.'

Lapolla [7] explained that if removing *ba* from (6), as in (7), or place *xiezi* "shoes" in the initial position, as in (8), making the *ba* NP *xiezi* "shoes" as a topic, and these sentences became ungrammatical (or at least more marked). According to LaPolla [7], if moving *xiezi* "shoes" to the post-verbal position, the sentence is acceptable, as in (9). We noticed that the acceptability of these example sentences may vary by context. LaPolla's views began with the pragmatic function and structural characteristics of the *ba* construction. He argued that the *ba* NP could be used as a new referent (when it is not treated as salient new information), and it has no common characteristics with the typical topic. Unlike other studies, LaPolla [7] rejected the view that the *ba* NP is a topic or focus; this provided other theoretical sources for the examination of the function of the *ba* NP.

2.2 The Structural Priming Paradigm

Structural priming refers to facilitating the processing of the present syntactic structure through exposure to the same or similar structures. For example, people read a reduced relative clause sentence more quickly if they have previously read a sentence with a similar structure [22]. It has been acknowledged that structural priming exists in the production and comprehension of adult monolinguals and bilinguals [23]. Many studies have used structural priming to study language production, language comprehension to production, or priming within comprehension. One of the most popular methods is self-paced reading, in which participants read words in a sentence one by one in order by pressing keys on a keyboard and controlling the reading time for each sentence region according to their speed. Self-paced reading experiments approximate normal reading and can reflect the comprehension process of natural language. Hsieh [24] reported on a self-paced reading experiment to investigate the influence of Chinese passive relative clauses on the interpretation of English sentences that were temporarily ambiguous between an active main clause and a passive reduced relative structure.

In the present study, the *ba* NP is a preposed object, which is in the medial domain (below TP and above VP) in the *ba* construction [14]. As object preposed to the medial domain can be interpreted either as topic or as focus [14], by setting mini-discourses of topic, focus, and general declarative (baseline) as priming sentences, this study adopted a self-paced reading experiment to assess whether the information function of the *ba* NP was more similar to the focus denotation or to the topic denotation in language comprehension.

2.3 Research Questions

As a unique syntactic structure in Chinese, the *ba* construction has been studied by many linguists from various perspectives. However, as mentioned above, their opinions diverge regarding whether the information function of the *ba* NP is the topic, the focus, or both diverge. The dominant research direction on this topic has focused on analyzing the grammatical form and grammatical meaning of the *ba* construction.

However, we believe that the study should not be limited to the grammatical level, as the psycholinguistic perspective is also worth exploring. Specifically, we can investigate native Mandarin speakers' comprehension of the *ba* construction after reading topic sentences, focus sentences, and SVO sentences by adopting a structural priming paradigm. Two specific research questions that this study intended to answer are: (a) Do the different information conditions (topic versus focus) expressed by a preposed object influence native speakers' reading of the *ba* construction? (b) What is the information function of the *ba* NP? Is the *ba* NP's function more similar to focus, to topic, or to neither? We hypothesized that, if the *ba* NP functioned more similarly to the focus, the RTs of the *ba* sentences following the focus condition should be shorter than those in the other two conditions; however, if the *ba* NP functioned more like a topic phrase, the *ba* sentences should be read more quickly after the topic condition than after focus and SVO conditions.

3 Materials and Methods

3.1 Participants

66 native speakers of Mandarin (aged 20-29 with an average age of 24; 32 males) participated in the study. None of them had linguistic backgrounds. The participants' language proficiency and backgrounds were confirmed via a questionnaire on which they rated their proficiency in Mandarin/Cantonese/English/Min dialect/Hakka using a seven-point scale (1 = do not know the language, 7 = native). The mean proficiency of our participants was 6.48 in Mandarin, 1.7 in Cantonese, 4 in English, 1.05 in Min dialects, and 1.28 in Hakka.

3.2 Materials

To guarantee that the created materials were sufficiently natural, we adopted Su's [25]

finding about speakers' choice-making of the *ba* construction that, when speakers marked a transitive event as being highly consequential, highly challenging, or highly important, or when explicitly blamed or praised the causer, they tended to use a *ba* construction rather than the other constructions. Based on this view, the target sentence in this experiment was designed to contain a context sentence and a *ba* sentence that was derived from this context. Similarly, to maintain consistency with the target sentence, the priming trials also contained a context sentence, followed by a topic/focus/SVO sentence. An example of primes and target sets is shown below. After reading a pair of sentences of one type of the prime (9), a target pair of a simple context and a *ba* sentence was presented (10). In each target pair, RTs in the regions 8 to 13 of each condition were used for analyses.

