



Towards a typological classification and description of HRTs in a multidialectal corpus of contemporary English

Stephan Wilhelm

TIL Laboratory, University of Burgundy, France

sbwilhelm@orange.fr

Abstract

This paper investigates some of the phonetic characteristics of the High Rising Terminal (HRT), a major intonational innovation now attested in numerous dialects of English worldwide. Based on a corpus containing recordings of different geographical varieties of contemporary English, it presents an inventory of the intonation patterns used to realize the HRT. It also suggests that late rising could prove a useful discriminatory criterion to distinguish HRTs from the rises traditionally observed on declaratives in Northern British varieties of English (Urban North British Intonation). Some concluding remarks are made on the syntactic structure of the segments with which the High Rising Terminal is associated.

Index Terms: English, HRT, High Rising Terminal, intonation, UNBI, uptalk, upspeak

1. Introduction

The emergence of the so-called High Rising Terminal (henceforth HRT) – sometimes also referred to as *uptalk* or *upspeak* – has recently attracted considerable attention in academic literature (for example [1-10]).

There is considerable variability in the descriptions of the HRT. Although most authors agree that uptalk consists in rising nuclear tones being used on declaratives, [1] suggests that the term sometimes applies to rising tones observed in association with both questions and declarative statements. In the present study, we consider that the appellation only refers to those rising contours that are observed at the end of declarative utterances.

Uptalk has sometimes been assimilated to the rising tones associated with declaratives in northern British locations like Belfast, Glasgow or Liverpool (cf. e.g. [1, 2]). HRTs and northern British rises are essentially distinct, however. Whereas upspeak has apparently emerged only relatively recently in varieties of English in which it was not formerly established [e.g. 11], the rises used on declaratives in Northern Britain are thought to have been present for centuries in the areas concerned as unmarked, traditional features of an intonation system known as Urban North British Intonation or UNBI [12-15]. This influenced the methodology used in this study (2.2.).

Although HRTs were initially described as rising tones observed on declarative statements in those geographical dialects of English where rising declaratives are not recognized as a traditional feature [5, 16, 17], it is now also reported in northern British varieties of English, whose intonational system is UNBI [13]. In these dialects, distinguishing HRTs from traditional rising tones has sometimes been said to be relatively straightforward [18]. It is, however, not so easy to pinpoint the exact nature of the discriminating criteria [15].

The description of the speech segments in which HRTs occur also varies from paper to paper. Some intonationists

define uptalk as rising tones observed at the end of *statements* [1, 2] while others describe them as occurring at the end of *declarative phrases* [4], *declarative sentences* [12] or *declarative clauses* [5, 19, 20]. Along with [6] and [10], we define HRTs as rises observed at the end of *declarative utterances* (or *statement utterances*), by which we mean declarative acts performed by a speaker to an addressee in a given speech situation. The issue of how to identify ‘declarative utterances’ in an oral corpus of spontaneous speech will be addressed *infra* in 2.2. and 3.3.

Lastly, some authors (e.g. [18]) consider that the name ‘High Rising Terminal’ implies that the intonation contours favored by ‘uptalkers’ are mainly *high-rises* in the sense used in the British tradition of intonational analysis, that is rising nuclear tones that start relatively high in the speakers’ pitch range and end at a very high pitch, so that the voice often becomes ‘squeaky’ [16]. Others (e.g. [2, 6., 7]) classify as uptalk several other tunes with a high end point, regardless of the pitch height of their starting point, whereas [5] and [21] also regard as HRTs a number of contours that end relatively low in the speaker’s pitch range.

It is perhaps not surprising that there should be different descriptions of the phonetic shape of the HRT given that this innovation is attested in so many geographic areas in the English-speaking world. Uptalk was first described by [22] and by [23] in the Southern Hemisphere, and has since been reported in various locations. For instance, Australia [24-26]; New Zealand [10, 19, 21, 22, 27], the USA [5, 20, 28], Canada [29], England [5, 16, 30], The Falkland Islands [31], and Scotland, including the Hebrides [13, 32]). It is, after all, highly probable that there exists a measure of geographical variation in the phonetic form of upspeak.

1.1. Research aims

Based on recordings of several geographical varieties of contemporary English, this paper aims at providing a synthetic inventory of the contours used in the implementation of the HRT worldwide. It also aims at identifying fresh criteria by which HRTs can be distinguished from UNBI rises. A number of remarks are also made in connection with the syntactic description of the stretches of speech on which HRTs occur.

