



The effect of experience on the perception and representation of dialect variants

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ABSTRACT

The task of recognizing spoken words is notoriously difficult. Once dialectal variation is considered, the difficulty of this task increases. When living in a new dialect region, however, processing difficulties associated with dialectal variation dissipate over time. Through a series of primed lexical decision tasks (form priming, semantic priming, and long-term repetition priming), we examine the general issue of dialectal variation in spoken word recognition, while investigating the role of experience in perception and representation. The main questions we address are: (1) how are cross-dialect variants recognized and stored, and (2) how are these variants accommodated by listeners with different levels of exposure to the dialect? Three claims are made based on the results: (1) dialect production is not always representative of dialect perception and representation, (2) experience strongly affects a listener's ability to recognize and represent spoken words, and (3) there is a general benefit for variants that are not regionally-marked.

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A dialect is defined by the Oxford English Dictionary as “One of the varieties of a language arising from local peculiarities of vocabulary, pronunciation, and idiom”. As this definition suggests, a dialect is generally defined in terms of production. For a speaker to *have* a dialect, then, typically means that a speaker speaks a certain way (syntactically, lexically, phonologically, etc.). While such a definition of a dialect does well to describe the output of a speaker's dialect, we suggest that it does not fully specify what it means to *have* a dialect. In fact, many important questions remain. For example, how do speakers of a given dialect perceive standard and nonstandard dialectal variants? How do they store this information? Are dialect-based phonological variants treated as variants of a single lexical item, or are they stored separately, perhaps as cognates of two languages might be stored? And finally, what is the role of experience in the development of dialect perception and representation?

The examination of dialectal variation from a spoken word recognition standpoint has occurred relatively recently. The large majority of research on dialect variation has instead focused on the description of dialects, attitudes towards dialects, and the perception of vowel mergers across dialects. Research on the description of dialects and the mapping of regional dialects and their characteristics across the United States has been conducted for a number of years (Kurath, 1939), most recently culminating with the remarkable *Atlas of North American English* (Labov, Ash, & Boberg, 2006). Labov and colleagues analyzed vowel formants from over 600 talkers across the United States and Canada and used these measurements to map gross dialect boundaries, as well as sub-dialects within a dialect region. Research on the social status of dialects and attitudes towards dialects is also well-established. For example, Labov (1972) examined the use of [ə] versus [ɚ] (e.g., at the end of the word “baker”) in New York City department stores. The [ɚ] form is traditionally analyzed as resulting from r-dropping, a variation found in a number of dialects, including the New York City dialect. Labov found a correlation between r-dropping in employees and department

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store type, with fewer employees exhibiting r-dropping in more upscale stores. There have also been a number of studies in which participants were asked to listen to recordings of speech and rate the talker on social characteristics such as status (Giles, 1970), or to make attitude judgments such as pleasantness (Preston, 1989).

In addition to these studies, a number of recent papers have examined dialect identification and categorization. For example, Clopper and Pisoni (2004) played listeners sentences from talkers from six different regions of the United States and had listeners categorize talkers by region. They found that listeners formed three broad dialect categories, and that the perceptual similarity between talker and listener dialect played a role in this categorization. Clopper and Pisoni (2007) conducted a follow-up study in which dialect regions were not pre-labeled for listeners, so listeners were free to categorize the talkers into as many unlabeled groups as they wished. Overall, listeners made more groups of talkers than predicted, supporting the notion that listeners make fine-grained distinctions between different dialects of American English. In addition, the results suggest that listeners build perceptual categories for regional dialects using social and phonological information.

