A Corpus-based Analysis of Prosodic Pauses in bā, gěi and ràng Constructions in Taiwan Mandarin

Chihkai Lin
Tatung University / No. 40, Section 3
Zhongshan North Road, Taipei City,
Taiwan (R.O.C)
linchihkai@gmail.com

Abstract
This paper investigates prosodic pauses in bā, gěi, and ràng constructions in Taiwan Mandarin and adopts a corpus-based approach by collecting spoken data from an online corpus, NCCU Corpus of Spoken Taiwan Mandarin. The results show that prosodic pauses are not preferred before and after the bā, gěi, and ràng words in the three constructions. However, whenever there is a pause, the left edge of the bā, gěi, and ràng words is preferable to the right edge.

1 Introduction
This paper investigates prosodic pauses in bā, gěi, and ràng constructions in Taiwan Mandarin from a corpus-based approach. Prosodic pauses have been recognized as a significant indicator to mark the syntactic boundaries, provide time for speech planning, indicate semantic focus and show a cue of turn-taking. According to Zellner (1994), there are two major types of pauses in speech: linguistic pause and psychological pause. The linguistic pause which is based on production is interpreted as a physical phenomenon when no acoustic signal is observed in spectrum. The linguistic pause is divided into intra-segmental pauses and inter-lexical pauses, showing a positional difference between pauses within a phonological word and pauses across phonological words. On the other hand, the psychological pause is based on perception, and there are also two types of pauses: silent pauses and filled pauses. The two types are distinguished by fillers. Silent pauses lack fillers, while filled pauses contain pauses introduced by fillers, such as ah and um in English.

Prosodic pauses function as an indicator to mark boundaries and determine prosodic hierarchy. According to Tseng, Chang, and Su (2005), Tseng (2006, 2008), and Tseng and Chang (2008), the prosodic hierarchy of Mandarin Chinese is shown in (1).

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(1)

Utterance (U)
   Prosodic group (PG)
   Breath group (BG)
   Prosodic phrase (PP)
   Prosodic word (PW)
   Syllable (S)

In this hierarchy, there are five levels of breaks between the boundary of syllables (B1), prosodic words (B2), prosodic phrases (B3), breath groups (B4), and prosodic groups (B5). Tsai (2005) and

1 Breath group in (1) is not always necessary because it is related to how long a speaker can talk within breaths. When the meaning is fully expressed, breath group is merged into the higher prosodic group (Tseng 2008: 662).
Chen (2015) suggest that the boundary between prosodic phrases (B3) is more prominent than the one between prosodic words (B2). That is to say, the phrasal boundary plays a more crucial role than the word boundary. Example is shown in (2).

(2)

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PG
/ \ PP
PW PW PW PW
| | | | \\S S S S S S
| | | | | | | wǒ jìntiān qù xuéxiào
I today go school
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'I go to school today.'

Theoretically speaking, pauses can occur between boundaries at any level, but the B3 boundary is more salient than other boundaries. In other words, the pauses between prosodic phrases would be acoustically longer and perceptually noticeable. For instance, the pause between jīn and tiān in jīntiān ‘today’ at the syllable level is less natural than the pause between tiān in jīntiān ‘today’ and qù ‘go’ at the phrasal level.

In addition to prosodic pauses, the example in (2) also shows the alignment of prosodic pause and syntactic structure. In most constructions, there is no match between syntax and phonology. However, some ‘special’ constructions in Mandarin Chinese should be analyzed differently. For example, bā construction in Mandarin Chinese is not a typical one and the phonological status of the bā word is always left unknown. As Mandarin Chinese includes several special constructions, and the phonological statuses of the keywords are often neglected, this paper discusses three frequently-used special constructions in Mandarin Chinese: bā, gěi, and ràng constructions. To find out the phonological statuses of bā, gěi, and ràng constructions, this paper focuses on prosodic pauses of the bā, gěi, and ràng words in the three constructions.

