

On the mid vowel phoneme in Mandarin phonology

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Abstract

The classification of the mid vowel phoneme in Mandarin phonology has always been a controversial issue. On the foundation of previous researchers' opinions, this paper analyzes and discusses Mandarin's mid vowels from a phonological perspective and an experimental phonetics perspective, proposing that the vowel system hierarchy should be considered in the process of classifying the mid vowel phoneme. Only one phoneme, written as /ə/, is necessary to represent the mid vowel in Mandarin phonology. The phoneme of the mid vowel, /ə/, is a first-class Mandarin vowel, and all second-, third- and fourth-class mid vowels are its allophones.

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1. Introduction

1.1. Research background

Phoneme theory plays an important role in the field of linguistics. Although research into Chinese phonemes has been going on for some time, a large-scale exploration of the subject is still a matter of recent years. Moreover, the linguistic system of the last hundred years in China has been developed through Western theories. Therefore, the study of phonemes can be said a relatively new area in Chinese linguistics. There are a lot of issues that require more detailed exploration. Although the study of phonemes in Mandarin phonology has drawn the attention of many linguists, the opinions about the exact number of phonemes still differ up to now. There is still not a general consensus among the scholars. One of the divergences in opinions regards the classification of the mid vowel phoneme. Different perspectives and considerations in the study of phonemes inevitably result in different conclusions.

The classification of the mid vowel phoneme is of great significance to language studies. It is important for us to understand Mandarin phonology and its phonemic patterns to clarify Mandarin phonetic theory and the synchronic and diachronic changes in Mandarin phonemes. It is also of remarkable reference value for applied research such as language engineering, speech recognition, language planning, and so on. Moreover, it is of guiding significance for teaching Chinese as a second language and Mandarin learning in dialectal and ethnic minority areas.

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Table 1
Distribution of mid vowels in Mandarin.

	After initial and before zero final		After coda head and before zero final			Before coda tail			
	Labial	Non-labial	i-	u-	y-	-i	-u	-n	-ŋ
e						+			
ɛ			+		+				
ə							+	+	
ɤ		+							
o	+			+					
ʌ									+

A further analysis of the classification of the mid vowel phoneme therefore is necessary. Based on the opinions of previous researchers, the present paper will discuss the classification of mid vowels from phonological and experimental phonetics perspectives, and give some suggestions for conducting clearer analysis on this issue.

1.2. Brief review of the classification of the mid vowel phoneme

There are seven mid vowel variations on the Mandarin vowel diagram. One of them, [ə], is a retroflex vowel that appears in independent syllables rather than with consonants or other vowels. The other 6 vowels have different distributions, as seen in Table 1.

In Table 1, the other six vowels are completely complementary, distributed throughout different phonetic contexts. One phoneme is enough to represent all six vowels according to the principle of complementarity. Therefore, many western linguists studying the Beijing dialect have reduced them to one phoneme, such as Hartman (1944), and Hockett (1947). However, there are only a few Chinese linguists who have proposed to subsume them into one phoneme. Xu (1957), for example, subsumes them into /e/. Cheng (1973) and Xue (1986) also share the same view, but they regard /ɤ/ as the representative phoneme of the mid vowel and others as conditional varieties. Although the majority of linguists in China disagree with the one mid phoneme view, they don't agree on the number of mid vowel phonemes. The representative points of view can be summed up as follows:

(1) Two mid vowel phonemes in Mandarin

The Mandarin Pinyin System subsumes mid vowels into two phonemes, /o/ and /e/ ([e, ɛ, ə, ɤ, ʌ]). Wang (1963) reduced them to /ə/ ([ə, e, ʌ]) and /ɤ/ ([ɛ, ɤ, o]), while Zhou (1982) viewed /ə/ and /E/ as representative phonemes.

(2) Three mid vowel phonemes in Mandarin

Li (1984) proposed that there are three mid vowel phonemes in Mandarin, /o/, /e/ ([e, ə, ɤ, E]) and /ə/. The phonemes were reduced to /o/, /ɤ/ and /ɛ/ by You et al. (1980), and reduced to /o/, /e/ and /ə/ by Li and Xu (1981). Wang (1983) also proposed that there are three phonemes, /e/ ([e] and [ɛ]), /ɤ/ ([o] and [ɤ]), and /ə/ ([ə] and [ʌ]).

(3) Four mid vowel phonemes in Mandarin

Huang and Liao (1991) subsumed mid vowels into four phonemes, /o/, /ə/ ([ə, ʌ]), /e/ ([e, ɛ]) and /ɤ/. Lin (1991) shared the same opinion with them, labeling them as /e/, /o/, /ə/ and /ɤ/. Yang (1991) labeled the four phonemes as /ɛ/, /ə/, /ɤ/ and /o/.

Why are there different opinions on classifying mid vowels? Many Chinese linguists value the principle of phonetic similarity. However, they don't have a precise definition about the principle. So they adopt different criteria to classify vowel phonemes. Some Chinese scholars have proposed that rhyme could be used to judge the approximate pronunciation. Some of them have assumed that it should be analyzed by the physiology of pronunciation. Others proved the approximate pronunciation of auditory perception by sound wave. Therefore, the quantity of vowel phonemes is different by different criteria. They could not stipulate the degree of approximate pronunciation exactly. So it is not quite explicit how to apply the principle rationally. They cannot persuade each other when they have different opinions because everyone judges the approximate pronunciation by his/her own auditory perception.

Moreover, there is no consensus among scholars whether or not marginal sounds and derived sounds should be considered in the process of classifying mid vowels

From our point of view, there are some important criteria that should be considered in the process of classifying mid vowels: whether it follows the basic principles of classifying the mid vowels, whether it reflects the essence of Mandarin phonology, and whether it makes the phonetic system hierarchy clear. On the foundation of the aforementioned analyses,

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