2. Method and material

2.1. Corpus

The corpus used for this paper was composed of ten recordings, nine of which were excerpts from the IDEA online corpus, compiled by Paul Meier, University of Kansas (International Dialects of English Archive) [33]. All of them featured informal conversational narratives, as this speech style has been shown to favor the use of uptalk [19]. All the speakers were female so as to limit the number of variables to be analyzed. The recordings were selected because they contained a significant

amount of HRTs. The excerpts taken from the IDEA corpus are listed in table 1 along with their references.

The last excerpt in the corpus (1'19'') was taken from a recording realized in Wetherby, West Yorkshire, for another research project [15]. It consisted in an informal conversational narrative produced by a female informant and was similar in many respects to the IDEA recordings.

	Location	Reference in the IDEA corpus	Duration
1	Australia	<i>Australia 20</i>	1'16''
2	New Zealand	<i>New Zealand 4</i>	1'47''
3	California	<i>California 1</i>	3'24''
4	Canada	<i>British Columbia 1</i>	3'24''
5	Wales	<i>Wales 6</i>	2'01''
6	Glasgow (Scotland)	<i>Scotland 9</i>	2'08''
7	Derry (Ulster)	<i>Northern Ireland 1</i>	1'25''
8	London 1 (England)	<i>England 78</i>	0'56''
9	London 2 (England)	<i>England 79</i>	1'36''

Table 1. Excerpts selected from the IDEA corpus

2.2. Methodology

The data consisting of spontaneous speech, a mere division into grammatically defined sentences was not considered a reliable way of identifying every utterance act (cf. [4, 19]). The corpus was therefore divided into Tone Groups (TGs). It was considered that TGs signaled discrete declarative utterances when they occurred at the end of declarative clauses or sets of clauses that were sufficiently dissociated from the surrounding clauses as to be considered autonomous. The degree of autonomy of these segments was determined by syntactic and semantic considerations (for instance, adverbials and unfinished lists were excluded from the data) as well as the potential presence of pauses. The pauses taken into consideration were deliberate pauses and not hesitation pauses, the latter sometimes being observed within speech segments without the pitch contour being disrupted [4]. The nature of the nuclear tones also helped determine the degree of autonomy of the segments.

Only TGs spanning, or occurring at the end of, clauses or sets of clauses that corresponded to meaningful information units with both a semantically and syntactically coherent structure were taken into account. This included TGs extending over elliptical syntactic units whose semantic content was equivalent to that of fully developed clauses, like the second TG in (1):

(1) /I started off at ↑OTley (*full rise*) // your favourite ↑PLACE l (*full rise*)

(Nuclear syllables are indicated by underlined bold capitals when the rising tone was analyzed as an HRT. Upward arrows represent rising tones, regardless of contour type. Forward slashes are used to delimit TGs and // to indicate pauses.)

Regardless of contour types, all the rising tones observed at the end of declarative utterances were considered as HRTs provided that they were used non-traditionally. For that reason, particular attention was paid to *low rises* and *fall-rises* in the varieties that shared the intonational system of RP and General American in order to avoid classifying these tones as HRTs

when they were used with some of their conventional meanings in the varieties concerned (declaratives with 'implications', 'reservations', 'referring value', etc. [16, 34]). The question of traditional usage in UNBI varieties is dealt with in the next subsection (2.3.).

2.3. HRT vs. UNBI

According to [15], in most cases, a combination of geographic, phonetic, functional and impressionistic criteria can be applied to distinguish HRTs from UNBI rises (see tables 2, 3 and 4 for a simplified account of [15], partly based on [6, 8, 9, 12, 13, 21]). The only tone type that steadfastly resists this analysis is the *low rise* when it does not have a slumping tail.

	Geographic criterion	
	North of the British Isles	Elsewhere
UNBI	√	X
HRT	√	√

Table 2. HRT vs. UNBI - discriminating criteria (1)

To avoid confusions between HRTs and UNBI rises in the Scottish (Glasgow) and Northern Irish varieties, the *low rises* observed on declarative utterances in the corresponding recordings were consequently removed from the data, except one – produced by the Glasgow speaker – insofar as it was characterized by a late rise, a feature unknown in UNBI varieties, but attested in the description of HRTs [10] (cf. 3.3.).

