

## American English: Southern Michigan

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As Ladefoged (1999) points out in his description of American English, there is considerable diversity in the phonetic characteristics of English spoken in North America, such that the commonly used phrase ‘General American English’ is not entirely meaningful. The description of American English provided by Ladefoged was based on a southern California dialect. The purpose of this report is to augment that account with a brief description of southern Michigan speech patterns. According to Labov and colleagues (e.g. Labov, Yeager & Steiner 1972, Labov 1994), southern Michigan, particularly in its urban areas, is part of a relatively large dialect region in the inland northeast United States called ‘Northern Cities’. According to Labov, the Northern Cities dialect cuts an irregular swath through a chain of cities in the inland northeast extending, roughly, from upstate New York (e.g. Syracuse, Rochester, Buffalo), through northern Ohio (e.g. Cleveland, Toledo), southern Michigan (e.g. Detroit, Kalamazoo, Grand Rapids), northwest Indiana (e.g. Gary, Hammond), northeast Illinois (e.g. Chicago, Rockford) and south-central Wisconsin (e.g. Milwaukee, Madison). Speakers from neighboring regions such as northwest Vermont, northwest Pennsylvania, and north-central/northeast Indiana appear to show some features of the dialect. Labov contends that the vowel shifts that characterize the Northern Cities dialect are observed in their most advanced forms in the largest urban areas of the region, such as Detroit, Buffalo, and Rochester.

Since the features that distinguish southern Michigan speech patterns from those of most other regions of North America chiefly involve differences in vowel production, this report will focus primarily on the vowel system. The description is based in large part on recordings of 139 talkers (45 men, 48 women, and 46 children) analyzed by Hillenbrand, Getty, Clark & Wheeler (1995). The great majority of the speakers in that study (87%) were raised in southern Michigan, while all but a few of the remainder were raised in other areas of the inland northeast such as northern Ohio, upstate New York, northeast Illinois, and south-central Wisconsin. The speakers were predominantly white and almost exclusively middle class. The adults ranged in age from 19 to 50 years, but the great majority were college students in their early- to mid-twenties. The children consisted of boys ( $N = 27$ ) and girls ( $N = 19$ ) from Kalamazoo, Michigan, averaging slightly under 11 years of age. The recorded examples that accompany this report, and which form the basis of the phonetic transcriptions that follow, were provided by a 23-year-old woman who was raised in Grand Rapids.

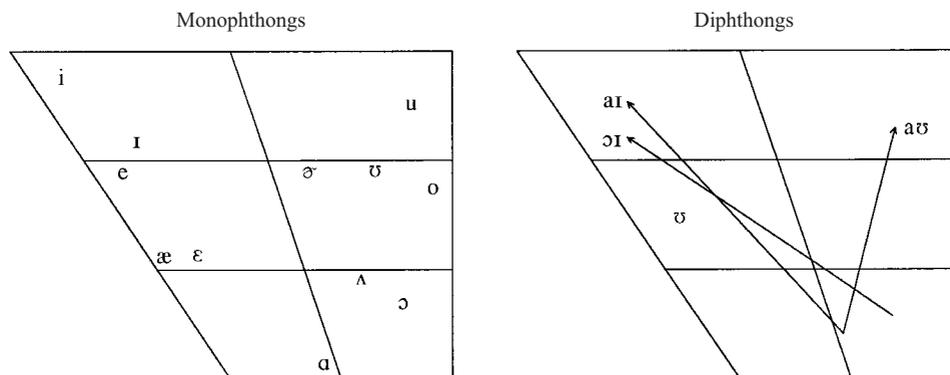
## Consonants

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Affricate					tʃ dʒ			
Nasal	m			n			ŋ	
Fricative		f v	θ ð	s z	ʃ ʒ			h
Approximant				ɹ		j	w	
Lateral Approximant				l				

/p/	'pie'	/t/	'tie'	/k/	'kite'
/b/	'buy'	/d/	'die'	/g/	'guy'
/m/	'my'	/n/	'nigh'	/ŋ/	'hang'
/f/	'fie'	/θ/	'thigh'	/h/	'high'
/v/	'vie'	/ð/	'thy'	/tʃ/	'chin'
		/s/	'sigh'	/dʒ/	'gin'
		/z/	'zoo'	/ʃ/	'shy'
/w/	'why'	/ɹ/	'rye'	/ʒ/	'azure'
		/l/	'lie'	/j/	'you'

