

LINGUISTIC FACTORS IN SENTENCE STRESS
(EVIDENCE FROM RUSSIAN)

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ABSTRACT

The paper deals with various linguistic factors of sentence stress assignment and detection in spoken and written Russian texts.

The aim of the study is to test such different factors as "parts of speech", "syntactic relations", "word order", "semantic structure of the word", "rhythmic patterns", "newness/givenness of information" and "actual sentence division" for their reliability in real text conditions and thus to establish a hierarchy of these factors both in production and perception of spoken and written material.

INTRODUCTION

This paper deals with sentence stress which is understood as a system of accents varying in relative strength (prominence) and quality (melodic shape). The system of sentence accents is treated as part of the intonation system of language.

The experimental basis for this study consists of 4 types of speech material: a) spontaneously spoken texts (monologues and dialogues), b) written texts on different subjects which were read aloud, c) summarized tonetic transcriptions of text fragments, d) listeners' reactions to different types of accentual patterns. The special aim of the study is to summarize various factors influencing the distribution of sentence accents within texts in order to test their contribution to two practical tasks: teaching of sentence stress assignment and detection to foreign language students and working out rules for automatic sentence stress assignment and detection in the systems of speech analysis and synthesis.

BACKGROUND

A great deal of experimental research has been done, and is still being done, on intonation. However, within the intonation system it is specifically sentence stress which lacks experimental data both in speech production and perception. Most of the work on this subject is done not by phoneticians, but by syntacticians, especially those who study word order and Functional Sentence Perspective. Yet one may recognize that the importance of accentuation has often been underestimated in these studies.

It is impossible to cite all of the most valuable works pertaining to our subject-matter. From Western authors I will mention just a few whose ideas and data are especially relevant to my understanding of sentence stress and who summarize previous studies. These are: D.L.Bolinger /1,2/, D.R.Ladd /3/, A.Fuchs /4,5/, C.E. Keijsper /6/, C.Gussenhoven /7/, I.Fougeron /8/, A.Lötscher /9/.

In the Soviet Union research on sentence stress is not a new phenomenon. L.V.Shcherba based his linguistic analysis of poetic works on the detailed transcription of various degrees of prominence /10/. The notion of the accent in a sentence plays an important role in the works of I.I.Kovtunova /11/, V.E.Shev'akova /12/, G.A.Zolotova /13/, D.N.Shmelev /14/ and E.V.Paducheva /15/ on communicative aspects of Russian syntax.

One of the most inspiring books on the semantics of sentence stress is that of T.M.Nikolaeva /16/. Recently some experimental works on sentence stress in Russian have appeared, and especially those by O.F.Krivnova /17/, T.P.Skorikova /18/, T.M.Nadeina /19/, A.V.Pavlova /20/ pertain to this paper.

FACTORS INFLUENCING SENTENCE STRESS

In the search for factors which determine different kinds of sentence accentuation within a text, the investigator may come to the conclusion that these factors are various and occasionally contradictory.

The well-known controversy initiated in "Language" in 1971-1972 as to whether accent placement is determined by syntax or by semantics has not been satisfactorily resolved yet: compare the recent polemics between D.Bolinger and C.Gussenhoven in "Journal of Linguistics" /2,7/.

In trying to isolate one factor which governs rules of sentence accentuation we risk oversimplification. In admitting a set of equally important factors we cannot explain cases in which different factors are in opposition or even in conflict. Therefore we have established a hierarchy of factors to account for the experimental data. I will now turn to the linguistic factors which will figure in the paper and present each of them separately beginning with those which are more easily formalized.

1. Parts of speech

In Russian, as in other languages, nouns, verbs, adverbs and other so called "full" words usually carry stress whereas most of the "function" words are unstressed, unless they bear contrastive or emphatic stress. This rule held for the texts studied in ca. 90% of cases, but it does not account for words carrying different degrees of stress. Both "full" and "function" words in Russian carry various degrees of accentual prominence which cannot be explained by such a simple rule. Thus it is not only the part of speech that determines the degrees of prominence, but also its function in a given word-group.

