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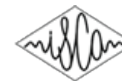


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## Uptalk in Midwestern American English

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### Abstract

This study examined the distribution of uptalk contours across male and female speakers of two Midwestern dialects of American English. Sixteen speakers, evenly divided between dialect and gender, were recorded reading ten passages in plain lab speech. The contours defined as uptalk in this study were H\* H-H%, H\* L-H%, L\* H-H%, and L\* L-H%. The results indicate that neither gender nor dialect had an effect on overall uptalk frequency, which could reflect prosodic similarities in the two dialects. Gender and dialect also had no significant effect on the types of uptalk contours used: speakers from both dialects used only three of the four uptalk contours that were examined (H\* L-H%, L\* H-H%, and L\* L-H%). Further, Midwestern American English speakers prefer contours with L\* pitch accents to contours with H\* pitch accents, suggesting differences in uptalk contour production between English varieties in the Midwest and other North American varieties.

**Index Terms:** uptalk, gender, regional dialect

### 1. Introduction

The phenomenon of rising tunes in declarative utterances, also known as high rising terminals or uptalk, has been documented across many varieties of English, including those spoken in Australia [1], New Zealand [1, 2], Southern England [1, 3], Canada [4, 5], and the United States, with much of the research and media attention surrounding uptalk in North America focusing on Southern California English [3, 6, 7].

Despite the widespread use of uptalk in English, previous research has revealed different intonation contours and discourse functions for uptalk in different dialects. In Australian English, contours described as L\* H-H% and H\* H-H% are used in both questions and declarative utterances, particularly when the speaker wants to hold the floor [8], negotiate turn taking [9], or verify understanding [9, 10] in a variety of contexts ranging from narratives to statements of fact [10]. In North America, the uptalk contours of South Ontario English have been identified as L\* H-H% and H\* L-H% [4]. In Southern California English, Barry [3] identified the most common uptalk contours as L\* H-H% and H\* H-H%, whereas Ritchart and Arvaniti [7] found that uptalk contours in Southern California English are distinct from question contours, and that questions bear the L\* H-H% contour while statements bear L\* L-H% and, less frequently, H\* H-H% contours. Thus, even in North America, the contours associated with uptalk vary across regional dialects: Ontario English has an uptalk inventory of L\* H-H% and H\* L-H% [4], whereas Southern California English has an inventory of L\* H-H%, H\* H-H%, and L\* L-H% [3, 7]. In addition, Armstrong, Piccinini, and Ritchart [11] compared uptalk productions in Massachusetts English and Southern California

English and found that while the frequency of uptalk usage was unaffected by dialect, there was significant dialect variation in the phonetic realization of uptalk, particularly in duration and pitch range. Thus, even for dialects with similar inventories of uptalk contours, phonetic variation in uptalk has been observed.

While evidence suggests that uptalk may be a common feature across English dialects and that its usage is stable across age groups [4], uptalk is usually associated with the speech of young women, although it is exclusive neither to women nor teenagers [4, 9, 10]. In some studies, women have been observed to produce a higher frequency of uptalk overall across dialects, including in Canadian [5] and New Zealand [2] English and this difference between genders occurs regardless of age [4]. However, other studies have not found gender differences in the frequency of uptalk usage [11], especially in read speech [5], likely due to the pragmatic functions of uptalk in spontaneous speech. Although certain usages in spontaneous speech, such as confirmation requests, exhibit no gender differences in uptalk [7], there are gender differences in contexts such as map tasks, in which women use uptalk more frequently than men for the purpose of floor-holding [3, 7]. Thus, the evidence for gender variation in uptalk usage is mixed and may be limited to particular discourse functions or interactional contexts.

