Usage, media, and grammaticalization

The rhetorical question 'bu35shi51…ma' in Mandarin Chinese

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This report presents a case study on a current grammatical change in a rhetorical question 不是…吗 (isn't it the case…?) and its spreading from spoken Beijing Mandarin to Mandarin Chinese in general. The study addresses three interrelated issues that concern the development and spreading of this new pattern: (1) usage-based language variation and change in spoken Beijing Mandarin; (2) Socio-cultural factors that may have promoted the adaptation of the new pattern in Mandarin Chinese; and (3) the impact of media, which may enhance the rapid spreading of the pattern in China. The report offers another instance of usage as the main driving force leading to language variation and grammaticalization.

Keywords: grammaticalization, variation, spoken Beijing Mandarin, usage-based theory

关键词：语法化、变异、北京话、基于使用的理论

1. Introduction

This study discusses an instance of grammaticalization process in Mandarin Chinese in a specific rhetorical question 不是…吗 *bu35shi51…ma*: Neg-be…Q, 'isn't it the case that…?'. The report includes two aspects: a relatively new instance of language variation and change in spoken Beijing Mandarin (Beijing Mandarin, Tao 2019a); and possible driving forces for the spreading of this new grammatical pattern from Beijing Mandarin to general Mandarin Chinese.

The first part of this report offers a brief introduction of the grammaticalization processes from everyday language usage in Beijing Mandarin (Tao 2019a). The second part discusses how this newly developed grammatical pattern is spreading through an interrelated practice: from spoken language to written texts

(e.g., transcripts), and possible reverse effects of written texts and media on spoken language. The study also demonstrates how socio-cultural factors and current technology in China might have helped the adaptation of this pattern to Mandarin Chinese. This study presents further support for the theoretical proposal of usage frequency and exemplar representations of constructions (Bybee 2003, 2013). The study offers another instance of emergent grammar (Bybee and Hopper 2001; Fang 2018; Hopper 1998). It supports the view that the essence of grammaticalization is through everyday oral communication. Using specific instances of variation and change within this rhetorical question, the study demonstrates that usage exercises a major force leading to language variation and grammaticalization, with results that impact speaker production and processes of grammar.

Language always contains variations. It is constantly changing over everyday use. Usage frequency plays a central role for both language variation and change (Bybee 2003, 2013; Tao 2006, 2009, 2019a). It affects both syllable structures within a lexical item (Bybee 2013; Bybee and Hopper 2001) and, more importantly, it affects word collocations that are frequently used together (Bybee 2006, 2013; Bybee, Pagliuca, and Perkins 1991; Bybee and Scheibman 1999; Tao 2009, 2019a). These collocations often form phonological units (such as intonation units, Chafe 1994) in everyday language use. Over time, frequent usage of these units could result in internal sound erosion, giving rise to new constructions (Bybee 2010; Tao 2006, 2019a). For instance, in spoken American English the expression 'be going to…' is used highly frequently. The expression 'going to' is now often uttered as 'gonna (Bybee 2006: 719),' a single lexical item (Cambridge Dictionary online). This practice is an instance of domain-general processes of human cognition (Bybee 2010).

The present study discusses the impact of phonological changes within a highly frequently occurring unit in spoken Beijing Mandarin: 不是 *bu35shi51*: Neg.-be while inside a commonly used rhetorical question 不是…吗 *bu35shi51…ma*: Negative-be…Question-Particle 'isn't it the case that…?' The consequence of the phonological changes of the unit 不是 *bu35shi51*: Neg-be is that the entire construction of the rhetorical question undergoes changes. As a result, the rhetorical question is developing into a new grammatical construction without the verb 是 *shi51*: be (Tao 2019a), in the form 不…吗 *bu…ma*: Neg…Q. The study illustrates how this new construction is being developed into various forms, and how, with the help of technology and media, and the means as to how the variation and change are further expanding its usage beyond Beijing Mandarin. There are specific contexts for the occurrence of this rhetorical question. The English translation of each example offers some clue as to the meaning of this construction, based on the context where it is used.

Section 2 introduces the grammaticalization processes and the new construction. Section 3 presents data to illustrate how the new construction is perceived and transcribed into written texts, and how it is used in the media as an illustration of spoken Mandarin. Section 4 concludes the study. It points out the essence of grammaticalization through everyday oral communication and reiterates the fact that usage not only shapes grammar, it also impacts language users in their production and processes of grammar.

2.   Background, data and methodology

2.1   Data and Mandarin Chinese grammar pertaining to the present study

The data for this study came from two sources, natural spontaneous conversations by native Beijing Mandarin speakers, audio and video recorded by the author (about 12 hours), and online data from audios, videos, and an online written corpus (CCL Corpus, Zhan, Guo and Chen 2003). The speakers of the recorded data were all native Beijing Mandarin speakers with age range from young (teenagers) to old speakers, including students and other professionals (e.g., chef, technician, literary workers, etc.). The recordings took place over two decades. The CCL corpus (Zhan et al. 2003) offers a balanced online corpus data, including spoken and written Chinese discourse.

Mandarin Chinese, including Beijing Mandarin, has four lexical tones that differentiate syllable or word[1] meaning. The four tones, in their standard form, are listed below where 1–5 indicate low to high pitches (Chao 1968: 25–26; Li and Thompson 1981: 8):

(1)   First tone: 55   High level
      Second tone: 35   High rising
      Third tone: 214 Dipping/falling-rising
      Fourth tone: 51   High falling

The first tone is a high-level tone where the pitch register remains high at level 5. The other three are contour tones with pitch register at different heights, and then moves either up (second tone), down then up (third tone), and sharply down (fourth tone). There is also a 'neutral tone' when a syllable is unstressed, which is a short pitch register without pitch fluctuations.

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1. Mandarin Chinese words can be formed by one to several syllables, each syllable is represented by a character. Currently the majority of words are dual-syllables/characters.

Additionally, there are tone sandhi rules that speakers follow closely (Tao, Fox and Gomez de Garcia 1999; Tao 2019b) in spoken Mandarin Chinese (Chao 1968: 25–30; Li and Thompson 1981: 8–9). Following is a set of such rules that are related to the present study, which concerns the negative particle 不 *bu51* below.

(2)   a.   The negative particle takes the fourth tone *bu51* when followed by the first three tones *55, 35, 214*.
E.g.   *bu51 ting55*: not listen;
bu51 lai35: not come;
bu51 hao214: not good
   b.   It takes the second tone *bu35* when followed by the fourth tone *51*.
E.g.   *bu35 shi51* 'not be / is not'.

Specific impact of the tone sandhi changes in the negative particle 不 as listed in (2) could reflect speakers' cognitive processes of this particle with reference to its immediately following tone, which is discussed in the next section.

2.2   Variation and grammaticalization in Mandarin Chinese

Chao (1968: 37) first observed that some Mandarin Chinese consonants turned into "voiced continuants" when uttered rapidly: the retroflex /zh, ch, sh/ as /r/, and the palatal /j, q, x/ as /I/. In addition to Chao's proposal of rapid utterance, the present study proposes that the voiceless fricative /sh/ in Beijing Mandarin is often uttered as /r/ when this consonant is within a phonological unit in an intervocalic environment. The syllable/word 是 *shi51* frequently occurs in the unit 不是 *bu35shi51*: Neg-be. In this case /shi/ is often uttered as /ri/, with /sh/ becoming a 'frictionless continuant', which is an 'approximant' (Ladefoged 1964). The basic processes of this change, this present study proposes, follows the path of: usage frequency > chunking > phonological fusion, to be detailed later in this section.

2.2.1   *Usage frequency*

Tao (2019a) proposes that the word combination/unit 不是 *bu35shi51* is among the top 100 highly frequently used words/expressions. This observation is based on two sources: (1) the *Lexicon of Common Words in Contemporary Chinese* (Research Team for the *Lexicon of Common Words in Contemporary Chinese* (hereafter: *Lexicon* 2008)). This book ranks 56,008 commonly used words by frequency based on written texts (e.g., literature, news report, and online discourse); and (2) the Online Corpus of Chinese Discourse by the Center for Chinese Linguistics at Peking University, (CCL corpus, Zhan et al. 2003). This corpus contains mainly written texts with diversified genres plus transcripts of spoken Beijing Mandarin. The Lexicon (2008) ranks the verb 是 *shi51* and the negative

particle 不 *bu51* as #2 and #5 of the highest frequently used words in Chinese (lower number indicates higher usage frequency, Lexicon 2008).

