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ABSTRACT

The idea that vowel nuclei in many northern European languages can be divided into peripheral and non-peripheral categories is discussed. Peripheral vowels are those located at the edge of the vowel envelope, and non-peripheral nuclei are those located on the inside. This assertion has not received as much scrutiny as it should. There are at least five questions that could be raised about it: (1) Do the diachronic trends always hold true? (2) Can peripheral and non-peripheral nuclei always be distinguished? (3) When a shift occurs, is peripherality the cause and the shift the effect, or vice versa? (4) Do monophthongs and diphthongs really behave in the same ways? (5) What is the phonetic motivation for the observed raising of peripheral nuclei and lowering of non-peripheral nuclei? Three overriding points are made. First, the evidence suggests that peripherality is not a cause of vowel shifts as much as a product of them. Second, contrasts such as tense/lax contrast should be viewed holistically, taking all three correlates together. Third, researchers should continue looking for phonetic motivations for sound changes. (Contains 16 graphs, 3 diagrams, and 5 spectrograms). (KFT)

REEVALUATING AND REFINING PERIPHERALITY

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Presented at New Ways of Analyzing Variation (NWAV) 29
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Introduction

Labov, Yaeger, and Steiner (1972) proposed that vowel nuclei in many northern European languages can be divided into peripheral and non-peripheral categories. This distinction was based on the configuration of vowels in first formant/ second formant (F_1/F_2) space. Peripheral nuclei are those located on the edge of the vowel envelope, and non-peripheral nuclei are those located on the inside. In addition, peripheral vowels are normally also phonologically tense, while non-peripheral vowels are usually—but not always—phonologically [-tense], or lax. Labov et al went on to propose several principles of diachronic vowel shifting based on peripherality. In later works, Labov (1991, 1994) has refined the principles as follows:

In chain shifts:
Principle I. Peripheral (or tense or long) nuclei rise.
Principle II. Non-peripheral (or lax or short) nuclei fall.
Principle III. Back vowels move to the front (restated as Principle III´, "tense vowels move to the front along peripheral paths," in Labov, 1994:200).
Principle IV. Low vowels become peripheral ("lower exit principle").
Principle V. High nuclei become non-peripheral before upglides ("upper exit principle").
Principle VI. Peripherality is defined relative to the vowel system as a whole.

Over the years, these principles have become widely accepted by sociolinguists. However, the notion of peripherality has not always received as much scrutiny as it perhaps should have received. There are at least five questions that could be raised about it.

1. Do the diachronic trends always hold true?

A few counterexamples to the raising and lowering trends associated with peripherality have been noted. Cox (1999) found that Australian English /ɜː/, as in *first*, is being fronted, even though it is not peripheral. This appears to violate Principle III´, that tense vowels move to the front along peripheral paths (Labov, 1994:200). Cox also cited the raising of /ɒ/ as in *hot*, and /ɪ/, as in *hit*, as counterexamples, but those two vowels could be regarded as peripheral in Australian English.

Another possible counterexample occurs in Southern American English, in which /ɔ/, as in *caught*, appears to be falling even though it is peripheral. Figure 1 shows vowel formant plots for four pairs of speakers from different Southern varieties. As can be seen in figure 1, there is some cross-generational tendency among Southerners (both European-American and African-American) to lower /ɔ/. However, there may be a social

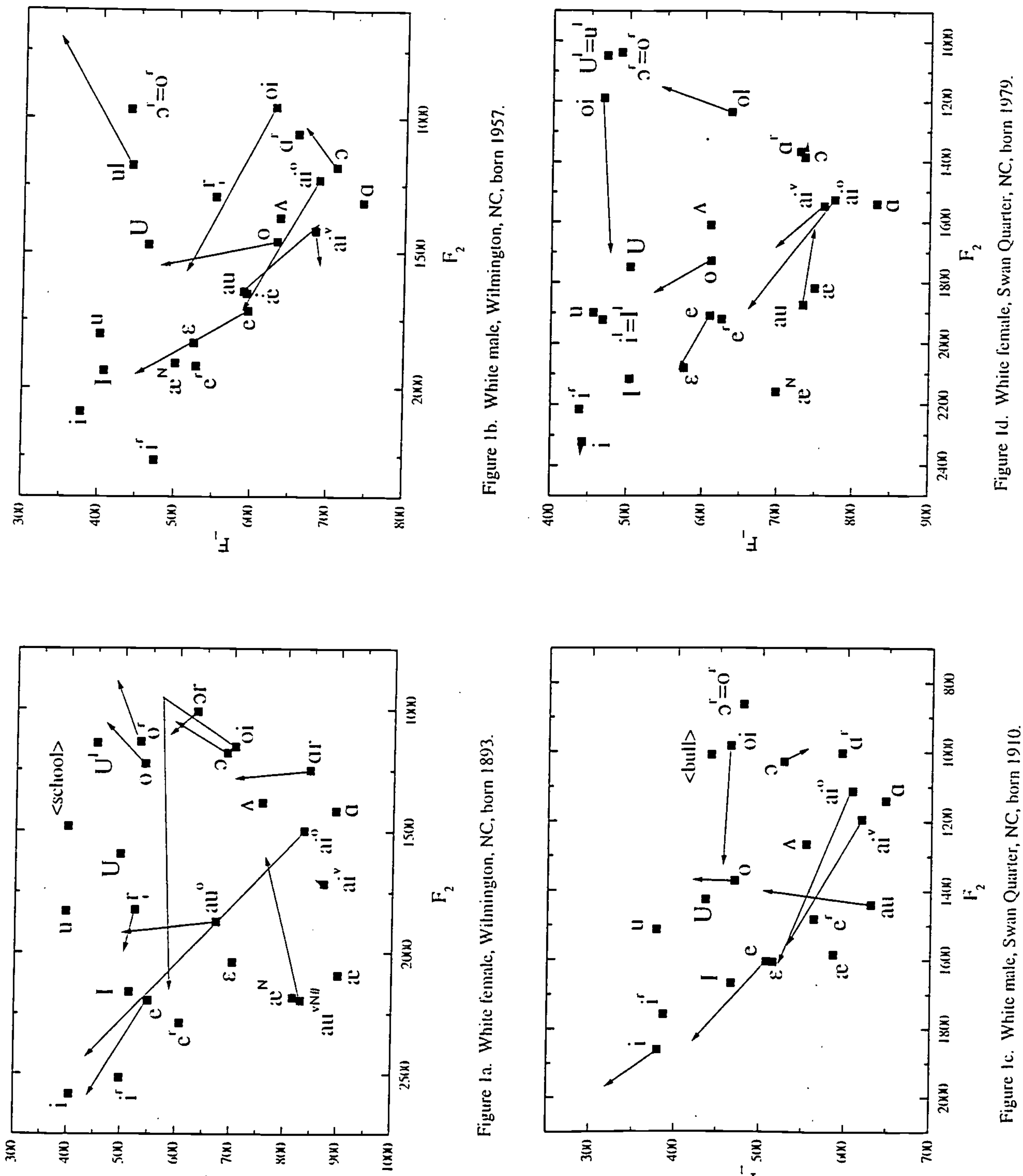


Figure 1a. White female, Wilmington, NC, born 1893.

