

Study on the disyllabic third-tone sandhi in Shaanxi Middle Area Mandarin

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Abstract: This study investigates the disyllabic third-tone sandhi in Shaanxi Middle Area Mandarin. It is a common phenomenon that T3 changes to another tone before T3 in two-syllable words in Mandarin dialects. Shaanxi is the primary region where T3 changes to T1 before T3. In this study, 10 geographical points of Middle Area Mandarin in Shaanxi are explored. Additionally, combining it with closely related types such as Middle Area Mandarin in other places, Jin and Hakka, three types of the disyllabic third-tone sandhi in Shaanxi Middle Area Mandarin are analyzed. We propose that these types reflect different historical strata. The tone change rule, which states that a T3 changes to a T1 before T3, was established during the Tang Dynasty and spread throughout the surrounding regions. And now, this rule is disappearing.

Keywords: Middle Area Mandarin, third-tone sandhi, the neutralization of tone sandhi

1. Introduction

In two-syllable words, it is common for T3 (Shǎngshēng 上声) to shift into a different tone before T3 in Mandarin. Also, different dialects use a variety of tonal changes, such as changing the initial character to T1 (Yīnpíng 阴平), T2 (Yángpíng 阳平), or T4 (Qùshēng 去声), a new tone, or no tonal change at all. The Middle Mandarin region of Shaanxi is where the phenomenon of the preceding syllable's T3 becoming T1 most frequently occurs.¹ Previous studies (Qi & Shi, 1998; Hirayama, 1999; Qi, 2008/2010:160–165; Wu, 2020; Endo, 2021) have mainly focused on the synchronic phonetics and the diachronic tonal value evolution to understand the causes of the disyllabic third-tone sandhi, while little attention has been paid to the geographic

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¹ Shaanxi is a province in central China, and the main languages spoken within its borders are Middle Area Mandarin, Jin, and Southwest Mandarin.

distribution and their historical causes of the pre-syllable that changes to T1. In this study, the disyllabic third-tone sandhi in Shaanxi Middle Area Mandarin is investigated in terms of its typology and historical strata using a dialect geographic method.

2. Data sources

Most of the content in this essay is sandhi from 10 dialectal locations in the Shaanxi Middle Area of Mandarin. A few of the Xi'an materials were obtained from fieldwork performed in April 2023. The informants were Ms. Zhang and Mr. Zhang, who are a pair of siblings. Ms. Zhang, is a 60-year-old retired employee with a junior high school diploma. Mr. Zhang, a 58-year-old worker with a high school diploma, is currently employed. Their grandparents are residents of Lianhu District, Xi'an, where they both were born and raised. Other data and information were mostly obtained from Chen & Li (1996) and other dialect survey works. Specific sources are listed in the Appendix.

It should be noticed that there are a lot of weak stress cases in the Xi'an dialect. The latter syllable can either be pronounced in its original tone or with weak stress and when it is pronounced with weak stress, the rhyming vowel is easily centralized or even displaced. Although weak stress and neutral tone in the Xi'an dialect are difficult to identify phonetically, they can be identified by the following: neutral tone distinguishes semantics and syntax, while weak stress does not; neutral tone is obligatory, while weak stress is not. The neutral tone in the Xi'an dialect was also reported by Sun (2007) as being a component of tone sandhi. We think that neutral tone and weak stress should both be excluded from tone sandhi in the Xi'an dialect. Several earlier recordings of dialects in the Xi'an region that consider the neutral tone and weak stress as tone sandhi have been omitted from references (Zhang, 1990; Sun, 2017).

3. The geographical distributions of disyllabic third-tone sandhi

According to the tonal category, the disyllabic third-tone sandhi in Shaanxi can be divided into three types as follows:

- A. T3+T3→T1+T3
- C. T3+T3→T3+T3
- AC. T3+T3→T1/T3+T3

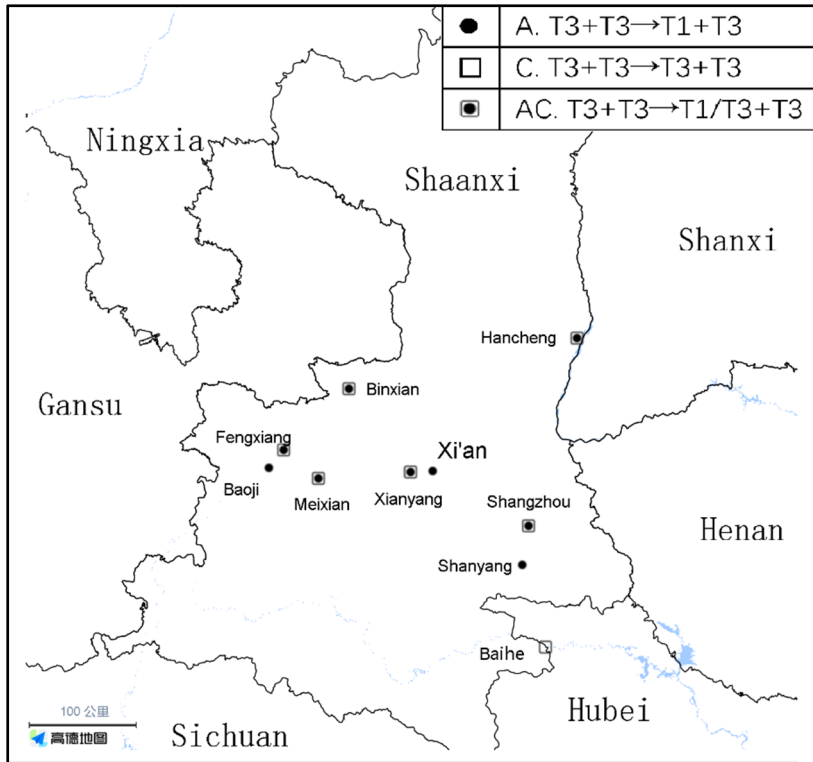


Figure 1: The geographical distributions of disyllabic third tone sandhi in Shaanxi Middle Area Mandarin.²

The three types of Shaanxi Middle Area Mandarin's disyllabic third-tone sandhi are distributed geographically in Figure 1.³ The AC-type is the most prevalent form, followed by the A-type, and only a very small number of dialect points are of the C-type. The main distribution centers for the A-type are in Xi'an, Baoji, and Shanyang. The districts and counties near Xi'an are distributed with the AC-type. Additionally, the C-type is exclusively found in Baihe. Can they assist distinguish between the old

² Wu & Zhang (1996:1079-1081) found that in the Xi'an dialect, T3 becomes T1 before T3, however our most recent survey found that T3 before T3 no longer undergoes a tone change. Because T3 is a high descending tone, the coarticulation affects a few words and causes them to become high flat, which is tonally the same as T4. A comparable situation can be observed in the newly notated data of Shaanxi's Shanyang dialect (Zhao, 2022). This should be a recent change, and for historical comparison with other dialects, we will continue to classify the Xi'an and Shanyang dialects as A-type in this Figure.

³ The map in this research was created utilizing The Linguistic of GIS, which was created by Nankai University and Tianjin Xinhui Network Technology Service Center, and the basis map was taken from Gaode Map (2023AutoNavi-GS (2021)6375).

and new forms based on their geographic distribution? In the following sections, we attempt to explain the causes and historical strata of each of these types separately.

3.1. The AC-type

The AC-type is a combination of A and C types. It results from the coexistence of old and modern strata, with the A-type denoting the former and C-type denoting the latter. Geographically, the A and AC types in Xi'an have a concentric distribution; the A type is in the center, while the AC-type is on the outskirts. The AC-type has a much greater range when we look at the entire Middle Area Mandarin, with Xining in Qinghai and Qingshui and Tianshui in Gansu all being AC-type.⁴ The circumference of such a concentric distribution around Xi'an is substantially larger. The tone sandhi of the entire Middle Area Mandarin disappearing. It can be explained as follows: first, only a small number of tonal combinations experience tone sandhi, whereas the majority do not. Second, only certain words that share the same tonal combinations are subject to tone sandhi, while other words do not (Zhang, 1990). As a result, the disyllabic third-tone sandhi is not an exception. However, because of the gradual diffusion of the C-type in the lexicon, some dialectal points continued to use the AC-type. The AC-type is an innovative form of the A-type and the C-type represents the end point of its evolution. It is a process in the disappearance of tone sandhi.

3.2. The A-type

The disparity in the rates of evolution of citation tone and sandhi tone served as the original intrinsic motivation for the A-type, and the inverse dissimilation was induced by the bass component in T3 (Hirayama, 1999). However, when did it start to spread? What was the transmission path? Its distribution may provide some hints.

The present A-type and AC-type distribution ranges should be included in the early A-type range of distribution as the A-type was the predecessor to the AC-type. If the Middle Area Mandarin in Shanxi is taken into account⁵, it is mainly concentrated in the South Xinjiang region, the Qinlong region, the Weihe Plain of Shaanxi, and the Sushui River Basin of Shanxi. It is important to note that the A-type is also present in the Jin, Hakka, and Jilu Mandarin in addition to the aforementioned regions:

- 1) The Jin dialect

⁴ For tone sandhi in Qingshui, Gansu, see Cao (2021), and for tone sandhi in Tianshui, see Zhang & Deng (2008).

⁵ The Middle Area Mandarin within Shanxi is mainly centered in Southern part of Shanxi, where it borders Shaanxi, and the cities in this region, Yuncheng, Hejin, Wanrong, Yongji, Pinglu, and Linyi, all have the A-type, which means that the T3 becomes T1 before T3 in all cities mentioned above.