Tao (2019a) found from a rough comparison that the combination unit 不是 could be among the 100 highly frequently used words. The actual occurrence frequency of the combination unit 不是 *bu35shi51* is achieved by using data from both CCL corpus and the Lexicon (2008). Specifically, Tao (2019a) first used CCL corpus to obtain the total token counts of the combination unit 不是 *bu35shi51* and the token counts of two-character words 这些 *zhe51xie55*: these (frequency rank#85) and 关系 *guan55xi*: relation (frequency rank 101), and found that the token counts of 不是 (216,996) is higher than those of 这些 (215,616) and 关系 (195, 302) (Tao 2019a). Therefore, if taken as a compound word, 不是 could be listed among the top 100 highly frequently used words in the Lexicon (2008).

2.2.2 *Chunking and fusion*

In spoken language, frequently used word combinations are often produced as phonological chunks (Bybee 2003; Bybee and Hopper 2001; Bybee and Scheibman 1999; Haiman 1994; Hopper 1998; Pierrehumbert 2001). These frequently occurring phonological chunks often undergo phonological fusion, which involves consonant lenition. Such processes might cause emergence of new grammatical patterns (Bybee 2006; Bybee and Hopper 2001; Bybee and Scheibman 1999; Fang 2018; Haiman 1994; Hopper 1987, 1998; Zhang and Fang 1996, etc.)

Tao (2006, 2009, and 2019a) proposes that chunking and phonological fusion may eventually lead to phonological simplification, resulting in syllable reductions, and the final result of this development may produce a new construction (Also see Tao, H. 2003). The processes are proposed to be phono-syntactic conspiracy, which states that sound erosion may eventually lead to a new syntactic construction (Tao 2006, 2009). From the point of view of language development, phono-syntactic conspiracy offers one specific process of emergent grammar (Bybee and Hopper 2001; Bybee and Scheibman 1999; Fang 2018; Hopper 1987, 1998).

Lass (1984: 176) has proposed a type of general consonant changes in language development: "stop > fricative > approximant > zero". In the present report, the specific changes in Beijing Mandarin concerns the alveolar fricative /sh/, in the word 是 *shi51* 'be'. Tao (2019a: 51) suggests that currently, /sh/ is produced with the following four variations and is moving towards the right side in frequently occurring phonological units:[2]

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2. The fricative /sh/ may still be fully uttered as needed, when introducing emphatic information.

(3)   Fricative > approximant > syllabic > zero

Specifically, the developmental continuum occurs only when /sh/ is within a highly frequently used phonological unit such as 不是 *bu35shi51* 'Negative-be' where /sh/ is in an intervocalic phonological environment. In this unit the second syllable /shi51/ is often unstressed without its tone, and /sh/ is undergoing sound erosion, often produced as an approximant or a syllabic /r/ to stand alone without the vowel. This /r/ sometimes is not fully uttered, leaving only the negative particle 不 *bu35*. This phonological fusion has affected the rhetorical construction 不是…吗 *bu35shi51…ma* 'Neg-be…Q'. In conversational speech /shi51/ is almost never stressed in the unit *bu35shi*: Neg-be. Loss of stress leaves the syllable with a neutral tone, which is a short pitch register without a stressed tone. This practice is the early indication of phonological reduction (Bybee, Perkins and Pagliuca 1994:107).

2.2.3   *Phono-syntactic conspiracy*

Phonological fusion may lead to changing syntactic constructions. The proposal of phono-syntactic conspiracy (Tao 2002, 2006, 2009) describes just this type of language change. Currently, the rhetorical question is produced in Beijing Mandarin in the following four patterns, whose variations are reflected in the different phonological features of /shi51/ (Tao 2019a:33).

(4)   不是 … 吗? 'Isn't it the case that…?'
      Negative-be … Q
      a. 不是… 吗   *bu35shi(51)* … *ma*[3]
      b. 不是… 吗   *bu35 ɹ* …   *ma*
      c. 不(?) … 吗 *bu35* …   *ma*
      d. 不… 吗   *bu51* …   *ma*

Of the four patterns, (4a) is the grammatical pattern that is used in both written and spoken Beijing Mandarin Chinese. Patterns (4b–c) illustrate the phonological and syntactic variants of pattern (4a) in spontaneous conversations of Beijing Mandarin.[4] Here the fricative /sh/ is a syllable internal consonant, the foot-medial[5] in the two-syllable phonological unit 不是 *bu35shi51*: Neg-be. As the foot-medial segment this fricative is generally uttered as an unstressed syllabic

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3.   The numerals following each syllable indicate tones. The parentheses around (51) indicate the tone is often omitted in actual utterance.

4.   They possibly occur in northern Mandarin as well, which need further data to confirm.

5.   The term was suggested by Mary Beckman, personal communication, March 2018, at Ohio State University.

rhotic /ɻ/ with the vowel omitted (4b). The rhotic /ɻ/ may be dropped in fast speech, sometimes with only an articulatory gesture by native Beijing Mandarin speakers. This practice is developing into a new construction 不...吗 *bu35...ma*: Neg...Q, as indicated in (4c). It is a further development, a variant of the rhetorical question (4a).

Furthermore, the negative particle 不 *bu35* (4c) in Beijing Mandarin Chinese keeps its high rising tone that is no longer affected by its following tone as specified by sandhi rules in (2). Grammaticalization occurs when a word or a construction becomes emancipated from its original context (Haiman 1994; Heine 2002; Hopper and Traugott 2003). The high-rising tone of 不 *bu35* in pattern (4c) is 'frozen' (Tao 2002, 2006, 2009) irrespective of its immediately following tones. Most likely this is because the rhotic /ɻ/ is still in the mind of the speakers to trigger the retention of the high-rising tone. Consequently, with the elimination of the rhotic /ɻ/, 不 *bu35* no longer follows the tone sandhi rules (2a–b); thus, it is free from the original phonotactic constraint.

The negative particle 不 *bu35* with the frozen tone now presents a single lexical item with the concept of the syntactic unit 不是 *bu35shi51*: Neg-be. In written transcripts of spoken Beijing Mandarin (Example (9) below) 不 can precede a nominal and even the verb 有 *you214*: have (which only takes the negative particle 没 *mei35* in Mandarin grammar), completely violating current Mandarin grammar. On the other hand, when the negative particle 不 is paired with other verbs, it still follows the tone sandhi rules (2a–b). In other words, 不 with the frozen tone is no longer a pure negative particle that can be freely paired with any verbs for negation. Instead it only occurs when the concept involves 不是 *bu35shi*: Neg-be. The significance, this present study would like to argue, is that with the frozen tone, the negative particle 不 *bu35* has emerged as a newly grammaticalized lexical item that serves as a signal to this rhetorical pattern.

On the other hand, in some utterances, 不 in the construction 不...吗 *bu...ma* (4d) starts to follow the tone sandhi rules (2a–b) based on its immediately following tone, which indicates that the rhotic /ɻ/ no longer affects the tone of this negative particle; therefore, 不 *bu* may be 'emancipated' from the tone sandhi change as required when preceding the high-falling tone of 是 *shi51*: be. This step has not been clearly practiced in Beijing Mandarin, but it appears to have been practiced in Chinese media, an indication that the new construction is being acknowledged and accepted (see example from the next section). This new construction has expanded the scope of the negative particle in this rhetorical question. Instead of negating its following verb (Li and Thompson 1981), 不 *bu* now negates the entire expression following it, be it a noun phrase (NP) or a verb phrase (VP). It may potentially cause ambiguity of the pattern 不...吗, as a genuine question or a rhetorical question. These two issues are discussed in Section 3.

The phonological fusion of the syllable /shi/ results in a weak approximant /ɻ/, which has become syllabic, standing alone for the CV syllable. This rhotic /ɻ/ is produced only when the syllable becomes weakened without stress. Because of the weakened production, this /ɻ/ is not always fully uttered or audible. This practice could be one of the reasons for the adaptation of patterns (4b–c) in some media by dropping the /ɻ/; resulting in the spreading of the new pattern (4d). This aspect is also discussed in the next section.

The rhotic /ɻ/, this study proposes, is becoming an optional allophone to the consonants /zh, ch, sh/. There have been only a few discussions of this phenomenon in the previous literature (Chao 1968; Tao 2019a; Zhang 2005). This present study proposes that the variations of /sh/ as listed under Example (4) illustrate exemplar representations of the phonological unit 不是 *bu35shi51* in spoken Beijing Mandarin. Between patterns (4b–c) there is a continuum of decreased clarity of the rhotic /ɻ/.

