Unlocking the Mystery of Dialect B: A Note on Incipient /aɪ/-raising in Fort Wayne
Stuart Davis, Kelly Berkson, and Alyssa Strickler

ABSTRACT: This paper addresses incipient /aɪ/-raising in Fort Wayne, Indiana. Acoustic analysis of wordlist data from 27 participants targets both typical items (e.g. WRITE, WRITING) and monomorphemic trochaic words often overlooked in previous research (e.g. NIKE, BISON, CYBER, TIGER). We report four major /aɪ/ production patterns found in the Fort Wayne data which range on a continuum from no raising to phonological raising (i.e. raising before t-flaps, Dialect A). In the middle of the continuum, we document the elusive Dialect B (Joos, 1942) where raising occurs in *write* but not before t-flaps. We call this type of raising Pattern 2, and find that speakers of this type tend not to raise in any trochaic words. In fact, raising in monomorphemic trochaic words such as NIKE or BISON is exceedingly rare in our data. In tandem with the variation observed within Fort Wayne, the fact that raising has not yet extended into monomorphemic trochaic words further suggests that raising is incipient in this variety. We propose that Dialect B is not a separate dialect at all, but an incipient variety of Dialect A.

1. INTRODUCTION

This short note discusses variation in Canadian raising (specifically /aɪ/-raising) in the

variety of English spoken in and around Fort Wayne, Indiana. /aɪ/-raising appears to be incipient

in Fort Wayne, probably beginning within the past 10-15 years. This paper builds on our recent

work in documenting the nature of /aɪ/-raising in this variety (Berkson, Davis and Strickler

2017), but the specific aim here is to resolve a mystery in the literature on Canadian raising: as

framed by Kaye (1990, 262), "What ever happened to Dialect B?" Dialect B refers to a pattern

of Canadian raising that Joos (1942) observed among Toronto area public school students

whereby /aɪ/ was raised to [ʌɪ] before voiceless sounds as in *type* and *write*, but not before t-flaps

as in *writer* and *writing.* Dialect B speakers thus produced the word *typewriter* as [tʌɪpɹaɪɾɚ].

This contrasted with another group of students (Group A or Dialect A talkers) who raised both

before voiceless sounds as in *type* and *write* and before t-flaps as in *writer*, thus producing

typewriter as [tʌɪpɹʌɪɾɚ]. In the Canadian raising literature, as first articulated by Joos (1942),

Dialect B is usually considered to be a phonetic raising dialect because raising only occurs

before surface voiceless sounds, while Dialect A is considered to be a phonological dialect

because the raising before the voiced t-flap is based on its underlying form rather than its phonetic form.

Although Joos (1942) reports the existence of these two groups among Toronto area public school students, Dialect B has never been subsequently documented. By 1973, Chambers (1973, 122) was able to write regarding Joos's (1942) article: "in the three intervening decades Dialect B has disappeared and Dialect A is ubiquitous throughout heartland Canada." Along similar lines Kaye (1990, 262) comments on the fact that while much phonological discussion has been fueled by Joos's description of Dialect B, evidence corroborating its existence has proven elusive: "all that remains of Dialect B is a single datum: Joos's transcription of the word *typewriter*. Never in the course of theoretical conflict has so much been written by so many about so little. Whatever happened to Dialect B?" Moreover, not only has Dialect B not been subsequently documented in Canada, but it also has not been documented in the American varieties of Canadian raising. These include such varieties as those spoken in upstate New York (Vance, 1987), Ann Arbor (Dailey-O'Cain, 1997), Philadelphia (Fruehwald 2013, 2016), and the areas in and around Jackson and Oxford, Mississippi (Moreton 2016) and Chicago, Illinois (Hualde, Luchkina and Eager 2017) among others. Specifically, what has been found in these varieties is that when raising occurs before surface voiceless sounds as in *write* it is also present before phonologically voiceless but phonetically voiced t-flaps as in *writing*.

The goal of this paper is to unlock the mystery of Dialect B by examining the nature of individual variation found among the incipient /aɪ/-raisers in Fort Wayne. We can do this because among the Fort Wayne area talkers that we have recorded, there are those who instantiate the Dialect B pattern of raising: that is, they display raising in *type* and *write* but not before a t-flap as in *writing*. What we learn when we examine their data is that the key to understanding the Dialect B pattern is to consider a fuller range of bisyllabic trochaic words than

those which are often the focus of diphthong raising investigations: in addition to pairs such as *write* and *writing,* other bisyllables such as *Nike*, *bison*, *tiger* and *spider* (among others) must also be considered. We elicited these items, and what we will show is that almost all of the talkers who display a Dialect B pattern—meaning that they raise in *write* but not in *writing*—do not raise in any bisyllabic (trochaic) word form. Raising simply does not occur in such bisyllables. We will make the case that Dialect B is not a dialect at all, but rather an incipient stage of Dialect A. Consequently, Toronto public school students who displayed the Dialect B pattern in 1942 would have become Dialect A speakers by the time of Chambers (1973) and Kaye (1990).

This paper is organized as follows: In Section 2 we briefly discuss the findings from Berkson et al. (2017) and provide data that illustrate two sample speakers, one with no raising and one with phonological raising (Dialect A). In Section 3, we consider the issue of /aɪ/-raising in bisyllabic trochaic words and are able to document more completely the existence of an incipient raising pattern that resembles Dialect B. Berkson et al. (2017) reported only on raising in bisyllabic words where /aɪ/ occurred before a surface flap as in *writing* and *riding*. We did not discuss other trochaic words such as *Nike*, *bison*, *tiger* and *spider*. When these words are considered we get a different understanding of incipient /aɪ/-raising and the nature of Dialect B and are able to refine the analysis presented in Berkson et al. (2017). Consideration of the additional trochaic words reveals that even the so-called phonological raisers, the Dialect A speakers, do not pattern identically. Rather, they are divided into two groups: those that raise in bisyllables only before t-flaps and those that raise in bisyllables more generally, meaning both before t-flaps and before surface voiceless consonants. Section 4 argues that the pattern of /aɪ/-raising found in the Fort Wayne area truly represents an incipient variety. Section 5 proposes an answer to the question posed by Kaye (1990): "What ever happened to Dialect B?" Here, by

exploring the full range of patterns of individual variation among our Fort Wayne talkers we will make the case that Dialect B is not a separate dialect since it is not an endpoint; rather, it is an incipient stage of Dialect A. Given the range of patterns that we find among our Fort Wayne area talkers, we will discuss how /aɪ/-raising might progress through the lexicon. Section 6 concludes the paper by discussing why other researchers have not been able to document the Dialect B pattern of raising.

2. BACKGROUND

Berkson et al. (2017) undertook a study that aimed to document incipient /aɪ/-raising in and around Fort Wayne, Indiana, motivated by a casual observation that college students from that region had begun to display /aɪ/-raising within the past decade or so. The goal was to document an incipient /aɪ/-raising dialect in light of the work by Fruehwald (2016) who in his study on /aɪ/-raising in the Philadelphia Neighborhood Corpus (PNC, Labov and Rosenfelder 2011) maintained that, "There is, in fact, no detectable period where the pattern of /ay/-raising aligned with what would be predicted on purely phonetic grounds. The conclusion I draw is that the period of purely phonetic conditioning either was too brief to be identified or was nonexistent" (404). Fruehwald based his observation on the realization that, in the PNC, once a speaker displayed raising before surface voiceless sounds as in *write*, the same speaker also had raising before underlyingly voiceless but surface voiced t-flaps as in *writing*. What this means is that the Dialect B pattern where raising occurs in *write* but not in *writing* is not acoustically documented in the PNC.

