

SPEECH RHYTHM
(main approaches and definitions)

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ABSTRACT

The report sets out a brief review of main trends and concepts on rhythm.

Among the numerous definitions of rhythm two main ones can be singled out: 1. rhythm is an alternation of contrastive speech events (usually stressed and unstressed syllables); 2. rhythm is a periodicity of similar and isochronous (on the perception level) events.

At first glance, these definitions may seem to contradict each other. In reality, they only accentuate different aspects of the same phenomenon.

Those phoneticians who concern themselves with the study of a text usually look upon rhythm as a hierarchical system consisting of units of different size and value. In this connection two main questions arise:

1. What units can form periodicities?
2. What speech segments (syllable, rhythmic group, sense-group, phrase, or supraphrasal unit) can perform the function of a rhythmic unit?

In speech, there can be an alternation of sounds, syllables, sense-groups (tone-groups), phrases (utterances) and supraphrasal units of different types. In verse lines and stanzas can also alternate. Alternating elements are opposed to each other, this opposition being based on different features. On the segmental

level, vowels are opposed to consonants. This opposition is based on the presence or absence of noise. This type of alternation is characteristic of languages with syllable structure CV. In English this type of alternation has infrequent occurrence. Only occasionally in poetry does a syllable become a rhythmic unit.

On a higher level, the opposition is based on the degree of prominence, i.e. stressed syllables alternate with unstressed ones. In English this type of alternation is more regular. Stressed and unstressed syllables form a unity which shows periodicity. This unity is usually referred to as a "rhythmic group" (an accentual group). It often coincides with a word. In English a rhythmic group can be considered to be the smallest basic rhythmic unit as it occurs both in prose and in verse.

The next segments larger than the syllable are the sense-group, the phrase and the superphrasal unit. The aforementioned segments can alternate with a pause. Here the opposition is based on the presence or absence of phonation. In this respect the mentioned segments exhibit a different behaviour. Sense-groups are not always separated by pauses, so the "phonation-pause" alternation is not obligatory. A phrase alternates with a pause more frequently than a sense-group. Supraphrasal units, as a rule, is separated by

pauses.

A sense-group is formed by lexico-syntactical and prosodic means. In the case of lexical repetitions and parallel constructions, sense-groups are perceived as similar in structure. If lexico-syntactical means vary, their similarity is based on prosody. The beginning of a sense-group is usually marked by the maximum pitch and intensity and a slower tempo compared to the central part of the sense-group. The end is marked by the minimum pitch and intensity, often by the falling tone (in the author's material 84%), and by a slower tempo. The body of a sense-group is characterised by a descending pitch contour (regular or irregular depending on the speaker, style, emotions, etc.) The majority of sense-groups contain 2-4 stressed syllables the total length not exceeding 2-3 seconds, the most typical length being 1-1.5 seconds. Thus all these means make sense-groups similar /8/. At present linguists are researching the alternation of different types of sense-group /18/.

It appears that semantically dominated sense-groups form rather regular periodicities and alternate with semantically neutral sense-groups, just as emotionally coloured sense-groups alternate with emotionally neutral ones. It has also been observed that semantically dominated sense-groups tend to occur in marginal areas of supraphrasal units in prose and of stanzas in verse /12, 17/.

Supraphrasal units are characterized by the same prosodic means as sense-groups but the number of features which characterize the individual supraphrasal units decreases whereas the isochrony increases. Supraphrasal units alternate with pauses and form the "S.Ph.U + pause" complex, which is periodically repeated. A long phonation period is frequently followed by a short pause or vice versa. In other

words, a pause here can perform an equalizing function.

Phrases occupy the intermediate position between sense-groups and supraphrasal units. They alternate with a pause more frequently than sense-groups and less frequently than supraphrasal units. Considerable variation in length and rather a vague prosodic similarity prevent phrases from functioning as frequent rhythmic units. They play this role when they coincide either with a sense-group or with a supraphrasal unit.

Thus, practically all speech segments can function as rhythmic units if they become isochronous and similar in character.