Patterns (4b–d) reflect the phonological development as summarized in (3), the steps that a fricative may be eliminated through everyday language use. This process offers an instance of natural language development cross linguistically (Lass 1984: 176). Patterns (4a–d) reflect how phonological fusion has caused changes in a syntactic pattern. They provide another instance as described in the theoretical proposal of phono-syntactic conspiracy (Tao 2002, 2006, 2009, 2019a).

2.2.4 *Language changes in Beijing Mandarin and Chinese media*

Pattern (4a) did not occur in the author's recordings of spontaneous conversations; therefore, to illustrate this pattern, an utterance from a TV mini-series is cited in Example (5) below. The Chinese character version of this utterance was copied from the subtitle. The tone information is based on the actual pronunciation of the utterance. All figures in this report are produced by using Praat (Boersma & Weenink 2018).

(5) 这　　不是　　你　自己　选的　　　路　吗
　　　Zhe51 bu35shi ni21 zi51ji35 xuan21 de lu51 ma
　　　This　NEG-be 2SG self　　choose DE road Q
　　　Isn't it the road that you yourself have chosen

(知否知否应是绿肥红瘦33 9:46)[6]

Figure 1 illustrates the rising tone of the negative particle *bu35*, and a fully pronounced verb 是 *shi*: be without its stress; so, it did not bear its high-falling tone. Instead it was produced with a high pitch register as a neutral tone. The speaker placed emphasis on the expression 你自己 *ni21 zi51ji35*: you yourself,

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6. Extracted October 12, 2019. https://www.youtube.com/watch?v=_myD9MnTr2A
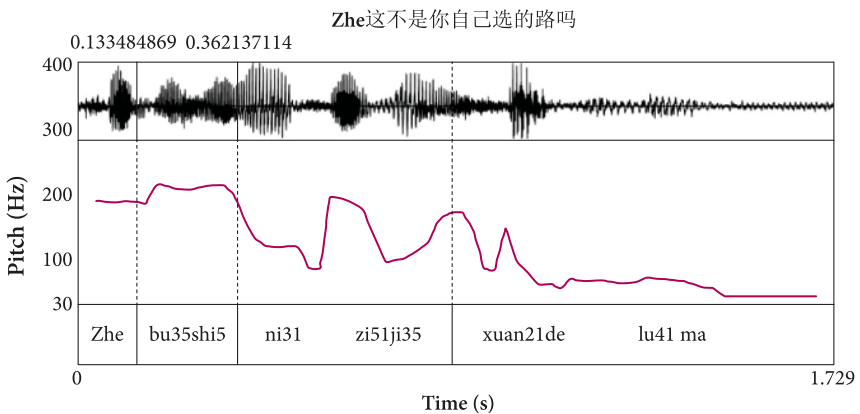
Figure 1. Pitch (tone) and sound information of (5)

to emphasize the fact that the hearer should not blame her family for her own choice of a potentially negative consequence in life. Examples illustrating patterns (4b–c) came from the author's recordings of Beijing Mandarin. They illustrate different degrees of utterance clarity of the rhotic /ɻ/. First is a brief discussion as to how to capture this weak foot-medial phonetic segment.

The /r/ is a consonant that carries the acoustic quality as the alveolar rhotics (Boyce, Hamilton and Rivera-Campos 2016). In Mandarin Chinese the /r/ is a consonant that occurs as the syllable onset (e.g., 人 *ren35*: person, people), or a coda in the 'erhua yin' (Chen 1999:39; Duanmu 2007:218; Lin 2007:182). The latter is a typical practice in Beijing Mandarin. But different from those instances, this 'foot-medial' /ɻ/ is syllabic, standing alone for some syllables/words such as /shi51/. It is a phonological variant of the affricates and fricatives /zh, chi, sh/ (Chao 1968). Norman (1988:142) suggests that in Mandarin Chinese there is a set of syllabic fricatives. These syllabic fricatives, including /sh/, are produced with weak frictions. The present study proposes that the foot-medial rhotic /ɻ/ in 不是 *bu35ɻ* has further developed from the syllabic fricative /sh/, as Norman has observed. In Beijing Mandarin, this rhotic /ɻ/ is now a frictionless continuant (Chao 1968), an approximant that has a very weak sonorant compared to a vowel.

Reetz and Jongman (2011:186–9) point out that approximants carry acoustic properties similar to those of vowels, both uttered at comparable vocal tract locations. The formant patterns of approximants are weaker compared to vowels due to their slightly greater constriction. Therefore, approximants are shorter and weaker than vowels. They have longer formant transition durations than vowels with lower acoustic energy. As such, the spectrogram of recorded natural conversation may not always clearly capture and display this rhotic /ɻ/.

Nonetheless, there is an objective measurement of the possible presence of /ɻ/. In American English the rhotic approximant is typically produced with three simultaneous constrictions in the vocal track, all contributing to lowering the third formant F3 (Reetz and Jongman 2011: 188): lip rounding, a narrowing near the alveolar ridge involving the tip of the tongue, and a narrowing in the pharynx due to retraction of the tongue root. In this case the third formant is usually below 2000 Hz, close to the second formant. In Beijing Mandarin, the rhotic /ɻ/ does not require rounding the lips. But this practice does not affect too much in the lowering of the third formant. The maximum value of F3 lowering caused by lip rounding or protrusion is around 200 Hz (Boyce, personal communication). Therefore, to display the /ɻ/ when its utterances are not clearly recorded, a lowered F3 could offer some clue. Following is an Example (Tao 2019a: 45) that appears to show a rising pitch and lowered F3 in *bu35ɻ* (Figure 2 measured in Praat, Boersma & Weenink 2018).

(6) 他　不 (是) 有 一　　北关　　　环岛　　　吗?
Ta55 bu35ɻ　you21 yi35 bei21guan55　huan35dao21 ma
3SG　NEG-be exist one　Northern Gate Round-Island Q
Isn't it the case that there is a Northern Gate Rotunda Island?

(Beijing June_13)[7]

The conversations were recorded at different people's homes (e.g., a retired bookstore clerk, a couple and their son, etc.), so the sound quality is less than ideal for acoustic analyses. Example (6) above is one of the better instances to show clear formant information. It is from a conversation between two ladies, a middle-aged woman and her aunt. The lowered third formant in Figure 2, and the actual formant information (F3 below 2000 Hz) both indicate a possible production of a rhotic /ɻ/.

In Example (7), the speed of the utterance was much faster than that in (6), and the phonological unit now has three syllables 不是说 *bu54ɻ uo5*. The rhotic /ɻ/ cannot be fully determined because of both the weak acoustic signal and a possible assimilation with its following initial in 说 *shuo55(ruo55)*: say. There is lowered F3 but it could have been triggered by the next verb that was also uttered with the rhotic /ɻ/. In this case the utterance could fall under construction (4c), hardly perceivable.

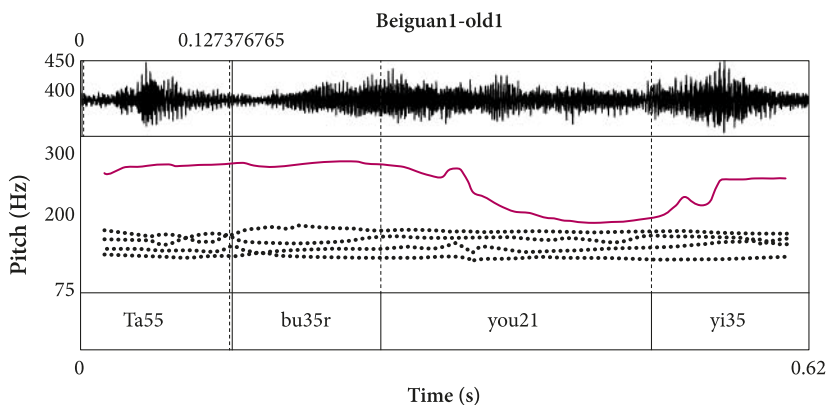7. The information in the parentheses indicate data source.

Figure 2. Pitch, sound and formant information of (6). The lowered F3 are underlined in the formant values below the figure.

Time_s	F1_Hz	F2_Hz	F3_Hz	F4_Hz
0.127500	815.603013	1376.938751	2224.864781	2927.187500
...	...	...	...	...
0.172500	766.461282	1259.957954	2008.277006	3448.752207
0.177500	712.403518	1240.552063	<u>1974.417345</u>	3362.576799
...	...	...	...	...
0.217500	644.444237	1407.004298	<u>1995.700226</u>	3455.188505
0.222500	613.337882	1425.272993	2055.765991	3447.944238

(7) 他   一直   不(r是) 说 在 (0.1)   削减   削减
Ta55 yi51zhi35   bu5r   ruo zai51 (0.1) xue55jian21 xue55jian21
3SG one-straight NEG-be say DUR   cut-reduce cut-reduce
削减   吗
xue55jian21 ma
cut-reduce Q
Don't they say all along (they're) reducing (the poverty population)?