Figure 1b. White male, Wilmington, NC, born 1957.

Figure 1c. White male, Swan Quarter, NC, born 1910.

Figure 1d. White female, Swan Quarter, NC, born 1979.

Figure 1. Vowel formant plots of Southern speakers, showing the fall of /ɔ/.

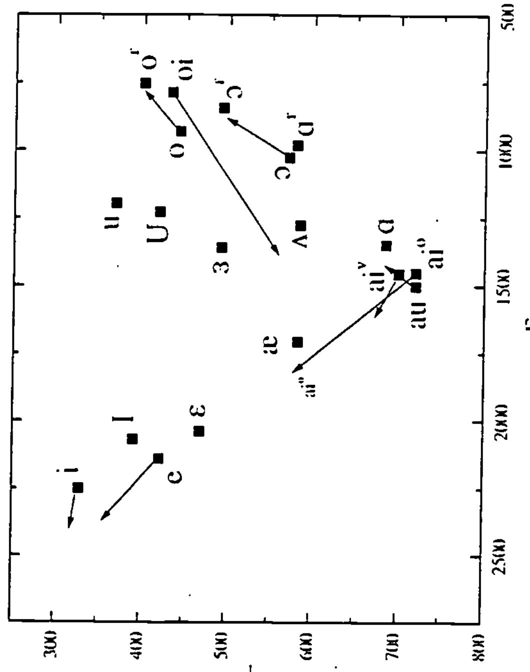


Figure 1e. African-American male, Springville, TX, born 1920.

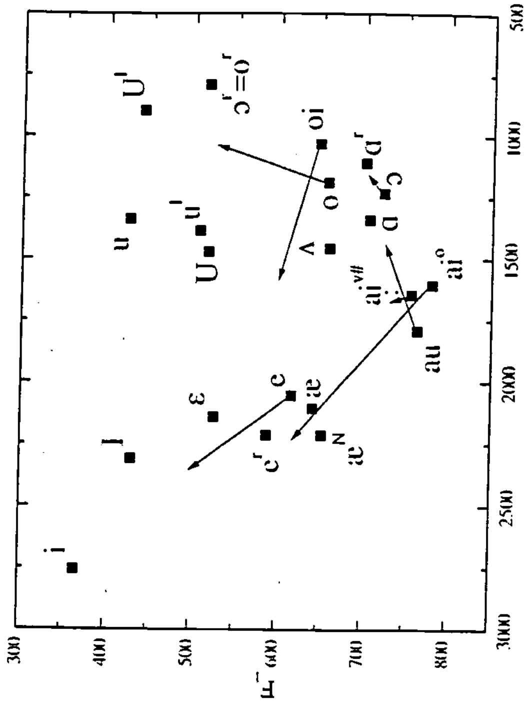


Figure 1f. African-American female, Springville, TX, born 1961.

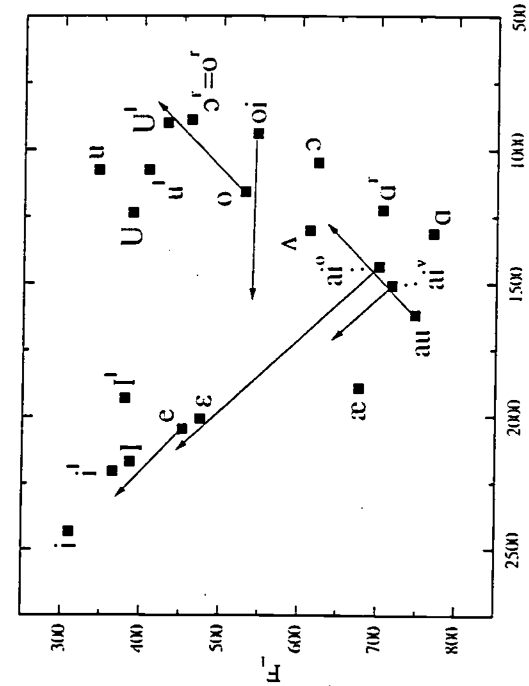


Figure 1g. African-American male, Memphis, TN, born 1954.

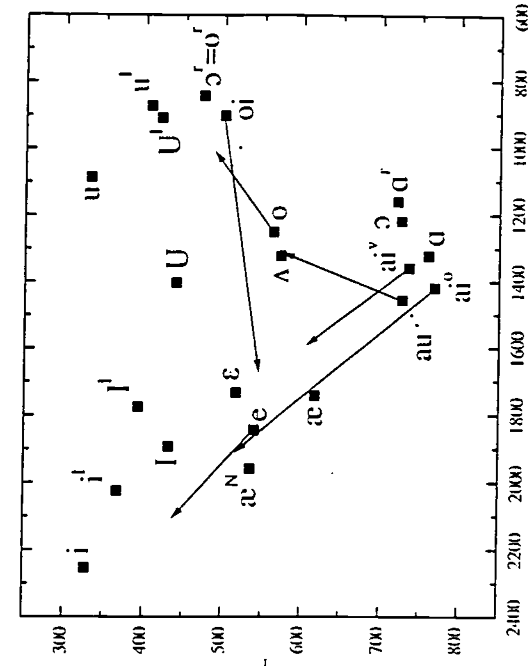


Figure 1h. African-American male, Memphis, TN, born 1972.

Figure 1 (continued)

motivation for this shift in that raised /ɔ/ may be somewhat stigmatized. Social prestige can override phonetic factors in sound change.

In general, I do not think that this question is a significant problem for the theory of peripherality. The theory is supposed to work most of the time, not necessarily all of the time. Labov (1991:35) states that "[t]hese principles are not stated as 'universals' in the sense of exceptionless rules that cannot be overridden by other factors. They … contribute to our estimates of the probability of certain events taking place." Thus, a few counterexamples should not be too damaging.

2. Can peripheral and non-peripheral nuclei always be distinguished?

The following quotes suggest that Labov considers it to be clear in most cases which nuclei (within a speaker's system) are peripheral and which are not.

> Formulations of Principle VI: "Peripherality is defined relative to the vowel system" (Labov, 1991:35); "Peripherality is defined relative to the vowel system as a whole" (Labov, 1994:285).
>
> "… in all the English vowel systems we have studied there are two sets of front and back nuclei with relatively peripheral and less peripheral formant positions" (Labov, Yaeger, and Steiner, 1972:42).
>
> "In the full development of Pattern 4, the highest F2 values are those of the original short vowels, /i, e, æ/. These must lie on the [+peripheral] track, since it is defined as the outer envelope of the vowels that the speaker uses; and in reality, we have yet to find a dialect where there are not some nuclei that impressionistically fall into the range of cardinal [i, e, ε, æ]." (Labov, 1994:212)

Figure 2a shows what Labov has defined as "Pattern 4," in which /iy/ trades places with /ɪ/ and /ey/ trades places with /ε/. Figures 2b-2e show plots of speakers where the members of least one of those pairs coincide.

