The Patterning of /ai/

/u/ and /ɔ/, discussed in Chapter 6, do not seem to be as socially salient as /ai/ in varieties of American English (see Section 2.1.4). In this chapter I analyze speakers’ productions of /ai/ and /ɔ/, both between groups and on a speaker-by-speaker basis. The first goal is to quantify diphthongization by comparing F₁ and F₂ movement in /ai/, which exhibits varying degrees of diphthongization, with F₁ and F₂ movement in /ɔ/, which is used as a reference because it is expected to be relatively monophthongal (Anderson 2003; forthcoming). The second goal is to determine to what extent, if any, the African American (AA) and Appalachian White (AP) speakers have similar patterns of diphthongization and glide-weakening for /ai/, and to determine the nature of the patterning in terms of voicing context. Section 7.1 presents a group comparison that excludes the older speakers of each ethnicity. Section 7.2 investigates the patterns for all speakers individually, including a comparison with a Midwestern White speaker, and Section 7.3 summarizes the patterning of /ai/ for the AA participants in this study.

Chapter 2 reviewed the literature on the /ai/ diphthong and characterized it as socially salient. To summarize the patterns of realization for /ai/ that are relevant to this chapter, glide-weakening before voiceless consonants (“pre-voiceless contexts”—for example [la:t] “light,” [sat] “sight”—is typically described as a more recent change (Thomas 2001: 37) restricted to some Southern White varieties spoken in areas not part of the former plantation regions of the South, such as the Smoky Mountains of Western North Carolina (Anderson 1998, 1999; Childs 2005) and rural areas of Texas (Thomas 2001: 133–160). The
traditional pattern in which the /ai/ glide is weakened in pre-voiced and word-final contexts but robust in pre-voiceless contexts reported for the White varieties conservative for the /ai/ variable in the former plantation regions of the South is also the canonical pattern reported in the literature for AAE. Thomas (2001: 37) characterizes this pattern as “presumably older” than the pattern of glide-weakening in all phonetic contexts.

Although glide-weakening of /ai/ in the important pre-voiceless context is generally not considered to be a feature of AAE, recent reports suggest it is a change in progress in AAE. Several recent studies of /ai/ in AAE report glide-weakening in the pre-voiceless context (Mallinson et al. 2001; Anderson 2002, 2003; Anderson and Fridland 2002; Fridland 2004; Childs 2005). The results presented in this chapter provide additional evidence that this change is not restricted to Southern White varieties of English as is generally claimed. Indeed, I will argue in Chapter 8 that /ai/ glide-weakening in the pre-voiceless phonetic context appears to be a change in progress in Detroit AAE.

Several different types of methods are utilized in variationist studies of /ai/. Impressionistic reports dominate sociolinguistic descriptions of /ai/ (Eckert 1996; Edwards 1997; Schilling-Estes 2000; Anderson 1997, 2002, and others). These studies treat /ai/ in a binary fashion as either monophthongal or diphthongal. However, Thomas (2001) points out that the length of the glide varies considerably between fully diphthongal variants, nuclei with short offglides, and completely monophthongal variants, which suggests that potentially important gradient information may be missed if /ai/ is treated as a binary variable.

Methods for acoustic studies of /ai/ vary. Anderson’s (1999) study of Snowbird Cherokee English took F₁ and F₂ measurements at vowel midpoint and 25 ms from the end of the vowel offset. Thomas (2001) took measurements of the first two formants at “25 to 45 ms from the beginning of the vocoid for the nucleus and between 25 and 45 ms from the end of the glide” for non-Texas speakers. For the Texas speakers, his readings were taken “... in the center of steady states, or where F₂ changed trajectory if no steady state was present (but not closer than 25 ms to the end of the vocoid)” (12). Thomas (2000) investigated the effects of voicing on the first two formants of /ai/ and reported that measurements were taken from a window 45–25 ms