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# Intonational variation and change in York English

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## Abstract

The variety of English spoken in the city of York, UK, is of sociolinguistic interest due to ‘recycling’ of traditional dialectal forms such as Definite Article Reduction (*‘to t’pub’*) and Past-Reference *come* (*‘I come home late last night’*) by younger (typically male) speakers; in apparent time studies based on the York English Corpus (YEC), middle-aged speakers (aged 50-70) used these forms less than older speakers (>70), so the patterns had previously appeared to be falling out of use. In this paper we first argue for the existence of a distinctive ‘Yorkshire rise-fall’ nuclear contour, which is sufficiently different in form and distribution from rise-fall contours reported for other varieties of British English that it can be characterized as a traditional (prosodic) feature of Yorkshire dialects. We then explore whether the observed patterns of variation in lexical-grammatical variables are mirrored in variation and change in use of this distinctive Yorkshire rise-fall nuclear contour, in apparent time, via qualitative analysis of data from the YEC.

**Index Terms:** intonation, Yorkshire dialect, language change

## 1. Introduction

### 1.1. Variation and change in York English

York is a city in northern England (population c. 200K [1]) which has attracted the interest of sociolinguists due to its relatively ‘conservative’ character. Tagliamonte [2] explains that York was less affected by the industrial revolution and associated urbanization than other northern cities, experiencing relatively local inward migration in the early 20th century, from other parts of northern England rather than from further afield. The York variety retains many linguistic features typical of ‘Northern’ and/or ‘Yorkshire’ English, though patterns of variation and change in their use may be unique to York.

Tagliamonte [2] investigated *was/were* in data from four generations of speakers in the York English Corpus (YEC). Use of *was* for second person singular/plural (*‘you was here’*) is a feature of northern English which dates back to Middle English, but the study also revealed e.g. increased use by young women of nonstandard *weren’t* in tag questions (*‘So this was like um November, weren’t it?’* [p164]). A well-known York(shire) feature is Definite Article Reduction (DAR) in which *the* is reduced to *t* in certain phonological contexts (e.g. *‘to t’pub’*). Examination of data from 50 YEC speakers in [3] showed that, although middle-aged speakers used DAR less than older speakers, younger male speakers used DAR more than middle-aged speakers. This was interpreted in [3] as ‘recycling’ of the DAR feature by younger male speakers as a marker of local York identity. The same ‘recycling’ by younger male speakers of a traditional feature which had been in decline was seen in a study of *come/came* in contexts with explicit past reference in data from all 92 YEC speakers (aged 15-92 years) [4]. A study of vowel quality [5], using YEC data and new data from young

speakers in 2008, found that GOOSE /u:/ and GOAT /əʊ/ were fronted (higher F2) in younger generations of speakers, though the effect was much larger for GOOSE than for GOAT. This is consistent with wider GOOSE fronting patterns across the UK [6], but reduced GOAT fronting was ascribed to that feature being associated with very local identity (i.e. East Yorkshire, rather than York itself or Yorkshire in general).

In general then, York English shows patterns consistent with wider changes in the UK, as well as local patterns specific to York such as ‘recycling’ of traditional features by younger speakers. The present study investigates a prosodic feature in York English for the first time, and the clear patterns seen in other studies means we can reasonably expect to see variation and change in use of prosodic features also. All of the cited studies used YEC data [2], and the present study uses YEC data also, in the interests of comparison across linguistic features.

### 1.2. Intonation in the North of England

Northern English varieties have received modest attention in the literature on intonational phonology. The most important contribution comes from inclusion of northern varieties in the Intonational Variation in English (IViE) corpus [7], which included data from young speakers in Leeds, Bradford and Newcastle, among nine sampled locations. Recent work [8] has added detailed study of data from Liverpool, with comparison to Manchester, to the evidence base for study of intonational variation in the North of England. The current work arises from a preliminary comparative study of data from Middlesbrough and York [9, 10], but we have found no prior detailed studies of the intonational phonology of York English.

The only study we have found which mentions a rise-fall contour as a potential feature of Yorkshire intonation is work by Wilhelm [11] based on data from Guiseley, West Yorkshire. Wilhelm initially observes that “no particular intonational feature seems to be associated with Yorkshire accents” (p4), but this is nuanced by later mention of distinctive rise-fall contours: “where the pitch returns to the speaker’s baseline, are observed at the end of declaratives where RP speakers would have used simple falls” (p15). The rise-falls are suggested to perhaps have the status of a traditional feature: “they may have been present in [North West Yorkshire] for longer than existing descriptions of Yorkshire accents suggest, especially among teenagers and perhaps as a working class feature” (p15). These observations, together with our own in a prior study [9], suggest that the rise-fall contour is long overdue for detailed further investigation.