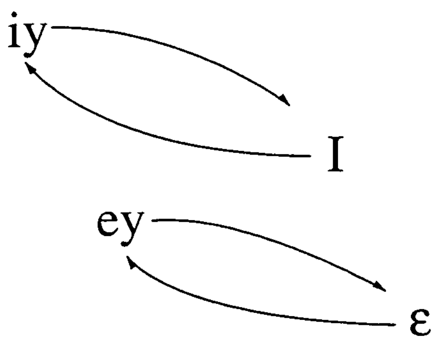


Figure 2a. Pattern 4, as described by Labov (1994).

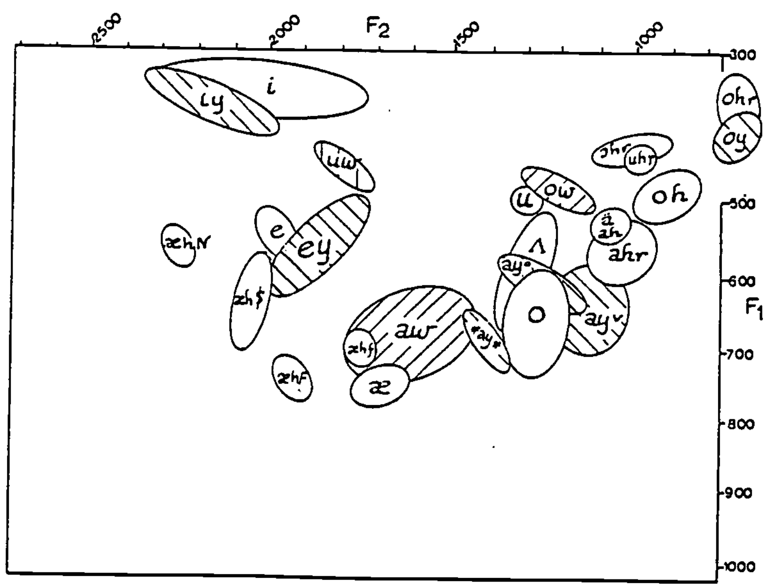


Figure 2b. Vowels of white male, Manteo, NC, age 42 in ?1969 (from Labov et al, 1972, fig. 39). Note the overlap of /iy/ with /i/ (/ɪ/) and of /ey/ with /e/ (/ɛ/).

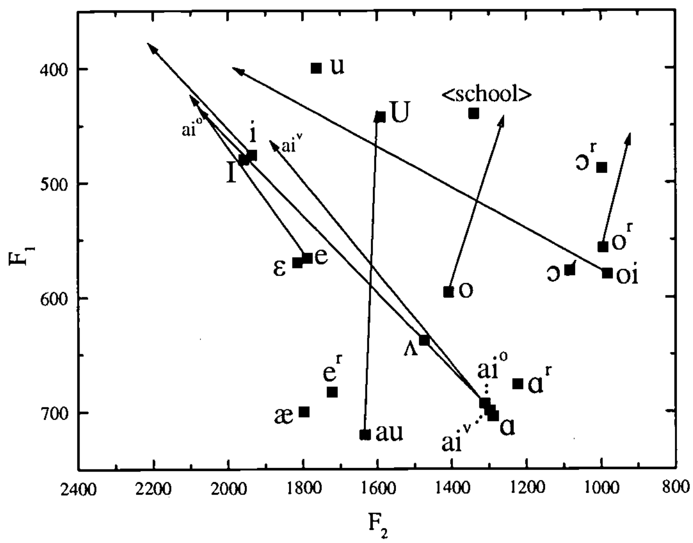


Figure 2c. Vowels of white male, Ocracoke, NC, born 1913. The nuclei of /i(y)/ and /ɪ/ coincide closely, as do the nuclei of /e(y)/ and /ɛ/.

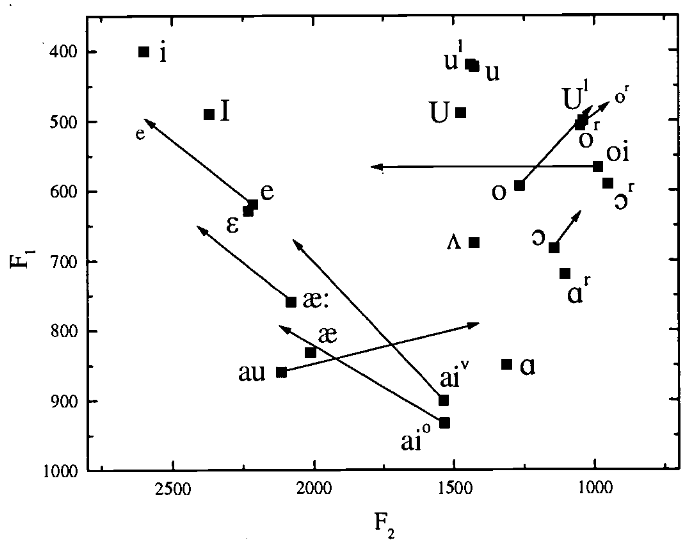


Figure 2d. Vowels of white female, Oglesby, TX, born 1886. The nuclei of /e(y)/ and /ɛ/ coincide closely.

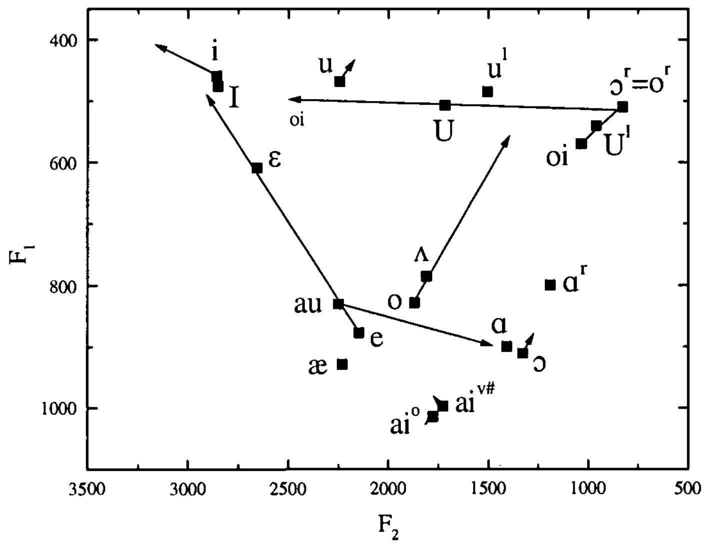


Figure 2e. Vowels of white female, Kilgore, TX, born 1961. The nuclei of /i(y)/ and /ɪ/ coincide closely.