	Functional criterion		Impressionistic criterion
	'Stylistic' use (Speaker choice)	'Systemic use' (Unmarked, default use)	'Querying meaning'
UNBI	X	√	Rare
HRT	√	X	Frequent

Table 3. HRT vs. UNBI - discriminating criteria (2)

The recording of the Welsh speaker did not pose any such problems as Welsh varieties are reported to be characterized by the use of *rise-falls* rather than *low rises* on declaratives [35].

	Phonetic criteria				
	Starting point		End point		'Slumping' tail
	Low	High	Low	High	
UNBI	√	X	√	Rare	√
HRT	√	√	√	√	Rare

Table 4. HRT vs. UNBI - discriminating criteria (3)

3. Results and discussion

3.1. Typology of HRTs

The corpus contained a total of 501 TGs, 329 declarative utterances and 157 HRTs (that is 47.72% of the total number of declarative utterances). The proportion of HRTs used by each speaker on declarative utterances is given in table 5.

As pointed out *supra* (1.), some authors assimilate uptalk to the *high rise* of the British tradition [8, 16]. For instance, [18]

defines HRTs as contours that ‘begin high on the accented syllable and keep rising to the end of the phrase’.

Although some of the HRTs in our corpus did match this description, the *high rise* was by no means the most frequent contour in our data. Five distinct types of tones were actually used by the informants to realize their HRTs: the *high rise*, the *full rise*, the *low rise*, the *low flat* and the *fall-rise* (cf. tables 6 and 7). 64.33% of the HRTs were variably scooped or had a low starting point, and it was assumed that scooped contours were phonetic variants of non-scooped tones rather than distinct patterns.

Canadian speaker	Welsh speaker
68.18	64.52
2 nd English speaker (London)	Californian speaker
53.13	48.72
1 st English speaker (London)	New-Zealand speaker
46.15	45.45
3 rd English speaker (Yorkshire)	Australian speaker
42.86	42.11
Scottish speaker (Glasgow)	Ulster speaker
32.26	14.81

Table 5. Proportion of HRTs used by each speaker on declarative utterances (%).

As explained *supra*, the *high rise* (represented in ToBI by H* H-H) is a tone that begins high and then rises still higher in the speakers’ pitch range. (The English ToBI system used in the present study is that defined in [14], except for the representation of the *low flat* – cf. *infra*.)

<i>High rise</i> (H* H-H)	
<i>Full rise</i> (L+H* H-H%)	
<i>Low rise</i> (L* H-H% or L* L-H%)	
<i>Low flat</i> (L* H-L)	
<i>Fall-rise</i> (H* L-H%)	

Table 6. Schematized pitch traces of HRT types.

The *full rise* (L+H* H-H%) begins near the bottom of the speakers’ pitch range and rises high. What distinguishes it from the *low rise* is that it spans 80 Hz or more. No objective criteria are provided in the literature to discriminate between *full rises* and *high rises*. [13] explains that the *full rises* he observes in Glasgow differ impressionistically from *low rises* in that they tend to convey a ‘querying meaning’. The threshold value of 80 Hz was determined as it seemed to us that statements most often acquired such a ‘querying meaning’ when uttered with a rising tone that covered this or a wider span. To be transferable

to other corpora, this analysis must in all likelihood be refined and take into account the exact pitch range of each individual speaker. In the present case, however (in part, probably, because our corpus was comprised only of recordings of young female informants), it seemed to us that the threshold of 80 Hz did correspond to a value above which the rises produced by the speakers reliably acquired a ‘querying’ quality.

The *low rise* begins near the bottom of the speakers’ pitch range before rising to low or mid-low in their register. It does not span more than 80 Hz (cf. our remarks about this threshold above). We propose both L* H-H% and L* L-H% as ToBI representations of this tone as it may sometimes be characterized by a late rise (see *infra* 3.3.).

The *low flat* begins near the bottom of the speakers’ pitch range and rises no more than 15 Hz. Although this contour rises but little, the rise is clearly perceptible and very characteristic. Like [5], we propose L* H-L as a ToBI representation of the *low flat* although [14] uses this sequence to represent ‘stylized low rises’. The term *low flat* is borrowed from [5], whose study of HRTs in South Californian and London English provides no objective criteria to distinguish *low rises* from *low flats*. The threshold value of 15 Hz was chosen because it seemed to us that the rising tones that covered a wider span were more impressionistically akin to *low rises*.

	<i>Low rise</i>	<i>Full rise</i>	<i>Low flat</i>	<i>High rise</i>	<i>Fall-rise</i>
Total proportion of tones (%)	38.85	36.31	14.01	7.01	3.82
Average proportion of tones used by each speaker (%)	53.97	64.81	17.92	16.52	12.11
Number of speakers using the tone	6	9	7	5	2

Table 7. Total and average proportions of tone types.