(9) Prime pair
Context Sentence 珊妮打扫卫生认真又细致。
'Sunny is conscientious and meticulous in cleaning.'
a. Focus Sentence 她-8/连屋顶-9/的-10/灰尘-11/都-12/清理了-13。
'She cleaned even the dust on the roof.'
b. Topic Sentence 屋顶-8/的-9/灰尘-10/她-11/都-12/清理了-13。
'She cleaned up the dust on the roof.'
c. SVO Sentence 她-8/清理-9/干净了-10/屋顶-11/的-12/灰尘-13。
'She cleaned up the dust on the roof.'

(10) Target pair
Context Sentence 珊妮打扫卫生认真又细致。
'Sunny is conscientious and meticulous in cleaning.'
Ba Sentence 她-8/把屋顶-9/的-10/灰尘-11/清理-12/干净了-13。
'She cleaned up the dust on the roof.'

The priming topic sentence in this experiment was designed based on the two salient properties of the topic, that is, the topic is in the sentence-initial position and is definite. The priming focus sentence was designed as an object focus sentence marked with "*lian* (even).....*dou* (also)", and the SVO sentence was a general declarative sentence with SVO word order. All experimental sentences were subject to an acceptance check using a seven-point scale by 117 Mandarin native speakers who did not participate in the formal experiment. Only sentences with a mean acceptance rating greater than 5.5 points were selected as the experimental items.

This study included 36 prime-target pairs of experimental items and 108 filler items. The experimental sentences included 12 pairs of Prime Topic - Target *Ba* (henceforth, topic-*ba*) discourse, 12 pairs of Prime Focus - Target *Ba* (henceforth, focus-*ba*) discourse, and 12 pairs of Prime SVO - Target *Ba* (henceforth, SVO-*ba*) discourse. The 36 pairs of experimental materials were divided into three lists, and we used the Latin square design to ensure that each pair of experimental materials appeared only once in each list. Each list contained four pairs of topic-*ba* discourses, four pairs of focus-*ba* discourses, four pairs of SVO-*ba* discourses, and 36 filler items. The experimental materials were divided into 14 regions, in which the *ba* NP appeared in

Regions 9, 10, and 11. Each *ba* sentence contained six regions.

3.3 Procedure

The experiment was conducted using PCIbex (https://farm.pcibex.net/). The participants were tested individually and were assigned randomly to one of the three lists. Each participant was instructed to complete six practice trials prior to beginning the formal experiment. Each trial began with a fixation cross (1,500 ms), and the sentences were then presented on the screen one word at a time in a moving window display; the participants could press the space bar to read the next word. Each sentence was followed by a comprehension question, and no feedback about the participants' responses was given during the formal test. The participants' RTs and answers were recorded digitally, and the entire experiment lasted for approximately 40 minutes.

4 Results and Discussion

The priming effect estimates were based on measuring the participants' RTs for the *ba* sentences. Prior to the analysis, data from four participants were excluded because the accuracy was lower than 80%. In addition, the results for the two participants were not recorded by PCIbex successfully, thus they were excluded as well. Furthermore, RT results lower than 100 ms and exceeding three standard deviations, accounting for about 2% of all the data, were removed from the analysis.

The average accuracy on comprehension questions of remaining 60 participants was 96.5%. The accuracy results of the reading comprehension questions for the three conditions are in Table 1. We can see that the differences in the answers among the three conditions are minuscule, and all have high accuracy.