To explore prosodic pauses in the three constructions, this paper adopts a corpus-based approach, especially using spoken data. To show how the three constructions are prosodically analyzed, this paper is organized as follows.

Section 2 explores syntactic structures of bā, gěi, and ràng constructions and discusses the demarcation of the bā, gěi, and ràng words. Section 3 introduces the corpus used in this paper and data collection criteria. Section 4 reports the distribution of the bā, gěi, and ràng constructions in the corpus. Section 5 discusses two issues in the three constructions. Section 6 concludes this paper.

2 Bā, gěi and ràng constructions

The bā, gěi, and ràng words in Mandarin Chinese, are originally verbs, as in bā ‘to hold’, gěi ‘to give’ and ràng ‘to yield’. Under grammaticalization (Chang 2001, 2006), new usages of the bā and gěi words have emerged. Teng (2019) marks bā as a particle, gěi as a preposition, and ràng as a verb. In modern Mandarin Chinese, bā, gěi, and ràng are commonly seen in the constructions of NP₁ + bā/gěi/ràng + NP₂ + VP (henceforth X–zì constructions), where they appear between two NPs, as in (3) – (5).

(3) tā bā shū kàn wánle
    tā bā shū kàn
    3rd.person BA book read
    wán-le
    complete-ASP
    ‘He has read the book.’

(4) wǒ gěi tā kàn mùlù
    wǒ gěi tā kàn
    1st.person GEI 3rd.person read
    mùlù
catalog
    ‘I show him a catalog.’

(5) wǒ ràng tā chī dānkāo
    wǒ ràng tā chī dānkāo
    1st.person RANG 3rd.person eat cake
    ‘I let him eat cake.’

In the X–zì constructions, the bā, gěi, and ràng words are not the main verbs. As shown in (3) – (5), the bā, gěi, and ràng words precede the verb phrase and appear between two noun phrases. There should be a close relationship for the X in an X–zì construction to the two noun phrases. The X
and the two noun phrases could be within a constituent, as shown in (6).

(6) a. NP1 + bă + NP2 + VP
b. NP1 + [gēi + NP2]pp + VP
c. NP1 + [ràng + NP2]vp + VP

In bă construction (6a), the bă is separated from the two noun phrases; in gēi construction (6b), the gēi and the following noun form a prepositional phrase (PP). In (6c), the ràng and the following noun constitute a verb phrase.

Following (6), this paper looks into the real distribution of the bă, gēi, and ràng words in spontaneous speech to check whether they behave like content or functional words. Therefore, there are four possible positions to demarcate the pauses of the bă, gēi, and ràng words in the X-zì constructions, as shown in (7).

(7) a. NP1 + X + NP2 + VP
b. NP1 + [X+ NP2] + VP
c. NP1 + [X] + NP2 + VP
d. NP1 + [X] + NP2 + VP

The first situation (7a) is that there is a pause before and after the bă, gēi, and ràng words. It is also possible that there is only one pause before (7b) or after (7c) the bă, gēi, and ràng words. It might be rare to see, but the situation (7d) is also possible when there are two pauses before and after the bă, gēi, and ràng words.

As the word order of the bă, gēi, and ràng words are similar in the X-zì constructions, it is unknown whether they show the same tendency in the phonological demarcation. Thus, this paper aims to find possible answers to the question.

### 3 Corpus and data selection criteria

This paper investigates the prosodic pauses of the bă, gēi, and ràng words in the X-zì construction in Taiwan Mandarin, and this paper collects data from NCCU Corpus of Spoken Taiwan Mandarin, an online corpus of spoken Taiwan Mandarin established by National Chengchi University.²

This online corpus includes 49 conversations recorded from 2006 to 2019, and the average recording time for each conversation is about 20 minutes. Longer or shorter conversations are also available in the corpus. The conversations are elicited in Chinese with numbered turn-taking and clear marking of three types of pauses. Short pause is marked with two dots, and medium pause with three dots. Long pause is marked with not only three dots but also the duration of time.