Example (7) offers an instance to indicate that the /ɻ/ in *bu35ɻ* may not always be clearly uttered due to various reasons such as possible sound assimilation. The next example illustrates a clear case of pattern (4c), where the negative particle retains its rising tone but the rhotic /ɻ/ is not present with no trace of a lowered F3.

(8) 现在   不 开出租   呢 吗!
Xian41zai3 bu35 kai55chu55zu5 ne   ma
Now   NEG drive taxi   DUR Q
She's driving a taxi now, you know   (Beijing_04)

Bushishuo他一直不是说_B04

0.39425S94   0.720532161

Ta55 yi51zhi35   bu35rou55   zai51-   xue55jian21   xue55jian21   xue55jian21   ma
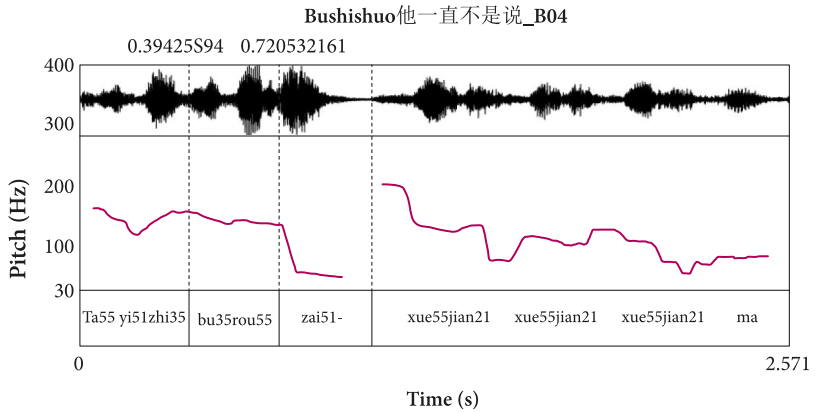
Time (s)

Time_s	F1_Hz	F2_Hz	F3_Hz	F4_Hz
0.465500	434.296005	843.593648	2284.393172	2889.107973
0.485500	427.486399	896.511653	2000.836691	2832.794846
0.505500	421.865569	989.782960	<u>1831.666040</u>	2756.031098
0.525500	445.625385	1094.490688	<u>1828.053894</u>	2797.764297
...	...	...	...	...
0.645500	543.703231	1251.055287	<u>1970.202890</u>	2837.162258
0.665500	545.265084	1310.013706	2034.510156	2811.213059
0.685500	549.251089	1338.015852	2111.104240	2828.024248

Figure 3. Pitch and formant information of (7)

Bu35r_开出租

0.40578077   0.6065625
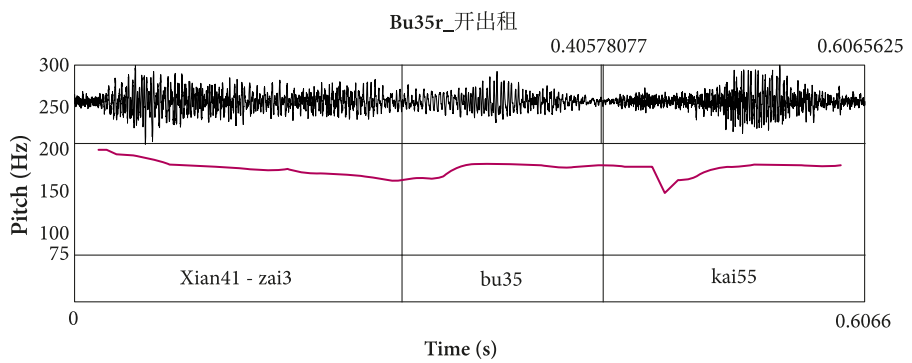

Xian41 - zai3   bu35   kai55

Time (s)

Figure 4. Pitch and sound information of (8)

In (8), the rhotic /ɻ/ is not present either from the recording nor any trace of lowered F3 from the formant information. The negative particle directly precedes a high-level tone. According to sandhi rules (2a–b), the negative particle should have taken the high-falling tone when preceding a high-rising tone. The rising tone in 不 *bu35* implies that it could still be affected by the rhotic /ɻ/. Notice that

this utterance introduced some new information in the conversation; therefore, the English translation differs from that of a rhetorical question.

Examples (5)–(8) illustrate three different phonological forms of the unit 不是 *bu35shi51* in spoken Beijing Mandarin. All three variations are exemplar representations (Bybee 2013) of the same phonological unit, which result in variations of the same syntactic construction (4a–c). The three variations show the gradual loss of the verb 是 *shi51*: be, in the phonological unit 不是, in Beijing Mandarin.

2.3   General discussion

This section presents a brief discussion of exemplar representations of the rhetorical question 不是…吗 *bu35shi51…ma*: isn't it the case that…. Due to different degrees of phonological fusion in the unit 不是 *bu35shi51*: Neg-be, the pattern is usually produced in Beijing Mandarin with a phonologically reduced form, in which the syllable /shi51/ is often uttered as a syllabic rhotic /ɻ/ in its various clarities. The rhotic /ɻ/, being a weak approximant, may not be fully uttered or even uttered at all (7–8). As a result, the rhetorical question may be produced in three variations, listed in (4a–c).

For a construction to be grammaticalized, it should be set free from its original environment (Heine 2002; Hopper and Traugott 2003). This section has presented data to illustrate two of such 'emancipations': (a). the negative particle 不 *bu35* is often produced with a high rising tone when 是 *shi51* is produced either as an unstressed rhotic /ɻ/ or not produced at all (8). The tone of the negative particle, therefore, may have been 'frozen' (Tao 2002, 2006), free from Mandarin tone sandhi rules (2a–b). (b). The Chinese writing system requires a syllable be represented by a character so the alveolar rhotic /ɻ/ has to be either present as 是 or completely absent, irrespective of how it is produced. Therefore, transcriptions of this rhetorical question appear to form a new construction不…吗 *bu…ma*: Neg…Q, as pattern (4d).

Beijing Mandarin Chinese has been designated as the pronunciation foundation for the standard Mandarin 普通话 *Pu21tong55hua51*: Common Language, the official language for communication in China (Law of the People's Republic of China on the Standard Spoken and Written Chinese Language 2000; Xinhua News Agency 2011). The changes in Beijing Mandarin is often adopted by speakers of non-Beijing Mandarin speakers. Nonetheless, the tonal variations in 不 *bu* may or may not be picked up by other speakers while this new grammatical construction is being used, especially when the written pattern does not include the verb 是 *shi51*: be. Therefore, transcripts of spoken Beijing Mandarin might have impacted the spreading of pattern (4d). The next section presents analyses that suggest the spreading of the new pattern in the media.

3.   Grammaticalization in the process

This section discusses two issues concerning the new construction 不...吗 *bu...ma*: Neg...Q. The first issue concerns the inter-dependency of comprehension and production, and the second concerns some possible impact of written Chinese and/or media for the spreading of this construction to general Mandarin Chinese.

3.1   The spreading of the new construction

This section presents information about two possible sources that promote the spreading of the newly grammaticalized construction from Beijing Mandarin to other Mandarin speakers. They include written Chinese (example 9) that reflects pattern (4d), which is discussed in the next section. The other may be how the media adopts and/or treats pattern (4d), which offers broad consequences to Mandarin in general.

While written Chinese as pattern (4d) has eliminated the verb 是 *shi51*, currently there is a conflict in the media as to how to treat the tone of the negative particle. If the negative particle is uttered with a rising tone *bu35*, it indicates that the tone may still be controlled by 是 *shi51* although *shi51* is uttered either as the rhotic /ɻ/ in its various degrees of clarity, or completely missing. Alternatively, *bu* is 'freed' from the original environment to follow tone sandhi rules (2a–b) based on its immediately following tone. In this case pattern (4b) has completely developed, which is a new grammatical construction without the verb 是 *shi51*.