Li (2014) analyzed and compiled tone sandhi material for 37 Jin dialect points. Table 1 displays the Jin dialects' third-tone sandhi. In addition to the several forms of Mandarin spoken in the Shaanxi Middle area, there are five types of Jin, including B, AB, BC, E, and D type. The B-type signifies T3 turning into T2 before T3. The AB-type indicates that T1 and T3 change to T2 before T3. The BC-type refers to the situation in which T3 changes to T2 before T3 in some cases, but not in others. The E-type indicates that T1 (Yīnpíng 阴平) and T2 (Yángpíng 阳平) merged in citation tone and sandhi tone, resulting in the preceding syllable becoming Píngshēng (平声). Additionally, the D-type indicates that the second syllable has been altered.

Table 1: Types of disyllabic third-tone sandhi in the Shanxi Jin dialect.

Types		Point	Count	Proportion
A-type	T3+T3→T1+T3	Yu County, Zhongyang, Fangshan, Daning, Xinzhou, Dingxiang, Wutai, Dai County, Shuozhou, Pinglu, Hunyuan	11	29.73%
B-type	T3+T3→T2+T3	Ying County	1	2.7%
C-type	T3+T3→T3+T3	Xiaoyi, Jingle, Fenxi, Wuxiang, Xiangyuan, Qinxian, Yangcheng, Gaoping	8	21.62%
AB-type	T1/T3+T3→T2+T3	Yonghe, Datong, Tianzhen, Huaiyuan, Youyu	5	13.51%
AC-type	T3+T3→T1/T3+T3	Xing County	1	2.7%
BC-type	T3+T3→T2/T3+T3	Wenshui	1	2.7%
E-type	T3+T3→Píngshēng+T3	Taiyuan Northern Suburbs, Shouyang, Yushe, Pingyao	4	10.81%
D-type		Jiexiu, Linxian, Lingchuan, Jincheng, Tunliu, Changzhi	6	16.22%
Total			37	100%

Table 1 shows that except for the six points of the D-type, 17 of the remaining 31 points (A, AC, and AB types) exhibit signs of the rule that T3 changes to T1 before T3. The A and AC types, do not need to be mentioned. The AB-type, which is mostly found in northern Shanxi, is thought to be the consequence of the merging of T1 and T3 before T3, followed by the merging with T2. Jin's internal evolutionary rule is the merging of T1 and T3, and the merging with T2 is influenced by Beijing Mandarin's rule. T3 changes to T2 before T3 in Beijing Mandarin. Briefly, there are many dialect points in the Jin dialect area where the former syllable has changed to T1.

2) Hakka

There are six citation tones in the Jiangxi Yudu Hakka, including Yīnpíng(阴平), Yángpíng (阳平), Shǎngshēng (上声), Yīnqù (阴去), Yángqù (阳去), and Rùshēng(入声), and Shǎngshēng (T3) becomes Yīnpíng (T1) before Shǎngshēng (T3) (Xie,

1992/1998: 5). Some Quánzhuóshǎng (全浊上) in Meixian Hakka changed to Yīnpíng when read in conjunction with the Shǎngshēng (Huang, 1988). The value of the citation tone of Yīnpíng (T1) in Jiangxi Dingnan Hakka is 35, and the former syllable changes to low Yīnpíng 13 when the latter syllable is Shǎngshēng (Xu, 2019). Furthermore, according to Huang (1988), one significant feature of Hakka that sets it apart from other dialects is that several characters, which were originally Voiced Shǎng(浊上) characters, are now read as Yīnpíng characters. The alternation of T3 and T1 in citation tones also tends to suggest that the early rule $T3+T3 \rightarrow T1+T3$ may have been more common in Hakka.

3) Jilu Mandarin

Hirayama (1999/2005) reported that Pinggu and Xiongxi's disyllabic third tone is A-type. Additionally, T1(45) and T3(214) merge before T3(214) in Baoding and T1(33) and T3(213) form T2(35) before T3(213) in Dingxing (Chen & Xu, 1997)⁶. The A-type is distributed sporadically in the Jilu Mandarin region. The Jingnan Incident⁷ caused a significant influx of immigrants into the Hebei province, however Baoding, in that province, was not the main destination for those immigrants (Cao, 1997). As a result, the Baoding dialect is still preserving today and is $T3+T3 \rightarrow T1+T3$, whereas most of the nearby areas are $T3+T3 \rightarrow T2+T3$.

