



Prosody Variation in English: Geographical, Social, Situational

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Abstract

The paper looks at a system of socially significant factors and the ways they affect prosody variation in British and American English. The data are based on a number of doctoral research projects carried out under the first author's supervision in the years 1995-2003. The aim is to overview new data in search of distinguishing prosodic features which can diagnose regional and social identity. The major findings are concerned with 3 out of the total of 21 parameters in the overall prosodic analysis: Fo-range, Fo-stability and temporal characteristics. Regional affiliation in the British group of young men representing 6 regions and 2 urban centers correlates with the dialect group data. However in the middle-aged group the distinction is lost due to a change in status. In the U.S.A. geographical distribution of relevant prosodic features along the North-South axis of the Eastern Coast shows a specific pattern of regional tempo variation. A microcosm of all interrelated factors and their prosodic correlates is presented in one-city data. Stylistic variance is revealed in two modes, reading and speaking. Public speaking offers a choice of social roles and social situations of varying formality.

Introduction

In the system of socially significant factors (regional, stratifying, situational) which determine prosody variation the geographical factor is a basic one as it signifies the physical area of speech community habitat. In the sense the two varieties of English may be treated as two geographically distinct dialects. However, our previous research has clearly demonstrated the necessity to simultaneously control a number of other social factors which may affect prosody variation in a particular territory [1]. The **aim** of the present study is to overview new data in search of prosodic distinctors which can diagnose regional and social identity. By shifting the focus from laboratory speech to authentic speech we may obtain a more realistic view of the existing social norms in prosody. We have also introduced a change in **method**. We will minimize the time span of the samples to the length of one long (4 tone groups) sentence in reading and an equal length of spontaneous talk or oratory. Thus, for instance, instead of processing the whole length of 'The Story of Arthur the Rat', as we used to do, we will diagnose regional or social features by doing one sentence which was recorded in the context of the story, 40 sec after the initial voice onset.

1. British regional and social

The **corpus** here consists of: a) recordings of a standard text read by 34 young men, University undergraduates and graduates aged 20-30, representing 6 regions (South and North of England, Midlands, Wales, Scotland, Northern Ireland) and

2 urban centers (London, Edinburgh); b) same read by 23 middle-aged men, aged 35-55, of varying social status; c) 6 recordings of interviews with native dialect speakers from the South of England, North of England, Midlands, South Wales, Scotland and Northern Ireland which are a supplement to the book 'English Accents and Dialects' by A. Hughes and P. Trudgill (1979) [2].

Samples of speech were processed on IBM PC with the program elaborated at the Russian Center of Applied Psychology for the analysis of 21 parameters measuring Fo range characteristics (7), Fo configurations (7) and temporal characteristics (7).

1.1. Fo range

Based on Fo max, Fo min and Fo mean values the Fo range data in Group I ranked as follows:

Wales -177Hz, Edinburgh - 139 Hz, London -89 Hz, Scotland -62 Hz, South of England -56 Hz, Midlands -56 Hz, Northern Ireland -47 Hz, North of England -40Hz. These could be correlated with Group 3 (traditional dialects) model ranking:

Wales -189 Hz, Scotland -66 Hz, South of England -60 Hz, Midlands -46 Hz, Northern Ireland -32 Hz, North of England -29 Hz.

As is seen from the ranking, there is gradience in **regional** narrowing pitch range from South of England, through Midlands, to the North of England. Wales and Scotland have an exceptionally wide range due to extremely high maximum values at the beginning of the sentence. The two urban centers, London and Edinburgh, have higher values than the small towns around them. Northern Ireland speech is noted for a very narrow pitch range as well.

The correlation of the two groups ranking suggests that young educated men continue to use the traditional speaking habits in the regions they represent.

However middle-aged men do not show any consistent regularities unless they are further subdivided according to **status**: University lecturers, 7 men, for instance, despite the differences in their regional backgrounds have one common characteristic, i.e. a wide pitch range: 100 -129 Hz. Thus the social overrides the regional. In middle age social pressures to widen the range are caused by status changes.