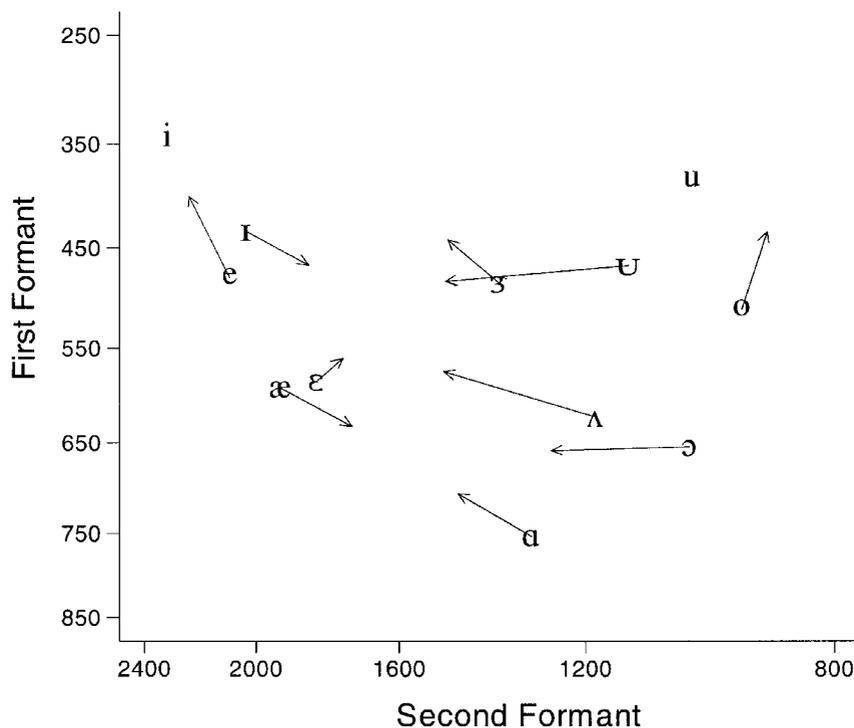
The consonant inventory, stress patterns, and major phonological rules described by Ladefoged for southern California apply as well to southern Michigan.

## Vowels



Vowel diagrams for monophthongs and diphthongs are shown above. Note that a contrast is made between /a/ (*cot*) and /ɔ/ (*caught*), distinguishing southern Michigan from many other regions of North America in which these vowels have largely or entirely merged (e.g. Labov 1994, Ladefoged 1999). Figure 1 shows formant values from Hillenbrand et al. (1995). To provide a frame of reference, average formant values are also shown from the familiar





**Figure 2** Spectral-change patterns for the Hillenbrand et al. (1995) vowels. The figure was formed by drawing arrows from the average  $[F_1, F_2]$  measurements measured at 20% of vowel duration (the tail of the arrow) to the corresponding values measured at 80% of vowel duration. Measurements are shown for the adult male talkers only. The scaling of formant values and orientation of the axes is identical to figure 1.

example, the raising and fronting of /æ/ is greater preceding a nasal consonant or following an obstruent cluster (see Labov 1994 for details).

### Spectral change and duration

It has been well recognized for many years that the nominally monophthongal English vowels /e/ and /o/ tend to be diphthongized, with /e/ showing an offglide in the direction of /i/, and /o/ moving toward /u/. In our southern Michigan data, there is significant spectral movement associated with many other nominally monophthongal vowels (see Nearey & Assmann (1986) for a description of similar spectral movement patterns in Canadian English vowels). Figure 2 shows the spectral change patterns associated with the Hillenbrand et al. (1995) vowels. The figure was formed by drawing arrows from the average  $[F_1, F_2]$  values (again, for men only) measured at 20% of vowel duration (the tail of the arrow) to the corresponding average values measured at 80% of vowel duration. Similar but (on average) somewhat attenuated spectral movements have been observed in more complex phonetic environments than the /hVd/ syllables that form the basis of figure 2 (see Hillenbrand, Clark & Nearey 2000). There is clear evidence implicating a key role for these spectral changes in perception, with formant movements serving to disambiguate spectrally similar vowel pairs such as /æ/–/ɛ/, /u/–/ʊ/, and /e/–/ɛ/ (e.g. Nearey & Assmann 1986, Hillenbrand & Nearey 1999).

American-English vowels also show systematic differences in average duration. Especially important are the many pairs and clusters of vowels with similar spectral patterns but different

**Table 1** Pairs of spectrally similar American English vowels that differ in average duration. Shown in parentheses are ratios of the longer vowel to the shorter vowel as measured in /hVd/ syllables by Hillenbrand *et al.* (1995).