Such examples may not be any more damaging for the theory of peripherality than the counterexamples noted for qeestion #1. One might expect transitional phases such as those in figures 2b-2e. Of course, based on the trajectories shown in figure 2a, /iy/ and /ey/ ought to be a little higher than their counterparts in these phases.

3. When a shift occurs, is peripherality the cause and the shift the effect, or vice versa?

Figure 3a shows normalized mean values of the /ey/ nuclei of 56 young Texans; figure 3b shows the same for 37 North Carolinians of all ages. These speakers vary in the amount of shifting of the /ey/ nucleus that they show. The most strongly shifted nuclei are in the lower right. If peripherality is motivating the shift, then the nucleus should centralize first and then fall: that is, it ought to show a convex curve on the graph. Instead, in both graphs the distributions fall along a straight line.

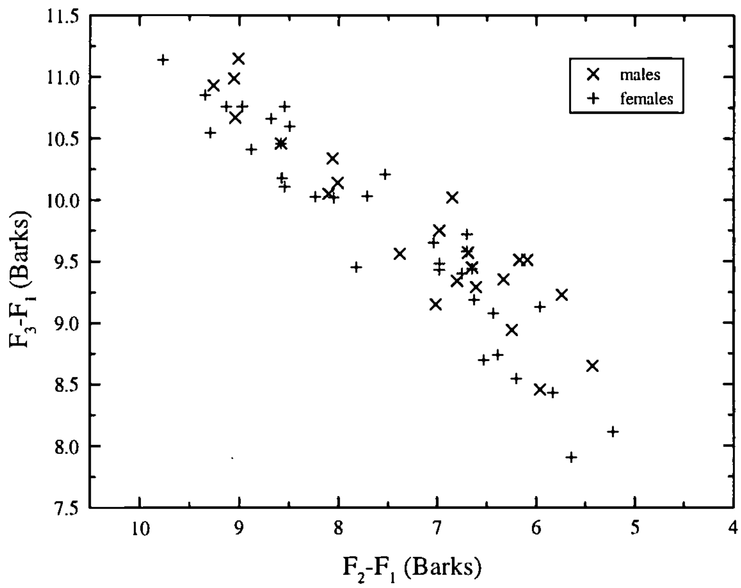


Figure 3a. Normalized mean values of the /e(y)/ nuclei of 56 young Texans. The most strongly shifted nuclei are in the lower right. Note: *Barks* are units of perceptual discriminability.

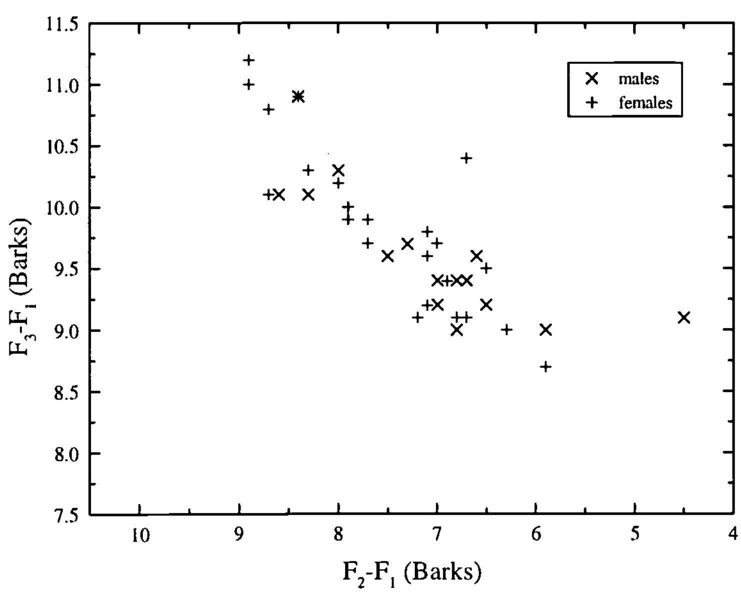


Figure 3b. Normalized mean values of the /e(y)/ nuclei of 37 North Carolinians of all ages.

Peripherality, however, is defined relative to the rest of the vowel system. For that reason, I compared the relative values of /ey/ and /ɛ/ nuclei for 72 Texans of all ages in figure 3c and for 38 North Carolinians of all ages in figure 3d.

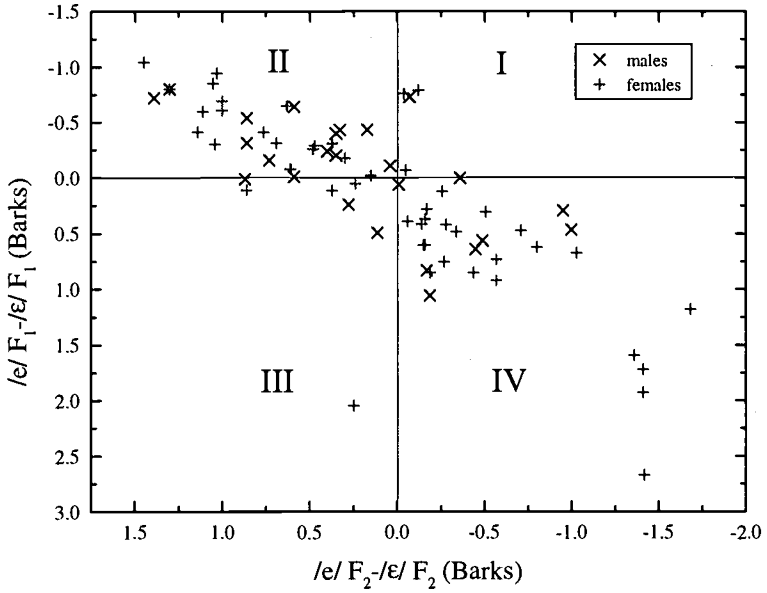


Figure 3c. Relative values of /e(y)/ and /ɛ/ nuclei for 72 Texans of all ages.

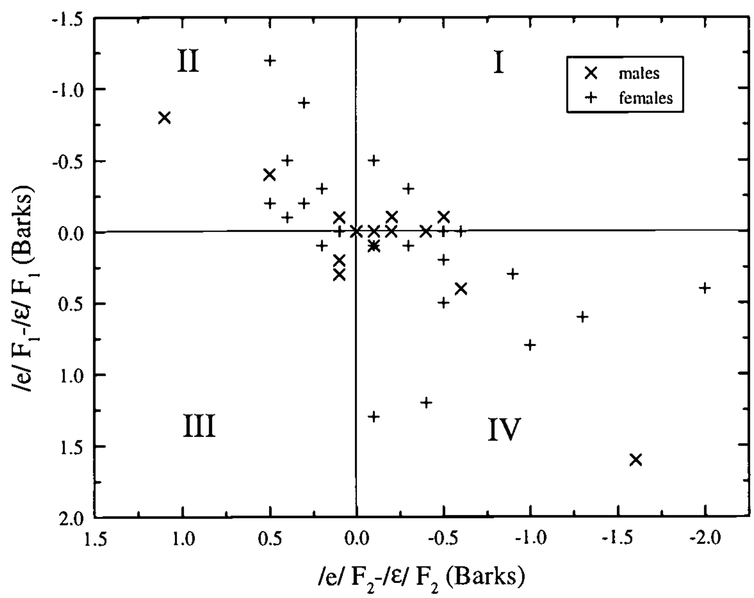


Figure 3d. Relative values of /e(y)/ and /ɛ/ nuclei for 38 North Carolinians of all ages.

