

An Analysis of Mandarin Pronunciation between Guangdong and Northern Chinese People

—Exemplified by Blade-alveolar and Retroflex

QIU Ying-yi

College of Foreign Languages, University of Shanghai for Science and Technology, Shanghai 200093, China

This study compared and analyzed the Mandarin pronunciation of Guangdong and northern people, focusing on the similarities and differences and pronunciation characteristics of people from these two regions in terms of their blade-alveolar and retroflex. This study used Praat and Excel to process and analyze the data. The results showed that, firstly, there was no significant difference in the length of pronunciation between Guangdong and northern people in terms of retroflex. However, there is a significant difference in the duration of blade-alveolar pronunciation between Guangdong people and Northerners, especially on “ca” and “zuo”, which indicates a significant phonetic difference between different regions. Second, the analysis of pitch further demonstrated the differences in intonation, with Cantonese and Northern speakers having salient differences in the intonation of blade-alveolar. Third, there was no statistically significant difference between genders in pronunciation, suggesting that the pronunciation of blade-alveolar and retroflex in Mandarin is not related to gender. These findings explore the similarities and differences in the blade-alveolar and retroflex of Guangdong people and Northerners, which can help to enhance the communication of Mandarin across regions and give readers a better understanding of the pronunciation of Mandarin in the two regions.

Keywords: Blade-alveolar, retroflex, Mandarin

Introduction

Background of the Study

Mandarin, as the official language of China, exhibits phonetic variations across different regions due to its vast geographical expanse and diverse cultural influences. One noteworthy distinction in Mandarin pronunciation lies in the speech patterns between individuals from Guangdong and Northern China. Specifically, the variance in the articulation of blade-alveolar and retroflex sounds, prominent phonetic features in Mandarin, contributes to the linguistic diversity observed within the Chinese-speaking population.

In Guangdong, in addition to Cantonese, there are two other dialects—Hakka and Hokkien. As Chinese dialects, Cantonese, Hakka, and Hokkien differ significantly from Mandarin (Putonghua). It is almost difficult for those who do not live in the local area for some time to understand these three dialects. These three dialects

are intricately connected to Classical Chinese, and they are often referred to by different individuals as “living fossils” of Classical Chinese. However, apart from a few common words, these three dialects cannot communicate directly with each other. In this point, studying Mandarin pronunciation between Guangdong and Northern Chinese people may clarify the differences and then provide some useful suggestions.

Purpose of the Study

The primary purpose of this study is to analyze and compare Mandarin pronunciation differences between individuals from Guangdong and Northern China, with a specific focus on the articulation of blade-alveolar and retroflex sounds. By examining these phonetic features, the study aims to elucidate the distinct speech patterns observed in these two regions, contributing to a deeper understanding of linguistic variations within the broader Mandarin-speaking community.

Research Significance

This research holds significant importance in several aspects. Firstly, it addresses the broader issue of regional phonetic variations within Mandarin, shedding light on how geographical and cultural factors influence language pronunciation. Understanding these distinctions is crucial for language learners, educators, and linguists aiming to enhance their comprehension of Mandarin’s diverse manifestations.

Secondly, the study delves into the unique linguistic landscape of Guangdong. Investigating the relationship between Mandarin spoken by northern Chinese people and Mandarin spoken by Guangdong Chinese people provides valuable insights into the coexistence of different linguistic elements, contributing to the broader field of Chinese dialectology.

Furthermore, the analysis of blade-alveolar and retroflex sounds serves as a microcosm for exploring the intricate connections between Mandarin and regional dialects, offering potential explanations for communication challenges among Chinese speakers from different areas. Unraveling these complexities may lead to practical suggestions for language learners, educators, and individuals seeking effective cross-regional communication strategies within the Mandarin-speaking community.

In essence, this study not only aims to contribute to the academic understanding of Mandarin phonetics but also has practical implications for language education and cross-cultural communication within the diverse linguistic landscape of China.