The goal of the current study was to document the distribution of uptalk contours among male and female speakers in the Northern and Midland dialects of Midwestern American English, where uptalk has not previously been examined. We expected to observe a difference in usage across the two dialects and/or between the Midwestern dialects and other regional varieties, as previous research has demonstrated prosodic differences between these dialects and other regional dialects of American English [11, 12, 13]. In particular, Arvaniti and Garding [12] compared the prevalence of rising pitch accents H\*, L+H\*, and L\*+H between Minnesota English and Southern California English speakers and found not only phonetic differences between the dialects in tone alignment but also dialect differences in pitch accent inventories, with Minnesota English speakers lacking the contrast between the H\* and L+H\* pitch accents. Similarly, Clopper and Smiljanic [13] observed dialect differences in the frequency distributions of pitch accents and phrase boundary tones in Southern American and Midland American English.

The current study also considered the distribution of uptalk contours between genders, both within each dialect and as a whole. We expected the results to support previous findings that women use uptalk more than men, although the read speech task in our study may limit our ability to observe gender differences in this sample.

## 2. Methods

### 2.1. Participants

The participants in this study were native speakers of American English between the ages of 19 and 23 years old. Half of the participants were native to the Northern dialect region, which encompasses the northern Midwestern United States around the Great Lakes, while the other half were native to the Midland dialect region, which encompasses the southern Midwestern United States. A map illustrating the two dialect regions is shown in Figure 1. There were 16 participants total, divided into the following groups: 4 Northern females, 4 Northern males, 4 Midland females, and 4 Midland males.

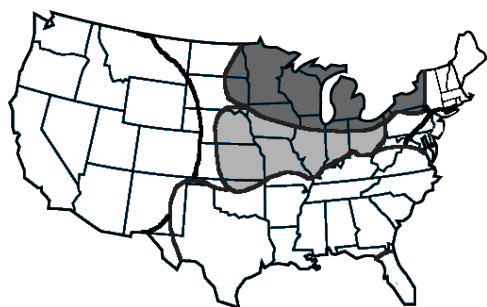


Figure 1: Map of the Midwestern dialect regions, with the Northern region in dark gray and the Midland region in light gray.

### 2.2. Stimulus materials

The participants read 10 short stories that were presented one at a time in random order on a computer screen. The length of the read stories ranged from 23 to 65 seconds in duration. The participants were instructed to read each story aloud as though they were talking to a friend or family member to elicit plain lab speech. They were recorded in a sound-attenuating booth with high-quality digital recording equipment.

### 2.3. Prosodic annotation

The data were analyzed using the Tones and Break Indices (ToBI) annotation system for American English [14]. As in previous research on uptalk [1, 4, 7, 11], this study focused on the contours at intonational phrase (IP) boundaries, including the final pitch accent in the phrase, the phrase accent, and the boundary tone. We analyzed the frequency and distribution of four rising contours that have previously been associated with uptalk in North America: L\* L-H%, L\* H-H%, H\* L-H%, and H\* H-H% [3, 4, 7].

Figure 2 illustrates the L\* L-H% contour produced by a Northern male speaker. There is a low target on the phrase-final word “scheme” followed by a rise to the middle of the speaker’s F0 range. Figure 3 illustrates the L\* H-H% contour produced by a Northern female speaker. There is a low target on the phrase-final word “smooth” followed by a steep rise to the upper end of the speaker’s F0 range. Thus, these two contours share a low final pitch accent, but differ in the extent of the final rise: the rise to the middle of the speaker’s F0 range is transcribed as L-H%, whereas the rise to the upper end of the speaker’s F0 range is transcribed as H-H%.

Figure 4 illustrates the H\* L-H% contour produced by a Northern female speaker. There is a high target on the word

“gym” followed by a drop to the lower end of the speaker’s F0 range and then a rise on “teacher,” which is un-accented in this noun phrase. Thus, the contours in Figures 2 and 4 differ in the target associated with the pitch accent: the pitch accent is L\* in Figure 2, but H\* in Figure 4. Figure 5 illustrates the H\* H-H% contour produced by a Midland male speaker. There is a high target on the phrase-final word “tough” followed by an additional rise to the upper end of the speaker’s F0 range. Thus, Figures 3 and 5 differ in the target associated with the pitch accent: the pitch accent is L\* in Figure 3, but H\* in Figure 5. Figures 4 and 5 differ in the direction of the pitch movement at the phrase edge: the F0 drops to a low target in Figure 4 before rising again whereas the F0 continues to rise to the upper end of the speaker’s F0 range in Figure 5.

