

# A Preliminary Analysis of Yes / No Questions in Glasgow English

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## Abstract

One of the three possible intonation patterns found in Glasgow English y/n questions end in mid pitch. An account of this contour with H% - relatively high pitch - though explanatorily adequate because of a semantic generalisation that groups most questions together, is descriptively inadequate because of the pitch height consistently reached, mid level, and not relatively high pitch. To achieve both explanatory and descriptive adequacy, I propose an analysis with downstep of the right boundary tone H, which would yield a unified account of these mid level endings. This proposal, then, means another possible phonetic implementation of H%.

## 1. Introduction

McClure [1] notices the resemblance of the patterns for both statements and y/n questions in Western Scottish English. What is of interest for this paper is that he describes y/n questions with highly informative content as having a final fall whose pitch is far from reaching the baseline; besides, he also maintains that there does not exist true rising intonations in this accent unless the speakers emphasize them emotionally. Most relevant for our purposes is his use of the terms 'mid pitch' or 'middle of the voice range' through his paper, since it affects not only statements but also y/n questions. When other authors approach the intonation of Glasgow English what stands out is the more extensive use of rises employed in such geographical areas, as stated by Cruttenden [2]. He observes that Glasgow English prefers "a rising glide on the nuclear syllable or a jump-up between the nuclear syllable and the following unaccented syllable". The description of these typical intonation contours is also included in Mayo [3], who captures this observation in terms of the following phonological representation in her evaluation study of GlaToBI: L\*H (though retaining both the original ToBI L\*+H and L+H\* as well if we want to consider alignment as the distinguishing factor between different types or rise). From these analyses it is clear that the issue at stake pertains primarily to the nature of the last pitch accent in the intonation contour. Here, I approach the issue from the perspective of the last edge tone, assuming that it might play a crucial role in the account of the contours under study. My concern is to put forward a preliminary study of the intonation patterns of y/n questions found in this Scottish accent and to verify the validity of a tentative proposal of the phonological structure which accounts for the specific type 'mid level' ending manifested recurrently in interrogative utterances. Thus, the objective is to offer an account which captures the features common to all questions and yet the identifying properties of

each type. The data described in the next section is analysed within the autosegmental metrical theory. The notation used will be ToBI annotation conventions as found in [4].

## 2. Data description

This paper presents the analysis of 4 y/n questions of a total amount of 40 utterances which constitutes a reduced – but otherwise illustrative – sample contained in the HCRC Map Task Corpus [5], task-oriented texts whose goal is to elicit spontaneous speech. The number of speakers is 5 male and 5 female university students showing a western Scottish (Glasgow) English variety. These speakers are part of the informants for the Map Task Corpus.

The y/n interrogatives analysed present three different post-nuclear contours which end in relatively high pitch, relatively low pitch and something which is consistently perceived as neither high or low (cf. in this respect Mayo's description of the tonal height reached in its Glaswegian phonetic manifestation, which is mid-to-high plateau [3]).

Examples of F0 contours ending in relatively high pitch are utterances like *So you're gonna RIGHT?* (see figure 1 in the appendix). A rising movement can be perceived on the nuclear syllable *RIGHT* (starting approximately at 223 Hz), and whose final height reaches 317 Hz, this value corresponding to the end of the tune. (I include the description of the F0 contour from the last pitch accent to the end of the curve, and I follow the convention that shows accented items in uppercase).

The utterance *Have you got a STILE?* illustrates a clear low F0 end point. Figure 2 shows a drop in pitch which starts already at the nuclear syllable *STILE* (256 Hz) and continues to the end of the tune (183 Hz).

*Have you got a saVANah?* and *Do you HAVE WHITE WAtter?* exemplify the third type of post-nuclear contour, that of a mid level pitch ending. For both speakers, pitch can be said to end approximately at the same level, mid position in their range. Figure 3 shows that the F0 contour falls from the pre-nuclear *Have you got a sa-* over the nuclear syllable – *VAN-* (194 Hz). Then there is an upward movement over *-nah* (256 Hz). The F0 contour over the question *Do you HAVE WHITE WAtter?* (see figure 4) is perceived as a series of steps down from *HAVE* to *WHITE* and from this to the nuclear syllable *WA-* (111 Hz). At this point, pitch rises again (although it is not visible in the F0 contour due to microintonation effects, it is clearly perceivable) and then it drops to mid level on *-ter* (121 Hz).

### 3. Data analysis

#### 3.1. The phonological representation

The first two types of intonation contours described in the previous section can be accounted for by the following edge tones shown in (1) (here, I will focus on the rightmost boundary tone; any issue related to the phrase accent is left for further research):

- (1)
- i) H%
  - ii) L%

i) is the tonal unit that best accounts for interrogatives of the kind illustrated by figure 1, namely, relatively high pitch at the end of the tune, and ii) accounts for the low ending contour in fig. 2.

