PERCEIVING RHYTHM IN FRENCH?

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ABSTRACT
This paper deals with the problem of rhythm in French, a language with no strong stress contrast. First, oversimplified patterns at three different levels, the breath group (BG), the prosodic word (PW) and the CV syllable (CV) are proposed as archetypical reference rhythmic patterns. These 3 layers seem to correspond to psychological realities. BG layer, the larger one, consists in the alternation between 2 highly contrasting global contours. PW layer is characterized by the repetition of variants of an archetypal word pattern, shaped by at least one oscillation of pitch between the high and low registers, with a durational peak on its last sounded syllable, marking its end. The last layer is the succession of typically rising, tense CV syllables with soft onset. One of the three layers may become perceptually more dominant than the others for the perception of rhythm, depending on the speaking mode. Second, despite important differences, PW layer in French and the tone group in English are interpreted as 2 variants of the same archetypal psychological pattern where accentuation and lengthening are associated with the notion of beginning and end, respectively. In English, accentuation is dominant, and lengthening recessive. In French, it is the contrary, but accentuation is also intrinsically present (emphatic stress and initial rise at word beginning) leading to some confusion in the present-day scheme of French rhythm.

INTRODUCTION
In speech, the notion of rhythm is often based on the perception of stress and recurring prominent syllables. Heffner notes that languages with strong stress are likely to have rhythms of no subtlety whatever; languages which make less use of stress contrast have rhythms which are less obvious. (Heffner, 1950:227). Native speakers of French do not have a clear idea of what a 'stress' can be, and locating prominent syllables in non emphatic French is a difficult task. What about rhythm in French, which obviously is not primarily based on the perception of an alternation between stressed and unstressed syllables?

1. THE MULTILAYERED TEMPORAL RHYTHM
There seem to exist 3 perceptual units which give rise to a multilayered rhythm in French: (i) two basic global tones, (ii) an archetypal "prosodic word" (PW) pattern; (iii) a typical open syllables CV. It is difficult to disentangle the different units in a purely acoustic study since the 3 layers interfere. The following caricatural patterns should be interpreted as prototypical percepts toward which the acoustic realizations tend to correspond (see Figure 1).

1.1: The two BGs
The first ingredient is the alternation of two highly contrasting global contours at the level of the breath group. The contrast between BG+, ending by a sharp rise on the final syllable and BG−, ending by a sharp fall extend over several syllables and seems largely "exaggerated" in French, as compared to English (Delattre, 1966:75). Both BGs are characterized by final lengthening.

1.2: The PWs

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open and "rising", with the vocal tract opening progressively up to the very end of the syllable, which typically ends with a vowel, with a delayed Fo peak and intonational stress as in Allen (1966:151), and a strong anticipatory coarticulation effect during the consonant preceding each vowel (Delattre, 1966:122), contributing to a softer attack (onset) of the vowel, as compared to English. The number of open syllables prevails in French (76%) according to Delattre, 1965:42) and most of the syllables have the simple structure CV (54%). Since the simple CV structure is highly repetitive, it is a good candidate to become a pregnant percept (cf. the notion of "pregnancy" in the Gestalt Theory). PW and CV percepts coexist, such as the tendencies of giving same length to both the successive PW and the successive CV.

One of the 3 layers may be made perceptually more emergent than the others: isochronous syllables, in carefully spoken speech; same size PW in poetry, and regular BG in rapid, conversational speech. Interspeaker variability may be explained by the fact that each speaker is free to give more or less weight to one of the 3 main tendencies.

It is difficult to "prove" in a scientific way the coexistence of the different perceptual layers in mind. The "pregnant" speech patterns stored in speakers' memories are often said to influence the way they perceive the different languages. Delattre's examples of repetition of a word beginning coexist in the same speech material, where the inherent ambiguity between accentuation and induced lengthening may explain why French seems to avoid a strong accentuation of final syllables (because accented syllables tend to be perceived as initial), and overlengthening of non-final syllables in the group (because of the association between lengthening and right boundary). It also explains why emphasis stress falls on the word initial syllable, and not on the word final syllable. What makes interpretation of French rhythmic organisation more prominent is the fact that while the temporal organisation (leading to the interpretation of the final syllable as the accented one) prevails, accentuation and rhythm (like in English) mark the beginning coexit in modern French.

Prominence on final syllables was generally considered to be the rule in non-emphatic French. There is however a long series of papers starting in the previous centuries which question this traditional point of view (see Fonagy, 1980, for a review). Fonagy & Fonagy (1976) have shown that while in conversational speech and story telling, final syllables were perceived as more prominent, in journalistic style, initial syllables were perceived as more prominent in 74% of the cases. This frequent regular use of emphatic stress at the word beginning by the journalists and the politicians is less and less perceived as emphatic, but as a special style. The present-day French prosodic system is in the process of a change and the difficulty of present-day phoneticians in making firm statements on French prosody may be the expression of the ongoing change. As a consequence, it is very difficult to make clear statements on French prosody, since there are typically at least two different prosodies.

**CONCLUDING REMARKS**

The French PW and the English tone grid may be interpreted as 2 variants of the same archetypal psychological pattern which associated accentuation with the beginning and lengthening with the end. In English, accentuation is dominant and lengthening recessive. In French, temporal organisation is predominant, but (initial) accentuation is also intrinsically present (whether or not the stress and initial rise), making the study of rhythm a very difficult matter. Progress may come from experiments in non speech stimuli and from investigating accent in the same way. For French, psychological constraints are integrated into the prosody and rhythm of diverse languages.

**REFERENCES**