1.2. Fo configurations

Another set of parameters measuring Fo variation with the aim of evaluating Fo configurations has one primary parameter 'stability', as opposed to 'modulation', which is suggestive of pitch leveling and monotone. The ranking shows that the North of England and Northern Ireland have the greatest stability, i.e. monotone, while London and Edinburgh are noted for low stability, i.e. high pitch modulation. On the whole the ranking repeats pitch range trends but there is a shift of two regional groups, Wales and Scotland, down the scale.

These two have a specific combination of a very high maximum at the onset of a sentence followed by a comparatively monotone, narrow range pitch pattern. We can, therefore, say that regional identity is signaled by a combination of primary and secondary prosodic features.

1.3. Temporal characteristics

The total time spent in reading an identical text signifies that London and the South of England groups are marked by a faster tempo than the other regional groups: London – 3.9 sec, South – 4.6 sec, Midlands – 5sec, Wales – 5 sec, North – 5 sec, Northern Ireland – 5 sec. The amount of time spent in phonation is also higher in London, Midlands and South of England groups which suggests that in London and the South tempo acceleration is achieved predominantly at the expense of pauses:

London -65%, Midlands – 58%, South – 55%, Wales – 53%, Northern Ireland – 48%, North – 45%, Scotland – 31%.

2. American regional and social

The intersection of two dimensions, regional and social, is best revealed in the analysis of the American material which is constituted by: a) recordings of 34 men and 46 women either reading a standard text or engaged in spontaneous talk (total: 80 texts) representing four of the five major geographical, linguistically distinctive regions in the U.S.A: North, Northern Midlands, Southern Midlands, South [3]; b) readings and spontaneous monologues performed by 59 persons, 28 men and 31 women, all residents of Anchorage, Alaska at the time of the recording (total: 118 texts), grouped according to their social status [4].

Although the two research projects had different objectives, the actual practice called for looking at both regional and social characteristics by re-grouping the people and looking at the data at a different angle in each particular case. Only by neutralizing the impact of all other factors can we single out the effect of the one we focus on.

2.1. Fo range

The **regional** samples, when processed on IBM PC with the program elaborated at the Research Center of MEI, displayed a pattern of varying Fo range with residents in the South having the widest Fo range in spontaneous talk, with women dominating (*men – 9st, women -10 st*)(Table 1).

Table 1: Fo range in four American regions

Region	Reading <i>men/women</i>	Speaking <i>men/women</i>
North	8 st/7.5 st	7 st/8.5 st
North.Midl	8 st/8 st	7.5 st/9.5 st
South.Midl	6.5 st/8 st	7 st/9.5 st
South	7 st/7.5 st	9 st/10 st

The citizens of Anchorage, Alaska could also be differentiated according to their regional backgrounds. Auditory testing by native judges showed that they have preserved their regional identity in accents. The group read a different text, a humorous story, and then talked about themselves in monologue which can account for the shift of southern group dominance from speaking to reading (Table 2).

Table 2: Fo range in five regional groups of the citizens of Anchorage, Alaska

Region	Reading <i>men/women</i>	Speaking <i>men/women</i>
North	7 st/8 st	6 st/6 st
Midlands	8 st/9 st	6 st/6 st
South	9 st/12 st	6 st/6 st
West	9 st/8 st	5 st/8 st

Status grouping in the Anchorage corpus was based on occupation: Group I – city administration officials, lawyers, bank manager, company president (n=11); Group II – small business managers, office workers, teachers, the military (n=30); clerks, secretaries, saleswomen, students (n=18). Group III has the lowest Fo range values: 6st in men’s subgroup and 7 st in women’s subgroup. The data also suggest that American women are more status-conscious than men and that women generally have a wider Fo range (*men – 8 st, women – 10 st*) (Table 3).

Table 3: Fo range in three status groups

Status group	Reading <i>men</i>	Reading <i>women</i>
Group I	7 st	10st
Group II	8 st	9 st
Group III	6 st	7st

Status grouping in the other corpus, where the objective was to find regional features along the North-South axis of the U.S.A. helped to single out the exact difference in Fo range values: when status is equal, women’s speech in the South is by 2 st wider than in the North.