3.1.1   *Perception and interpretation of the rhotic /ɻ/*

The perception and interpretation of the rhotic /ɻ/ is crucial for the current language variation and grammaticalization processes concerning the rhetorical question. This section first discusses how the rhotic /ɻ/ is perceived based on written transcripts of spoken Beijing Mandarin. It appears to be the case that transcriptions of spoken Beijing Mandarin have decided to ignore the rhotic /ɻ/; thus, the rhetorical question of (4a) becomes pattern (4d) without the verb 是 *shi51*. While the exact decision to do so is unclear, it seems that the rhotic /ɻ/ was either ignored perceptually, or the verb it codes (i.e., the verb 是 *shi51*) was deemed unimportant for this syntactic pattern. The result can be seen in the following examples. Examples (9a–c) are randomly picked transcripts of spoken Beijing Mandarin from the CCL Corpus (1982 collection of spoken Beijing Mandarin, Zhan et al. 2003), all without coding the verb 是 *shi51*. Close examinations of these examples reveal that the decision to ignore the rhotic /ɻ/ has, probably inadver-

tently, helped to create the new grammatical pattern as illustrated in (4d). The punctuation marks in these examples are copied from the original texts.

(9) a. 这儿   不   坑儿   吗,
         Zhe51r bu   keng55r ma
         Here   NEG hole   Q
         There's a hole here, right? / There's a hole here, isn't it?

     b. 旗人   不   都   大   辫子   吗?
         Qi35ren35 bu   dou55 da51 bian51zi ma
         Bannerman NEG all   big   braids   Q
         Bannerman all (had) big braids, as you know, right?

     c. 那   当儿   不   有   私人   吗,
         Na51 dang55r bu   you214 si55ren35   ma
         That time   NEG have   private-people Q
         There were private (businesses) during that time, right?

The written sentences in (9a–c) do not seem grammatical in standard Mandarin grammar because there were no verbs in (9a, b), and 不 *bu* is followed by an NP, which is not what this negative particle normally negates (Li and Thompson 1981; online Chinese Dictionary).[8] In (9c), 不 *bu* is followed by the verb 有 *you214*: have. Yet 有 should only be paired with the negative particle 没 *mei35* as 没有 *mei35you214*: Neg-have. This combination is strictly followed in contemporary Mandarin grammar.

As a matter of fact, in all three utterances (9a–c), the negative particle 不 *bu* does not actually function with its immediately following lexical item. Instead, it stands alone for the unit 不是 *bu35shi51*: Neg-be, to present the concept of the rhetorical question 不...吗 *bu...ma*: Neg...Q. In this case the negative particle does not actually negate the words that directly follow it. It represents the phrase 不是 *bu35shi*: Neg-be, and this function is realized with the pairing of the utterance-final question particle 吗 *ma*.

The pinyin versions in (9a–c) do not indicate the tonal information of the negative particle 不 *bu* because Chinese characters do not carry tonal information. However, based on natural conversation data of Beijing Mandarin that this study examined, the author believes that this negative particle 不 *bu* most likely was uttered as *bu35ɻ*, with a rising tone and often followed by the rhotic /ɻ/, which was excluded in the transcripts. The following Examples (10)–(11), also from the CCL corpus (Zhan et al. 2003), support the author's presumption. The original recordings of (10)–(11) were accessible from online sources, which helped

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8. 在线汉语字典http://xh.5156edu.com/html3/1680.html;百度百科https://baike.baidu.com/item/%E4%B8%8D/64725

to confirm that 不 *bu35* indeed carries the rising tone in spoken Beijing Mandarin. Example (10) contains the verb 说 *shuo55*: say/speak following the unit 不是 *bu35shi51*. The verb *shuo55* also starts with a fricative /sh/, produced sometimes as rhotic /ɻ/ in Beijing Mandarin. So, when the three syllables 不是说 *bu35shishuo55*: Neg-be-say, undergo phonological fusion, they could be uttered as either *bu35ɻ-shuo55* or *bu35ɻuo55*: Neg-be say. When the speech rate is fast, utterance assimilation could produce *bu35ɻuo55*, unclear which syllable /ɻ/ belongs.

Example (10) came from a relatively formal lecture on TV by an influential Chinese author, a native Beijing Mandarin speaker. The written transcript of this talk chose to leave out the verb 是 entirely, resulting in pattern (4d). But the sound recording of this talk, also online, offered a clear instance of a rising tone plus the rhotic /ɻ/.

(10)   刚才　　　我　不　说　　了　吗?
Gang55cai35 wo21 bu35ɻ shuo55 le　　ma?
Just now　　1SG　NEG　say　　PERF Q
Didn't I point (it) out a few minutes ago?

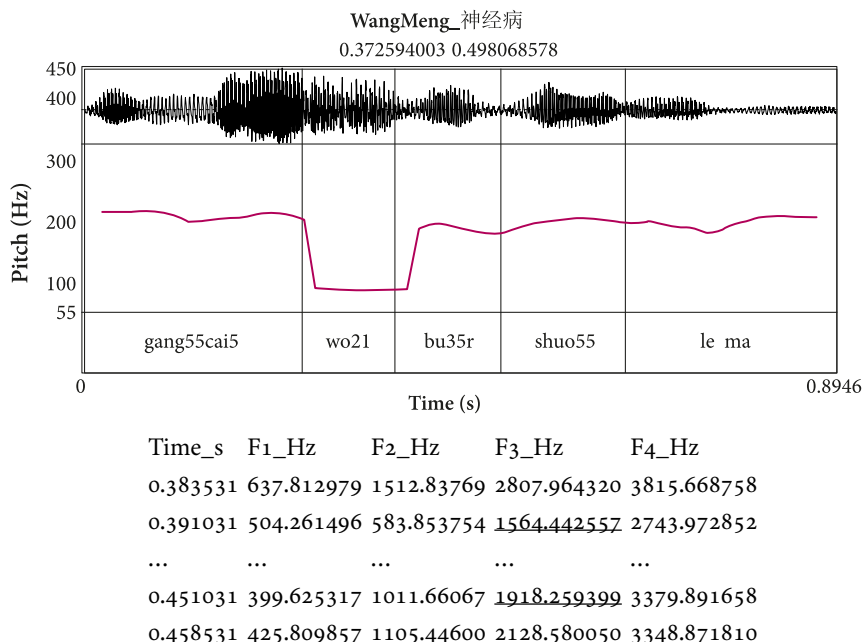<div align="right">(王蒙 Wang, CCL Corpus (Zhan et al. 2003))</div>

Time_s	F1_Hz	F2_Hz	F3_Hz	F4_Hz
0.383531	637.812979	1512.83769	2807.964320	3815.668758
0.391031	504.261496	583.853754	1564.442557	2743.972852
…	…	…	…	…
0.451031	399.625317	1011.66067	1918.259399	3379.891658
0.458531	425.809857	1105.44600	2128.580050	3348.871810

Figure 5. Pitch, sound and formant information of (10)[9]

In (10), the formant information by Praat indicates there is a lowered third formant at the location right after the negative particle 不 *bu35*. The lowered F3 is typical of the rhotic /ɻ/ (Reetz and Jongman 2011: 188). In this case, the speaker most likely still tried to use the rhetorical question as pattern (4b), yet the actual production became pattern (4b) in the transcript. With the help of the written transcripts, the unit 不是 *bu35shi51*: Neg be, is now realized as 不 *bu*; hence pattern (4d) came into written Chinese. The next two Examples (11a, b) were both produced for the same concept from the same Beijing comedian show (相声 *xiang51she* 'appearance and voice – crosstalk') by two different performers. The character version of (11a) came from scripts[10] of the show, which was audio-recorded in the 1980s. Example (11b) was first discussed in Tao (2019a: 46–47). The character version came from transcripts of one of the video-recorded performances around 2002[11] (CCL Corpus (Zhan et al. 2003)). According to the two performers for (11b), they often exchange basic concepts before going on stage without a written script, so the utterances were produced spontaneously (Tao 2019a: 46). The two Examples (11a–b) offer a clear contrast concerning the written phrase 不是 *bu35shi*: Neg-be. Both examples present the same rhetorical question with similar utterance treatment of this phrase. However, in the written versions the verb 是 is present in (11a) but absent in (11b). The sound recording of (11a) shows a clear utterance of 不是 as *bu35ɻ*. Figure 6 shows there is a clear lowered F3 approximately where the rhotic /ɻ/ is produced. The utterance in (11b) is a bit different, which is discussed next.