The semantic correlate of questions like that in figure 1 both in RP and in Glasgow English is clearly a demand for information that must be supplied by the addressee, what is traditionally termed a 'query'. This semantic idea of incompleteness – the information is to be completed with the addressee's response – is characteristically reflected by means of relatively high pitch at the end of the F0 contour, which is the phonetic interpretation of H% in the phonological representation (this does not necessarily exclude McClure's claim [1] about questions emotionally loaded). Interrogative sentences that end in relatively low pitch in the data vary between a demand for information and a different pragmatic meaning which sometimes is interpreted as asking for confirmation, some other times reflect that the question is not highly informative, and occasionally is the speaker's deduction that something might be the case.

Although i) and ii) in (1) are descriptively adequate representations for the contours in figures 1 and 2 respectively, they are not so for the contours in figures 3 and 4. These contours, which are perceived as ending in mid level pitch need then further investigation to clarify the points in (2):

- (2)
- i) should we resort either to H% or L% in the phonological representation (or even another phonological unit like that proposed for other accents of English: 0% [6])? or, alternatively,
  - ii) should we suggest another possible phonetic implementation of the boundary tones?

### 4. Discussion

#### 4.1. H% or L%?

The final falling pitch movement of figure 4, which is perceived as far from reaching the baseline, does not correspond to the 'default' phonetic interpretation of L% (relatively low pitch). Instead, the resulting contour resembles more the height of mid level intonation. There are two possibilities here: either that the F0 trace at this point be the phonetic manifestation of an upstepped L% *à la* Pierrehumbert [7]; or, conversely, that we are confronted with a pitch inflexion that corresponds to the interpretation of H%.

The first option poses two problems. First, this L does not receive the expected phonetic interpretation (remember figure 4 is one of the questions that exemplify mid level intonation).

Second – as Lindsey [8] points out – such an analysis fails to capture a semantic generalization. For this reason, I reject Pierrehumbert's proposal in favour of Lindsey's, who defends the view that all those contours that do not end in a neutral low pitch – the default option for the rightmost 'boundary tone' – share the characteristic "incompleteness" and are uniformly accounted for by H%. The main advantage in the choice of this boundary tone is that mid levels like those observed in these Scottish utterances all reach a satisfactory degree of explanatory adequacy, for they are interpreted as having a common pragmatic meaning "incomplete". However, the adoption of H% in these questions poses one further problem, that of descriptive adequacy.

#### 4.2. Descriptive adequacy of H%

The tonal height of H% corresponding to our figures 3 and 4 is not the usual interpretation of this edge tone, relatively high pitch. In order to reach not only explanatory, but also descriptive adequacy, I pursue further the explanation with H% as the boundary tone that best accounts for these mid level tunes. Another factor I investigate is whether such mid level results from the interpretation of a downstepped H%. Justification of this connection between boundary tone and downstep will be found in 4.4.

#### 4.3. Downstep

Downstep is one of the most controversial issues of autosegmental metrical phonology. Still, authors share the idea that downstep is triggered by sequences of the type H L H (cf. Ladd [9] and references therein), though differing in its details.

In the light of the points in (3):

- (3)
- i) downstep is also an edge effect, as observed in calling contours (Cabrera-Abreu and Maidment [10]),
  - ii) no extra phonological units are proposed for its account [10], and
  - iii) both pitch accents and phrase accents constitute tonal events undergoing lowering of pitch,

I suggest that, by the same token, the rightmost boundary tone H% can also undergo downstep, represented as !H%.

#### 4.4. Downstep of the right boundary tone

The upward movement to mid level from -VAN- to -nah illustrated in fig. 3 is accounted for by the sequence L\* H- !H%. In fig. 4 the downward movement to mid level from WA.- to -ter is represented in terms of !H\* !H- !H%. The phonetic manifestation of !H% is not relatively high pitch, but mid pitch because of the downstep feature. A distinction then can be drawn between edge tones of the type H% (relatively high pitch), L%, (relatively low pitch) and !H% (mid level). The phonological representation of figures 3 and 4 missing in 3.1 can now be expressed as in (4):

- (4)
- !H%

#### 4.5. Implications of positing downstep of the boundary tone

The claim that the boundary tone is downstepped shows the following consequences for phonological theory:

1. the downstep feature may also be applied to the other boundary tone, !L%. This, however, is redundant, since the default value of L% is already relatively low pitch;
2. this proposal should be able to account also for sustained pitch followed by mid level, which is a further possibility that might be found. If so, the question that should be addressed is whether the phonological representation !H- !H% is a descriptively adequate account for such a contour, the first element being interpreted as sustained pitch and the boundary tone receiving the interpretation of mid level pitch.
3. what, if any, are the conditions that should be met for the stepping proposed?