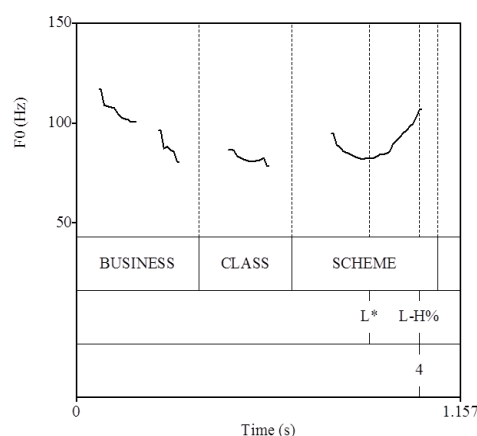


Figure 2: Example L\* L-H% contour produced by a Northern male speaker.

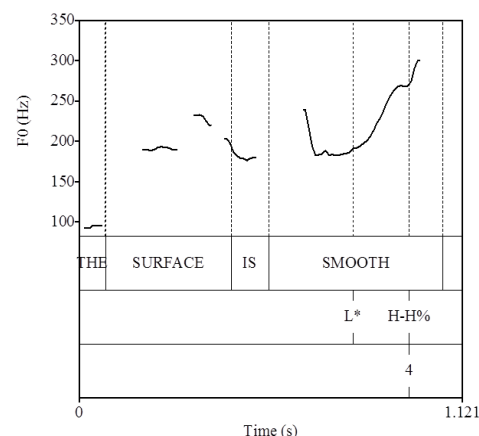


Figure 3: Example L\* H-H% contour produced by a Northern female speaker.

Disfluencies such as reading errors, laughter, and yawning were excluded from the analysis, as were phrases involving a question. A total of 2,133 phrases were analyzed from the 16 speakers (108-165 phrases per speaker).

## 3. Results

Twenty-one distinct contours were identified in this analysis, including the four uptalk contours that are the focus of the current study. A summary of the frequencies of the uptalk

contours relative to all other contours is shown in Table 1. There were only two instances where the H\* H-H% uptalk contour was used, whereas the other three contours were produced more frequently. Overall, the Midwestern American English speakers in this study exhibited a preference for L\* onset contours (75 out of 101 uptalk phrases) compared to H\* onset contours (26 out of 101 uptalk phrases).

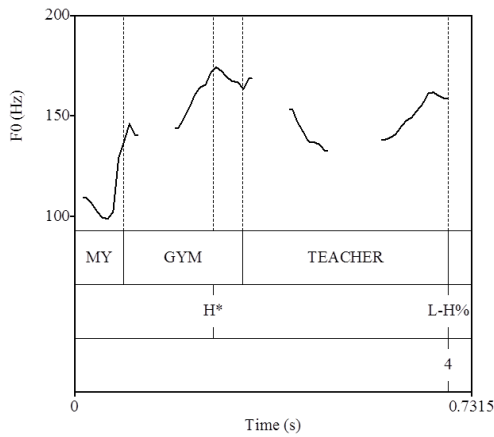


Figure 4: Example H\* L-H% contour produced by a Northern female speaker.

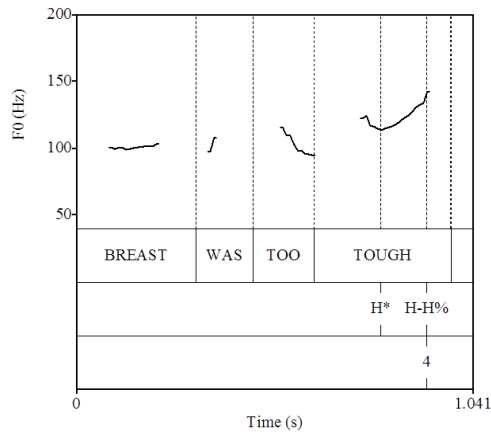


Figure 5: Example H\* H-H% contour produced by a Midland male speaker.