The procedure of data collection for this paper is as follows. In the online corpus, there is a search engine in the upper right corner of the page. However, this paper does not adopt this method to look for the entries of the bă, gēi, and ràng words because data collection via search engine results in 50 entries at most. Instead, this paper scrutinizes the 49 original conversations under the section of corpus data.

The second step is to collect the entries of the bă, gēi, and ràng words, respectively. By using the function of find box (Ctrl + F) to locate the bă, gēi, and ràng words, this paper gleans all the marked data and then classifies them in an EXCEL file.

The data selection criteria are as follows. As the bă, gēi, and ràng words are polysemous, the entries require careful examination. Usages other than those in the X-zì construction are excluded from further data analyses in this paper. For example, the bă word can be a classifier (CL), as in yì-bă yúsān (one-CL umbrella) ‘an umbrella’. As for the gēi word, it also can be a verb ‘to give’ or a preposition ‘to’, as in (8) and (9).

(8) wǒ gēi tā yì-bă yúsān
wǒ gěi tā yì-bā yúsān
1st.pronoun give 3rd.pronoun one-CL
yúsān umbrella
‘I give him an umbrella.’

(9) wǒ dădiànhuà gēi tā
dădiànhuà gěi tā
1st.pronoun call to
3rd.pronoun
‘I call him.’

Concerning the ràng word, it can be a verb ‘to yield’, as shown in (10).

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² The link is [http://spokentaiwanmandarin.nccu.edu.tw/](http://spokentaiwanmandarin.nccu.edu.tw/)
wǒ ràngzuò gěi tā
wǒ ràngzuò gěi
tā
‘I yield a seat to him.’

After the entries which are not in the X-zì constructions are marked, all the selected data are further analyzed according to whether there are pauses and which sides they appear. Finally, the prosodic pauses in the X-zì constructions are calculated, and the results are reported in section 4.

4 Results

This section reports the distribution of the prosodic pauses of the bă, gěi, and ràng words in Taiwan Mandarin. The distribution is shown in Table 1.

| Edge | Left | Right | Both | None | Total |
|------|------|-------|------|------|-------|
| bă   | 36   | 14    | 0    | 307  | 357   |
| gěi  | 13   | 1     | 0    | 69   | 83    |
| ràng  | 20   | 3     | 0    | 112  | 135   |
| Total| 69   | 18    | 0    | 488  | 575   |

Table 1: The distribution of the bă, gěi, and ràng words in the X-zì constructions

There are 575 entries in Table 1, 357 entries for the bă word, 83 entries for the gěi word, and 135 entries for the ràng word. Among the 575 entries, 69 entries are marked with left pause, 18 entries with right pause, and 488 entries without any pause. In the corpus, there is no entry with pauses on both edges.

Examples with pause on one edge are provided below. First, the examples with left pause are given in (11) – (13).

(11)
NCCU-TM008-CN-FM
145 F1:

..ránhòu ..bă tāmen zài-qù Hsinchu BA 3rd.pronoun drive-go Hsinchu
wăn 3rd.pronoun yield.seat to

‘Then drive them to Hsinchu.’

(12)
NCCU-TM021-CN-FM
151 F:

..給我找..他說房子給我找
..gěi wŏ zhăo GEI 1st.pronoun look.for

通 gěi wŏ zhăo look.for
‘Let me look for. He said, “Let me look for the house!”’

(13)
NCCU-TM010-CN-FF
103 F2:

..háishì shuō or say

..ràng tā zhīdào shuō RANG 3rd.pronoun know say

nĭ qù nălĭ a 2nd.pronoun go where particle
‘Or, let her know where you go.’

In addition to pauses on the left edge, there are eighteen examples with pauses on the right edge, as in (14) – (16).