In fact, to our knowledge the Dialect B pattern had not been acoustically documented—in any /aɪ/-raising variety—until Berkson et al. (2017). Data reported therein were from 27 talkers (16 female, 11 male) who at the time of recording (2016 and early 2017) ranged in age from 19

to 78 years old. Rather than conducting sociolinguistic interviews, Berkson et al. had speakers

read a word list. The speakers were recorded on a Marantz PMD661 solid state audio recorder

with an ElectroVoice Cobalt 9 microphone, either on the Indiana University, Bloomington

campus (where recordings were conducted in a WhisperRoom sound-attenuated booth), or in the

area around Fort Wayne (where recordings were conducted in quiet rooms, often in the homes of

participants). Speakers produced three repetitions of a 93-item word list that contained 37 /aɪ/

targets. These included: monosyllabic words (e.g. *lice, bike, write* vs. *buy, lies, ride*); bisyllabic

trochaic words (e.g. *wríting, cíting, Níke, bíson* vs. *ríding, spíder, cýber, tíger*); and trisyllabic

words with primary stress on the second syllable, meaning that the voiceless sound following the

diphthong of interest was not foot-internal (e.g. *citátion, psychótic, Titánic*). The latter group

will not be our focus here, although they are of interest because raising is reported not to occur in

these words in established varieties of raising (e.g. Chambers 1973) and thus such words have

played a role in the discussion concerning the prosodic environment in which Canadian raising

occurs (e.g. Vance 1987, Chambers 1989, Pater 2014). Moreover, these trisyllabic items do

exhibit raising for some talkers in our sample, as outlined more thoroughly below.

Berkson et al. (2017) found four patterns of /aɪ/-raising among their Fort Wayne talkers,

and these patterns can be placed on a continuum from no raising to phonological raising. Those

who displayed no raising were referred to as Pattern 0 talkers, while those who displayed

phonological raising were referred to as Pattern 3 talkers. These Pattern 3 talkers raise in

monosyllables before a voiceless consonant and before t-flaps—that is, they raise in both *write*

and *writing*—consistent with Dialect A. In addition, Berkson et al. were able to document two

incipient patterns: speakers with the most incipient pattern of behavior, referred to as Pattern 1,

had raising in words like *citation*, *titanic*, and *psychotic* but not in any other words, although

monosyllables like *write* often showed offglide peripheralization. Finally, talkers with what

Berkson et al. referred to as Pattern 2 showed raising before voiceless consonants as in *write* but not before t-flaps; thus, there was no raising in *writing*. Pattern 2 is of interest because it seems to instantiate the elusive phonetic raising of Dialect B discussed by Joos (1942).

Before we turn to the issue of the relationship between Pattern 2 and Dialect B, it is useful to consider sample data for a representative Pattern 0 speaker who has no raising (Figure 1) and one who has the phonological raising of Pattern 3 (Figure 2). Here, and in the other figures presented herein, F1 (in Hz) is plotted on an inverted y-axis so that raised vowels are higher on the graph. The timepoints along the x-axis represent the time-normalized F1 track, with timepoint 1 (or T1) representing the mean F1 value at the 10% mark in the vowel, timepoint 2 (T2) representing the 20% mark, and so forth. F1 tracks, averaged across the three repetitions of each word, are for the diphthongs in the minimal set *write~writing~riding~ride*. The metric adopted for determining whether a diphthong is acoustically raised is the one established by Labov, Ash, and Boberg (2005) and used regularly since (e.g. Nycz 2016, Rankinen 2014, Strelluf 2018)—namely, a difference of ≥60 Hz in F1 height of diphthong nuclei. Thus, the diphthong in *write* is considered raised if the F1 value at nucleus midpoint—approximately the 30% mark of a time-normalized vowel, or timepoint 3 (T3) on the graphs that follow—deviates by ≥60 Hz from that of the diphthong in *ride*. Likewise, the diphthong in *writing* is raised if the F1 value at the nucleus midpoint deviates by ≥60 Hz from that of the diphthong in *riding*. Mean duration of the diphthong (in milliseconds) for each item is also shown via inset bar graphs.

Figure 1 reveals that the diphthong in *ride* is consistently longest, as expected, while durational differences in pre-flap diphthongs are shorter or minimal. Diphthongs pattern together with regards to F1 height; meanwhile, no items show raising. For the Pattern 3 talker shown in Figure 2, the vowel in *ride* is longer than that in *write* and the difference extends into the pre-flap

context such that the diphthong in *riding* is longer than the one in *writing.* With regards to F1

height, the raised diphthongs in *write* and *writing* pattern together.

Figure 1.
Pattern 0: No raising.
Average duration (in ms) and time-normalized F1 (in Hz) of /aɪ/ in write/writing/riding/ride
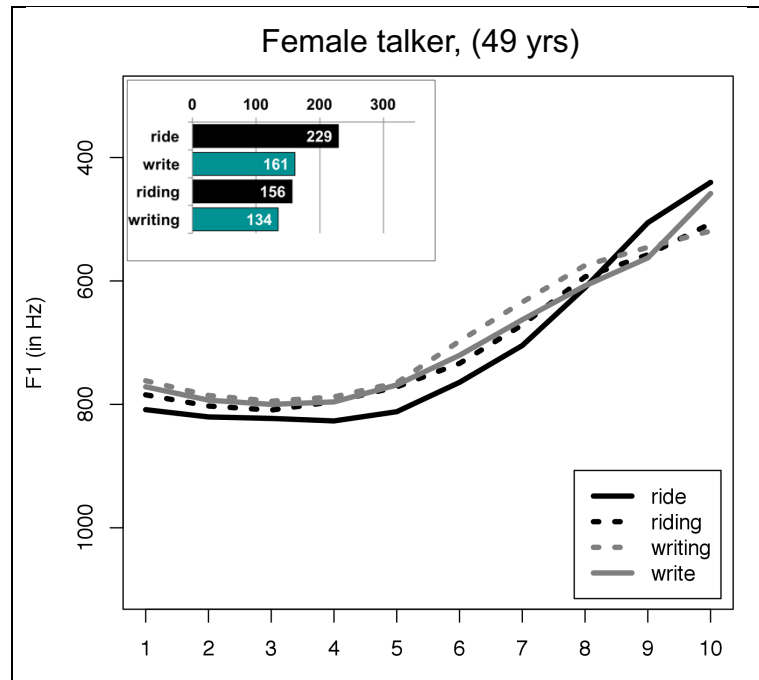
Figure 2.
Pattern 3: Phonological Raising.
Average duration (in ms) and time-normalized F1 (in Hz) of /aɪ/ in write/writing/riding/ride
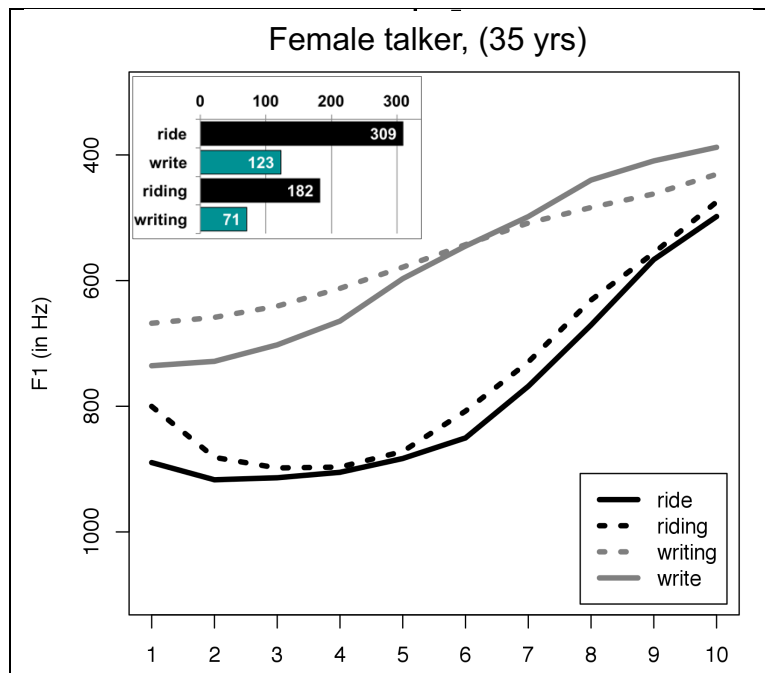
The graphs in Figures 1 and 2 make clear the acoustic difference between a speaker with no raising (Pattern 0) and a speaker with phonological raising (Pattern 3). However, Berkson et al. (2017) only reported on raising in bisyllabic (trochaic) words where /aɪ/ occurred before a surface flap as in *writing* and *riding*. Other trochaic words such as *Nike*, *bison*, *tiger* and *spider* were not discussed. Consideration of these words provides a different understanding of the nature of Fort Wayne Pattern 3 phonological raising and the relationship between the Fort Wayne phonetic raisers of Pattern 2 and the elusive Dialect B. We turn to these issues in the following sections.