Table 1. Accuracy results of comprehension questions for the three conditions

Three Conditions	Standard Deviation	Standard Error
Prime Focus	.190	.123
Prime Topic	.180	.116
Prime SVO	.180	.116

We then used lme4 in R to perform a linear mixed-effects analysis of the relationship among the RTs for the ba construction and the three conditions. We included participants, items, and lists as random effects. Then, we used two fixed effects, priming condition (the topic condition, the focus condition, and the SVO condition) and sentence regions, and their interaction in the model. The results revealed that the model comparison was significant (χ^2 (17) = 47872, p <.001), thus indicating that the three conditions and the six regions had a significant impact on the RTs. In addition, the results of the pair-wised comparison of the conditions (see Table 2) illustrated that the

Table 2. Pair-wise comparisons results for the three conditions on the RTs of the *ba* sentences

Pair-wise comparison	Estimated Standard	Standard Error	Z Value	P Value
Prime Focus vs. Prime SVO	-.168	.064	-2.612	**.025**
Prime Topic vs. Prime SVO	.021	.065	.320	.945
Prime Topic vs. Prime Focus	.189	.064	2.933	**.009**

RTs of focus condition were significantly faster than that of the topic condition (p = .009), the focus condition was significantly faster than the SVO condition (p = .025), and the topic and the SVO conditions were not significantly different (p = .945). Therefore, we identified that there was priming tendency in the focus condition.

Based on the above analysis, we examined the mean RT for each region in the *ba* construction (see Fig. 1). As shown in the figure, except for Region 8 (where the subject was located) in the *ba* constructions that shared similar log RTs, the remaining regions' RTs in the focus condition were the lowest. The RT for the *ba* NP (Regions 9-11) in the focus condition was significantly less than it was in the other two conditions. Thus, the participants read the *ba* sentence more quickly after reading the priming focus discourse than they did after reading the priming topic discourse or the priming SVO discourse; some priming effects were more obvious in the focus condition.

Furthermore, we continued to use a linear mixed-effects model to examine the relationships of the RT for each region and the three conditions (see Table 3).We entered three priming conditions as fixed effects into the model, namely the topic condition, the focus condition, and the SVO condition. We still used intercepts for

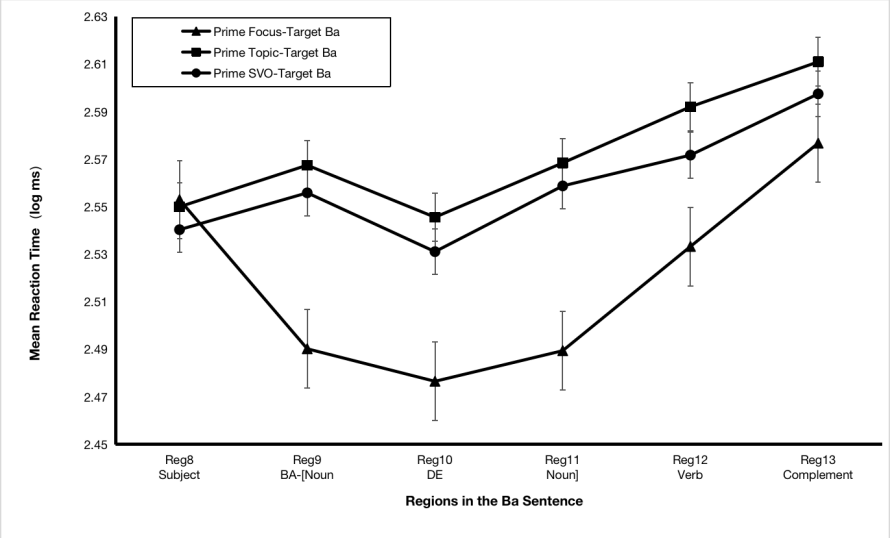

Fig. 1. Log RTs for the region in the *ba* sentence according to the three conditions

Table 3. Relationship among the RTs for each region and the three conditions

Regions in the *ba* construction	Chi square	P Value
Reg 8 Subject	.322	.851
Reg 9 BA -Noun	8.737	**.013**
Reg 10 DE	9.706	**.008**
Reg 11 Noun	7.315	**.026**
Reg 12 Verb	4.992	.082
Reg 13 Complement	1.230	.541