Figure 1 shows the proportions of tones used by each speaker as phonetic realizations of their HRTs. These cannot be considered as representative of geographical varieties as there exists a significant amount of inter-speaker variability for each dialect. (See for instance the very different pictures offered by the 1st and the 2nd London speaker.) What Figure 1 shows, however, is that whatever the variety they use, contemporary speakers of English reserve themselves the right to use different patterns to implement their HRTs. No clear pattern of syntactic, attitudinal or discursal factors emerged, however, to account for the differences in the way in which the speakers used the various contours.

The *low rise* is the most frequently observed pattern (38.85% of the total number of HRTs) just before the *full rise* (36.31%). The *low flat*, which [5] observes only in the production of British speakers in her study of South Californian and London English, is not very common (14.01%), but it is used by speakers from various locations in the English-speaking world. This may testify to different types of HRTs having distinct statuses in diverse speaking styles, [5]’s study being based exclusively on map-task data whereas this paper relies on conversational narratives. It may also indicate that *low flats* are spreading as potential phonetic realizations of HRTs. The *high rise* is fairly scarce (7.01%), while the *fall-rise* remains marginal (3.82% of the total number of HRTs, with only 3 speakers using them).

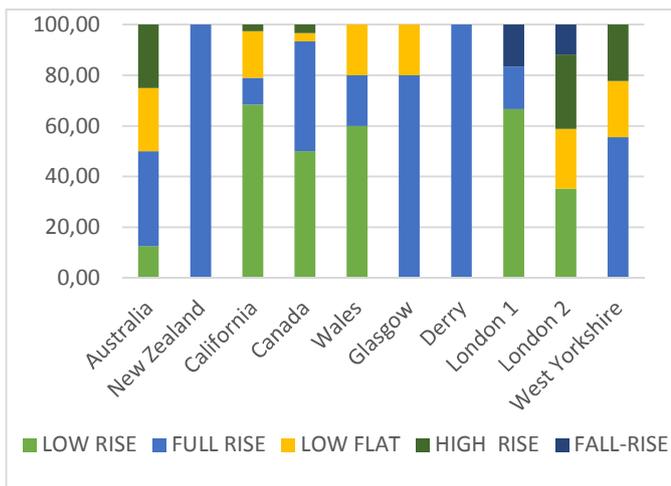


Figure 1: Proportions of contours used to realize the HRT, by speaker (%).

The fact that *full rises* and *low rises* are the most frequent realizations of HRTs tallies with [25]’s remark – originally formulated in connection with Australian English – that ‘HRTs generally begin on a low tone L*’ (whereas question intonation rises normally begin on a high tone H*). This also tallies with [5]’s findings for South Californian English.

3.2. HRT vs. UNBI – a new discriminatory criterion

Our corpus also confirms that the HRT is currently attested in varieties of English whose intonational system is UNBI. Both the Scottish and the Northern Irish speaker used *full rises* to realize their HRTs, and the Scottish speaker also used *low flats*. At this stage, it remains difficult to determine when some of the *low rises* observed at the end of the declarative utterances produced by these informants should be analyzed as HRTs or UNBI rises.

Overall, our corpus contained 16 declarative utterances ending with TGs which featured a long tail (that is a tail comprising three or more syllables after the nucleus). 3 of these long tails had *late rises* occurring on the unstressed final syllable rather than on the nuclear syllable. This is a characteristic unknown in UNBI, but attested in HRTs [10]. In the ambiguous case of the *low rise* (2.3.), an additional discriminating criterion may thus have been identified to discriminate between HRTs and UNBI rises in Northern British varieties.

3.3. Additional definitory considerations

Finally, we suggest that some of the material removed from the data reveal some significant particulars which could shed further light on the definition of the HRT. Some of the TGs excluded from the statistics because they did not occur at the end of syntactically coherent clauses (cf. 2.2.) featured non-traditional rises that evoked uptalk. Consider the initial TGs in (2), (3), (4) and (5) (nuclear syllables are indicated by underlined lower case letters when the rising tone was not analyzed as an HRT):

(2) / and like the inside of cassette ↑tapes (*high rise*) // were stapled all over the ↑CEILING (*low rise*) // (California 1)

(3) / er me and my ↑dad (*low flat*) // also we had a ↑MOTOR boat (*low rise*) // (British Columbia 1)