3. /aɪ/-RAISING IN TROCHAIC WORDS: DOCUMENTING DIALECT B

The four patterns of /aɪ/-raising reported in Berkson et al. (2017) can be placed on a continuum ranging from no raising on one end to phonological raising on the other end, with forms of phonetic raising occupying the middle of the continuum. As our understanding of the Fort Wayne data evolves, the way in which the continuum is populated—by which we mean the individual patterns that occupy positions within the continuum—becomes more clear. Of particular interest here, given our focus on the question of whatever happened to Dialect B, are the Pattern 3 talkers who display phonological raising (raising occurs in monosyllables before a voiceless consonant and before t-flaps) and the Pattern 2 talkers who display phonetic raising (/aɪ/ raises before a voiceless consonant as in *write* but not before the t-flap of *writing*). Recall that the Toronto area public school students of Joos (1942) displayed Dialect B if they raised in *type* and *write* but not before the t-flap in *writer*. At first glance, then, it would appear to be the case that Pattern 2 talkers indeed instantiate the Dialect B pattern. We contend that in order to understand whether this is truly the case—whether Pattern 2 is akin to Joos's Dialect (Group) B—we need to consider a fuller range of bisyllabic trochaic words and not just ones like *writer*,

writing and *riding* that have flaps. As will be seen below, doing so allows us to document the Dialect B pattern more precisely. We will also consider in this section how our Pattern 3 speakers treat trochaic words.

In the work on aɪ-raising, bisyllabic monomorphemic trochaic words that lack an intervocalic flap are often not considered. Joos (1942) does not discuss such words, nor is there a focus on these words in Chambers (1973, 1989), or in more acoustically-oriented works such as those by Moreton & Thomas (2007), Fruehwald (2013, 2016), or Berkson et al. (2017). Words such as *Nike*, *bison*, *hyper*, *tiger*, *visor*, and *cyber* are not typically elicited in any quantity in sociolinguistic interviews, and while they are considered in Vance's 1987 impressionistic study of three speakers from upstate New York and in Kilbury (1983, 337) as well as in Moreton's (2016) study of speakers from in and around the Mississippi towns of Jackson and Oxford, they are often not included in studies based on word lists or reading passages. These words are important, though, because if the purely phonetic dialect of Canadian raising (Dialect B) really exists, then raising would be predicted to occur in words like *Nike*, *bison*, and *hyper*, where the diphthong precedes a consonant which is voiceless both underlyingly and on the surface, but not in t-flap words like *writing* and *writer* or other words where /aɪ/ is before a voiced consonant as in *tiger*, *visor*, and *cyber*.

With this in mind, we elicited such words in our study. The data presented here are from the same 27 talkers discussed in Berkson et al. (2017); see Section 2 for additional demographic and methodological details, and Table 1 (at the end of this section) for an overview of the distribution of talkers by Pattern. What we find is that almost all Pattern 2 talkers (who raise in *write* but not in *writing*) fail to raise in any of the bisyllabic trochaic words. In other words, it is not only the case that they do not raise in *writing:* they also do not raise in *Nike* and *bison*, where the diphthong occurs before a phonetically and phonologically voiceless consonant. Data from a

20-year-old female talker who is representative of seven of the nine speakers who display this variety of Pattern 2 raising is presented in Figure 3. First, focusing on Timepoint 3 (T3) in the left panel of Figure 3, we see that the nucleus of the diphthong in *write* is raised in comparison to *ride*. On the other hand, there is essentially no difference between the height of the diphthong in the words *writing* and *riding*. Turning to the righthand panel that again displays the bisyllabic trochaic words *writing* and *riding* but also includes the other trochaic words *Nike*, *bison*, *spider*, *cyber*, and *tiger*, what we see is that this talker does not show a consistent pattern of raising based on the voicing specification of the medial consonant: at T3, the /aɪ/s of *cyber* and *Nike* are the highest and that of *bison* is the lowest.[1] Recall that speakers produced three repetitions of the stimuli list, meaning that each F1 track plotted below is averaged across three repetitions.

Figure 3

Pattern 2: Incipient Raising. Time-normalized F1 of /aɪ/ in write/writing/riding/ride (left panel) and in bisyllables (right panel).


---
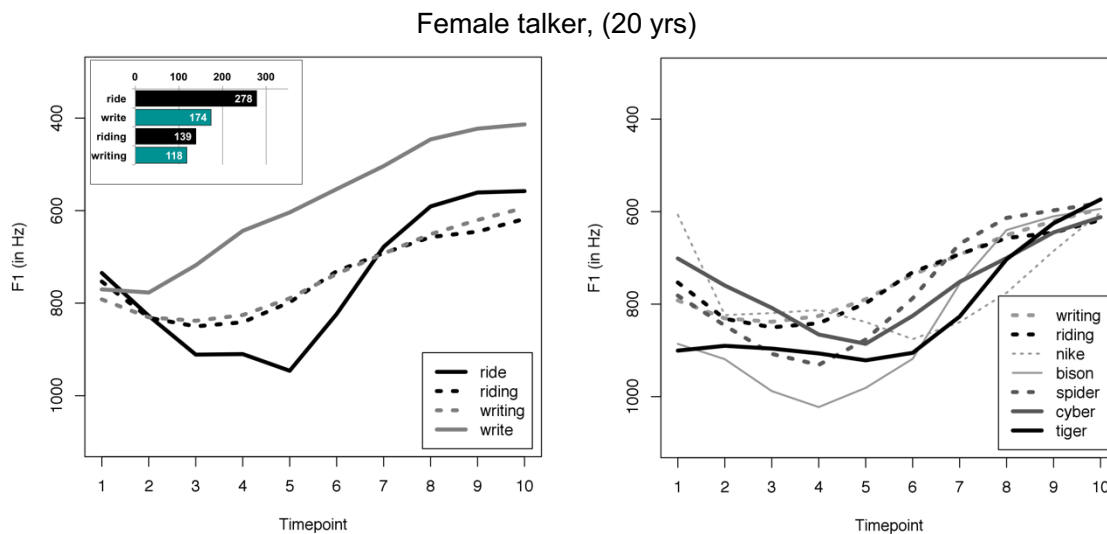
[1] Some speakers of American English produce *bison* with a voiced medial consonant, as [baɪzən] or [baɪzɪn]. This is not true for any of the talkers included in the current study. Additionally, when considering the *Nike* data herein it is important to note the way in which nasal formants and antiformants can affect measurements of F1 in following vowels. While measures herein have been hand-checked for accuracy, the influence of the preceding nasal on F1 is still evident, as expected.

Noteworthy is the wide range of F1 values displayed in the graph. Figure 4 shows a second

example of Pattern 2 raising from a 53-year-old female talker who displays /aɪ/-raising in

monosyllables but not in bisyllables. Her data are similar to the talker in Figure 3 except that

tiger rather than *bison* displays the lowest diphthong nucleus among the bisyllabic words.

