

論文の英文要旨

論文題目

The low-back merger in South-Central-Pennsylvania English:  
Discussion on the diachronic spread in the  
20th century

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Kimihiko Kimura

This dissertation examines the merger of the low-back vowels /ɑ/ and /ɔ:/ in the south-central region of the Commonwealth of Pennsylvania, the United States. The historical changes of this merger were investigated using interview recordings from the 1960s which were utilized in the compilation of *the Dictionary of American Regional English*, as well as recordings collected in fieldwork conducted by the present author in 2019.

South-central Pennsylvania has historically been settled by immigrants from various language and dialect communities from England, Germany, Switzerland, Scotland, and Wales. Along with the flow of people during that period, English dialects spread across Pennsylvania. The distribution of each dialect was characterized by the communities, such as Quakers and Amish, in which they developed their own unique languages and dialects in the southern part of Pennsylvania. Additionally, the geographical barrier of the Appalachian Mountains running through the

Commonwealth contributed to the separation of dialect regions between the eastern and western parts. However, after the completion of an east-west highway in 1940, travel between the two regions became easier than before.

Regarding the merger of the low-back vowels, a description of this phenomenon is found in the western part of Pennsylvania in the early linguistic atlases dating back to the early 20th century. On the other hand, in the eastern part of the Commonwealth, the eastward expansion of this merger into the south-central region of Pennsylvania was limited. Explanations for this limitation have been made in previous literature: Labov et al. (2006) argued that the change in the articulatory position of /ɔ:/ towards a higher back position made the distinction between the two vowels easier. Another explanation based on language contact suggests that Pennsylvania German, a German dialect spoken in south-central Pennsylvania, acted as a substrate to maintain the distinction between the two vowels. Additionally, there are explanations based on the geographical barrier of the Appalachian Mountains and the relatively low east-west traffic volume in the road network. However, studies such as Kimura (2018) indicate that acoustic analysis of the pronunciation in the south-central region showed a shift of /ɔ:/ towards a lower articulatory position in younger generations, suggesting an approximation to /ɑ/. Anderson (2014) also noted the decline of Pennsylvania German-English bilingualism around the 1920s. Furthermore, the explanation relying on geographical barriers and traffic volume was challenged by the fact that there was indeed significant traffic on the east-west roads, necessitating alternative explanations.

Given the current situation, there is no definitive explanation for the lack of expansion of the merger in south-central Pennsylvania. Therefore, this study hypothesized that there has been a movement towards the merger among speakers born and raised after the 1940s, the period after the decline of Pennsylvania German and the

construction of the highway, and attempted to verify this hypothesis.

Through perceptual tests and acoustic analysis targeting American English native speakers, this study uncovered past language changes among speakers born after the 1940s, showing a decrease in perceptual and acoustic distinctions between the two vowels. Incorporating perceptual impressions, it was indicated that the low-back vowels have been shifting towards a single rounded vowel, which retains the characteristic of the western Pennsylvania dialects around Pittsburgh. Based on these findings, it was suggested that the merger originated in Pittsburgh and propagated to south-central Pennsylvania.

Additionally, as pointed out by Labov (2001), it was revealed that the low-back vowels of female speakers had a closer quality compared to males. The youngest female participants exhibited a shift toward the unrounded low-back vowel. This raised the question of whether the merger towards the unrounded vowel is a newly emerged phenomenon in south-central Pennsylvania or it has simply spread from regions other than Pittsburgh. Further investigations are needed to examine this issue.

This dissertation contributes to the studies of American dialect studies in the following two aspects:

1. By conducting exploratory research in regions with complex sociolinguistic backgrounds with limited previous studies, this dissertation has shed light on the previously unknown expansion of a linguistic phenomenon (the merger of low-back vowels into south-central Pennsylvania).
2. The introduction of online experimental methods for perceptual experiments and improvements in measurement techniques for more accurate vowel formant

measurements have been implemented in this research.

The following is the summary of each chapter:

Chapter 1 introduces the research, briefly explaining the language background and discussing the motivation for studying the English dialects in south-central Pennsylvania. It then outlines the structure of the dissertation.

Chapter 2 presents historical backgrounds that led to the formation of dialect divisions in early American English, focusing on the historical immigration flows during the colonial period. It discusses the overall formation of American English and then narrows the discussion down to Pennsylvania, explaining the history of immigration flows within the Commonwealth.

Chapter 3 summarizes previous research on the merger in south-central Pennsylvania and highlights the historical restriction of eastward expansion. This chapter also devises and introduces the hypothesis based on these findings in the literature.

Chapters 4 to 6 describe the experiments and analyses conducted in this research. Chapter 4 provides detailed explanations of the methodology, including the used audio data, online perceptual experiments, and improved acoustic measurement techniques. The introduction of online perceptual experiments and advancements in acoustic analysis methods may contribute to the development of the methodology of phonetic research.

Chapter 5 presents the results and analyses of the online perceptual experiments, and summarizes the observed tendencies. The AX-discrimination tasks indicated the variability within vowel categories ( $A=X$ ) and the perceptual distance between

different vowels ( $A \neq X$ ). The identification tasks indicated the direction of the shift in participants' perception space.

Chapter 6 attempts to provide acoustic explanations for the perceptual results presented in Chapter 5. It investigates the acoustic parameters that may influence the discrimination of the low-back vowels and finds that F1, F2, and vowel duration are all related to back vowel discrimination. The analysis focuses on the acoustic parameters that affect perceptual judgments of back vowels and expands the acoustic analysis to the 1960s and 2019 datasets. The geographical distribution from the 1960s data was reconstructed, filling the gap between the studies of Wetmore (1959) and Herold (1990), and establishing the initial state for this research.

Using field recordings from the 1960s to 2019, Chapter 6 verifies the temporal changes in the vowel qualities of the low-back vowels in south-central Pennsylvania, the period after the initial state. Comparisons are made using the same acoustic parameters as the analysis of the geographical distribution. The results show that younger generations have a closer acoustic proximity between the two vowels and that female speakers exhibit a larger degree of approximation than males.

Chapter 7 restates the overall conclusions and summarizes the remaining challenges in bullet point format.