(11) a. 我说: 咱   不是 定   好了   吗…
Wo21'r zan35   bu35(r) ding51   hao21 le ma
1SG said we (incl) NEG-be confirmed-good PERF   Q
I said didn't we confirm the plan …?"   (Ma and Wang 1986)[12]

b. 不   说   好   让   我   唱   吗?
Bu35r shuo55 hao21 rang51 wo21 chang51 ma
NEG   say –   good let   1SG   sing   Q
Didn't (we) reach a verbal agreement to let me perform?
(Guo and Yu, CCL Corpus (Zhan et al. 2003))

The rhotic /ɻ/ is hardly audible in (11b) because it is immediately followed by a voiceless alveolar fricative /sh/, resulting in assimilation within the three syl-
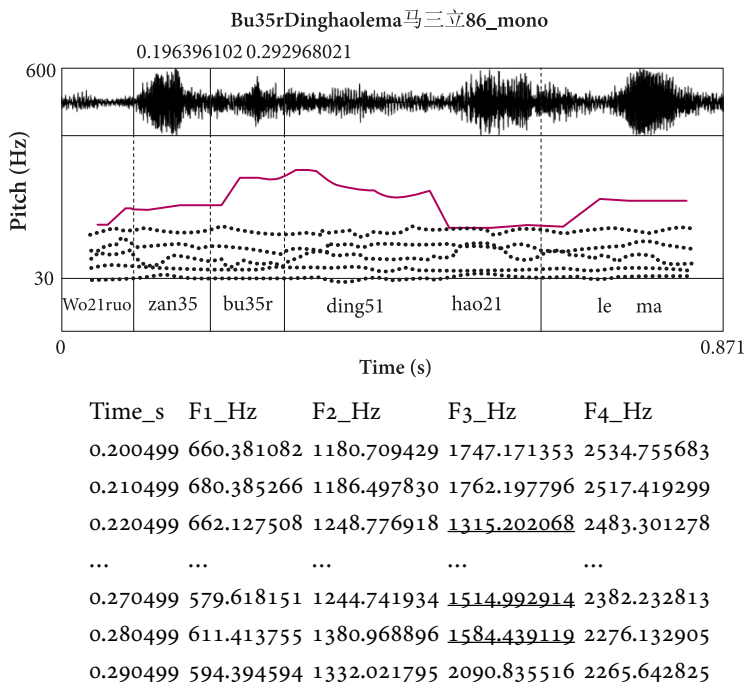

Figure 6. Pitch, formant and sound information of (11a)

lables 不是说 *bu35ɻshuo* (*bu35shishuo55*): Neg-be-say. Most likely because of the inaudible /ɻ/, which codes the verb 是 *shi*, this entire verb has been ignored in the transcript, resulting in pattern (4d) of this rhetorical question. On the other hand, Figure 7 shows a very briefly lowered F3 below 2000 Hz from the formant information by Praat, indicating a very possible utterance of the rhotic /ɻ/ right before /sh/. The fricative is clearly produced in the next word/syllable 说 *shuo55*, as indicated in the spectrogram in Figure 7.

The pitch information in (11a–b) indicates that in Beijing Mandarin the negative particle 不 *bu35* takes the high-rising tone irrespective of its following high-level tone (2a–b). These examples, together with the author's own recorded data, offer evidence that the rhotic /ɻ/, even when not clearly audible or present, still affects the tone of the negative particle; so 不 *bu35* now has become a 'frozen tone' (Tao 2006, 2009) that no longer follows tone sandhi changes in Beijing Mandarin. It is highly likely that in the speakers' mind 是 *shi51* is still present, although not clearly uttered.

The rhotic /ɻ/, although sometimes is hardly audible, must have been either perceived auditorily or presumed to be present. Leaving out the rhotic /ɻ/ could be a grammatical decision. For instance, for the dual-syllable compound word 多少 *duo55shao214/duo55ɻ (many-few)*: how many/much, the two characters

Bu35Shuo55hao
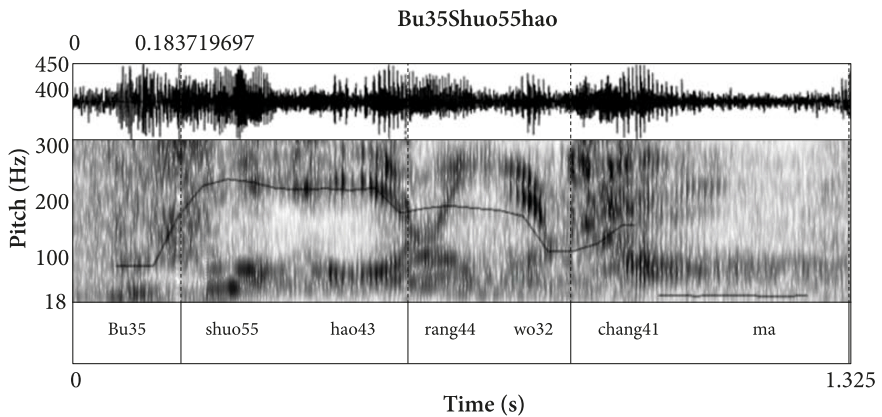
Time_s	F1_Hz	F2_Hz	F3_Hz	F4_Hz
0.056260	418.362488	1273.839817	2132.245784	2795.984852
0.068760	382.164376	1265.840311	2049.509890	2678.592722
0.081260	295.035702	1212.810506	<u>1968.928917</u>	2745.283937
0.093760	280.585150	1187.384287	<u>1980.136111</u>	2842.541237
0.106260	340.905840	1123.290709	<u>1939.016550</u>	2815.634272
0.118760	376.556486	1166.807352	2139.534228	2930.321357
…	…	…	…	…
0.193760	1334.18602	2035.128363	3066.289188	3837.288874

Figure 7. Sound, spectrogram, pitch and formant information of (11b)[13]

must come together to form the meaning 'how many'. When the /ɻ/, as a foot-medial approximant, replaces the second syllable *shao214*: few, it cannot be left out. In this case the utterance is transcribed as 多儿 *duo55r*: how many/much, in the written transcriptions of spoken Beijing Mandarin (CCL Corpus: Zhan et al. 2003).

Therefore, the decision to leave out the verb 是 *shi51* in the written transcripts could be the result of a general trend in casual conversations where the verb 是 *shi51* can be dropped, leaving no verb in some utterances. For instance, the expression '你谁啊: *ni21 shei35 a*: you-who-Q: Who are you?' is an acceptable expression although the grammatical construction should have the verb 是 *shi51* right before 谁 *shei35*: who. This assumption needs further examination.

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13. https://www.youtube.com/watch?v=Gg5nP2oA6nk Extracted June 2, 2019. Note: Guo & Yu's performance did not follow a written script so an utterance could be slightly different in each show.

3.1.2   *The impact of Beijing Mandarin on Putonghua*

In China there are mainly seven different dialects that maybe considered linguistically different languages. They are not mutually intelligible (Lyovin, Kessler, and Leben 2017:139). The most widespread of the seven is Mandarin Chinese, the Northern dialect. To promote communication the Chinese government has come up with an official language, 普通话 *Putonghua*: common language, which is 'based upon the Northern dialects with the Beijing dialect as the standard pronunciation' (Chen 1999:24).

Technically speaking, *Putonghua* differs from spoken Beijing Mandarin, so it has no native speakers. There is an official examination offered by China's State Language Commission with certificates to indicate a person's proficiency levels of *Putonghua*. Native Beijing Mandarin speakers also have to study to be able to pass this exam because not all words pronounced in Beijing Mandarin meets the standardized requirement in *Putonghua*. Nationally, *Putonghua* has an important impact on the linguistic communities in China. All Chinese children receive their education in *Putonghua* (although with some unavoidable local accents).[14] More importantly, *Putonghua* has become the standard for all major media and official communications, including news report, entertainment (movies and TV shows), public speaking, etc. With the current economic policies there are migrant workers and business enterprises moving into different areas of China, people rely on *Putonghua* to communicate wherever they go. For instance, in 2016 there was over 20% of the Chinese population who were migrant workers[15] in cities. Those not from the Northern dialect areas may have to rely on *Putonghua* for their communication with the local people. The everyday media broadcasts (e.g., TV shows, movies, etc.) would help them strengthen their knowledge of *Putonghua*.

Beijing Mandarin is the local dialect spoken in Beijing, the state capital, which is the center of China's politics, economics and culture. As the pronunciation foundation of *Putonghua*, Beijing Mandarin has unofficially become a 'superstrate' language – TV and movie shows often try to use some Beijing Mandarin in their informal conversations.

Concerning the rhetorical question *Bu354...ma*: Neg-be...Q, the newly developed pattern has certainly attracted attentions in the media, as illustrated below. But the treatment of this pattern varies, an indication of varied perception and

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14.   The author has personal experience encountering accented *Putonghua* by school teachers in Southern China.