(14)
NCCU-TM042-CN-MM
49 M1:

..suŏyŏu de kē shàng-wán all DE course teach-complete

hùi bă 3rd.pronoun will BA

‘He will teach all the courses.’
(15) NCCU-TM014-CN-FFF
212 F1:
..等我打完再給..給你用
..děng wǒ dā-wān zài
wait 1st.pronoun play-complete again
gěi
GEI
.. gěi nǐ yòng
GEI 2nd.person use
‘Wait for me to finish (the game), and then (it is) your turn.’

(16) NCCU-TM008-CN-FM
25 M:
..而且主要是讓..我覺得
..érqiè zhùyà shì ràng
and main COP RANG
.. wǒ juéde
1st.pronoun think
‘Mainly, I think that …’

5 Discussion

This section discusses two issues with regard to the prosodic pause of the bā, gěi and ràng words in Taiwan Mandarin: (a) the phonological status of the bā, gěi and ràng words, and (b) the general tendency in the X-zì constructions. Table 1 has clearly shown that the majority goes to the situation when there is no pause before or after the bā, gěi, and ràng words, and they show a similar tendency, as in Table 2.

| Edge X | Left | Right | Both | None | Total  |
|--------|------|-------|------|------|--------|
| bā     | 10%  | 4%    | 0%   | 86%  | 100%   |
| gěi    | 16%  | 1%    | 0%   | 83%  | 100%   |
| ràng   | 15%  | 2%    | 0%   | 83%  | 100%   |

Table 2: Percentage of the bā, gěi, and ràng words in the X-zì constructions

Although the tendencies in the X-zì constructions are similar in Table 2, the bā word is slightly different from the gěi and ràng words in the prosodic pause on the edge. Unlike the gěi and ràng words, the bā word has a lower percentage on the left edge, but has a higher percentage on the right edge.

In addition to the distributions of prosodic pause in the three X-zì constructions which do not significantly differ from each other, the overall distribution is shown in Table 3. The general tendency in Table 3 suggests that native speakers of Taiwan Mandarin do not favor any pause before or after the bā, gěi, and ràng words in the X-zì constructions.

| Edge | Left | Right | Both | None | Total |
|------|------|-------|------|------|-------|
| Entries | 69 | 18 | 0 | 488 |
| Percentage | 12% | 3% | 0% | 85% |

Table 3: General tendency of the bā, gěi, and ràng words in the X-zì constructions

The data in Table 3 also suggest that whenever there is a pause in the X-zì constructions, native speakers prefer the left edge to the right edge, indicating that the bā, gěi, and ràng words in the X-zì constructions are phonologically similar. The pattern is shown in (17).

(17) NP₁ + [bā/gěi/ràng + NP₂ + VP]

It becomes apparent that the bā word is not single out of the adjacent noun phrases, as its syntactic structure suggests. Instead, the bā word tends to be classified into the following noun.

6 Conclusion

This paper has investigated the prosodic pause of the bā, gěi and ràng words in the X-zì constructions in Taiwan Mandarin by looking into spoken data. The results based on corpus data have shown that there is no pause before or after the bā, gěi and ràng words. However, when there is a pause, the left edge is preferable to the right edge. The results are summarized in (18) (X = the bā, gěi, and ràng words).
The corpus-based approach also confirms the status of the bă, ĝei, and ràng words, which should be syntactically and phonologically part of the following noun.

In addition to the three major X-zì constructions in Taiwan Mandarin, two issues can be investigated in the future. First, there are other X-zì constructions, such as zài ‘in’, bāng ‘help’, tì ‘replace’, wèi ‘for’, and xiàng ‘toward’. More constructions should be investigated in the future to add more evidence to support or reject the hypothesis that the X in the X-zì constructions can be prosodically interpreted. The second issue for future research is to compare the phonological statuses of the X-zì constructions in Taiwan Mandarin with those in Beijing Mandarin.

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