

SOME OBSERVATIONS ON THE RHYTHM OF SUBURBAN FRENCH

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Abstract :The present analysis was concerned with the rhythmic organisation of suburban French speech, more specifically with the temporal aspects of the speech produced by young people living in the suburbs of large cities. Some tendancies emerge from the current study. 1) Predominance of final prominence, 2). Initial prominence, which is not added to final prominence, but rather seems to conflict it (at least at the perceptual level), and 3) A high irregularity in the syllable number of successive rhythmic groups was also observed. The temporal organisation of suburban French speech appears to rely on a specific use of French rhythmic properties.

Keywords : suburban French speech, rhythm, initial prominence, final prominence

1. INTRODUCTION

The present analysis was concerned with the rhythmic organisation of suburban French speech, more specifically with the temporal aspects of the speech produced by young people living in the suburbs of large cities. It was aimed at answering the two following questions: 1) Is the temporal organisation of suburban French speech mainly based on final prominence, and/or 2) are there specific temporal patterns and prominence distributions (if any can be found) used as group markers?

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2. PERCEPTUAL EXPERIMENT

2.1. Method

Corpus.
The corpus consisted of extracts from movie-sound tracks and from televised interviews. The speech samples analyzed were produced by six male speakers (three of them were French born children of immigrants)

Listeners
Twelve listeners without any known hearing problems participated in the perceptual experiment. They were students at the University of Provence. The experiment took place in a soundproof room of the 'Parole et Langage' laboratory. Listeners were tested individually in a session and listened over Sennheiser HD222 headphones.

Task.
Listeners had to note the prominent syllables on a written transcription of the extracts. There was no ponctuation in the transcription. A prominent syllable was defined as a syllable which stands out from others in its environment: it may be perceived as longer, more intense and/or higher in pitch. A syllable was considered as prominent when reported as such by at least seven listeners (60%).

2.2. Analysis

Rhythmic groups were generated from perceptual data. A rhythmic group was defined as a succession of non-prominent syllables with a left or right prominent syllable. The group length was expressed in number of syllables. Three various accentual schemes were defined:

-1) xxx'x : oxytonic accentual scheme with a final prominent syllable,
-2)'xxxx : barytonic accentual scheme with an initial prominent syllable
-3) 'xxx'x : a group with both initial and final prominent syllables

2.3. Results

Mean syllable number/group.
We found 78 rhythmic groups, and a mean number of 7 syllables per group. There was a high variability across speakers: (for example , three groups composed of 14, 4, and 10 syllables). Most rhythmic groups were long (up to 18 syllables per group). All the results are summarized in table 1.

Table 1. Mean number of syllables per rhythmic group.by speaker

	Speakers					
	Spk1	Spk2	Spk3	Spk4	Spk5	Spk6
Syllable number/group	4	6	6	11	7	5
Number of groups	4	20	4	3	41	7

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Accentual schemes

The results concern 75 out of the 78 groups, the three remaining ones being monosyllabic. The repartition is as follows:

-barytonic scheme : 19/75 (25%),

-oxytonic scheme : 56/ 75 (74%)

-one group with both prominent initial and final syllables. It was a six-syllable group.

3. ACOUSTIC ANALYSIS

3.1. *Analysis*

The sentences were digitized at a sampling rate of 16 KHz with a Sun computer. Measurements were made on the spectrograms and the oscillograms displayed on the screen, and by listening to selected segments of the waveform in the area of interest. For each speaker, the duration of prominent and non-prominent syllables, consonants and vowel, and of rhythmic groups were measured. Lenghtening ratios (if any lengthening) were calculated by dividing the duration of prominent final and initial syllables by the mean duration of non-prominent syllables.

3.2. Results

Duration of rhythmic groups.

The mean durations of rhythmic groups can be seen in table 2. Again, they show a high variability across speakers (from 502ms to 1669 ms). An analysis of variance (ANOVA) performed on mean rhythmic-group duration showed a significant effect of Speaker [F(5,72)=2,p=0.03]. Within-speaker variability is also considerable. This result confirms the high variability in successive rhythmic-group durations.

Table2. Mean duration (in ms) of rhythmic groups

Speakers					
Spk1	Spk2	Spk3	Spk4	Spk5	Spk6
502	860	1150	1669	614	939

Prominent syllables/non-prominent syllables.

The mean lengthening obtained for the six speakers is 53% for prominent final syllables, and 68% for prominent final vowels. This lengthening is similar to that reported in the literature (Benguerel, 1971 ; Di Cristo, 1985 ; Duez, 1987). However, between-speaker variability is considerable. An analysis of variance indicated a significant effect of Speaker and Prominence on vowel duration [Speaker, F(5,504)=3.9; p=0.002; Prominence, F(1,504)=49, p=0.0001]

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Table 3. Lengthening degree (in %)of prominent syllables and vowels, by speaker. The lengthening degree is evaluated as a function of the mean duration of non-prominent syllables and consonants.

	Speaker					
Lengthening	Spk1	Spk2	Spk3	Spk4	Spk5	Spk6
Vowels	61	50	102	42	61	110
Syllables	33	57	48	36	54	68

4. CONCLUDING REMARKS

Some tendancies emerge from the current study.

The predominance of final prominence is the first one. The syllable perceived as prominent was mostly the final syllable of rhythmic groups. It was significantly lengthened.

A high irregularity in the syllable number of successive rhythmic groups was observed. It may be a speech marker of this social communauty. This irregularity interacts with sudden changes of rhythmic patterns within a same utterance. It gives the listener an impression of a"chopped rhythm" and may be the result of a stylistic research.

Initial prominence is frequent in suburban French speech. However, contrarily to certain speech styles (Duez, 1991) it is not added to final prominence, rather it seems to conflict it (at least at the perceptual level). Initial prominence in French is the mark of a prosodic change in progress (Fonagy, 1980) and is not suburban-speech specific.

The temporal organisation of suburban French speech appears to rely on a specific use of French rhythmic properties. The relationship, and interaction with group remain to be tested.melodic patterns so as their role in the identification of this sociolinguistic group remain to be tested.

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