Contour	Number of Phrases
L* L-H%	38
L* H-H%	37
H* L-H%	24
H* H-H%	2
Other contours	2,032
Total	2,133

Table 1. Summary of uptalk contour frequency distribution.

Table 2 shows the proportion of uptalk contours relative to all other contours for each dialect and gender group. The results in Table 2 demonstrate that the overall proportion of uptalk was relatively low (less than 5%) in these data and did not differ substantially across dialects or gender. Note that one Midland female talker produced a large number of uptalk

phrases compared to the other talkers in that category, which is reflected in the larger standard deviation for the Midland Female category than the other groups.

Gender	Region	
	Northern	Midland
Female	0.044 (0.044)	0.058 (0.079)
Male	0.040 (0.030)	0.054 (0.016)

Table 2. Mean proportion of uptalk by gender and dialect. Standard deviations are shown in parentheses. Total number of intonational phrases: Northern Females = 496, Midland Females = 513, Northern Males = 620, and Midland Males = 504.

To explore the potential effects of dialect and gender on uptalk proportion, a two-way ANOVA was conducted on uptalk proportion with gender and dialect as independent variables. The proportion of uptalk was not affected by gender ( $F(1,12) = 0.038$ ,  $p = 0.850$ ), dialect ( $F(1,12) = 0.345$ ,  $p = 0.568$ ), or their interaction ( $F(1,12) = 0$ ,  $p = 0.998$ ), consistent with the very small differences between groups shown in Table 2.

We also examined whether the distribution of the four uptalk contours varied across dialect or gender. Table 3 shows the number of utterances produced with the L\* H-H%, L\* L-H%, and H\* L-H% contours for each gender. The fourth contour, H\* H-H%, was excluded from this analysis because of its rare occurrence overall. It was only produced twice: once by a Midland male speaker and once by a Northern male speaker, both in the same reading passage. Table 3 shows that the difference in contour distribution between genders was very small. Table 4 compares the number of utterances produced with each contour for each dialect, again excluding the rare H\* H-H% contour. The differences between dialects were also very small. The results of a series of chi-square tests confirm that the distribution of the three contours did not differ across region [ $\chi^2 = 3.98$ ,  $df = 2$ ,  $p = 0.14$ ] or gender [ $\chi^2 = 2.27$ ,  $df = 2$ ,  $p = 0.32$ ].

Gender	Uptalk Contour		
	H* L-H%	L* H-H%	L* L-H%
Female	9	21	20
Male	15	16	18

Table 3. Number of utterances with each uptalk contour for each gender.

Region	Uptalk Contour		
	H* L-H%	L* H-H%	L* L-H%
Midland	13	25	17
Northern	11	12	21

Table 4. Number of utterances with each uptalk contour for each dialect.

## 4. Discussion

The results of this study revealed that of the four uptalk contours identified in other North American varieties, only three occurred relatively frequently in this sample of Midland and Northern American English: L\* L-H%, L\* H-H%, and H\* L-H%. The L\* L-H% and L\* H-H% contours occurred most

frequently, followed by the H\* L-H% contour. The H\* H-H% contour occurred only twice in the data. This distribution of uptalk contours suggests an overall preference for uptalk contours with a L\* pitch accent relative to uptalk contours with a H\* pitch accent for Midwestern American English speakers.

These results provide further evidence for differences in uptalk contour inventories across North American English dialects. In particular, South Ontario English shares the L\* H-H% and H\* L-H% contours with the Midwestern English varieties but does not exhibit the third contour, L\* L-H% [4]. Similarly, Southern California English shares the L\* L-H% and L\* H-H% contours with Midwestern American English [3, 7], but Midwestern American English has H\* L-H%, while Southern California English has H\* H-H% [3, 7]. Barry [3] found that the most frequent uptalk contour for Southern California speakers was L\* H-H%, followed by H\* H-H%. However, Ritchart and Arvaniti [7] identified L\* L-H% as the most frequent uptalk contour in Southern California, similar to the results for Midwestern American English in the current study. They also reported that the H\* H-H% contour was the second most frequent uptalk contour in Southern California English, but the H\* H-H% contour was observed only rarely in our data with Midwestern American English. Finally, Ritchart and Arvaniti [7] found that the L\* H-H% contour was used as a question contour, and while question contours were not analyzed in this study, the results demonstrate that Midwestern American English speakers produce L\* H-H% as an uptalk contour in declarative utterances.