Again, if peripherality is motivating the shifts, /ey/ and /ɛ/ ought to switch peripherality before shifting in height. Thus, there should be many speakers in quarter I and none in quarter III. However, that is not the pattern that appears. What do appear are linear distributions that pass over the zero mark. In addition, as many speakers fall in quarter III as in quarter I. The conclusion, then, is that peripherality is not the motivation for the shift. Instead, it is a by-product of the shifting.

4. Do monophthongs and diphthongs really behave in the same ways?

I think that peripherality operates here, but in a different way than previously noted. One of the factors that sets diphthongs off from monophthongs is that they show characteristic patterns of *steady states*, i.e., areas in which the formants show little or no change in their frequencies, and *transitions*, areas in which the formants move. Lehiste and Peterson (1961), who investigated the production of diphthongs by American English subjects, noted that /ay/ showed steady states at both onset and offset and that /ey/ showed a steady state only at the offset.

Figures 4a-4e show spectrograms of diphthongs for several subjects. Figures 4a and 4b show the minimal pairs *dies*, *dice* and *ate*, *aid* uttered by a speaker from central Ohio. In central Ohio, /ay/ can show two steady states or none, but if it shows only one it will occur at the onset before voiced consonants and at the offset before voiceless consonants. /ey/ typically shows one steady state at the offset.

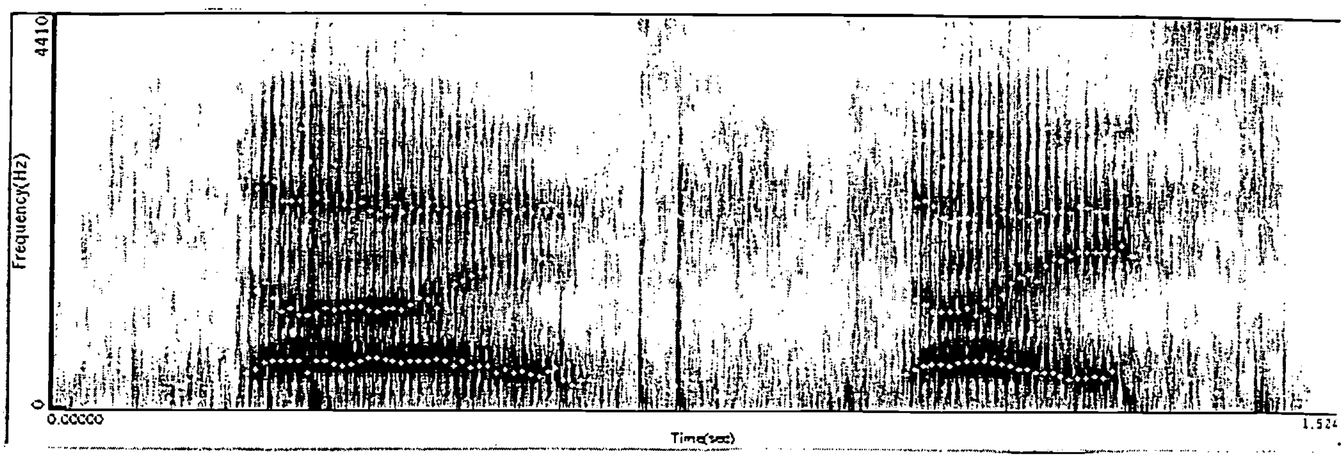


Figure 4a. An utterance of the minimal pair *dies, dice* uttered by a speaker from central Ohio. Note that *dies* shows a long nuclear steady state, while for *dice* the glide shows a clearer steady state than the nucleus.

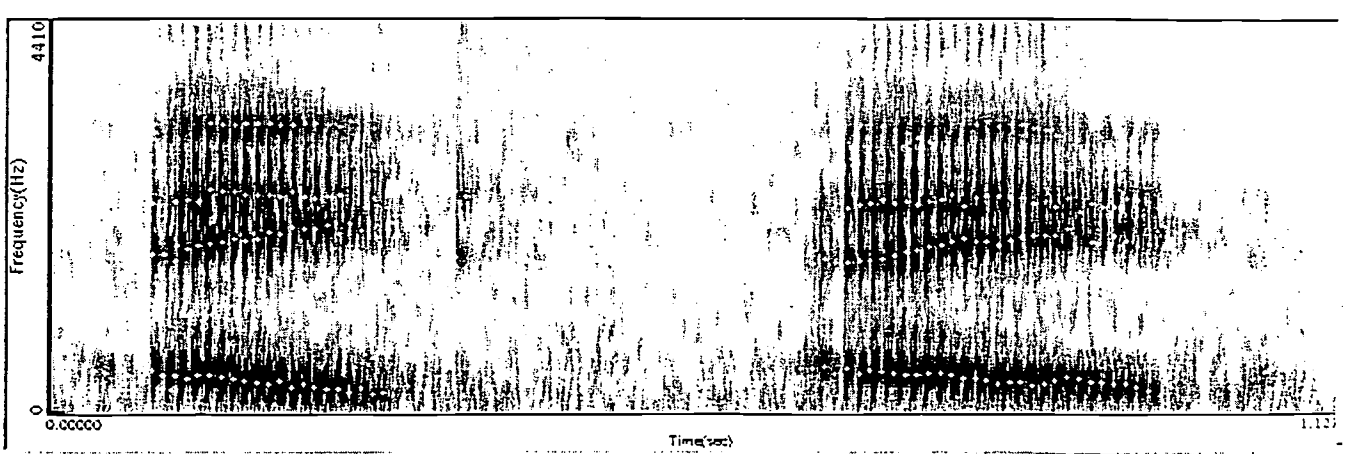


Figure 4b. An utterance of the minimal pair *ate, aid* produced by the same speaker from central Ohio. Note that both F_1 and F_2 level off somewhat in the latter half of the vowel in each word.