Literature Review

Previous Studies on Blade-alveolar

Research on blade-alveolar pronunciation in Mandarin has been a subject of scholarly interest. Previous studies have explored the nuances and variations in the articulation of blade-alveolar sounds, considering factors such as regional influences, linguistic history, and individual speech patterns. Distinguishing between blade-alveolar and retroflex sounds is one of the challenges in learning standard Mandarin. Huang Borong (2001, p. 9) found that among the seven major Chinese dialects, only certain regions in the northern and Hunan dialects can differentiate between blade-alveolar and retroflex. Hang Qingqing (2016, p. 182) concluded that the pronunciation of the blade-alveolar and retroflex by urban residents in Cangzhou is widespread and varies, and she found that the condition of indistinct blade-alveolar and retroflex sounds is correlated with age to some extent

but is unrelated to gender. These investigations contribute to our understanding of how this phonetic feature manifests in different Chinese-speaking communities.

Previous Studies on Retroflex

Similarly, the retroflex sounds in Mandarin have been a focal point of linguistic research. Scholars have delved into the diverse ways in which retroflex sounds are pronounced, examining regional disparities and cultural influences. Yang Xiaoyu (2018, p. 151) pointed out that for most people from northern regions, distinguishing between blade-alveolar and retroflex sounds is not difficult. However, for people from the Cantonese dialect area, producing accurate blade-alveolar and retroflex sounds can be quite challenging. Zhu Fangjie (2016, p. 60) found that local high school students in Wenshang are influenced by the dialectal retroflex sounds in their English pronunciation. The exploration of retroflex articulation provides valuable insights into the intricacies of Mandarin pronunciation and its variations across different geographic and cultural contexts.

Comments on the Previous Studies

The existing literature on blade-alveolar and retroflex sounds in Mandarin reveals a rich tapestry of research. These studies collectively highlight the significance of understanding regional phonetic variations within Mandarin, emphasizing the impact of geographical and cultural factors on language pronunciation. The insights gained from previous research lay the groundwork for the current study, as they inform the approach to analyzing Mandarin pronunciation differences between individuals from Guangdong and Northern China.

By synthesizing findings from these previous studies, the current study aims to build upon the existing knowledge and provide a comprehensive examination of Mandarin pronunciation in the specific context of Guangdong and Northern China. This literature review sets the stage for a focused investigation into the articulation of blade-alveolar and retroflex sounds in these regions, contributing to a deeper understanding of linguistic diversity within the broader Mandarin-speaking community.

Methodology

Research Questions

In this study, the author is dedicated to conducting a comprehensive examination of the blade-alveolar and retroflex between Guangdong and Northern people in China. Additionally, the author makes a considerable effort to explore the potential impact of Mandarin pronunciation on the people from Guangdong and Northern, delving into specific influences and potential causes. In summary, the questions the author aims to address are outlined in the subsequent description:

- (1). What are the similarities and differences in the pronunciation of blade-alveolar and retroflex in Mandarin between people from Guangdong and Northern China?
- (2). How can individuals distinguish between blade-alveolar and retroflex better?

Participants

Considering the need for this study, 8 participants were recruited. To be more specific, the author makes the following table, which can be seen in Table 1. More details about the participants can be seen in the appendix.

Table 1
A General Description of Participants

Regions	Number of men	Number of women	Total Number
Guangdong	2	2	4
Northern China	2	2	4
Total Number	4	4	8

Data Collection

The participants recorded their voices using the recording function on their mobile phones. They were instructed to wear earphones and record in a quiet environment without noise. After collecting the recordings, the author uniformly converted the audio format to WAV using <https://convertio.co/zh/>. The main tools for data processing are Praat and Excel.

Results and Analysis

The Difference in Pronunciation Duration

To compare the pronunciation duration of blade-alveolar and retroflex between people from Guangdong and Northern China, we use a two-sample T-test to compare whether people in different regions can pronounce the same. The *p*-value is a measure of the evidence against a null hypothesis. In this context, it may indicate whether there is a significant difference in pronunciation. As we can see in Table 2:

Table 2
The Difference in Pronunciation Duration of Blade-alveolar and Retroflex between People from Guangdong and Northern China

Pronunciation	Pinyin	<i>p</i> Value	<i>T</i> Value
Blade-alveolar	ca	0.0312	-2.8002
	su	0.6198	-0.5229
	zuo	0.0196	-3.1596
Retroflex	cha	0.3545	-1.0031
	shu	0.5357	-0.6568
	zhuo	0.2157	-1.3837

Table 2 presents a statistical analysis involving different types of Chinese sounds (pronunciations), specifically blade-alveolar and retroflex, along with their associated Pinyin representations. The table includes *p*-values and *t*-values for each type of sound. For “ca”, the *p*-value is 0.0312 ($p < 0.05$). This suggests a statistically significant difference in pronunciation. For “zuo”, the *p*-value is 0.0196 ($p < 0.05$), which also indicates a statistically significant difference. For retroflex, the *p*-value indicates that the pronunciation difference is not statistically significant.