In middle class community **status** increases with **age** and Fo range reaches its high values at around the age of 40 for women and 50 for men. We can compare the Anchorage data re-arranged according to age groups (Table 4):

Table 4: Fo range in four age groups

Age group	Reading <i>men/women</i>	Speaking <i>men/women</i>
19-29	7 st/8 st	7 st/5 st
30-39	6 st/9 st	6.5 st/7st
40-49	8 st/9 st	6.5 st/8 st
50-65	8 st/9 st	6 st/8 st

By way of preliminary summing up we can state that there is consistency in Fo range evidence suggesting that in the American setting we again deal with Fo range increase from North to South. Fo range also positively correlates with status and the middle age of 40-50. American women have higher values of Fo range than men and are more status-conscious.

2.2. Temporal characteristics

In the U.S.A. **regional** variation in tempo receives much comment: slow tempo of speakers from the South is part of their stereotype. American professional phoneticians doubt the validity of this opinion by claiming that the general impression of slow tempo in the speech of Southerners is either caused by diphthongization and triphthongisation of vowels or by prolongation of pauses. In short, they have rightly pointed to the main prosodic characteristics of tempo: phonation and pausation time.

We will start tempo description in the four regions by comparing mean syllable duration data (in milliseconds).

Table 5: *Temporal characteristics in four regional groups of the citizens of Anchorage, Alaska*

Region	Reading <i>men/women</i>	Speaking <i>men/women</i>
North	281/274	223/233
Midlands	294/321	212/234
South	335/283	259/221
West	348/304	214/224

We can also illustrate the point by adding the other project's data which in principle repeats the pattern of gradual slowing down towards the South in reading (Table 6):

Table 6: *Mean syllable duration in four regions (in ms)*

Region	Reading <i>men/women</i>	Speaking <i>men/women</i>
North	211/190	212/202
North.Midl	269/241	214/222
South.Midl	280/277	207/213
South	200/225	203/193

However here we observe a change in strategy starting from the South proper: instead of increasing the length of syllables the speakers increase the length of pauses. The trend can be shown to reveal itself in phonation/pausation ratio: the smaller the figure, the less time is spent in phonation as compared with the time spent in pauses (Table 7).

Table 7: *Phonation/pausation ratio in four American regions*

Region	Reading <i>men/women</i>	Speaking <i>men/women</i>
North	3.93/2.61	3.90/4.17
North.Midl	4.21/3.81	3.66/4.03
South.Midl	2.72/2.79	3.46/3.75
South	2.63/2.57	2.80/2.92

Status correlates positively with syllable duration, i.e. the higher the status, the slower the tempo: men demonstrate the tendency in reading, while women do not respond to a change in status in this way (See above, Fo parameter data): *men* Gr.I-238 ms, Gr.II-223 ms, Gr. III- 211 ms; *women* Gr.I-230 ms, Gr.II-227ms, Gr.III-228 ms. **Age** is another factor which facilitates decrease in tempo: it is the slowest at the age of 40-49 with men and 50-65 with women (Table 8).

Table 8: *Syllable duration in four age groups (in ms)*

Age group	Corpus I <i>men/women</i>	Corpus II <i>men/women</i>
19-29	201/225	226/210
30-39	218/227	235/214
40-49	245/228	276/222
50-65	211/232	246/315

As we can see, there is a trend for American southern regional background, higher status and older age to positively correlate with slower tempo but there may also be interplay of these and

some other features like gender and style which are capable of playing down the effect. Thus, for instance, women may respond to status changes by shifting Fo range, while men employ tempo to demonstrate that.

3. Situational

Reading and speaking are the two modes of speech production of which the first one is associated with literacy, culture and formality of the situation, and, therefore, employs higher values of Fo range and syllable duration, i.e. slower tempo. On the other hand, the very content of the text for reading, as well as the setting for dialogue/monologue talk might influence prosody realization.

3.1. Social roles

Social norms in prosody can be best observed when we research into prosody of authentic speech in well defined situations with certain constraints on prosody variation. Our next project was designed to explore one style of public speaking in which reading a prepared text and speaking in professional dispute may be done simultaneously. The social factors of status and age are quite restricted too: all the participants are lawyers who belong to the professional elite, and whose speech may be called cultivated and conservative. The sociolinguistic variable is the **social role** performed by the professional in the Supreme Court: Counsel for Petitioners (CP), Counsel for Respondents (CR), Supreme Judge (SJ) [5].