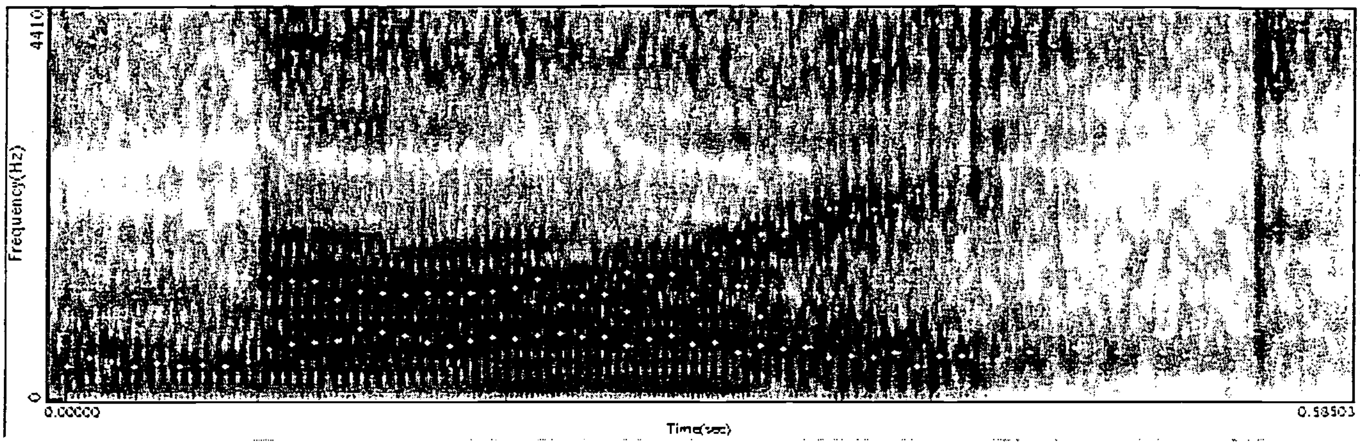


Figure 4c. An utterance of *night*, produced as [nɑ:it], uttered by a speaker from Swan Quarter, North Carolina.

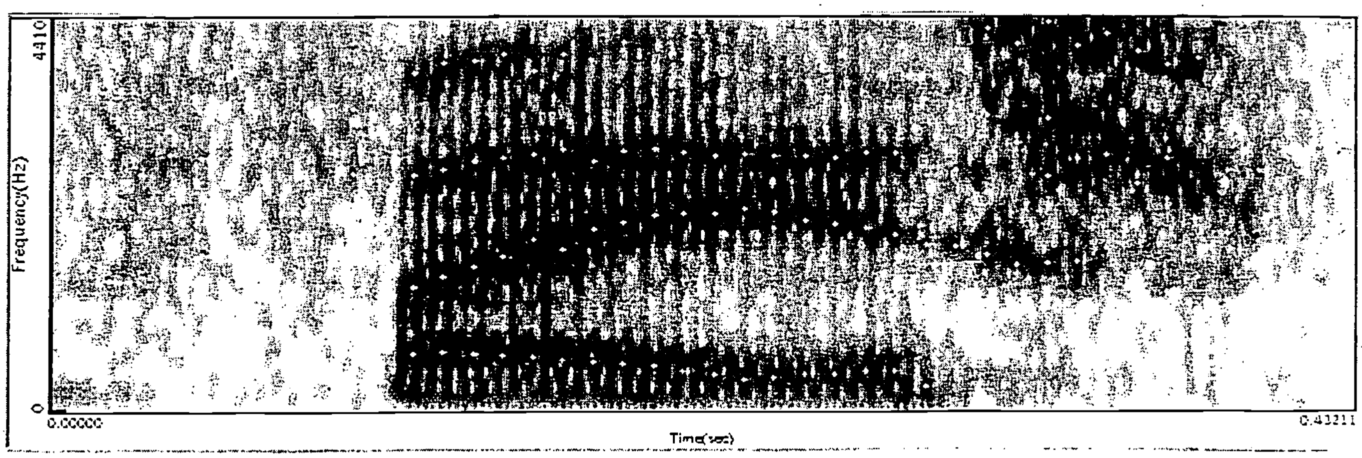


Figure 4d. An utterance of *face*, produced as [fai:s], uttered by a speaker from Robbinsville, North Carolina.

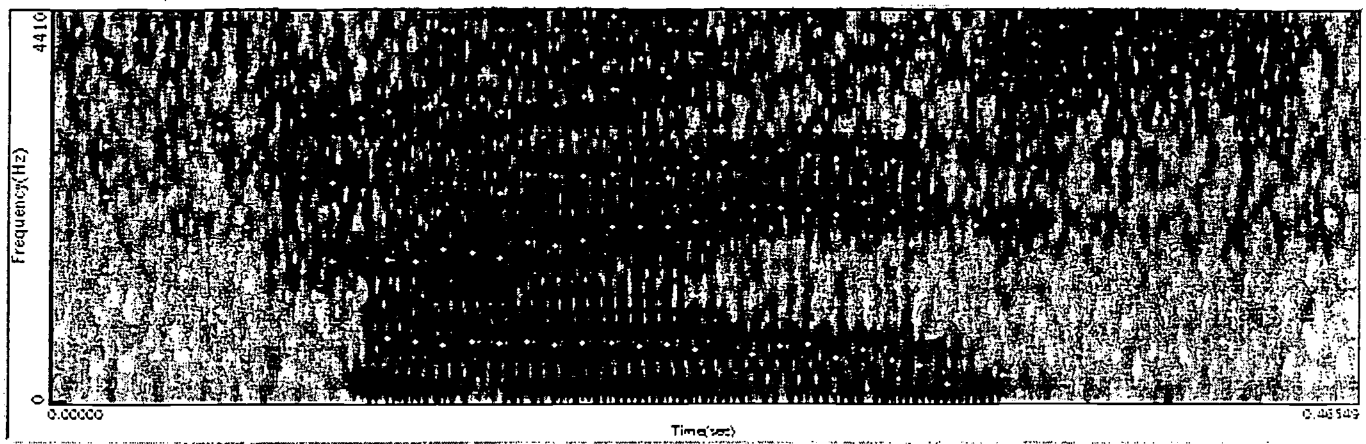


Figure 4e. An utterance of *pass*, produced as [pʰaɛ:s], uttered by the same speaker from Robbinsville, North Carolina.

In contrast to the dialect of central Ohio, /ay/ in the dialect of the Pamlico Sound area of eastern North Carolina consistently shows a long steady state at the onset, even before a voiceless consonant as figure 4c shows. In western North Carolina, where the nucleus of /ey/ is quite lowered, still shows one steady state at the offset, as figure 4d shows, and is thus produced as [ai:~æi:]. The [aɛ~æɛ] diphthong that occurs in *pass* in western North Carolina shows the same steady-state pattern as /ey/. The two may have the same nuclear quality but are distinguished by the position of the glide, with its steady state.

The consistent pattern is that steady states seem to appear at the margins of the vowel space. Apparently, when the articulator (the tongue body) hits the margins of its elasticity, it has to stop, and the result is a steady state. I will call this the "brick wall" effect. The tongue body runs up against a brick wall and cannot move any farther. However, movement across the vowel space is easy, so steady states are less likely there. This tendency explains Labov's lower exit and upper exit principles (Principles IV and V). When a diphthong hits the bottom of the vowel envelope, it runs up against a brick wall and may ultimately form a steady state there, as /ai/ often does in English. However, since it is presumably easier to glide through the vowel space than along the margin (where the articulators are stretched maximally), when a high or mid vowel diphthongizes, it takes on an onglide that necessarily starts toward the interior of the vowel space. If the diphthong is narrow, the onglide may *appear* to stay near the periphery. If it becomes wider, however, it appears to start from the interior of the vowel envelope. As with question #3, the conclusion is that peripherality is not the cause but the effect.