The answers to 2 and 3 are clearly beyond the scope of this paper, since further analysis is needed to investigate the following:

- (5)
  - i) whether sustained plus mid pitch is also attested in the data, and
  - ii) how our proposal of downstep fits in the rest of the phonological system.

### 5. Conclusions

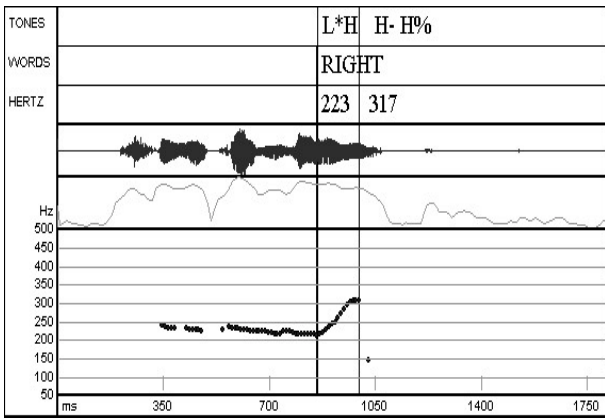
1. Mid level endings in Glasgow English y/n questions cannot be accounted for by the default values of L% or H%, but by the downstepped variant of the latter.
2. Positing !H% offers a unified account of all these mid level ending contours irrespective of the fact that the final pitch movement comes from relatively high or relatively low pitch.
3. 1 and 2 question the nature of downstep as being directly related to the string H L H. Instead, I suggest that it is another possible implementation of H%.

### 6. References

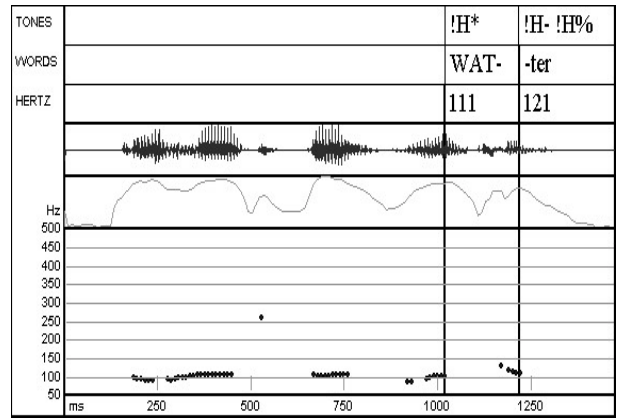
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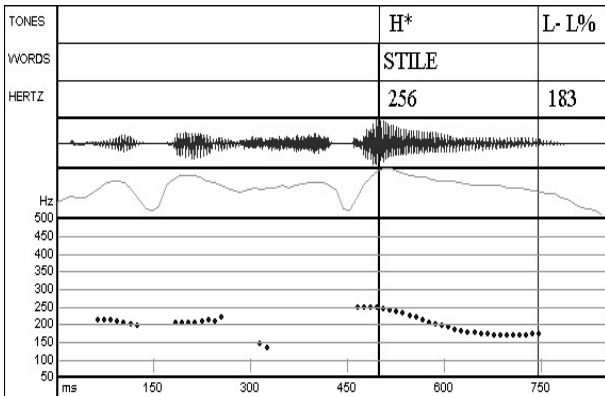
## Appendix



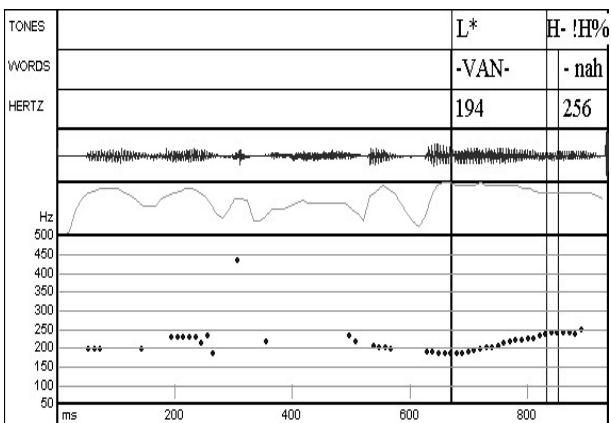
*Figure 1. So you're gonna RIGHT?*  
L\*H H- H%



*Figure 4. Do you HAVE WHITE Water?*  
!H\* !H- !H%



*Figure 2. Have you got a STILE?*  
H\* L- L%



*Figure 3. Have you got a saVANnah?*  
L\* H- !H%