Figure 4

Pattern 2: Incipient Raising. Minimal set (left panel) and bisyllable (right panel) data.
Female talker, (53 yrs)
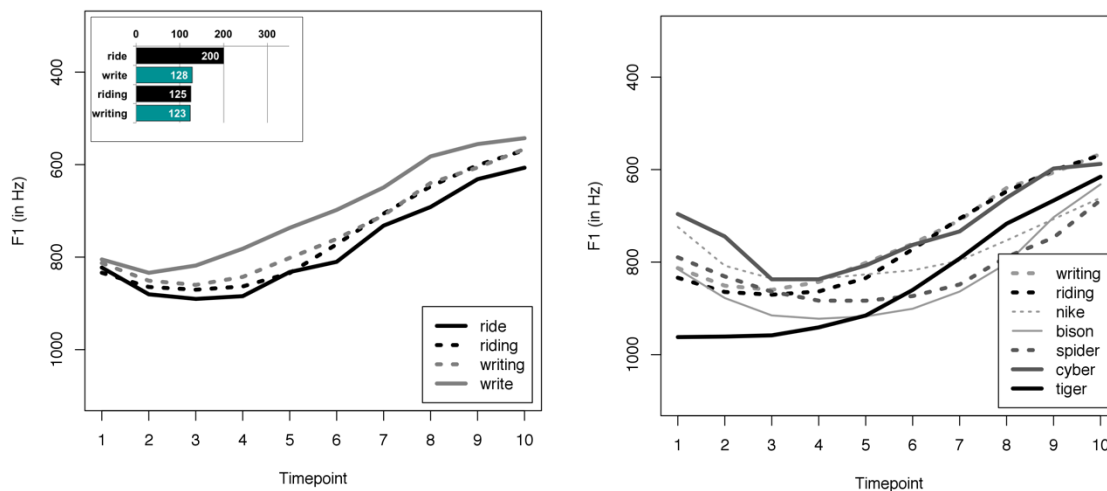
Figures 3 and 4 are representative of almost all of our Pattern 2 talkers: seven of the nine

Pattern 2 talkers show raising before voiceless consonants in monosyllabic words but no clear

differentiation based on voicing in bisyllabic words. Consequently, if the Pattern 2 speakers

whose data are shown in Figures 3 and 4 are like Joos's Dialect B Toronto talkers, they may help

elucidate the nature of Dialect B. More specifically, what the data suggest is that the Dialect B

talkers not only did not raise before the t-flap of *writer,* but that they would not have raised in

any two-syllable trochaic word.

The observation that most of our Pattern 2 speakers do not raise in any of the bisyllabic

data begs the question regarding the Fort Wayne Pattern 3 talkers who raise in both *write* and

writing (with a t-flap): Do such talkers raise in bisyllabic forms more generally? An examination

of the data reveals that Pattern 3 speakers display two subpatterns: six of the eight Pattern 3 talkers raise only before t-flaps (as in *writing)*, and not in words like *Nike,* while two of the eight have raising before t-flaps and also show some raising before voiceless consonants as in *Nike* and *bison*. These two patterns are displayed in Figure 5a and 5b, respectively.

Figure 5a shows a 21-year-old female talker who, as seen in the left panel, has raising in both *write* and *writing* when compared with *ride* and *riding,* respectively. As seen in the right panel of 5a, however, there is no clear pattern of more generalized raising before voiceless consonants in the bisyllabic words. While the diphthong in *writing* is highest, what is more important than its absolute height is its position in relation to the diphthong in *riding:* given that these items form a minimal pair they must be compared with one another when assessing whether one is raised. Of the remaining bisyllabic items shown in the right panel, it is the diphthongs in *cyber* and *bison* that are highest while those in *Nike* and *spider* are lowest. There is no consistent patterning based on the voicing specification of the following consonant.

Figure 5
Pattern 3 Talkers: Minimal set and bisyllable data

a. Female talker, (21 yrs), raising in bisyllables only before t-flaps
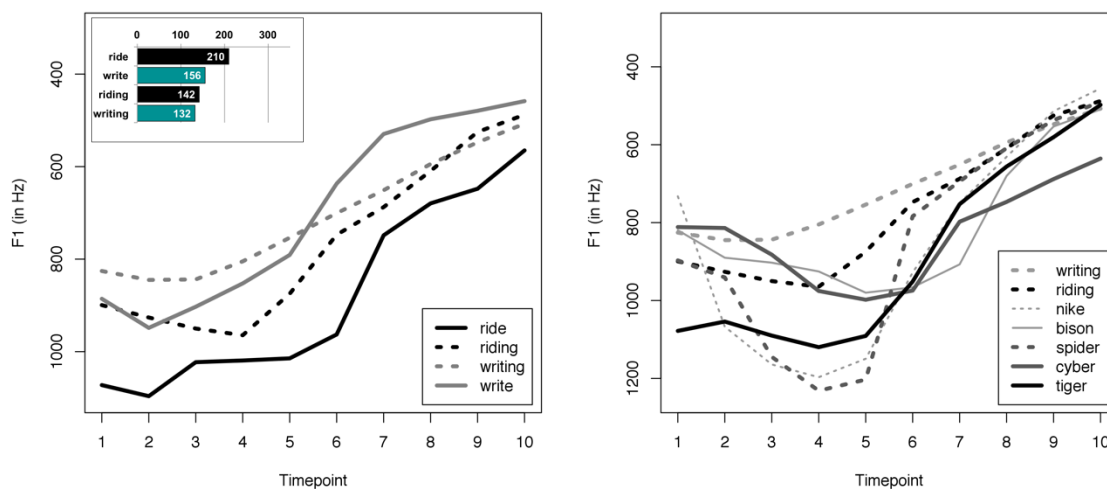
b. Female talker, (21 yrs), raising in bisyllables before t-flaps and other voiceless consonants
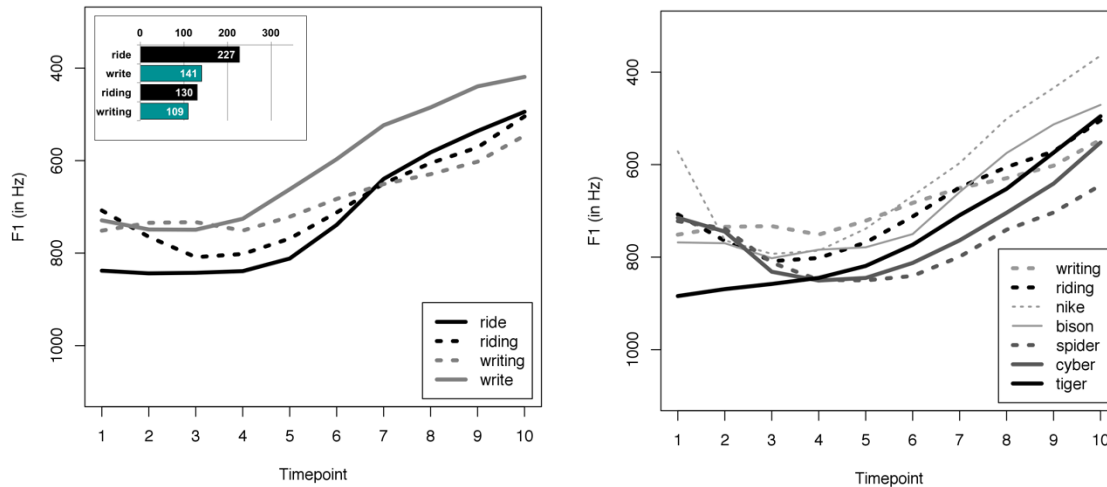

In Fig. 5b are data from a 21-year-old female talker for whom raising occurs—or is beginning to occur—in more bisyllabic contexts. The lefthand panel illustrates that *writing* is raised when compared with *riding;* the righthand panel illustrates that *Nike* and *bison* are next highest after *writing.* To be clear, the raising in *Nike* and *bison* is not robust, and in fact at Timepoint 3 they pattern with the diphthong in *riding.* Both have clear off-glide peripheralization, however, which is a likely precursor to more advanced raising (see Moreton and Thomas 2007). As such, we consider this Pattern 3 talker—and the other talker who patterns in this way—to be more advanced raisers: raising is beginning to affect not only those items with a t-flap that are involved in a paradigm relationship with monosyllables that raise (e.g. *write~writing*) but also bisyllabic items where the diphthong occurs before a surface-voiceless consonant. Another way to think about these data is to note that, in contrast with the other patterns we have considered thus far, the pre-voiceless diphthongs are at least beginning to pattern together, thus distinguishing the speaker in Figure 5b from the one in Figure 5a.