5. What is the phonetic motivation for the observed raising of peripheral nuclei and lowering of non-peripheral nuclei?

Here, I am speaking about the raising and lowering of monophthongal nuclei. As stated in Labov (1991:7):

[In] Chain Shifts,

I′. Peripheral nuclei rise.

II′. Nonperipheral nuclei fall.

Labov points to peripherality as a determining factor in sound shifts, though he never says specifically that peripherality is the phonetic motivation:

> Yet in relation to the progress of sound change in English, one feature seems to be crucial: *peripherality*. (Labov, 1991:5)

> In the Germanic and Baltic language families, and those Romance languages influenced by Germanic, peripherality is the principal feature determining the direction of movement within the tense and lax subsystems. (Labov, 1994:231)

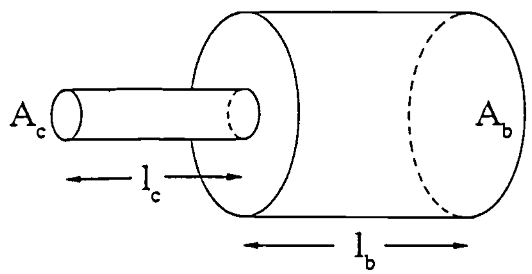
A phonetic motivation is necessary to explain the shifting patterns associated with peripherality, and to find the phonetic motivation it is imperative to determine what the phonetic attributes of peripherality are. Acoustically, "tense" vowels tend to:

a. show lower F_1 values than "lax" vowels
b. show more extreme F_2 values than lax vowels
c. be longer than lax vowels
d. be more diphthongal than lax vowels
e. be breathier than lax vowels

See, e.g., Lindau (1978) and Kingston, Macmillan, Dickey, Thornburn, and Bartels (1997). The first two correlates (regarding F_1 and F_2) represent peripherality. All but the last one (breathiness) are acknowledged by Labov (1994).

Next, it is necessary to examine how these differences are produced. For high and some mid vowels—just the ones that show a tense/lax distinction—the production of F_1 can be modeled by a Helmholz resonator, as seen in figure 5a. The large part of the resonator corresponds to the back, or pharyngeal, cavity and the small part corresponds to the section of the vocal tract where the tongue is making the tightest constriction.

The Helmholtz Resonator



b=back (pharyngeal) cavity
c=constriction

Formula:

Resonance= $(c \sqrt{(A_c/(A_b l_b l_c))})/2$

where
c=speed of sound
A_c=area of constriction
A_b=area of back cavity
l_b=length of back cavity
l_c=length of constriction

Note that:

When A_c decreases, F_1 decreases
When A_b increases, F_1 decreases
When l_b increases, F_1 decreases

Figure 5a. A model of the Helmholtz resonator and the formula for its resonance.

What is important is that, as figure 5a shows, there are three strategies that speakers can employ to lower the first formant:

1. decreasing the width of the constriction
2. increasing the length of the back cavity
3. increasing the width of the back cavity

The first strategy, decreasing the width of the constriction, is certainly associated with tenseness in English and other Germanic languages.

Increasing the width of the back cavity is generally more associated with African languages that have the Advanced Tongue Root (ATR) feature (see Lindau, 1975, 1978). However, increasing the width of the back cavity does occur in Germanic languages: it simply co-occurs with decreases in the width of the constriction (Lindau, 1978; Kingston et al, 1997). The root of the tongue is pulled up and forward by the raising of the tongue ridge. There is an obvious advantage in having two different changes (increasing the width of the back cavity and decreasing the width of the constriction) that produce the same acoustic effect.

The last strategy, increasing the length of the back cavity, has not received much attention, but it seems to occur in both groups of languages. It is accomplished by lowering the larynx and fronting the tongue body.

Figure 5b is a flowchart of all the articulatory gestures and how they affect the realization of tenseness in vowels.