(4) / Both are about a four-hour drive ↑east (*high rise*) // of Prince ↑GEORGE (*high rise*) // (British Columbia 1)

(5) / It was, um, a↑bout (*full rise*) // three film students who go into the forest / who film a documentary about the Blair witch // (New Zealand 4)

In (2) and (3), the grammatical subjects of the utterances correspond to distinct TGs followed by pauses, but they can by no means be considered as equivalent to clauses and could consequently not to be analyzed as ‘declarative utterances’. This also applies to the first TGs in (4) and (5), which do not even span discrete constituents. Either the rises observed at the end of these TGs must really be considered as essentially different from HRTs, or our definition of uptalk must be altered to fit the facts (1.). If HRTs cannot be said to occur on declarative utterances, however, it then becomes unclear how to define them. A third possibility, which we favor, could consist in considering that in spontaneous oral English, a ‘declarative utterance’ need not always be defined by syntactic criteria and may in some cases correspond to any given speech segment to which a ‘proclaiming’ value can be assigned in [34]’s proclaiming/referring paradigm. This would invalidate the syntactic definitions of HRTs that restrict the phenomenon to rises observed at the end of *sentences* or *clauses* (cf. 1.).

4. Conclusion

It appears that the phonetic realization of HRTs worldwide is by no means restricted to the *high rise*. The following five contours are observed in our data, in decreasing order of frequency: *low rise*, *full rise*, *high rise*, *low flat*, and *fall-rise*.

Even though the representativeness of the proportions observed is limited by the small size of the corpus, we have reason to believe that they are to some extent illustrative of today’s linguistic situation, the more so as they tally with [25]’s findings for Australian English and [5]’s identification of the patterns used to realize HRTs in South Californian and London English.

Contrary to what [5]’s map-task data suggest, *low flats* appear to be observed in conversational narratives even in varieties in which HRTs are not brand-new innovations. This may show that speaking style or register are relevant variables that can have an impact on the phonetics of HRTs. It may also testify to the spread of the *low flat* as a potential realization of the HRT.

As shown by the differences observed in the two London recordings, there is probably considerable inter-speaker variation within each variety, and our speakers can by no means be considered as representative of their dialects. Identifying statistically significant patterns in the proportion of tones observed in different contemporary varieties of English is a challenging area of research calling for further investigation. It would also be of interest to determine whether the use of specific contours depends on their semantic, discursive or pragmatic context. In any case, the sociophonetic issues raised by the HRT are far from being fully elucidated, and they still constitute a stimulating area of research calling for future attention.