Figures 3-5 provide a representative overview of /aɪ/-raising in bisyllabic trochaic words among our Fort Wayne area speakers who raise before voiceless consonants in monosyllables (Patterns 2 and 3). Three patterns are evident: some talkers do not raise in bisyllables at all

(Figures 3 and 4), some raise in bisyllables only before a t-flap (Figure 5a), and some raise in bisyllables more generally, both before t-flaps and before other voiceless consonants (Figure 5b). What seems to be missing is purely phonetic raising—this would be manifested when raising occurs only before voiceless consonants, whether in monosyllabic or polysyllabic words, but not before t-flaps. Only two speakers in our data (out of 27 total) clearly exemplify this pattern. These are the remaining Pattern 2 talkers—the two of nine who diverge from the patterns shown in Figures 3 and 4. Data from one of the phonetic raisers is shown in Figure 6.

Figure 6

Phonetic raiser, Female talker, (31 yrs)
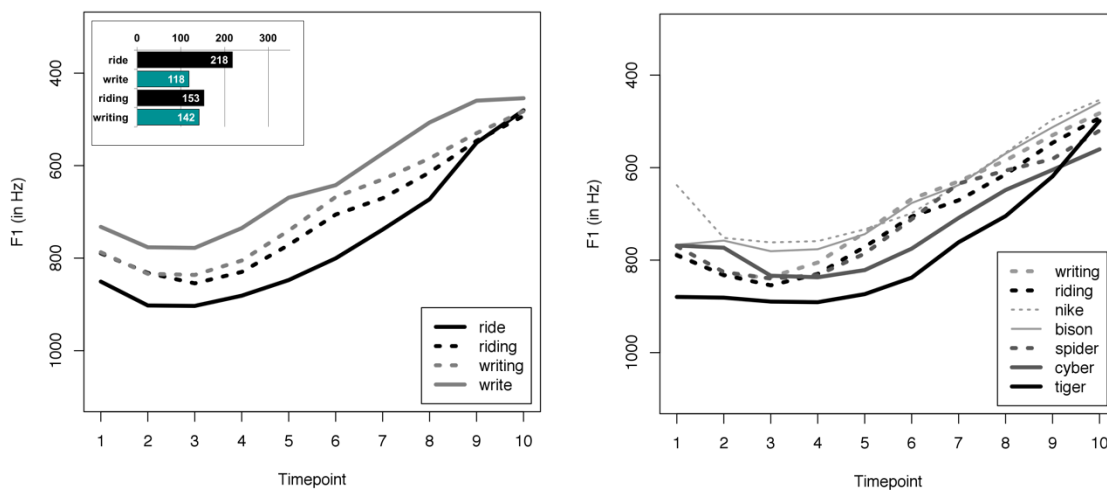
These data are from a 31-year-old female talker. The panel on the left shows clearly that the talker fits Pattern 2 of Berkson et al. (2017), where there is raising in *write* as opposed to *ride* while the diphthongs in *writing* and *riding* pattern together. The bisyllabic data in the righthand panel illustrates that *Nike* and *bison* are produced with the most raised variants of the diphthong, having the lowest F1 values in the region of the diphthong nucleus and the most offglide peripheralization. Considering that only two of 27 talkers in our data display what would be expected in a purely phonetic pattern of /aɪ/-raising, we are left to hypothesize that while purely phonetic raising can occur it is very uncommon.

In this section we have acoustically documented the occurrence of the elusive Dialect B

pattern of /aɪ/-raising displayed by the Fort Wayne area Pattern 2 talkers. Table 1 below

provides a review of the patterns presented and a distribution of talkers by Pattern.[2] By

considering data on trochaic words such as *Nike* and *bison* in addition to *writing* and *riding* we

are able to show that almost all Pattern 2 (Dialect B) speakers raise neither before t-flaps nor

before voiceless consonants in bisyllabic words more generally. We can speculate that this may

have been the case with Joos's (1942) Group B speakers. In considering trochaic words more

generally we also find that for the Fort Wayne Pattern 3 (Dialect A) talkers there are two other

groups: those who raise in bisyllables only before t-flaps, and those who raise both before t-flaps

and before voiceless consonants more generally. Least common in our data is the purely

phonetic pattern of raising where raising occurs before surface-voiceless consonants in both

monosyllabic and bisyllabic word forms but not before t-flaps.

Table 1
Distribution of speakers by Pattern of raising, Sex, and Age.

	Sex	Age (in yrs)
Pattern 0: No Raising (3 speakers)	**Female:** **Male:**	48, 49 67
Pattern 1: (Almost) Incipient (7 speakers) -Raising in items like *Titanic/citation* (Berkson et al. 2017), often offglide periph. in monosyllabic words	**Female:** **Male:**	20, 78 21, 24, 44, 49, 57
2: Incipient Raising (9 speakers total) -full raising, monosyllables only (7 speakers)	**Female:** **Male:**	20, 27, 53, 54, 60 21, 30
-raising before surface voiceless Cs in monosyllabic and bisyllabic items (2 speakers)	**Female:** **Male:**	19, 31 --
Pattern 3: Phonological (8 speakers) -raising occurs in the pre-flap environment (*write* raised as compared with *ride, writing* as compared with *riding*); no raising in other bisyllabic items (e.g. *bison*)	**Female:** **Male:**	21, 21, 21, 35, 47 52
-same as above (raising in *write, writing)* and more general raising/offglide periph. in bisyllabic words (e.g. *bison*)	**Female:** **Male:**	21 19

---

[2] The tabulation presented here differs slightly from that found in Berkson et al. (2017) in order to reflect our evolving understanding of the raising continuum.

4. THE INCIPIENT NATURE OF FORT WAYNE /aɪ/-RAISING

Documenting the incipient patterns of /aɪ/-raising among Fort Wayne area speakers, including an examination of bisyllabic word forms, allows us to hypothesize about what may have happened to Joos's (1942) Dialect B speakers who raised in words like *type* and *write* but not before t-flaps, thus producing *typewriter* as [tʌɪpɹaɪɾɚ]. Based on our Fort Wayne data we can now posit that Dialect B, like Pattern 2, represents the situation in which raising occurs in monosyllables and not in bisyllables. In this section, we will argue that our data on /aɪ/-raising in Fort Wayne is different from that of the other varieties of /aɪ/-raising discussed in the published literature, with the exception of Joos (1942): our data, and the Toronto dialect highlighted in Joos (1942), truly represent incipient raising varieties, while the varieties reported on elsewhere are more advanced.

While the original motivation for our study was the casual observation that college students at Indiana University hailing from the Fort Wayne area seemed to display /aɪ/-raising only within the past 10-15 years, aspects of the data themselves—rather than our intuition that this sound change is relatively new—are most suggestive of the incipient nature of Fort Wayne /aɪ/-raising. First, unlike data reported for /aɪ/-raising in Canada (e.g. Kaye 2012, Pater 2014), upstate New York (Vance 1989), Vermont (Roberts 2007), the Chicago area (Kilbury 1983), Philadelphia (Fruehwald 2016), Ann Arbor (Dailey-O'Cain 2007) and the Mississippi dialect described by Moreton (2016), our Fort Wayne talkers do not show clear evidence of extension of raised /aɪ/-variants to exceptional environments such as to words like *spider*, *tiger* and *fire*. All of the above studies report extensions of raising in one or more of these environments. None of our Fort Wayne /aɪ/-raisers systematically raise in these environments. While data regarding the /aɪ/ in *fire* is not included here, none of our speakers raise in this word. Most noteworthy is the

lack of raising in *spider*. Fruehwald (2013, 114-115) observes that the only words in the PNC in which there are multiple instances of /aɪ/-raising in an unexpected environment (i.e. not before a voiceless consonant or before a t-flap) are the words *spider* and *Snyder*. Through the longitudinal data that the PNC provides, Fruehwald concludes that raising in *spider* and *Snyder* started 20-30 years after pre-voiceless raising began. The diphthong in *spider* is consistently low in all of the figures presented herein, however, and this is representative of our talkers as a whole. That we have found no evidence of raising in *spider* in our Fort Wayne data is consistent with the claim that it is an incipient variety.[3]