The A-type geographic distribution evidenced that the $T3+T3 \rightarrow T1+T3$ is a remnant of an ancient form. As early as the Tang Dynasty, the A-type was completed and dispersed. This is a result of four factors as follows:

First, the Hú rén (胡人) dialect of Chinese gained prestige in the north during the Western Jin Dynasty following the upheaval of the Five Barbarians(五胡乱华). Emperor Xiaowen of the Northern Wei Dynasty (467-499) transferred the capital from Pingcheng (present-day Datong, Shanxi) to Luoyang and implemented the orthography. Then, when the Northern Wei Dynasty came to an end, or divided, one of the branches transferred west to Chang'an (present-day Xi'an, Shaanxi). Later, the Sui Dynasty united the north and south of China, and Chang'an gained political clout (Yang & Huang, 2023). The existence of constant sandhi tones in Shanxi and Guanzhong is closely tied to the Northern Wei dynasty's language policy.

Second, the Tang dynasty established Chang'an as the center of politics, economy, and culture, and the new literary readings based on the Lingua franca of the northern

⁶ Numbers in parentheses are tonal values.

⁷ The Jingnan Incident(靖难之变) was a war waged by Zhu Di朱棣(1360-1424) against Emperor Jianwen建文帝(1377-?) to seize power from 1399-1402.

Guanzhong region, with the Chang'an accent as the standard, eventually replaced Qiēyùn 《切韵》 as the Tang dynasty's standard literary readings in the Táng Xuánzōng 唐玄宗 dynasty (Yang, 2023).

Third, both Quanzhuoshang (全浊上) and Cizhuoshang (次浊上) are pronounced Yīnpíng (阴平) in Hakka. This is because the rule that the Shangshang (上声) becomes Yīnpíng (阴平) before the Shǎngshēng occurred before the tone rule Change from Voiced Shang (上) to Voiced Qu (去), which originated at the end of the seventh century and was frequently used during the Song dynasty (Liu, 1997; Ding, 2005; Xia, 2019).

Fourth, evidence of population migration exists. According to Yudu County's extant genealogical records and the county census of geographical names, most of the ancestors of the various surnames in Yudu County traveled from the north during the Tang Dynasty, although most of them eventually settled in Yudu after a few twists and turns (Xie, 1998: 3-4).

Therefore, Shanxi is the place where the A-type was first bred. The Northern Wei's language policy spread the A-type in the northern Jin dialect to another northern Mandarin. However, when the Xi'an dialect became the primary dialect of the official lingua franca, the A-type became centralized in Xi'an and extended to the Guanzhong, Qinlong, and Shanxi regions as well as the peripheral Mandarin areas. One way that the A-type directly influenced the dialects of the various regions was through the migration from Guanzhong, and another way was through the lingua franca. Naturally, as the Heluo region grew, this influence slowly shifted to the west of the Hangu Pass. The Central Plains accent was retained by the Hakka ancestors who were impacted by the A-type as they moved south. As a result, several of the current Hakka dialects still have typical characteristics of the A-type. Because of Shanxi's mountains and cross-shaped geography, the traditional Mandarin dialect has survived.

3.3. The C-type

Baihe's C-type has anything to do with language contact. Baihe is in southern Shaanxi, and its dialect has been influenced by both Middle Area Mandarin and Southwest Mandarin over time (Ke, 2004). It is most likely the result of simplification following contact between the two dialects that the disyllabic third-tone sandhi does not change. Meanwhile, data shows that what was once an A-type eventually changed to a C-type. In Xi'an, for example, Wu & Zhang (1996) and Wang (1996) specifically described the Xi'an dialect, in which the former T3 becomes T1 before T3, but Ren (2012) and the present fieldwork have found that T3 does not change. This single-point chronological record demonstrates that the tone sandhi of Middle Area Mandarin is rapidly

disappearing. Sandhi's absence has become frequent in all dialect points of Middle Area Mandarin.

4. Conclusion

The findings of this study suggest that the A-type of Shaanxi Middle Area Mandarin originated in the early dialects of northern Shanxi. The Northern Wei Dynasty's language policy profoundly influenced the Guanzhong region, which later spread throughout the nation because of literary readings centered in Chang'an. Xi'an is a key center of influence for the Mandarin of the Middle Area. Dialect interaction gives rise to the marginal C-type, but co-innovation gives rise to the C-type that has emerged in the last 30 years. The AC-type is a transitional stage in which the A-type inherent sound becomes C-type.

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Appendix

List of Used Data

Dialect points	Data sources
Xi' an	Wu & Zhang (1996)
Shangzhou	Zhang (1990)
Meixian	Sun (2017)
Binxian	Qiao & Chao (2002)
Shanyang	Zhao (2022)
Xianyang	Guan (2019)
Baihe	Yang (1996)
Baoji	Nie (1996)
Fengxiang	Wang (2010)
Hancheng	Yu (2008)
Linfen	Pan (1990)
Yuncheng, Xinjiang, Yuanqu, Jixian, Hejin, Wanrong, Yongji, Pinglu, Linyi, Hongdong, Huozhou, Fushan and Yicheng	Li (2014)