### 1.3. The present study

The aim of the present study is i) to document the form and distribution of rise-fall contours in representative samples of speech data in York English, and ii) to look for evidence of variation and change in their use. Overall, the goal of the present study is to establish the status of the rise-fall contour as a traditional linguistic feature present in York English.

## 2. Methods

### 2.1. New production data collected in York 2014-2021

#### 2.1.1. Materials

We used a mix of scripted and unscripted tasks, adopted from or similar to those in IViE [7]. In all modes of data collection there were two scripted tasks: sentences elicited in a question-and-answer paradigm and the Cinderella story. In face-to-face sessions, we also collected unscripted data (story retold from memory, map task in pairs and free conversation in pairs). Table 1 shows a sample of the scripted sentences, originally devised for a study of Middlesbrough English [10]. The full set has 18 lexically distinct items in each of 3 sentence types: broad focus declarative (dec), yes/no-question (ynq) and wh-question (whq). Stress position in the last lexical item is controlled (final/penult/antepenult). Declaratives were prompted with a question consistent with broad focus; speakers produced their own unscripted answers to target questions. In face-to-face recording sessions the A/B roles were played by each participant in turn, who then reversed the roles and repeated the task, so all participants produced all target items. In remote recording, each participant produced both the A and B roles.

Table 1: Sample scripted Q&A sentences.

Type	Role	Target <i>plus prompt or response</i>
dec	A	What happened at the weekend?
	B	I ran eleven <b>miles</b> .
	A	Tell me something about your <i>mam</i> .
	B	Her favourite flowers are <b>roses</b> .
ynq	A	Tell me something about your <i>Mum/Mam</i> .
	B	Her favourite smell is <b>lavender</b> .
	A	Have you run eleven <b>miles</b> ?
	B	<unscripted response>
whq	A	Are her favourite flowers <b>roses</b> ?
	B	<unscripted response>
	A	Is her favourite smell <b>lavender</b> ?
	B	<unscripted response>
whq	A	Why did you run eleven <b>miles</b> ?
	B	<unscripted response>
	A	Which garden has <b>roses</b> ?
	B	<unscripted response>
	A	Why do you love <b>lavender</b> ?
	B	<unscripted response>

#### 2.1.2. Participants

We report here on data from 20 speakers: 12 were recorded in face-to-face (F2F) sessions in 2014-2019 (10F/2M) and 8 were recorded remotely in 2021 (2F/6M). Table 2 shows the split of participants by age, sex and mode of recording.

#### 2.1.3. Procedure

In person recordings were made in pairs, with one speaker per channel, via head-mounted Shure SM-10 microphones, in wav format at 44.1KHz 16 bit on a Marantz PMD 660. For remote data collection, participants recorded themselves at home in a quiet environment using Awesome Voice Recorder [12] on their own device. Participants were asked to adjust the app settings to record in wav format at 44.1KHz 16bit and this was mostly achieved; data for one speaker was recorded in m4a format but was converted to wav and included in the analysis.

Table 2: Participants (York 2014-2021 data).

Age	Sex	F2F	Online	Total	Age Range	Mean Age
young	female	4	2	6	18-35	23.6
	male	0	2	2	28-36	32
older	female	6	0	6	45-72	54.8
	male	2	4	6	45-74	57.1
		<b>12</b>	<b>8</b>	<b>20</b>		

#### 2.1.4. Analysis

We report here initial results only from this new production data, drawing primarily on the scripted sentences, which yield a potential dataset of 1080 tokens (18 lexical sets x 3 sentence types x 20 speakers). Removal of disfluent tokens left 971 tokens for analysis (336 dec + 324 whq + 311 ynq). Each token was manually labelled by syllable in the last lexical item and Praat scripts used to extract the F0 contour in each token at 10 time points per syllable in the target word. Measurements were taken in Praat Pitch objects in which pitch tracking errors had been manually corrected. Time-normalized visualizations of nuclear contours are plotted using ggplot [13] in R [14]. Plotting all contours across multiple tokens is useful to illustrate which patterns are ‘typical’, by sentence type and speaker group.