Thus, although no differences were found in the current study between the Midland and Northern American English varieties, the results of this study provide further evidence of regional prosodic differences between dialects of North American English. Prosodic differences have been attested in previous direct comparisons between Southern and Midland American English [13], as well as between Southern Californian and Northern American varieties [12], although uptalk was not explicitly compared in these previous studies. There is also evidence of regional differences in uptalk production between Southern California and Massachusetts English [11], which shows that females in both regions produce steeper rises than males and that Southern California females produce rises with the longest duration relative to all other groups in the study. Further analysis of the current data is necessary to explore possible phonetic differences in uptalk in these two Midwestern dialects.

More generally, it remains unclear whether the variation between uptalk inventories in North American English varieties is phonetic or phonological in nature. For example, the variation in Barry's [3] and Ritchart and Arvaniti's [7] findings for Southern California English is interesting because the L\* H-H% contour is variably identified as an uptalk contour and as a question contour, respectively. The infrequency of H\* H-H% as an uptalk contour in Midwestern American English could indicate a phonological differentiation between uptalk contours and question contours, as was similarly found with the L\* H-H% contour in Southern California English [7].

Alternatively, it may be the case that Midwestern American English speakers prefer to produce some rising contours in declarative utterances relative to others. Levis [15] suggested that the H\* L-H% and L\* L-H% contours, as well as the H\* H-H% and L\* H-H% contours, are not perceptually

distinct for speakers in the Northern American dialect region, even if they are distinct in their production. These findings could indicate that while the contours are phonetically differentiated, they are not phonologically differentiated. Thus, the infrequent production of the H\* H-H% contour in Midwestern American English may indicate a phonetic preference for the L\* H-H% contour on the part of the speakers, rather than a phonological distinction between the realization of declarative and question intonation. There is evidence from Australian English that for some speakers there are no discernible differences between question contours and declarative rising contours, while other speakers differentiate between them by producing questions with the H\* H-H% contour and declaratives with the L\* H-H% contour [1]. Further research is needed to determine how Midwestern American English speakers differentiate between statements and questions with rising contours, and whether the H\* H-H% contour is more typically associated with question intonation than with uptalk in these dialects.

The lack of significant effects of gender in the current study could indicate that uptalk usage is less gendered in the Midwest than in other regions. However, this interpretation runs contrary to much of the existing literature on uptalk, particularly in North America [3, 4, 5, 7]. While uptalk may be a linguistic change in progress, even recent studies indicate that women produce uptalk more often than men [5, 7], suggesting that the change is not complete in all varieties of North American English. Further, although many previous studies have focused on uptalk in spontaneous speech [e.g. 3, 4, 7], some have also compared uptalk in read speech between genders and found that gender had no significant effect on uptalk production compared to spontaneous speech [5], similar to the results of the current study. Thus, one possible explanation for our results is that read speech is not as conducive to uptalk usage as spontaneous speech [3, 5]. Because uptalk often serves floor-holding and feedback-requesting functions that require interaction with another speaker, the difference in uptalk production between genders and/or between dialects may be reduced in read speech [5]. Further studies of Midwestern dialects should compare read speech to spontaneous speech to further probe the effects of dialect and gender on uptalk in these dialects.

The use of read speech may also explain the lack of the H\* H-H% contour in our data as well as the dialect differences that we observed between our study and previous studies. Based on an impressionistic analysis of the data, we hypothesize that uptalk in read speech serves a floor-holding function similar to spontaneous speech, but future research should address the pragmatics of uptalk in read vs. spontaneous speech. Our study also involved a relatively small corpus of data with less than 5% of the total utterances exhibiting uptalk. With more data, the effects of gender, dialect, and speech style on uptalk production may become more apparent.

## 5. Acknowledgments

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