In dialogical speech, in addition to the aforementioned types of alternation, the alternation of cues (the speech of each interlocutor) can be added. If a pair of cues (a stimulus and a response) is more or less isochronous they are normally perceived as periodic units. The phonation period (period between two pauses) can form fairly regular periodicities. Periodicities can also be formed by a phonation + pause period, by a series of falling tones, and even by hesitation pauses. Thus, not all the units in spontaneous speech form a hierarchical system. Apparently, the rhythmic system is of a more complicated nature /13/.

Consequently, periodic events can consist of contrasting (in the case of alternation) and non-contrasting elements (in the case of sense-groups). If there is a regular alternation of elements, the leading role in the regulation of rhythm is performed by time, i.e. isochrony. If the alternation is not regular, the leading role in forming periodic units is performed by accentual and tonetic features.

Thus, the perception of speech elements as periodic is determined by the

two factors: isochrony and qualitative similarity. The latter can be expressed by a contrastive complex, (alternation), or by a system of accentual and tonetic characteristics.

Rhythm has been defined as a periodicity of similar and isochronous events, Isochrony can be of two types: physical, which presupposes physical identity of intervals, and perceptual, which presupposes similarity of intervals on the perception level. This last assumption is largely based on works of psychologists. As it comes from numerous experiments concerned with the perception of intervals of different size (different within certain limits), variations in length can be ignored and physically different intervals can be perceived as similar. There is apparently a process of mental equalization at work /1, 3/. According to some experimental data, non-verbal rhythm (the intervals between recorded clicks) is perceived as stable, with as much as 14.5% displacement of temporal regularity.

Data pertaining to the perception of speech rhythm vary greatly, but there is some evidence to suggest that the size of units (intervals) perceived as regular is relevant: the larger the unit, the greater the difference in length that can be ignored /5, 6/.

A retrospective look at the studies of rhythm gives an idea of how the linguistic approach to this phenomenon developed.

In the 1920s and 1930s Russian linguists conducted extensive textual research. In particular, poetic rhythm was regarded as a hierarchy of rhythms /13, 19/.

In the 1950s and 1960s - a period of structural and generative views, when an utterance (not a text) was at the centre of linguists' attention - rhythm was normally understood as an alternation of stressed and unstressed syllables /2, 4/.

In the 1970s and 1980s - a period of close attention to textual problems -, rhythm came to be understood as a system again. By that time, many facts pertaining to rhythm had been accumulated by different sciences (primarily, biology and physics), which gave grounds for considering rhythm to be a fundamental law of the structure and development of the material world.

Achievements in the development of philosophical ideas as to the character and structure of a system largely contributed to the study of speech rhythm. In 1974 the authors of the book "Rhythm, Space and Time in Literature and Art" actually raised the problem of unity of these fundamental forms /14/.

Rhythm, being a periodicity, organizes events. It organizes the space-time continuum and the events themselves. Rhythm can be regarded as a general language system that organizes a language as a whole. A large proportion of rhythm research is concerned with the linguistic form investigated in the context of the meaning it conveys. Views on rhythm as a functional unit are characteristic of Russian linguistics. The works of A.M. Peshkovsky /13/, B.M. Eihenbaum /19/, L.I. Timofeyev /15/, B.V. Tomashevsky and U.N. Tynyanov /16/ had a great influence on later works on rhythm. Even in the study of meter a successful attempt has been made to correlate meter and meaning (a range of images and themes) /10/.

There is another trend in the investigation of rhythm which is not widely acknowledged, but which appears to be very promising, being connected with other sciences of Man and capable of opening up avenues to the study of verbal and non-verbal thinking. An attempt has been made to see rhythm "from the inside" through the unity of a poetic image and the overlapping of semantic fields. Rhythm is

considered as an intermediate stage between the continuity of Thought and the discreteness of Language. Rhythm is perceived subconsciously and is directed straight to continuous image thinking /11/

Thus, a further perspective in the study of rhythm lies in a systematic approach to this problem, in the comparative study of the rhythm of different texts, different languages and groups of languages, and in the study of both verbal and non-verbal rhythms.

An extremely fruitful and valuable, if complex, approach would result from considering the concept of rhythm with reference to Man as the central object of investigation.

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