Each token was also annotated by the first author for nuclear contour shape using a ToBI-style annotation system [15]. At this stage of analysis of York intonation, the labels are used to describe the observed contours, without any claim as to their status as contrastive in this variety. Visualization of F0 contours in the last lexical item thus serves also to corroborate the qualitative annotation, plotting contours by assigned label, so readers can see the degree of variation in contour shape within and between the key labels (i.e. contours) of interest.

### 2.2. York English Corpus data subset

The York English Corpus [YEC] was created by Tagliamonte [2] and comprises sociolinguistic interviews recorded with 92 speakers aged 15-91 years who were all born, raised and resident (at time of recording) in York. As in previous studies, such as [2, 3], we analyzed data from a subset of speakers only.

#### 2.2.1. Participant sample

We selected 24 speakers from YEC to achieve a balanced sample by age, sex and social class (see Table 3). For social class we relied on an unpublished analysis [Kerswill p.c.], which provides an indication of socio-economic category (SEC 1-7) for each YEC speaker. The 12 working class speakers in our data subset were classified as SEC 5 or 6 (mean 5.42), and the 12 middle class speakers as SEC 3 or 4 (mean 3.25). In line with other work on YEC [2-4], we selected speakers in three age groups: young, middle-aged and older. We selected only speakers where recordings were not affected by background noise, leading to small differences in age range across groups.

Table 3: Speaker sample (from York English Corpus).

Sex	Age Group	N	Age Range	Mean Age
F	young	4	31-38	34.0
	mid	4	47-65	59.3
	old	4	70-79	73.8
M	young	4	23-43	28.5
	mid	4	50-66	58.8
	old	4	72-84	78.8

### 2.2.2. Procedure

Participants were interviewed by a trained researcher who was also born and raised in York. Most interviews last over an hour. The data were originally recorded in an analog format (cassette tape) but have been digitized to wav format (22.05KHz 8bit). Each side of a tape (c. 30 minutes) is digitized to a separate wav file, and for each of our 24 selected speakers we selected one 30 min wav file for analysis (based on best sound quality). The amount of speech produced by each target participant varies, due to the nature of the sociolinguistic interview format.

### 2.2.3. Analysis

We searched the 24 x 30 minute wav files for i) *rise-fall tokens* (utterances with a rise-fall prosodic contour, in any context or utterance position) and ii) *sentence type tokens* (utterances containing a broad focus declarative, yes/no-question or wh-question), to facilitate investigation of the form and distribution of rise-fall contours in the YEC corpus data, as well as any variation and change in their use across speakers in the data subset. Each utterance identified as a rise-fall token or sentence type token was extracted from the long interview file for analysis. The nuclear contour in each utterance (regardless of position in the utterance) was manually annotated by the first author, to assign a prosodic contour label and to identify the lexical item or items which bear the nuclear contour. A Praat Pitch object was created for each utterance and tracking errors manually corrected. A Praat script was used to extract F0 at 10 points in each syllable of the lexical item(s) bearing the nuclear contour, to allow visualization of the shape of rise-falls in the YEC corpus, for comparison with those in York 2014-21 data.

## 3. Results

### 3.1. Form

Figure 1 shows time-normalized F0 in the last lexical item of scripted sentences in the York 2014-21 data for tokens labelled as a fall ( $H^* L\%$ ) or a rise-fall ( $L+H^* L\%$ ). In rise-fall contours, the start of the rise is aligned stably at the start of the onset of the stressed syllable; the F0 peak occurs about two-thirds into the stressed syllable in stress-initial disyllables and trisyllables, and at or before the midpoint of the stressed syllables in monosyllables. Recall that all of these target words were elicited in phrase-final position, so this alignment may reflect peak retraction due to proximity of the phrase boundary [16].

These alignment patterns suggest the provisional label used for these contours ( $L+H^* L\%$ ) is a plausible representation. The 'rise' part of the rise-fall tracks the position of the stressed syllable, with the fall realized over any material occurring between the stressed syllable and the end of the phrase. This compares to an earlier peak in falling contours provisionally labelled as  $H^* L\%$ .

The  $H^* L\%$  versus  $L+H^* L\%$  contrast is seen most clearly on words with stress on the penult or antepenult syllable (middle/right panels in Figure 1). The rise-fall contours appear also, on average, also to be realized with wider F0 excursion, in comparison to the falls, in most of the contexts. The grey lines in Figure 1 visualize each individual scripted utterance, and provide a check on the extent to which annotation labels have been consistently applied and/or the degree to which speakers vary from the general alignment tendencies.