A second reason that we believe that /aɪ/-raising in the Fort Wayne area is truly incipient is the observation discussed in Berkson et al. (2017) that all our /aɪ/-raisers have raised variants in words like *citátion*, *psychótic*, and *Titánic* where the voiceless consonant following the diphthong is not foot-internal. Raising in these words may be somewhat surprising in light of the observation that in the studies that report on these words, such as Chambers (1973, 1989) for Canadian /aɪ/-raising, Vance (1989) for upstate New York, Daily-O'Cain (1997) for Ann Arbor, and Moreton (2016) for Mississippi, raising is blocked in this environment. That is, raising only occurs when /aɪ/ and the following voiceless phoneme are foot-internal (i.e. raising does not occur before a voiceless consonant that is at the beginning of the syllable with primary stress). Following a suggestion in Berkson et al. (2017) we posit that the foot-internal environment arises with a subsequent (non-incipient) generation of /aɪ/-raisers. This is based on the observation from the L1 phonological acquisition literature on English that children often impose foot-based

---

[3] In relation to our casual observation that college students at Indiana University from the Fort Wayne area seemed to display /aɪ/-raising only within the past 10-15 years, it is worth mentioning the recent study by Strelluf (2018) that documents the advancement of /aɪ/-raising in the area in and around Kansas City. While only some subjects in Strelluf's sample who were born before 1990 met the threshold for raising (the oldest one being born in 1964), Strelluf documents an explosion of /aɪ/-raisers among talkers born after 1990. Two-thirds of his sample who were born in 1990 or thereafter show raising, suggesting that /aɪ/-raising has become more common in the Midwest more generally among those born in or after the 1990s.

constraints on the distribution of allophony as part of the acquisition process (e.g. Inkelas and Rose 2007, Davis 2010, Rose and Inkelas 2011). Consequently, the fact that Fort Wayne /aɪ/-raising is not metrically conditioned is consistent with its incipient nature.

The third observation that argues for Fort Wayne /aɪ/-raising being incipient is its similarity to what is reported by Joos (1942) for the Toronto public school students. First, the Group B (i.e. Dialect B) of Joos (1942) and our Fort Wayne Pattern 2 speakers are the only documented cases where /aɪ/-raising fails to occur before a t-flap. And second, Joos's Group A speakers (like our Pattern 3 Fort Wayne speakers) did not seem to extend /aɪ/-raising into exceptional environments, e.g., into items such as *fire* or *spider*. This is implicit in Joos's (1942, 142) comment regarding Group A speakers, "…it may not be long before we hear high diphthongs before /b, g/ also, in contrast with low diphthongs…" suggesting that such extensions had not yet occurred at the time of Joos's writing. This is consistent with the incipient nature of /aɪ/-raising for both of Joos's (1942) Group A and Group B speakers as well as with Chambers' (1989, 86) conclusion that "Canadian Raising appears to have become entrenched in the 1930s, or perhaps the 1920s, allowing for the gap between the entrenchment and its first notice in print". Thus, one can maintain that the /aɪ/-raising of our Fort Wayne area talkers and the Toronto public school students of Joos (1942) truly reflect an incipient pattern of /aɪ/-raising.[4]

---

[4] As noted by a reviewer, raising may have been present in Ontario for many decades by the time Joos was collecting data. In addition to Chambers' (2006) suggestion that the beginnings of Canadian raising may go back before the 1920s, Thomas (1991) examined recordings from communities in and around Ontario that were archived in *The Linguistic Atlas of the Middle and South Atlantic States* and *The Linguistic Atlas of the Central States* and found evidence of raising in speakers born in the late 1800s. We consider two possibilities with regards to this finding, and take the position that the incipient nature of the raising behavior outlined in Joos (1942) is not necessarily inconsistent with an earlier origin of raising. First, it could be the case that the period of incipient raising lasted far longer in Ontario than has been observed more recently in U.S. dialects of English, perhaps because the nature of social networks in early 20th century Canada was such that it militated against the rapid spread of the change. Raising most likely would have been incipient in different locales at different time periods before it became firmly established by the time of Chambers (1973). Second, the speakers whose data Thomas analyzed were born in the late 1800s and early 1900s but were recorded in the 1940s or 1950s. As such, the raising they display may not have been present in their youth; rather, they may have acquired it more recently via accommodation. We entertain this possibility because, anecdotally, /aɪ/-raising is a feature to which some speakers can fairly easily accommodate. We also hypothesize that the data presented in Thomas (1991) may provide an important clue to the origins of raising. Specifically, incipient raising may in fact be present in many dialects of English for long periods of time at

5. WHATEVER DID HAPPEN TO DIALECT B?

As noted previously, both Chambers (1973) and Kaye (1990) specifically comment on the disappearance of Dialect B. Chambers (1973, 122) observed, "in the three intervening decades Dialect B has disappeared and Dialect A is ubiquitous throughout heartland Canada." Kaye (1990, 262) agrees, asking, "Whatever happened to Dialect B?"

In order to address this question, we pursue the implications of a speculative comment of Joos (1942, 144) in the last paragraph of his article as to the future course of raising concerning "…whether Group A or Group B sets the standard. There is no use guessing which will happen. It would not even help us if we should count noses today, for it may be the smaller group that is gaining recruits faster." This is an interesting comment because Joos assumes that one of the varieties (Group A or Group B) will fall by the wayside. With the hindsight of the research on /aɪ/-raising over the past 50 years and the lack of subsequent documentation of Group B (Dialect B), we now know that Group A set the standard and can hypothesize about how that happened: Group B speakers most likely become Group A speakers, assuming that they did not move away from an area that had raising. We agree with Joos's speculation that counting noses today would be of no help in determining the future course of /aɪ/-raising in Fort Wayne. Moreover, we are of the view that just as Joos's Group B speakers could not be found in Toronto 30 years later, so too will be the fate of the Fort Wayne Pattern 2 speakers. Assuming they do not move to an area lacking /aɪ/-raising, they will probably come to have a Pattern 3 (Group/Dialect A) distribution where raising occurs before t-flaps. Like Dialect B, Pattern 2 will disappear.

Given the incipient nature of Fort Wayne /aɪ/-raising and that our data collection included bisyllabic trochaic words such as *Nike*, *bison*, *tiger*, and *spider,* we are now in position to answer

---

levels that escape observation in the absence of careful phonetic analysis. Perhaps incipient raising—the phonetic precursor to the phonological pattern—is more widespread than has previously been noted but fails to progress to a phonological pattern much of the time. While the former possibility remains a matter of conjecture, the latter could be easily investigated in future work. (See Strelluf 2018 on this matter.)

Kaye's question (1990, 262): "What ever happened to Dialect B?" Considering the range of patterns found in Fort Wayne area talkers, and following a suggestion by Bermúdez-Otero (2017), we hypothesize that nothing actually happened to Dialect B, because it never existed: it is not a separate dialect, because it is not an endpoint. Instead, it is an incipient variety of Dialect A where raising obtains in monosyllables but not in trochaic word forms. This is why Joos found talkers who raised in *type* but not in *writer*. We hypothesize that the pattern Joos observed has nothing to do with issues of rule ordering or phonological opacity per se (as in Chambers 1973, Idsardi 2006 among others), but rather with the contrast between monosyllabic and bisyllabic words, similar to our Pattern 2 incipient raisers.[5] *Type*, being a monosyllabic word form, maintains raising even in a compound like *typewriter*. On the other hand, *writer*, being bisyllabic, would not raise (whether in a compound or not). We suggest that Group B/Pattern 2 raisers who remain in an environment where raising is a sound change in progress become Dialect A (or Pattern 3) speakers, and that Joos's Group B speakers could have retained that pattern (i.e. no raising before t-flaps) only if they moved to an area that lacked Canadian raising. Echoing Joos's (1942, 142) speculative comment, we too take the position that the two patterns will not continue to exist as separate for long in the same community.