The recordings of 9 lawyers' authentic speech in the Supreme Court of the U.S.A. made in the years 1987, 1976 and 1967 were selected to represent CP (n=3), CR (n=3), SJ (n=3) from the audiocassette supplement to the book "May it please the Court" by P. Irons and S. Guitton, New Press, 1993. We make allowances for possible editing in preparing the material for publication and will consider the selected corpus as a model of lawyers' speech in the Supreme Court of the U.S.A.

19 min corpus, about 2 min for a speaker, was processed on IBM PC with Win Cecil v.2.1 program.

The **Fo characteristics** show that CP and CR lawyers being a little younger (around 40-50) than the judges (60-80) possess higher pitched voices (Fo mean: CP - 123 Hz, CR - 121 Hz, SJ - 105 Hz) but, nevertheless, their Fo range data are not determined by age (Table 9).

Table 9: *Fo range in three social roles*

Role (average)	Fo range in Hz	Fo range in st
Petitioner (8 st)	122/68	9
	190/103	10
	119/89	5
Respondent (5.3 st)	120/85	6
	142/104	5
	140/106	5
Judge (7.3 st)	144/106	6
	120/84	6
	176/99	10

CP lawyers with their aggressive manner employ a wider range of 8 st than CR lawyers who, being in defense, narrow their Fo range to 5.3 st on the average; the judges have an average speaking range of 7.3 st. Individuals may suit the role or fall out of the line but the basic trend remains transparent in group means

Mean **temporal** characteristics, when registered in terms of syllables per second and phonation/pausation ratio give evidence to the following: the “petitioners” (CP) speak, or probably read a prepared text, at a regular tempo with short pauses, hence more time spent in phonation; the “respondents” (CR) speak faster but take longer pauses, probably thinking and playing for time; the judges’ tempo may be assessed as occupying an intermediate position, given the necessity to ask questions, clarify them, make decisions. The phonation/pausation ratio: CP – 3.00 CR – 2.75, SJ – 2.86. On the whole the Fo range and tempo, when compared with the previous data, prove to be normal, closer to speaking than to reading.

3.2. Situations

Another set of social constraints imposed on the speaker can be found in public speaking of American presidents at different historical moments, on three occasions: a) inauguration ceremony, b) public address on a friendly visit c) war announcement. The recordings were part of the Bears Publishers’ CD-ROM track [6]. There are 8 talks, 2 for a speaker.

On a friendly visit Fo range varies around 8 st, while at the time of extreme tension it widens to 10-11 st. On a solemn occasion one speaker narrows the range, which is more in the British school tradition, to 6.5 st while the other widens it to 9 st.

Tempo of speech conforms to the solemnity by slowing down to 267-277 ms, it is normal on a friendly visit, and at the time of war accelerates with the speaker, whose position was especially tense, to 184 ms.

Table 10: Mean syllable duration in three social situations

Inauguration	Friendly visit	War Announc.
-	239 ms	184 ms
-	261 ms	255 ms
267 ms	240 ms	-
277 ms	209 ms	-

4. Discussion

We would like to comment on the results by making two points which are pertinent to the matter.

One. William Labov and his associates in their recent description of “A national map of regional dialects of American English” (University of Pennsylvania Press, 1997) have shown that the speech of people in five areas of the United States is more different today than it was 50 years ago, and that the role of urban centers is great in the process. We have no evidence from the past on prosody variation in U.K. or the U.S.A., except traditional dialects records, but we can say with confidence that it is there today.

Two. Dwight Bolinger, when he read the book by a colleague of ours on British/American intonation contrast [7], wrote (in personal correspondence) that it is all social (D.B. underscored the word), that it is a social norm for the British

to display more interest in conversation. We agree with the great intonologist on the point: it is all social. Among other things, socially determined is prosody variation in diverse geographical areas, social groups and situations.

5. Conclusions

With regards to the method used in the projects under review we can say that one-sentence analysis provided the results which correlate with long-term average data obtained on the basis of the whole text. They are concerned with;

- gradience in Fo range and tempo variation as one moves from north to south;
- faster tempo associated with big urban centers;
- increase in Fo range and mean syllable duration values with status and middle age in middle class;
- social role and social situation constraints on pitch and tempo variation in professional talk, including public speaking.

However, the extent to which Fo and duration may vary socially, does not always bring about categorical changes.

6. References

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