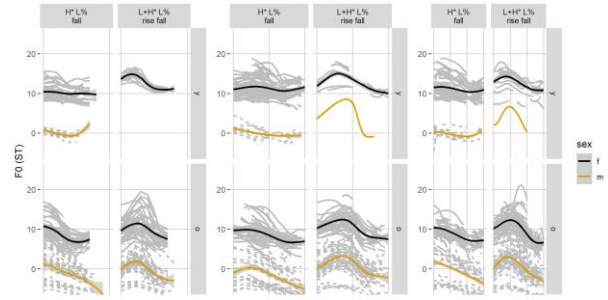


Figure 1: Time-normalized smoothed individual and average F0 in scripted falls/rise-falls ( $N=727$ ) by age, sex and # syllables; each vertical section = 1 syllable.

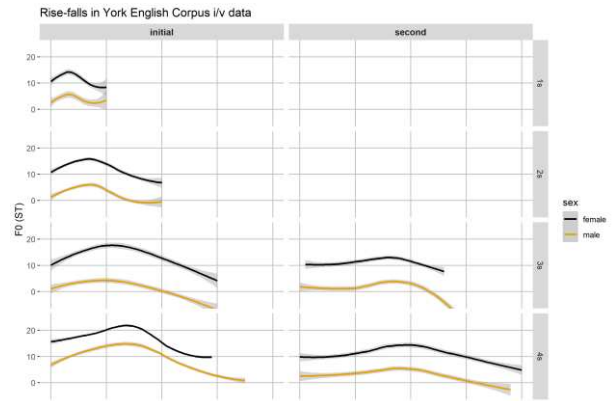


Figure 2: Time-normalized loess-smoothed F0 in rise-fall contours in YEC corpus ( $N=91$ ) by stress position and # syllables; each vertical section = 1 syllable.

Figure 2 shows the time-normalized average F0 curve in rise-fall contours identified in the YEC corpus data ( $N=91$ ), split by position of the accent in the word or phrase which bears the contour (on the first or second syllable of the word) and by the number of syllables in the word or phrase (ranging 1-4). Alignment patterns in the YEC corpus in Figure 2 are similar to those in scripted speech in Figure 1, with the start and end of the 'rise' portion of the contour tracking the accented syllable. When the contour is realized over four syllables with accent on the first syllable (in a word like *'instigators'*) the peak is aligned just outside the accented syllable, in the post-accentual syllable, perhaps due to the greater distance from the phrase edge thus subject to less peak retraction.

Based on observed consistent form across speakers and contexts, in both datasets, we propose that the rise-fall is a distinctive and identifiable contour used by York speakers. The  $L+H^* L\%$  contours identified in our data are similar in alignment and scaling to the individual cases noted by [11], but it is beyond the scope of this initial study to show whether the contour we observe in York data is distinct from the rise-fall contour in other varieties of English such as RP, as [11] claims. However, we also observed *late peak rise-fall* contours in the scripted data, provisionally labelled  $L^*+H L\%$  (see Figure 3), which give the auditory impression of counter-presuppositional meaning (i.e. marking something as unexpected). These late peak rise-falls may be the York(shire) equivalent of the rise-falls observed in RP, so that the  $L+H^* L\%$  is indeed a distinct contour, and this possibility merits further investigation.

### 3.2. Distribution

Figure 3 shows counts of all contours observed more than once in the York 2014-2021 scripted data (two contour labels were used only once each and those were excluded). The majority of tokens were labelled as falls ( $H^* L\%$ ) or rise-falls ( $L+H^* L\%$ ). Falls are more common ( $N=416$ ), than rise-falls ( $N=311$ ), but those who use rise-falls, use them across all sentence types (though slightly less in ynqs): dec=104; whq=118; ynq: N=89. In the YEC corpus, the observed rise-falls ( $N=91$ , Figure 2) mostly occurred in declaratives due to the narrative interview context, but some rise-falls were seen in ynqs and whqs.

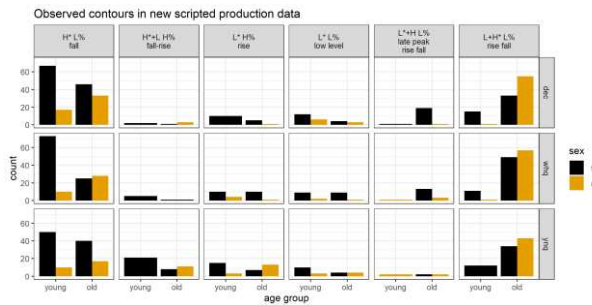


Figure 3: Counts of all contours in York 2014-21 data ( $N=969$ ) by contour, sex, age and sentence type.