/i/	>	/ɪ/	(1.26)
/e/	>	/ɛ/	(1.36)
/æ/	>	/ɛ/	(1.39)
/ɔ/	>	/ɑ/	(1.05)
/o/	>	/ʊ/	(1.23)
/ɑ/	>	/ʌ/	(1.35)
/u/	>	/ʊ/	(1.23)

average durations. Table 1 summarizes the most important of these duration differences. To give a rough idea of the magnitude of these duration differences, the table shows average ratios measured from the /hVd/ syllables recorded by Hillenbrand *et al.* (1995). Similar patterns of durational differences have been reported for connected speech (e.g. Crystal & House 1988, van Santen 1992; see also Klatt 1976). Synthesis work shows that duration can play an important role in the perception of some vowels (e.g. /ɑ/-/ɔ/-/ʌ/ and /æ/-/ɛ/) but appears to be of little or no importance for others (e.g. /i/-/ɪ/, /u/-/ʊ/ and /ɪ/-/e/-/ɛ/) (Hillenbrand, Clark & Houde 2000).

### Broad transcription

ðə 'no:θ 'wɪnd æn ðə 'sʌn wə 'dɪs'pju:tɪŋ wɪtʃ wəz ðə 'stɹɔ:ŋgə, wen ə 'tɹævlə ,kɛm ə'lɔ:ŋ 'ræpt m ə 'wɔ:ɪm 'klok. ðe ə'ɡɹɪd ðət ðə 'wʌn hu 'fə:st sək'sɪdəd m 'mekɪŋ ðə 'tɹævlə 'tek hɪz 'klok ,ɔf ʃʊd bi kən'sɪdəd 'stɹɔ:ŋgə ðən ði 'ʌðə. 'ðen ðə 'no:θ 'wɪnd 'blu əz 'hɑ:ɪd əz hi 'kʊd, bət ðə 'mɔ: hi 'blu, ðə mɔ: 'klosli dɪd ðə 'tɹævlə 'fold hɪz 'klok ə'raʊnd hɪm; ænd ət 'læst ðə 'no:θ 'wɪnd ,gev 'ʌp ði ə'tempt. 'ðen ðə 'sʌn 'ʃaɪnd ,aʊt 'wɔ:ɪmli, en 'ɪmɪdiətli ðə 'tɹævlə ,tʊk 'ɔf hɪz 'klok. æn ,so ðə 'no:θ 'wɪnd wəz ə'blaɪdʒ tə kən'fes ðət ðə 'sʌn wəz ðə 'stɹɔ:ŋgə əv ðə 'tu.

### Narrow transcription

ðə 'nɔ:θ 'wɪnd æn ðə 'sʌn wə 'dɪs'pju:tɪŋ wɪtʃ wəz ðə 'stɹɔ:ŋgə, wen ə 't<sup>h</sup>ɹævlə ,k<sup>h</sup>ɛm ə'lɔ:ŋ 'ræpt m ə 'wɔ:ɪm 'k<sup>h</sup>lok. ðe ə'ɡɹɪd ðət ðə 'wʌn hu 'fə:st sək'sɪdəd m 'mekɪŋ ðə 't<sup>h</sup>ɹævlə 't<sup>h</sup>ek hɪz 'k<sup>h</sup>lok ,ɔf ʃʊd bi k<sup>h</sup>ən'sɪdəd 'stɹɔ:ŋgə ðən ði 'ʌðə. 'ðen ðə 'nɔ:θ 'wɪnd 'blu əz 'hɑ:ɪd əz hi 'k<sup>h</sup>ʊd, bət ðə 'mɔ: hi 'blu, ðe mɔ: 'k<sup>h</sup>losli dɪd ðə 't<sup>h</sup>ɹævlə 'fold hɪz 'k<sup>h</sup>lok ə'raʊnd hɪm; ænd ət 'læst ðə 'nɔ:θ 'wɪnd ,gev 'ʌp ði ə'tempt. 'ðen ðə 'sʌn 'ʃaɪnd ,aʊt 'wɔ:ɪmli, æn 'ɪmɪdiətli ðə 't<sup>h</sup>ɹævlə ,t<sup>h</sup>ʊk 'ɔf hɪz 'k<sup>h</sup>lok. æn ,so ðə 'nɔ:θ 'wɪnd wəz ə'blaɪdʒ tə k<sup>h</sup>ən'fes ðət ðə 'sʌn wəz ðə 'stɹɔ:ŋgə ʌv ðə 't<sup>h</sup>u.

### Orthographic version

The North Wind and the Sun were disputing which was the stronger, when a traveler came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveler take his cloak off should be considered stronger than the other. Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveler fold his cloak around him; and at last the North Wind gave up the attempt. Then the Sun shined out warmly, and immediately the traveler took off his cloak. And so the North Wind was obliged to confess that the Sun was the stronger of the two.

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