the participants and the items as random effects. Following the analysis, we found that the model comparison results were significant (Reg 9: χ^2 (2) = 8.737, p = .013; Reg 10: χ^2 (2) = 9.706, p =.008; Reg 11: χ^2 (2) = 7.315, p = .026) in the region of the *ba* NP (Regions 9-11), as the three conditions were the main effect. In addition, we observed a spillover effect in Reg 12 (χ^2 (2) = 4.992, p = .082). This indicated that these three conditions also had an impact on the verb's RT in the *ba* construction. Besides, the results of the comparisons of the conditions (see Table 4) showed that, in the *ba* NP region, the focus and the topic condition had a significant effect (Reg 9: p = .010; Reg 10: p = .005; Reg 11: p = .024), as did the focus and the SVO condition (Reg 9: p = .036; Reg 10: p = .027; Reg 11: p = .057). However, there was no significant difference between the topic and the SVO condition (Reg 9: p = .891; Reg 10: p = .849; Reg 11: p = .944), which was consistent with the results that were observed in Fig. 1. It was noteworthy that the difference between the topic and the focus condition was more obvious in Region 12 (p = .057), but there were no significant differences in the comparisons of the other two conditions. Based on the above analysis of all the regions, we determined that there were indeed priming effects in the *ba* NP region. This meant that the *ba* NP function was more similar to the focus denotation than it was to the topic.

5 Concluding Remarks

This study revisited the debate about the information function of the *ba* construction. Whether the *ba* NP expresses a topic denotation, a focus denotation, or neither, remains controversial. The present study's findings, which were based on a structural priming paradigm in a self-paced reading experiment, revealed that different information conditions (topic versus focus) expressed by a preposed object may influence native speakers' reading of the *ba* construction. Sixty native Mandarin speakers read the *ba* NP more quickly when they had previously read the focus discourse rather than the topic discourse, and priming effects occurred in the focus condition. The *ba* NP in the *ba* construction may be processed in a way that is more similar to the focus than it is to the topic in language comprehension. In terms of the theoretical and methodological implications of the present study, it serves as a contribution to the current controversy

Table 4. Pair-wise comparisons results for the three conditions on the RTs of Regs 9-12

		Estimated	S.E	Z Value	*P*
Reg 9	Prime Focus vs. Prime SVO	53.680	21.732	2.470	**.036**
	Prime Topic vs. Prime SVO	-9.972	21.768	.458	.891
	Prime Topic vs. Prime Focus	-63.651	21.740	-2.928	**.010**
Reg 10	Prime Focus vs. Prime SVO	44.706	17.329	2.580	**.027**
	Prime Topic vs. Prime SVO	-9.453	17.353	- .545	.849
	Prime Topic vs. Prime Focus	-54.159	17.316	-3.128	**.005**
Reg 11	Prime Focus vs. Prime SVO	56.038	24.468	2.290	.057
	Prime Topic vs. Prime SVO	-7.924	24.483	- .324	.944
	Prime Topic vs. Prime Focus	-63.962	24.462	-2.615	**.024**
Reg 12	Prime Focus vs. Prime SVO	31.06	21.64	1.435	.323
	Prime Topic vs. Prime SVO	-18.53	21.65	- .856	.668
	Prime Topic vs. Prime Focus	-49.59	21.65	-2.291	.057

on the information function of the *ba* NP in Mandarin Chinese, which remains an under-investigated field in prior research. Besides, the use of the well-established methodology, a structural priming paradigm in a self-paced reading experiment, is a novel approach that adds to the existing literature on the *ba* construction.

However, the current experiment also had several limitations. The *ba* NP in this study was divided into three regions (*ba* Noun +*de* +Noun), which may have influenced the RTs for the *ba* NPs in the three conditions. In future research, we suggest simplifying the *ba* NP and allowing it to be present in one region. Moreover, we selected the "*lian* (even)…*dou* (also)" construction for our priming focus sentences, even though it is widely acknowledged that "*lian* (even)…*dou* (also)" is a typical focus marker [17,19-20, 26]. In future research, other focus makers, such as *zhiyou* 'only', could be used to test whether the results will differ from those in the present study. Finally, the present experiment could be repeated with L2 Chinese learners, and then the data of the L2 Chinese learners could be compared with the data collected under the current study to further explore whether there is any different performance between L2 and native speakers in the information function of the *ba* NP.