15.   *Share of migrant workers in China's total population from 2010 to 2016* (extracted July 27, 2018. https://www.statista.com/statistics/259461/share-of-migrant-workers-in-chinas-total-population/

treatment of *bu35ɻ*. The following Examples (12–15), all extracted from TV shows, reflect a varied perception and production of this rhetorical question.

Specifically, some have picked up the entire Beijing Mandarin pronunciation by producing the unit with both the rising tone and the rhotic /ɻ/, as 不是 *bu35ɻ* (12), illustrating pattern (4b). Some picked up the rising tone without the rhotic /ɻ/ (13), showing pattern (4c). Still some followed the written pattern (4d) by producing the negative particle according to tone sandhi rules (2a–b), shown in (14–15). All instances (12–15) illustrate the fact that the newly grammaticalized construction is still in the process of being acknowledged as a fixed construction among Mandarin speakers. Please notice that all character versions of (12–15) came from the original subtitles of TV shows.

(12) 你   不   说   帮   我   看   孩子   吗?
      Ni21 bu35r   shuo55 bang55 wo21 kan55 hai35zi ma
      2SG NEG-be(?) say   help 1SG watch child   Q
      Didn't you say (you're going to) baby-sit for me?   (YouTube)
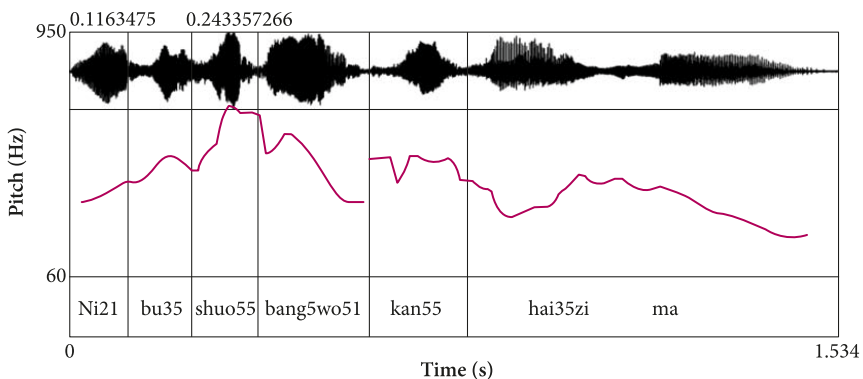
Time_s	F1_Hz	F2_Hz	F3_Hz	F4_Hz
0.131760	781.031675	1615.207794	2455.228882	3157.628523
0.141760	796.646035	1677.201263	1760.970912	3061.722035
…	…	…	…	…
0.211760	757.187983	1084.088258	1667.103674	2992.505442
0.221760	586.424036	1081.295149	1875.907467	2840.349859
0.231760	551.267628	1007.194238	1913.012644	2697.131696
0.241760	668.272543	989.410284	2069.091905	2715.541542

Figure 8. Pitch, sound and formant information for (12)

The utterance in (12) was extracted from a clip of a TV show on YouTube. The utterance is a reprimand by a sister to her brother who failed his promise to babysit for her. Notice here that the subtitle does not include 是 *shi51*: be. Yet the

negative particle is uttered as *bu35ɹ,* with a rising tone and a rhotic /ɹ/. This /ɹ/ is only documented in a clearly lowered F3 that is associated with the syllable *bu35ɹ.* The actual utterance in (12) illustrates pattern (4b) whereas the subtitle follows pattern (4d). This example shows that the producer or performer may have perceived the rhotic /ɹ/ in this pattern; so, they retained it in the utterance. However, the /ɹ/ was not acknowledged as the reduced form of 是 *shi51* because the subtitle of this utterance did not include 是.

The next example below (13) is also extracted from a TV show on YouTube. The utterance came from a speaker who objected her father's offer of help. Here the negative particle 不 *bu35* takes a rising tone with no lowered F3 to indicate the presence of the rhotic /ɹ/ after it. The immediately following tone of this negative particle has a high-level tone 都 *dou55.* Thus, the rising tone in 不 *bu35* violates tone sandhi rule (2a), which indicates *bu51* should take the high-falling tone when preceding a high-level tone 都 *dou55.* The negative particle 不 *bu35,* then, is most likely still affected by the absent falling tone in 是 *shi51.* Note the Chinese character version came from the subtitle.

(13)   我   不   都   跟   你   说了   吗 我   以后   靠
       Wo21 bu35 dou55 gen55 ni21 shuo55le ma Wo35 yi21hou51 kao51
       1SG NEG all   to   2SG say   Q   1SG later-on   depend-on
       自己[16]
       zi51ji21
       self
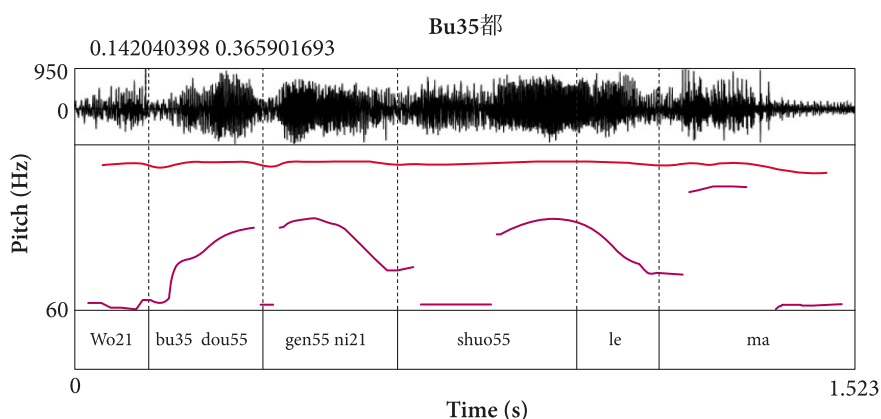   Haven't I told you already? I'll be self-reliant from now on.

Figure 9. Pitch, intensity and sound information to (13)

Figure 9 further offers sound, pitch, and intensity of Example (13), which supports the proposal that (13) presents an instance of pattern (4c), eliminating the verb 是 *shi51* while the negative particle 不 *bu35* retains a rising tone when directly preceding a high-level tone 都 *dou55*. The acoustic intensity of this utterance (the top line) shows the utterance was produced without special emphasis involved when producing this pattern.

The next Example (14) illustrates pattern (4d), eliminating the verb 是 *shi51* altogether with the new pattern 不...吗 *bu...ma* where the negative particle follows Mandarin tone sandhi rules (2a–b). Therefore, by dropping 是 *shi51*, (4d) has completely 'emancipated' (Haiman 1994; Heine 2002; Hopper and Traugott 2003) from its original pattern, although it has not been formally documented in any Mandarin Chinese grammar. Specifically, contrary to Examples (12) and (13), in (14) the syllable that immediately follows 不 *bu51* has a high-rising tone, which triggers the negative particle 不 *bu51* to take the high-falling tone by following tone sandhi changes as specified in (2a).

Notice again that the character version of this example came from the subtitle of the show. The pinyin version is based on the actual utterance in the show.

(14) 不   还有   大   半个   月   呢 吗?
      Bu51 hai35you21 da51 ban51ge yue51 ne ma?
      NEG   still have   big half CL   month yet Q
      Isn't there still over half a month (till her due date)?

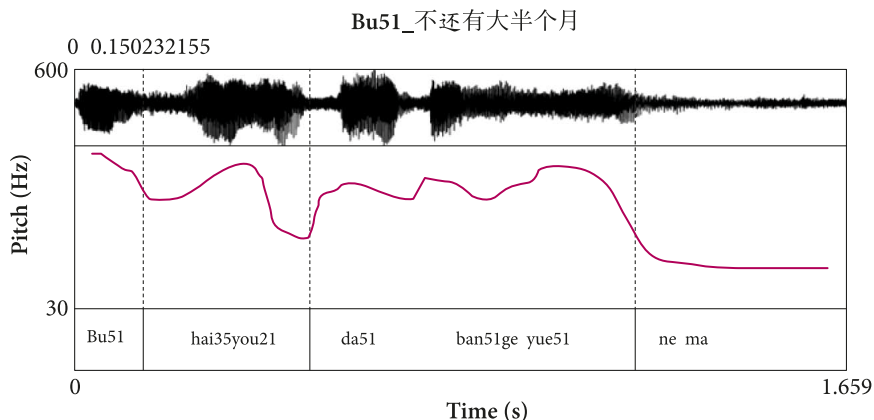   (延禧宫略 Yanxi Palace, Episode 17, 24:21)

Figure 10. Pitch and sound information to (14)

The utterance in (14) was produced as a surprise after learning a certain lady was in labor (because the speaker had been planning something to jeopardize the pregnancy yet had not prepared for the early labor). This utterance reiterated

the speaker's surprise of prior knowledge, clearly a rhetorical question. Notice again that Figure 10 shows that the high-falling tone in 不 *bu51* precedes a high-rising tone 还*hai35*, following the Mandarin tone sandhi pattern (2a). This practice clearly indicates there is no trace nor influence of the verb 是 *shi51* following 不 bu51, showing the newly developed pattern 不...吗 *bu...ma* as a variant of the rhetorical question 不是...吗 *bu35hi51...ma*: Neg-be...Q. There could be some pragmatic differences between the two variant patterns of this rhetorical question with the newly developed pattern occurring in informal spoken language only. This part needs support from further research.