In sum, in both datasets the rise-fall can be used by speakers of York English across sentence types (dec/whq/ynq). Our data addresses only a narrow set of semantic contexts, but in other English dialects the same illocutionary force distinctions are reported as typically realized with differing contours. A parallel to our findings, where speakers can use a single contour on all three sentence types, has been reported for dialects which use an Urban North British rise e.g. Belfast and Newcastle [17].

### 3.3. Variation (and Change?)

Figure 1 shows that rise-falls are used much more frequently by older speakers than younger speakers in the York 2014-21 data. Figure 3 illustrates further the variation by age and sex for all observed contours, in that dataset. There is a trade-off between falls and rise-falls: more falls by younger speakers is mirrored by more rise-falls by older speakers, and younger speakers produced few contours labelled as rise-falls overall ( $N=40$ ). Among older speakers, there is also a tendency for males to use rise-falls more than females, mirrored by more use of falls by older females than older males. We don't see more rise-falls produced by young males than young females, but recall that the sample is not fully balanced (two young male speakers only). Visually, in Figure 3, there does not appear to be an obvious interaction between sentence type and age or sex as factors that condition, or are consistent with, a rise-fall contour. Instead, we see the same mirror image by age and sex within each sentence type (dec/ynq/whq), with a tendency towards more rise-falls from older speakers and and from male speakers.

Figure 4 shows rise-falls in the YEC data ( $N=91$ ) split by age, sex and social class. Among speakers identified as middle class, we see a 'recycling' pattern (as defined in section 1.1): more of the observed rise-falls were produced by older and younger speakers than by middle-aged speakers. We do not see this recycling among working class speakers, though, with fewer of the observed rise-falls produced by working-class speakers (apart from a large number from one female speaker).

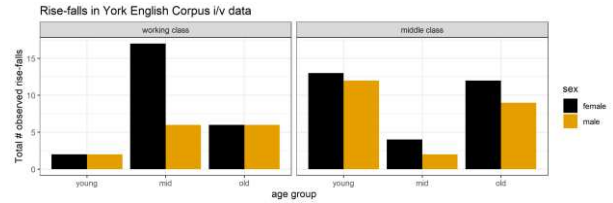


Figure 4: Counts of rise-fall contours identified in the YEC corpus sample ( $N=91$ ) by sex, age and class.

Overall though, there is evidence of variation in use of the rise-fall by age and sex, in both datasets. The York 2014-2021 data is split into two age groups only so does not allow investigation of potential patterns of 'recycling', though few rise-fall tokens were produced by younger speakers in general.

This pattern of variation, with greater use of the rise-fall by older speakers and by male speakers is consistent either with *change* in use of rise-falls in York English, or *age-grading* of the rise-fall as a traditional dialect feature. Young speakers in 1998 would be old speakers in our 2021 dataset (our youngest YEC speaker was 23 in 1998 and would be 46 in 2021), almost all of whom were using the rise-fall more frequently. Further research is needed to determine the full set of internal and external factors which may condition variation in use of the rise-fall in York English. Crucially, however, this first analysis strongly suggests that the rise-fall is a traditional feature of York English which shows consistent patterns of variation and potential change, and is worthy of further investigation.

## 4. Discussion

We have demonstrated consistent form and distribution of a rise-fall  $L+H^* H\%$  contour in data from York speakers. We propose that the rise-fall is a traditional feature of York English, very likely also to be found (or to have been found) in a range of dialects across Yorkshire and perhaps beyond. Further work in perception is needed to determine what aspects of alignment and/or scaling of the contour renders it recognizable as a York(shire) rise-fall, and to explore strength of association of the contour with York(shire) as a social category. We suggest however that the rise-fall is highly recognizable, thus amenable to investigation as a variable of sociolinguistic interest.

The observed distribution of rise-falls across sentence types generates a potential difficulty for sociolinguistic investigation, however, since it appears that the rise-fall could in principle be used in any context, or at least regardless of illocutionary force. This makes it hard to implement a standard variationist count of occurrences of a feature as a % of all possible occurrences. At present such a count in York English would need to report % rise-falls as a proportion of all observed nuclear contours. Further work on the intonational phonology of York English is needed to delimit the full distribution of this distinctive contour.

## 5. Acknowledgements

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