The collection of spoken dialect data, along with the current interest in vowel mergers (e.g., the *pin* – *pen* merger in the US) has also led to a number of studies on the perception of merged vowels by listeners of merged and unmerged dialects. Generally, research in this area has shown that speakers of merged dialects (e.g., where *pin* and *pen* have the same pronunciation) are less able to make perceptual discriminations between the merged vowels than speakers of unmerged dialects (Bowie, 2000; Evans & Iverson, 2004; Janson & Schulman, 1983; Labov, Karan, & Miller, 1991). Some of these studies have examined the effect of dialect contact on perception. Janson and Schulman, for example, examined the perception of merged vowels in Swedish by listeners exposed to two different Swedish dialects. One dialect had four vowels, and one dialect had three vowels (as the result of a merger). Their results were consistent with the literature in that listeners from the merged dialect were unable to discriminate between merged vowels. They also found that while most of the four-vowel listeners could make a four-way discrimination, others could not. They attributed this result to exposure to merged dialects.

Bowie (2000) examined the result of dialect exposure in more detail. Bowie examined the perception of the vowels /u/ and /ʊ/, which are merged before [l] in a dialect found in Maryland. He examined two groups of listeners, natives who were lifelong residents of the town, and *exiles* who were born and raised in the town, but who lived in other regions for a part of adulthood before returning to the town. In production, all natives and exiles (but one) maintained a merged vowel in this context, but perceptually, exiles were better at discriminating the merged vowels than natives. Bowie argued that exposure to non-merged dialects resulted in the development of the discrimination ability.

While these studies have provided great detail about the discrimination ability of listeners and perceptual biases related to experience, we know little about the effect of

dialectal variation on spoken language processing. For example, within-dialect variation has garnered a reasonable amount of attention lately. Researchers have examined the effects of within-dialect variation such as tapping (e.g., McLennan, Luce, & Charles-Luce, 2003; Luce, McLennan, & Charles-Luce, 2003), stop release (Deelman & Connine, 2001), schwa deletion (LoCasto & Connine, 2002), and assimilation (Gaskell & Marslen-Wilson, 1996; Gow 2001, 2003; Mitterer & Blomert, 2003). Much of this research has been aimed at understanding how listeners treat words with multiple phonetic variants in spoken word recognition and comprehension. How listeners ultimately adapt to these variants has been a difficult question to answer, though, because experience with variants is difficult to control.

There is some evidence that comprehension difficulties decrease as familiarity with a speaker of a different dialect or native language increases. In fact, Scott and Cutler (1984) have shown this to be the case for British English native speakers processing American English medial-/t/ in forms like *total*, which is produced as a tap. Scott and Cutler tested two groups of British English listeners: those who had lived in England throughout their entire lives, and those who had moved to the United States. They found that British listeners living in the United States had less difficulty processing medially-tapped /t/s (as in “total”) than British listeners with little experience with General American. They attributed this result to the fact that British listeners in the US make an assumption that their interlocutor intends to produce a real word and not a nonword (e.g., “total”, not a new word “todal”). More recently, Floccia, Goslin, Girard, and Konopczynski (2006) examined processing costs associated with regional accent normalization. They examined the time course of disruption during the comprehension of targets from different French regional accents, and showed that there are initial and temporary costs associated with the comprehension of an unfamiliar accent.

Although research of this sort clearly shows that familiarity with a dialect improves processing of that dialect, there is little known about the mechanisms providing this improvement. Do listeners develop multiple representations? Do listeners become better at mapping a new sound onto an existing one? Does familiarity affect phonological representations? If multiple representations are in fact involved, additional issues must be clarified. For example, how do native dialect speakers differ from listeners who can process the dialect variants effectively, but still maintain their own dialect in production? There is growing evidence supporting both abstract and specific representations (e.g., Luce et al., 2003; McLennan et al., 2003). It remains to be seen what role these two types of representations play in cross-dialect variant processing for listeners who are (or are not) familiar with a dialect.

In the current study, we examine the processing and representation of dialect variants and the effect that prior experience with a dialect has on spoken word recognition. Specifically, we examine the processing of –er final words

¹ The term General American (GA) is used here and throughout to represent speakers who do not r-drop or exhibit any other regionally marked characteristics.

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