The composite Fort Wayne /aɪ/-raising data allows us to speculate as to how the so-called Dialect B pattern of raising can progress into the Dialect A pattern. One can view the Pattern 2 (Dialect B) raising as a sound change in progress that affects one-syllable words that end in a voiceless consonant before it affects two-syllable words such as *Nike*.[6] Once raising occurs in monosyllables it can then progress and begin to occur in bisyllables. Our data suggest that for

---

[5] See Kaye (2012) for additional arguments against the claim that raising involves rule ordering and phonological opacity.

[6] While we do not discuss the phonetic reasons why raising occurs before a voiceless consonant, our phonetic data is mostly consistent with both a pre-fortis clipping analysis of raising (Bermúdez-Otero 2014, 2017) and an off-glide peripheralization analysis of raising (Thomas 2000; Moreton & Thomas 2007) because in most of our data both clipping and peripheralization occur in monosyllabic words that end with a voiceless consonant.

the clear majority of talkers, the first bisyllables that have raising are those that are in a paradigm

relation with a monosyllabic counterpart, so that raising will occur in a word such as *writing*

before it will occur in a word such as *Nike*.[7] Similarly, it will occur in a word such as *biking*

before it will occur in a word such as *Nike* or *bison*. From there, raising will progress to other

bisyllabic words such as *Nike* and *bison* in which /aɪ/ precedes a voiceless consonant. On this

view, pending additional research, the two talkers who have the purely phonetic pattern in which

raising occurs before voiceless consonants in both monosyllabic and bisyllabic forms but not

before a t-flap (exemplified by the data in Figure 6) represent a possible but uncommon pattern.

We suspect that they will soon begin to raise before t-flaps as well. The scenario presented here

regarding the future direction of Fort Wayne Pattern 2 speakers aligns with our hypothesis about

the Toronto Group B speakers. Absent evidence to the contrary, we assume that those speakers

did not raise in any bisyllables.

Importantly, however, we do not want to claim that the progression outlined above

represents a developmental path. Speakers might pass through "stages" before arriving at

phonological raising (i.e. raising in bisyllables both before voiceless consonants and t-flaps), but

they can skip the stages and have a phonological raising pattern from the very beginning once

they start raising. That is, Pattern 3 talkers (or the Group A speakers in Joos 1942) do not have

to go through a Pattern 2 (Group/Dialect B) stage. We base this on the observation that some

Fort Wayne speakers of Pattern 0 and Pattern 1 who do not show raising in monosyllables

nonetheless have offglide peripheralization before voiceless consonants and t-flaps. This

---

[7] An important question that we do not address here is what the relevant paradigm relation is. For example, while raising readily applies in *knife*, it usually does not apply in *knives* where there is irregular voicing of /f/. (Josef Fruehwald, personal communication to the authors May 30, 2018; see also Moreton 2016). Assuming that the irregular plural *knives* constitutes a different lexeme than its singular counterpart *knife*, it may be that the paradigm relation involves word forms that are part of the same lexeme. Since the verbal word form *writing* is part of the same lexeme as the verb *write* the paradigm relation applies even if *writing* is used as a gerundive nominalization. Obviously, this matter is in need of further investigation, but see Moreton (2016) for a detailed discussion on how different types of affixation in English may affect /aɪ/-raising.

suggests that if such speakers start to raise, they might do so in a phonological manner before voiceless consonants and t-flaps without ever going through the more phonetic stage in which there is no raising before t-flaps. In this way, we agree with Fruehwald (2016) that /aɪ/-raising can be phonological from its initial occurrence in a dialect, but, as we have shown here and in Berkson et al. (2017), a phonetic-like stage can be documented.

It is our view that the earliest stage of raising—referred to as Pattern 1 in Berkson et al. (2017)—occurs in the very context where raising does not occur in documented phonological varieties: that is, in the exceedingly short pre-stress diphthongs of items such as *citátion, psychótic,* and *Titánic.* Figure (7), taken from Berkson et al. (2017: e187), illustrates that these diphthongs are quite high for Pattern 1 talkers from Fort Wayne. These very short vowels are also less diphthongal than those found in monosyllables. We interpret this as follows: a degree of undershoot occurs in very short contexts, and this effectively increases the range of F1 values associated with /aɪ/ diphthongs. Functionally, this creates an inroad for /aɪ/ nuclei into the lower frequencies associated with raised vowels. Note too that for this Pattern 1 talker there is offglide peripheralization in the monosyllabic item *cite.*
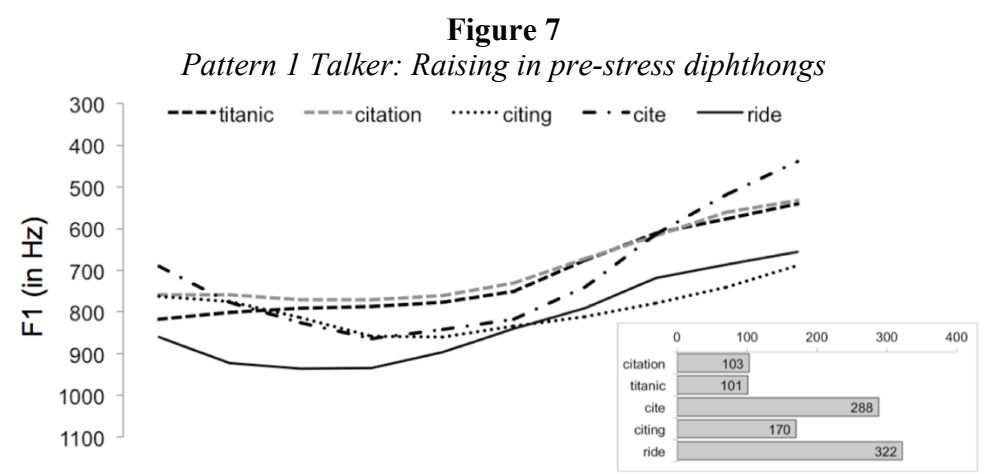
Figure 7
Pattern 1 Talker: Raising in pre-stress diphthongs

Figure taken from Berkson et al. (2017: e187)

If this is true, the life cycle of /aɪ/ raising is not only complex but also dependent on behavior in specific contexts; insight into the behavior of items such as *citation/titanic* and *Nike/bison* is crucial, but these items are not easy to capture in sociolinguistic interviews, nor has their possible importance to the onset of /aɪ/ raising been recognized; consequently, their role in the development of this sound change has been difficult to capture.

6. CONCLUSION

In this article we have acoustically documented incipient /aɪ/-raising in the area of Fort Wayne, Indiana, with a focus on the occurrence of the elusive Dialect B pattern of /aɪ/-raising as displayed by the Fort Wayne area Pattern 2 talkers. By providing data on trochaic words such as *Nike* and *bison* in addition to *writing* and *riding,* we are able to elucidate both the Dialect B pattern in which raising for most speakers occurs in monosyllables but not in bisyllabic words (thus the lack of raising before t-flaps) as well as the subvarieties of incipient Dialect A (Pattern 3) in which some speakers raise in bisyllables only before t-flaps and others raise before t-flaps and before voiceless consonants more generally. Exceedingly rare in our data is the purely phonetic pattern in which raising occurs only before voiceless consonants, whether in monosyllabic or bisyllabic word forms, but not before t-flaps. The range of patterns found among the Fort Wayne raisers allowed us to chart a path of how the so-called Dialect B might disappear by evolving into Dialect A. As noted by Chambers (1973) and Kaye (1990), the young speakers who displayed the Dialect B pattern in the early 1940s did not display it thirty years later. We assume that our Pattern 2 Fort Wayne talkers will have a similar fate, assuming that they continue to live in an area with /aɪ/-raising.