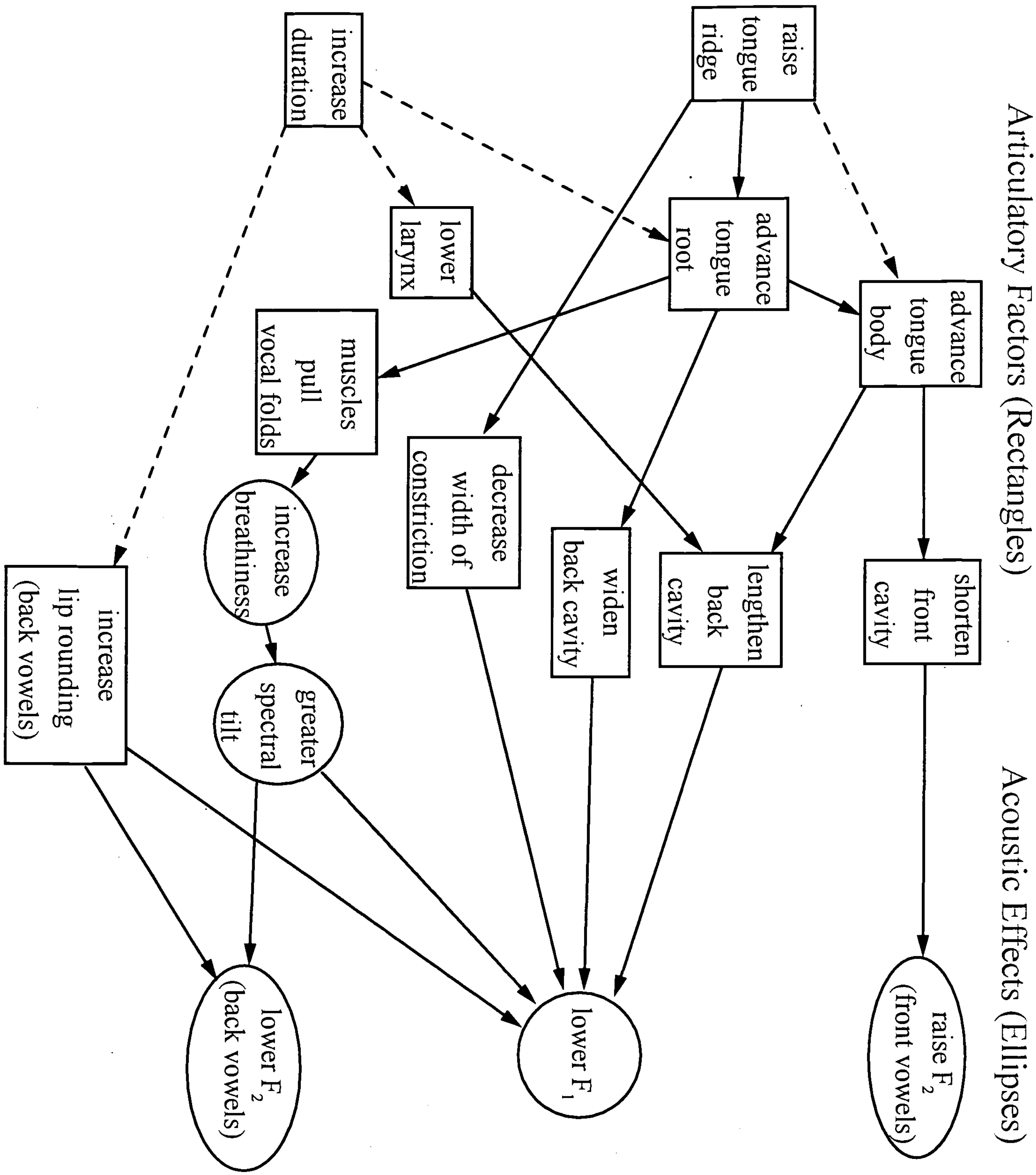


Figure 5b. Some articulatory factors and acoustic effects in the production of tenseness.

As figure 5b shows, numerous processes operate to produce the acoustic effects associated with the tense/lax distinction. First, when the tongue root moves forward, the rest of the tongue moves forward as well, which decreases the length of the front cavity and, in turn, increases the frequency of the second formant. The raising of F_2, then, seems to be merely a by-product of gestures whose primary purpose is to lower F_1.

That scheme explains the patterns exhibited by front vowels, for which tense vowels show a lower F_1 and a higher F_2 than lax vowels. For back vowels, however, tense vowels are supposed to show both lower F_1 *and* lower F_2 than lax vowels. (In fact, with the widespread fronting of back vowels, that is not true of all dialects, but there are still many dialects, especially many African-American and Mexican-American varieties, of which it *is* true.)

The lower F_2 of back tense vowels is related to two factors. One is that tense back vowels are more strongly rounded than lax back vowels: /o/ is rounded and /ʌ/ is not, and similarly the stronger rounding of /u/ compared with /ʊ/ is evident when one pronounces the two in succession. The increased rounding of tense vowels is favored by their greater length, which allows articulators (in this case, the lips) more time to move into place. Rounding lowers both F_1 and F_2 for back vowels.

The other factor is spectral tilt. Tense vowels are breathier than lax vowels, and breathiness increases spectral tilt, i.e., the concentration of overall acoustic energy at lower frequencies. The breathiness, in turn, is caused by muscular movements associated with fronting of the tongue root. Spectral tilt lowers F_1 and—when F_2 is low, as for back vowels—it lowers F_2 as well. It has a minimal effect when F_2 is high, as for front vowels.

All in all, as can be seen from the number of arrows in figure 5b pointing to lowering of F_1 compared with those pointing to effects on F_2, it seems that the primary function of all of these articulatory strategies is to lower F_1. The effects on F_2 appear to be by-products of those strategies. As a result, peripherality does not seem to be the primary aim of the strategies.

With regard to perception, it is necessary to return to the five acoustic correlates of tenseness mentioned earlier. Tense vowels are more peripheral, longer, more diphthongal, and breathier than lax vowels. Although there is little perceptual evidence on this particular case, it is likely that listeners use all of those cues to distinguish tense and lax vowels. It has been demonstrated repeatedly for other contrasts that listeners typically use whatever perceptual cues are available. That is, they do not rely on just one cue if more are available. For example, the perception of vowel height is affected not just by F_1 but also by the length of the vowel and its fundamental frequency and perhaps by other factors. Perception of the contrast between voiced and voiceless consonants is affected by an even longer list of factors (see, e.g., Lisker, 1986). For that reason, it is unlikely that listeners rely solely or even primarily on peripherality to distinguish tense and lax vowels. Of course, more perception experiments are needed to verify this assertion and to test whether some cues are more salient than others. However, if, as is likely, several cues are involved in perception, then several cues are involved in sound change, too. It is an exaggeration to say that peripherality per se is more important than any other factor.

What, then, is the phonetic motivation for the raising of tense vowels and the lowering of lax vowels? In essence, the motivation is that tense vowels are already geared toward articulatory strategies that lower F_1 and thus speakers are prone to intensifying those strategies. When any one strategy is implemented, the others come with it because of the interactions among them. That is, when a shift occurs, speakers do not just enhance one phonetic cue, such as peripherality: they enhance all of them.

Conclusions

There are three overriding points that I want to make. First, the evidence that I have presented here suggests that peripherality is not a cause of vowel shifts as much as product of them. Peripherality can certainly be discerned on formant plots, and it is correlated with shifting patterns in ways that Labov and his colleagues have laid out. However, I think that it is a product of other factors, such as the "brick wall" effect for diphthongs and strategies to modify F_1 for monophthongs.

Second, contrasts such as the tense/lax contrast should be viewed holistically, taking all their correlates together. Until more perceptual work is done, it is premature to say that peripherality is the primary phonetic correlate of the tense/lax contrast, and thus it is just as premature to say that peripherality is *the* crucial factor determining which direction tense and lax vowels shift.

My last point is simply that researchers should continue looking for phonetic motivations for sound changes. To make more progress on this search, it is necessary to examine more carefully all the phonetic correlates of sounds and how those correlates work together, both in production and in perception. It is also necessary to examine how speakers use the various correlates for communicative purposes.

References

Cox, Felicity. 1999. "Vowel change in Australian English." *Phonetica* 56:1-27.

Kingston, John, Neil A. Macmillan, Laura Walsh Dickey, Rachel Thorburn, and Christine Bartels. 1997. "Integtrality in the perception of tongue root position and voice quality in vowels." *Journal of the Acoustical Society of America* 101:1696-1709.

Labov, William. 1991. "The three dialects of English." In *New Ways of Analyzing Sound Change*, ed. Penelope Eckert. Orlando: Academic Press. 1-44.

Labov, William. 1994. *Principles of linguistic change. Volume 1: Internal factors.* Language in Society 20. Oxford: Blackwell.

Labov, William, Malcah Yaeger, and Richard Steiner. 1972. *A quantitative study of sound change in progress*. Philadelphia: U.S. Regional Survey.

Lehiste, Ilse, and Gordon E. Peterson. 1961. "Transitions, glides, and diphthongs." *Journal of the Acoustical Society of America* 33:268-77.

Lindau, Mona. 1975. "Features for vowels." *UCLA Working Papers in Phonetics* 30:1-155.

Lindau, Mona. 1978. "Vowel features." *Language* 54:541-63.

Lisker, Leigh. 1986. "'Voicing' in English: A catalogue of acoustic features signaling /b/ versus /p/ in trochees." *Language and Speech* 29:3-11.

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