5. References

- [1] Ritchart, A. and Arvaniti, A., "The form and use of uptalk in Southern Californian English", 2013. Online: https://www.kent.ac.uk/secl/ell/staff/amalia-arvaniti/docs-/RitchartArvaniti_SpPr2014_F.pdf, accessed on 14 Nov 2015.
- [2] Ritchart, A. and Arvaniti, A., "The use of high rise terminals in Southern Californian English", *Proceedings of the 166th Meeting of the Acoustical Society of America (POMA)* 20, 2015. Online: <http://dx.doi.org/10.1121/1.4863274>, accessed on 13 Feb 2016.
- [3] Armstrong, M., Piccinini, P., and Ritchart, A. "The phonetics and distribution of non-question rises in two varieties of American English", *Proceedings of the 18th International Congress of Phonetic Sciences*, 2015. Online: <http://www.icphs2015.info/pdfs/Pa-pers/ICPHS0927.pdf>, accessed on 13 Feb 2016.
- [4] Di Gioacchino, D and Crook Jessop, L., "Uptalk – Towards a Quantitative Analysis", *Toronto Working Papers in Linguistics*, Vol. 33, 2010.
- [5] Barry, A., *The Form, Function And Distribution Of High Rising Intonation*, Saarbrücken: Verlag Dr Müller, 2008.
- [6] Fletcher, J. and Loakes, D., "Patterns of rising and falling in Australian English", *Proceedings of the 11th Australian Conference on Speech Science and Technology*, 42-47, 2006.
- [7] Fletcher, J. and Loakes, D., "Interpreting rising intonation in Australian English", *Proceedings of Speech Prosody 2010*, 2010. Online: <http://speechprosody2010.illinois.edu/papers/100124.pdf>, accessed on 13 Feb 2016.
- [8] Liberman, M., "Uptalk is not HRT", *Language Log*, 26/03/2006, 2006. Online: <http://itre.cis.upenn.edu/~myl/languagelog/archives/002967.html>, accessed on 14 Nov 2015.
- [9] Liberman, M., "The phonetics of uptalk", *Language Log*, 13/09/2008, 2008. Online: <http://languagelog ldc.u-penn.edu/nll/?p=-586>, accessed on 13 Feb 2016.
- [10] Warren, P., "Patterns of late rising in New Zealand English: Intonational variation or intonational change?", *Language Variation and Change* 17, 209-230, 2005.
- [11] Cruttenden, A., *Gimson's Pronunciation of English*. London: Routledge, 2001.
- [12] Cruttenden, A., "Rises in English", in W. J. Lewis (ed.), *Studies in General and English Phonetics: Essays in Honour of Professor J. D. O'Connor*. London: Routledge, 155-173, 1994.
- [13] Cruttenden, A., "Intonational diglossia: a case study of Glasgow", *Journal of the International Phonetic Association*, vol. 37, n 3, 257-274, 2007.
- [14] Ladd, D. R., *Intonational phonology (Cambridge Studies in Linguistics 119)* (2nd ed.), Cambridge: Cambridge University Press, 2008.
- [15] Wilhelm, S., *Innovations segmentales et suprasegmentales dans le NW Yorkshire, Implications pour l'étude du changement accentuel dans l'anglais des îles Britanniques*, Unpublished PhD Thesis, University of Burgundy, 2011.
- [16] Cruttenden, A., *Intonation* (2nd ed.), Cambridge: Cambridge University Press, 1997 (1986).
- [17] Foulkes, P., and Docherty, G., "The Social Life of Phonetics and Phonology", *Journal of Phonetics* 34, 409-438, 2006.
- [18] Ladd, D. R., (1996) *Intonational phonology (Cambridge Studies in Linguistics 79)* (1st ed.), Cambridge: Cambridge University Press.
- [19] Britain, D., "Linguistic Change in Intonation: the use of High Rising Terminals in New Zealand English", *Language Variation and Change* 4, 77-104, 1992.
- [20] Arvaniti, A., and Garding, G., "Dialectal variation in the rising accents of American English", in C. T. Best, L. Goldstein, & D. H. Whalen (eds.), *Laboratory phonology* 8. Berlin: Mouton de Gruyter, 2005.
- [21] Britain, D., "High Rising Terminals in New Zealand English", *Journal of the International Phonetic Association* 22(1/2), 1-11, 1992.
- [22] Benton, R. A., "Research into the English language difficulties of Maori school children 1963-1964", Wellington: Maori Education Foundation, 1966.
- [23] Mitchell, A. G. and Delbridge, A., *The pronunciation of English in Australia*, Sydney: Angus and Robertson, 1965.
- [24] Allan, K., "The component functions of the high rise terminal contour in Australian declarative sentences", *Australian Journal of Linguistics* 4, 19-32, 1984.
- [25] Fletcher, J. and Harrington, J., "High-rising terminals and fall-rise tunes in Australian English", *Phonetica* 58, 215-229, 2001.
- [26] Guy, G. and Vonwiller, J., "The meaning of an intonation in Australian English", *Australian Journal of Linguistics* 4: 1-17, 1984.
- [27] Allan, S. "The rise of New Zealand intonation." In A. Bell and J. Holmes (eds.), *New Zealand ways of Speaking English*, Clevedon: Multilingual Matters, 115-128, 1990.
- [28] Lakoff, R., *Language and Women's Place*, New York: Harper and Row, 1975.
- [29] Shokeir, V., "Evidence for the stable use of uptalk in Ontario English", *University of Pennsylvania Working Papers in Linguistics* 14, 16-24, 2008.
- [30] Bradford, B., "Upspeak in British English", *English Today* 51(13.3), 33-36, 1997.
- [31] Sudbury, A., "Falkland Islands English: a southern hemisphere variety?", *English World-Wide* 22(1), 55-80, 2001.
- [32] Nance, C., *Phonetic variation, sound change, and identity in Scottish Gaelic*, Unpublished PhD Thesis. University of Glasgow, 2013.
- [33] International Dialect of English Archive. Online: <http://www.dialectsarchive.com/>, accessed on 14 Nov 2015.
- [34] Brazil, D., *The Communicative Value of Intonation in English*, Cambridge: Cambridge University Press, 1997.
- [35] Wells, J., *Accents of English*, Cambridge: Cambridge University Press, 1982.