As a final matter to consider, if it is the case that phonetic raising (Pattern 2/Dialect B) can be documented—as in the Fort Wayne data—why have previous researchers (such as

Fruehwald 2013, 2016) been unable to document a pre-phonologization stage of raising? The answer to this is presumably complex and multi-faceted. If our data are indicative, the purely phonetic raising pattern is difficult to capture because it is uncommon (only two of 27 speakers in our data have a phonetic raising pattern). With regards to an incipient pattern like our Pattern 2, which is a somewhat phonetic pattern mediated by additional factors such as monosyllabicity and morphological complexity, previous researchers have not documented this. We do believe that this might be difficult to capture. We agree with Fruehwald (2016) that phonologization may happen very quickly, making it easy to miss. Consequently, it is absolutely crucial to look at many two syllable words with voiceless consonants—especially low-frequency monomorphemic items such as *Nike* and *bison* that are unlikely to occur with any regularity in the type of sociolinguistic interviews that often provide the data for studies on Raising. Finally, we suspect that there is something inherent to the /aɪ/ diphthong that makes variation more likely to be overlooked until it has truly stabilized. See, for example, the right panel of Figure 5a, where there is a tremendous amount of spread in the F1 range of diphthong nuclei. For many reasons, then, raising may be easy to miss in the incipient stage. Nevertheless, it is possible to do so, as evidenced by the Fort Wayne data. These data shed light on the incipient stage of raising, allowing us to finally answer Kaye's question about Dialect B. "What ever happened to dialect B?" Nothing; it was an incipient stage of Dialect A, and evolved into the robustly documented phonological raising pattern.

References

Berkson, Kelly, Stuart Davis and Alyssa Strickler. 2017. "What Does Incipient /ay/-raising Look Like? A Response to Josef Fruehwald." *Language* 93.3: e181-e191.

Bermúdez-Otero, Ricardo. 2014. "The Diachronic Rise and Synchronic Representation of Phonological Opacity: A Case Study." Handout from *RALFe*, Paris, Oct. 9-10, 2014.

Bermúdez-Otero, Ricardo. 2017. "The allophony of English /aɪ/ reconsidered." Paper presented at PhLEGMe, Indiana University, Bloomington, 19 September 2017. Handout available at http://www.bermudez-otero.com/Bloomington.pdf.

Boersma, Paul, and David Weenink. 1992-2016. "Praat: Doing Phonetics by Computer."

[Computer program.] Version 6.0.22. Available at http://www.praat.org/.

Chambers, Jack. 1973. "Canadian Raising." *Canadian Journal of Linguistics* 18: 113-135.

Chambers, Jack. 1989. "Canadian Raising: Blocking, Fronting, etc." *American Speech 64*: 75-88.

Chambers, Jack. 2006. "Canadian Raising Retrospect and Prospect." *Canadian Journal of Linguistics* 51: 105-118.

Dailey-O'Cain, Jennifer. 1997. "Canadian Raising in a Midwestern U.S. City." *Language Variation and Change* 9: 107-120.

Davis, Stuart. 2010. "Distributional Evidence for the Foot from the L1 Acquisition of American English." *Phonological Studies* 13: 39-50.

Fruehwald, Josef. 2013. *The Phonological Influence on Phonetic Change*. Ph.D. diss., University of Pennsylvania.

Fruehwald, Josef. 2016. "The Early Influence of Phonology on a Phonetic Change. *Language* 92.2: 376-410.

Hualde, Jose., Tatiana Luchkina, and Christopher Eager. 2017. "Canadian Raising in Chicagoland: The Production and Perception of a Marginal Contrast. *Journal of Phonetics* 65: 15-44.

Idsardi, William. 2006. "Canadian Raising, Opacity, and Rephonemicization." *The Canadian Journal of Linguistics/La revue canadienne de linguistique* 51(2): 119-126.

Inkelas, Sharon and Yvan Rose. 2007. "Positional Neutralization: A Case Study from Child Language." *Language* 73: 707-736.

Joos, Martin. 1942. "A Phonological Dilemma in Canadian English." *Language* 18: 141-144.

Kaye, Jonathan. 1990. "What ever happened to dialect B?". In *Grammar in Progress: GLOW Essays for Henk van Riemsdijk*. edited by Joan Mascaró and Marina Nespor, 259-263. Dordrecht: Foris.

Kaye, Jonathan. 2012. "Canadian raising, eh?" In *Sound Structure and Sense: Studies in Memory of Edmund Gussmann*, edited by Eugeniusz Cyran, Henryk Kardela, and Bogdan Szymanek, 321-352. Lublin: Wydawnictwo Kul.

Kilbury, James. (1983). "Talking about Phonemics: Centralized Diphthongs in a Chicago-area Idiolect." In *Essays in Honor of Charles F. Hockett*, edited by Frederick Browning Agard, Gerald Kelley, Adam Makkai, and Valerie Becker Makkai, 336-341. Leiden: Brill.

Labov, William., Sharon Ash, and Charles Boberg. 2005. *The Atlas of North American English: Phonetics, Phonology and Sound Change*. Berlin: Walter de Gruyter.

Labov, William and Ingrid Rosenfelder. 2011. The Philadelphia Neighborhood Corpus. *University of Pennsylvania, Linguistics Laboratory, Philadelphia*.

Moreton, Elliott. 2016. "Prosody Morphology Interaction in English Diphthong Raising in a Mississippi Dialect." *Southern Journal of Linguistics* 40.2: 15-58.

Moreton, Elliott, and Erik Thomas. 2007. "Origins of Canadian Raising in Voiceless Coda Effects: A Case Study in Phonologization." In *Papers in Laboratory Phonology 9*, edited by Jennifer Cole and Jose Hualde, 37-64. Cambridge: Cambridge University Press.

Nycz, Jennifer. 2016. "Awareness and Acquisition of New Dialect Features." In *Awareness and Control in Sociolinguistic Research*, edited by Anna Babel, 62-79. Cambridge: Cambridge University Press.

Pater, Joe. 2014. "Canadian Raising with Language-specific Weighted Constraints." *Language* 90.1: 230-240.

Rankinen, Wil. 2014. *The Sociophonetic and Acoustic Vowel Dynamics of Michigan's Upper Peninsula English*. Ph.D. diss., Indiana University.

Roberts, Julie. 2007. "Vermont Lowering? Raising Some Questions about /ai/ and /au/ South of

the Border." *Language Variation and Change* 19: 181-197.

Rose, Yvan and Sharon Inkelas. 2011. "The Interpretation of Phonological Patterns in First Language Acquisition." In *The Blackwell Companion to Phonology* (v. 4), edited by Marc van Oostendorp, Colin Ewen, Elizabeth Hume, and Keren Rice, 2414-2438. Oxford: Wiley-Blackwell.

Strelluf, Christopher. 2018. *Speaking from the Heartland, The Midland Vowel System of Kansas City*. Publication of the American Dialect Society 103. Durham, N.C.: Duke University Press.

Thomas, Erik. 2000. "Spectral Differences in /ai/ Offsets Conditioned by Voicing of the Following Consonant." *Journal of Phonetics* 28.1: 1–25.

Vance, Timothy. 1987. "'Canadian Raising' in Some Dialects of the Northern United States." *American Speech* 62: 195-210.

STUART DAVIS is professor of Linguistics at Indiana University. His primary area of research is phonology with a focus on typological issues related to prosodic structure within the word and a language focus on American English and Arabic dialects. He has secondary research interests in morphology, sociolinguistics, and the early history (19th century) of American linguistics. His publications have appeared in a wide variety of journals and edited volumes. E-mail: davis@indiana.edu

KELLY BERKSON is an assistant professor of Linguistics at Indiana University. Her research combines documentary field work with phonetic/phonological investigation of typologically rare sounds and patterns, employing a multimodal approach to investigate the complex connections between the physical instantiation, perception/interpretation, and phonotactic distribution thereof. Berkson often focuses on languages from the Indic and Kuki-Chin language families, and prioritizes working with marginalized languages in collaboration with local communities. E-mail: kberkson@indiana.edu

ALYSSA STRICKLER is a PhD student in Linguistics and Cognitive Science at the University of Colorado, Boulder. She has a Bachelors degree in Linguistics from Indiana University. She is interested in the relationship between speech production and perception, specifically in instances of sound change. E-mail: alyssa.strickler@colorado.edu