The next two examples in (15a–b) present a clear contrast, first noted in Tao (2019a: 49). Example (15a) was extracted from an Internet novel (Legend of Lu Zhen), and (15b) was the same sentence produced in the TV adaptation of this story. The Chinese character version of (15b) was the subtitle of the TV show. Different from Tao (2019a), the sound and pitch information in Figure 11 were produced by using Praat (Boersma & Weenink 2018). The pinyin versions for (15a) is based on standard Mandarin pronunciation of each character. In (15b) it is based on the pronunciation of the utterance from the TV show. One can see that the novel (cited in 15a) has retained this rhetorical question in its original form (4a), yet the TV production (15b) has adopted the new pattern (4d). Further, in the TV show, the negative particle 不 *bu51* takes a high-falling tone, following tone sandhi rule (4a).

(15) a. 你   不是   老   跟我   说   当局   者   迷
           Ni214 *bu35shi51* lao214 gen55wo214 shuo55 dang55 ju35zhe214 mi35
           2SG   NEG-be   always to 1SG   say   act-in person   unclear
           嘛。
           ma
           INT
           Didn't you always tell me those inside the game lose their objective view!
                                 (Zhang, W: 女相陆贞传奇 Legend of Lu Zhen, Chapter 39)

       b. 你   不   老   跟   我   说   当局   者   迷   嘛。
           Ni21 *bu51* lao21 gen55 wo21 shuo55 dang55ju35 zhe21 mi35   ma
           2SG NEG   always to   1SG   say   act-in   person unclear INT
           Didn't you always tell me those inside the game lose their objective view!
                                 (陆贞传奇 Legend of Lu Zhen, Episode 30, 30:33)

Examples (15a–b) are produced within exactly the same context where the speaker explained to the hearer why she was able to see through an evil plot, but the hearer was unable to do so. Comparison of (15a) (from the online story) and (15b) (the same utterance from the TV production of the story) reflects the fact that, most likely to the producer/ performer, pattern (4d) 不...吗 *bu...ma* without
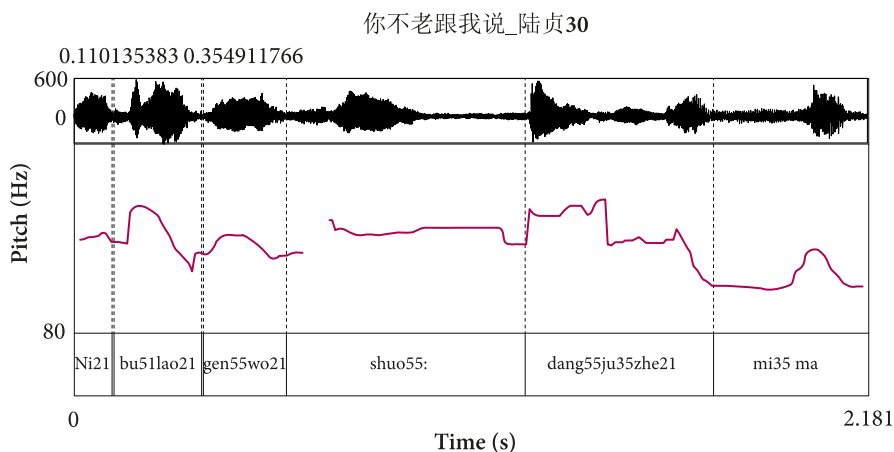
你不老跟我说_陆贞**30**

Figure 11. Pitch and sound information for (15b)

the verb 是 *shi51* could be more appropriate in a casual conversation; therefore, the same utterance from the online story, in pattern (4a), could have been intentionally changed into pattern (4d), as reflected in (15b). Notice that the sentence final particle 嘛 is an interjection. In Examples (15a–b) it coincides with the question particle 吗 at the same syntactic slot. So, the two collapsed into one particle.

3.2 Possible ambiguity

When the rhetorical question loses the verb 是 *shi51*: be, to become a new construction 不...吗 *bu...ma* (4d), the form may become ambiguous, as either a genuine question or a rhetorical question. Examine the following:

(16) 在   唱戏   不   讲究   有   包头   吗?
      Zai51 chang51xi51 bu   jiang21jiu55   you21 bao55tou   ma?
      At   opera show   NEG accustomed to have   head piece Q
      a.   Isn't it true that opera performances require a headpiece?
        (Opera performances need special headpieces, as you know)
      b.   Don't opera performances need a headpiece?

Example (16) is from the transcription of a narrative from the data of spoken Beijing Mandarin, collected in 1982 (CCL Corpus, Zhan et al. 2003). The pinyin is added by this author, based on both the character/word's standard pronunciation and tone sandhi changes. Only the tone of the negative particle is unclear, so it is not indicated.

The English translation presented in (16a) is for a rhetorical question. The utterance of the negative particle 不 *bu35* may have taken a rising tone, possibly

also with a rhotic /ɻ/ as bu35ɻ. But that information cannot be confirmed without access to the original recording. The context where this construction is produced indicates that it is indeed a rhetorical question, similar to the English expression 'y'know' that elicits inference of shared knowledge from the listeners during conversation (Schiffrin 2001; Tudor 2017). Here the scope of 不 covers the entire VP: the practice of opera requires special headpieces. However, the syntactic construction in (16) is identical to a genuine question as the English translation (16b), in which 不 *bu51* should take the falling tone, by sandhi rules (2a). It could be uttered as a challenge to some unexpected practice of not using headpieces. Therefore, although contexts may differentiate if (16) is a rhetorical question or a genuine question, the form itself, with the loss of 是, could be ambiguous when presented alone.

3.3 Interim summary

The character versions of examples (9–16) came from either written transcription of spontaneous speech or subtitles of TV shows. These examples share the same syntactic construction as (4d), which is the rhetorical question without the verb 是. The written version of this new construction appears with the negative particle directly preceding either an NP (9a–b) or a verb that does not take 不 for negation (9c). The tonal information of the negative particle, based on transcripts of spoken Beijing Mandarin (10, 11a–b, 12, 13), indicates whether the rhotic /ɻ/ (sound lenition of the verb 是 *shi51*) is clearly uttered or not, the negative particle takes the rising tone, conditioned by the high-falling tone of *shi51*.

The new construction, as transcribed into pattern (4d) without 是 *shi51*, has been noticed and adopted to represent colloquial speech in the media, as Examples (12–15) show. The rhotic /ɻ/, however, does not seem to be treated equally. It may be fully pronounced (10, 11a–b, 12) or completely dropped (13–15). With different treatment of the new construction from both written transcripts and media, the new construction is sure to be adopted in *Putonghua* to spread among Mandarin nationwide.

4. Conclusion

Usage frequency often results in sound erosion, which may eventually create variations and grammatical changes in language (Bybee 2013). In Beijing Mandarin, the 'foot medial' consonant /sh/ is produced as a rhotic /ɻ/ in the frequently used unit 不是 *bu35ɻ*, which sometimes is uttered as *bu35* (4c). Written documents have transcribed this unit by dropping 是. The influence of Beijing

Mandarin as the basis for *Putonghua*: common language, has been adopted in the media that produces 不是 *bu35shi51* as *bu35̪, bu35,* or just 不 *bu* by following tone sandhi rules (2a–b).

With the newly developed construction 不…吗, listeners have to make cognitive adjustments in signal processing. Studies find that people start processing information some 500 ms after the start of oral production (Tanenhaus et al. 1995). Since 不 *bu* now depends on the sentence-final particle 吗 *ma* to process this sentence, the new construction might cause re-analyses of this construction. In summary, this case study offers support to the view that usage not only shapes grammar but also lead to grammatical changes.

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