In summary, it means that in pronunciation duration, people from Guangdong and northern China do not show great differences in retroflex. However, they differ in blade-alveolar pronunciation duration such as “zuo” and “ca”. Table 2 provides insights into the statistical significance of pronunciation differences between Blade-alveolar and Retroflex sounds. Statistically significant differences are observed for some Blade-alveolar pronunciations, while the differences in Retroflex pronunciations are not statistically significant based on the given *p*-values.

It appears that the table presents the results of a statistical analysis involving different types of Chinese sounds (pronunciations), specifically blade-alveolar and retroflex, along with their associated Pinyin representations.

In Figure 1, the details about the salient differences are presented. We can see from it and conclude that people from Guangdong and northern China differ in the pronunciation of blade-alveolar.

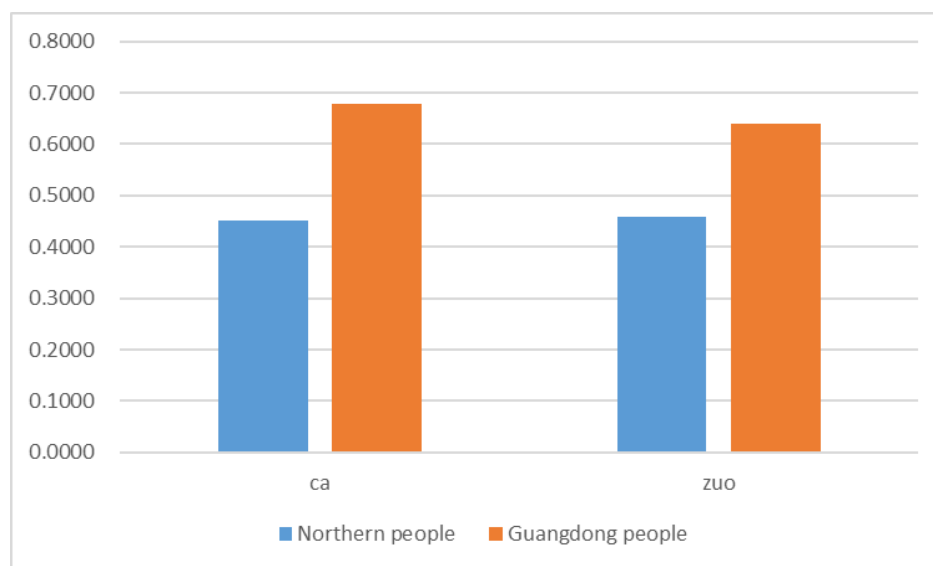


Figure 1. The specific details about “ca” and “zuo” between Northern and Guangdong people.

The Comparison of Pitch

Lee (1996) found that Research on tone perception has uncovered the significant impact of linguistic information. He believes that Chinese is a tone language. To compare the difference in the pronunciation of blade-alveolar and retroflex between Guangdong and northern Chinese people, studying the pitch is necessary.

Figure 2 illustrates the variations in pitch values for the pronunciations “ca”, “cha”, “shu”, “su”, “zhuo”, and “zuo”. Each line represents the pitch trajectory across ten data points (Pitch 1 to Pitch 10). The chart visually depicts how pitch values change for each pronunciation across the ten data points. Analyzing the patterns in these pitch variations can provide insights into the phonetic characteristics of the different pronunciations from different regions. From Figure 2, we can see that the intonations between Guangdong and northern people vary from many pronunciations, especially the blade-alveolar.



Figure 2. The Comparison of Pitch in Blade-alveolar and Retroflex between People from Guangdong and Northern China.