References

1. Tsao, F.: A topic-comment approach to *ba* construction. Journal of Chinese Linguistics. **15**, 1-54 (1987)
2. Meng, Y.: On the topic and focus of *ba*-sentences. Journal of PLA University of Foreign Languages. **23**, 44-46 (2000). (in Chinese)

3. Xue, F.: On the semantic characteristics of the ba sentence. Language Teaching and Linguistic Studies. **1**, 4-22 (1987)
4. Li, Y., Zheng, L., et al.: Practical Chinese reference grammar. Beijing: Beijing Language and Culture University Press (1990). (in Chinese)
5. Zhang, P. N.: Word order variation and end focus in Chinese: Pragmatic functions. Ed.D. Thesis, Teachers College, Columbia University (1994)
6. Shao, J., Zhao, C.: Cognitive interpretation of *ba*-construction and *bei*-construction. Chinese Language Learning. **4**, 11-18 (2005). (in Chinese)
7. Lapolla, R. J.: Grammatical relations in Chinese: Synchronic and diachronic considerations. Berkeley: University of California (1990)
8. Chafe, W.: Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In: Charles N. Li (ed.) Subject and Topic, pp. 25-56. Academic Press, New York (1976)
9. Krifka, M.: Basic notions of information structure. Acta Linguistica Hungarica. **55**, 243-276 (2008)
10. Hsu, Y.-Y.: Associations between focus constructions and levels of exhaustivity: An experimental investigation of Chinese. PLoS ONE **14**(10), e0223502 (2019b)
11. Li, C. N., Thompson, S. A.: Subject and topic: A new typology of languages. In: Charles N. Li (ed.): Subject and Topic, pp. 457-489. Academic Press, New York (1976)
12. Tsao, F.: A functional study of topic in Chinese: The first step towards discourse analysis. Unpublished Ph.D. Dissertation, University of Southern California (1977)
13. Shi, D.: The nature of Chinese topics. Modern Foreign Language **2** , 40-57 (1998). (in Chinese)
14. Hsu, Y.-Y.: Two functional projections in the medial domain in Chinese. Concentric: Studies in Linguistics. **38**, 93-136 (2012)
15. Paul, W.: Sentence-internal topics in Mandarin Chinese: The case of object preposing. Language and Linguistics Compass. **3**, 695-714 (2002)
16. Hsu, Y.-Y.: Information structure in Chinese discourse. In: Chris Shei (ed.): Routledge Handbook of Chinese Discourse Analysis, pp. 130-144. Taylor & Francis/Routledge, London (2019a)
17. He, Y.: On the syntactic structures of focus constructions in Mandarin Chinese. Chinese Linguistics. **2**, 53-68 (2010). (in Chinese)
18. Liu, X.: Focus, distribution of focus and focusing. Journal of Ningxia University (Humanities & Social Sciences Edition). **17**, 79-84 (1995). (in Chinese)
19. Fang, M.: The syntactic expression of Chinese contrastive focus. Studies of the Chinese Language. **4**, 279-288 (1995). (in Chinese)
20. Liu, D., Xu, L.: Focus, background, topic and *lian* construction in Chinese. Studies of the Chinese Language. **4**, 5-14 (1998). (in Chinese)
21. Tsao, F.: Topic and *lian...dou*/ye construction revisited. Functionalism in Chinese Syntax. Chinese Language Teachers Association Monograph **1**, 245-278(1989)
22. Wei, H., Boland, J. E., Cai, Z., Yuan, F., Wang, M.: Persistent structural priming during online second-language comprehension. Journal of Experimental Psychology: Learning, Memory, and Cognition. **45**, 349-359 (2019)
23. Pickering, M. J., Ferreira, V. S.: Structural priming: A critical review. Psychological Bulletin. **134**, 427-459 (2008)
24. Hsien, Y.: Structural priming during sentence comprehension in Chinese-English bilinguals. Applied Psycholinguistics. **38**, 657-678 (2017)
25. Su, D.: Significance as a lens: Understanding the mandarin *ba* construction through discourse adjacent alternation. Journal of Pragmatics. **117**, 204-230 (2017)
26. Ma, T. -M., Hsu, Y.-Y., Han, T., Tack, D. Activation of Alternatives by Mandarin Sentence-Initial and Sentence-Internal Foci: A Semantic Priming Study. In: Dong, M., et al. (eds.)

Chinese Lexical Semantics, CLSW 2021. LNAI, vol. 13249, pp. 263-270. Springer International Publishing Cham (2021)