The Comparison of Blade-alveolar and Retroflex Related to Gender

In addition to comparing the retroflex and alveolar sounds between people from Guangdong and those from the northern regions, the present study also considered the factor of gender. Since the participants' ages ranged from 20 to 24 years, age was not within the scope of our consideration. The present study utilized Praat scripts to extract fundamental frequency and pronunciation duration for all phonemes and conducted independent sample t-tests between groups using Excel. The results indicated that there were no statistically significant differences between the groups, suggesting that the pronunciation of retroflex and blade-alveolar sounds is not associated with gender. The *p-values* can be read from the Table 3 and Table 4.

Table 3

The t-test between Guangdong and Northern People about the Formant Two. The F2 between Different Regions is not Statistically Significant

Types of Pronunciation	Male	Female
Blade-alveolar	0.411	0.638
Retroflex	0.539	0.890

Table 4

The t-test between Males and Females about the Formant Two. The F2 between Different Genders is not Statistically Significant

Types of Pronunciation	Northern people	Guangdong people
Blade-alveolar	0.765	0.594
Retroflex	0.573	0.347

Conclusion

This research holds significant implications for both linguistic scholarship and practical applications. Firstly, it contributes to the academic understanding of regional phonetic variations within Mandarin, enriching the field of phonetics and linguistics. Secondly, the findings are anticipated to shed light on the intricate interplay between linguistic diversity and cultural geography, providing insights into the factors shaping Mandarin pronunciation in different parts of China. Furthermore, the practical significance of this study extends to language education and cross-cultural communication, offering educators and language professionals a nuanced understanding of regional Mandarin pronunciation variations. Ultimately, this research strives to deepen our comprehension of the intricate fabric of Mandarin phonetics while fostering a more inclusive and accurate portrayal of linguistic diversity within the Chinese-speaking community.

In conclusion, this research illuminates the nuanced phonetic differences between Guangdong and Northern Chinese speakers, specifically in the articulation of blade-alveolar and retroflex sounds. Pronunciation duration analysis reveals significant disparities in blade-alveolar pronunciations, emphasizing the need for learners and educators to be mindful of these regional distinctions. The pitch comparison further underscores the intricate variations in intonation, particularly in blade-alveolar sounds, enhancing our comprehension of Mandarin's diverse manifestations. Importantly, gender is not found to be a significant factor in these pronunciation differences. This study contributes not only to academic knowledge but also provides practical insights for language education and cross-cultural communication within the multifaceted linguistic landscape of China.

References

- Lee, Y.-S., & Vakoč, D., & Lee, W. (1996). Tone perception in Cantonese and Mandarin: A cross-linguistic comparison. *Journal of Psycholinguistic Research*, 25, 527-42. 10.1007/BF01758181.
- 韩青青. (2016). 沧州方言平翘舌音发音影响因子的调查研究——取沧州城市居民为案例. *当代教育理论与实践*, 8(08), 182-184. DOI:10.13582/j.cnki.1674-5884.2016.08.057.
- 黄伯荣, 廖序东. (2001). *现代汉语*. 北京: 高等教育出版社.
- 杨晓宇. (2018). 翘舌音对粤方言区学生学习普通话的影响及应对策略. *当代教育实践与教学研究*, (03), 151-152. DOI:10.16534/j.cnki.cn13-9000/g.2018.0453.
- 朱方杰. (2016). 汶上方言及其对英语发音的影响 (山东师范大学).

Appendix

Name	Gender	Age	Hometown	Region	Dialect
Shi Shuanglong	Male	22	Xinxiang, Henan	Northern	Henan
Ma Zhuang	Male	24	Changchun, Jilin	Northern	Dongbei
Duan Mengshuang	Female	23	Huaxiang, Henan	Northern	Henan
Gong Xuan	Female	24	Zhoukou, Henan	Northern	Henan
Xu Raosen	Male	23	Zhaoqing, Guangdong	Guangdong	Cantonese
Lei Haohong	Male	22	Zhaoqing, Guangdong	Guangdong	Cantonese
Qiu Yingyi	Female	22	Foshan, Guangdong	Guangdong	Hakka
Cai Feng	Female	23	Guangzhou, Guangdong	Guangdong	Cantonese