2. The syntactic factor

In Russian, as in many other languages, there exist rules which assign accent patterns to different kinds of sentence constituents. Thus in Subject-Predicate groups, nouns are usually more weakly stressed than verbs, whereas, conversely, in Predicate-Object groups nouns are stressed more than verbs:

Ivan chitayet - chitayet knigu
/John is reading -(he)is reading a book/.
In our texts the number of such "normal" cases was only ca. 75% of all word-groups and the percentage seems to be very sensitive to the kind of the text - spoken or written, literary or scientific. The frequent deviations from the standing rules indicate either that the rules are incorrect (or too rough), or that other factors influence sentence stress, or both.

3. Word order

In Russian there exists a strong tendency for words and word-groups to receive stronger stress in certain sentence positions. Thus sentence-final and initial positions are most often connected with stronger stress, whereas sentence-medial position carries weaker stress.

It is obvious, however, that word order in Russian - flexible as it is - is governed by various influential factors and only in some cases it is the position itself that determines sentence accentuation (for example in enumerations).

It is not the task of this study to account for the complicated system of word order in Russian. There is a great body of work not only on word order itself but also on the complex relations between word order and sentence stress (which is in my opinion the only explanatory way to discuss word order). Here it is important to underline the fundamental difference between word order rules for written and spoken texts in Russian. When writing, it is obligatory to follow word order rules if one wants his intended emphasis to be understood correctly, for the place of the word in a sentence is one of the primary means to detect the degree of its prominence. In oral speech, however, there is a possibility of expressing one's intentions directly by prosodic means. In our texts, neutral (non-emphatic) sentence stress occurred in sentence or clause final position in ca. 90% for scientific texts and in ca. 70% for dialogues.

4. The rhythmic factor

Strongly connected with all the factors already discussed is what one may call the rhythmic factor, i.e. a tendency to alternate accents of different degrees. In Russian, this tendency is most obvious in spontaneous speech /21/. In the texts analyzed we found that non-final strong and extra-strong accents were preceded by relatively weaker accents or followed by them in ca. 95% of cases. Our data indicate that the structure of accent pattern is asymmetrical in Russian, that is, that accents following the main stress are usually weaker than those preceding it. Compare:

On chitayet knigu /He is reading a book/
On chitayet knigu /He is reading the book/
It is clear that the rhythmic factor can explain the weakening of the accent on one word in the presence of a stronger accent on another, because due to the rhythm all words within a Russian sentence cannot be equally accented. This factor also explains how deaccenting of one word in the sentence results in the accentual prominence of some other word, because again for rhythmic reasons, all words cannot be equally unstressed. But which word will be stressed depends obviously on other factors to which I will now turn.

5. The semantic factor

The fact that some words in Russian are more likely to be accented because of their inherent meanings has not until recently been properly considered by re -

searchers. Recent investigations /16,18, 20/ have shown that in many cases it is the peculiarity of the meaning of a given word which forces the speaker to stress it more than other words in the sentence. The role of the semantic structure of the word is especially evident for those words which do not bear the main accent due to the factors discussed above. Such words are in Russian, for example, adjectives before nouns and verbs with an objective complement. The former have been studied in connection with sentence accent by T.P.Skorikova /18/, the latter - by A.V.Pavlova /20/.

Adjectives and verbs in Russian which normally do not bear the main accent in such word-groups may get this accent if they contain the meaning of evaluation:

novaya kniga /a new book/

prekrasnaya kniga /a wonderful book/.

Factive verbs, verbs with the meaning of reaction, retrospection, contrast, negation (both grammatical and inherent) usually bear a strong accent /20/:

Ivan vspomnil o knige

/John remembered the book/

Ivan zabyl o knige

/John forgot about the book/

The semantic complexity of such verbs is often combined in Russian with definiteness or even "emptiness" of the nouns:

Eto raznye veshchi

/These are different objects/.

Eto raznye veshchi

/It's quite different/

In an experiment made by A.V.Pavlova, subjects read sentences of this type with different accent patterns.

In the texts analyzed, cases of verb accentuation due to semantic factor were quite numerous. The lack of accents on such verbs must be accounted for by the operation of other factors, which, in my opinion, can also be formalized. (For more detail see /20/.

6. Given/new information

In Russian, as in other languages, words expressing new information are usually accented and words expressing given information are either accented and pronounced with rising tone or left unaccented. There are not enough experimental data on how sentence stress reacts to different kinds of new and given information (for English see /22/).

I will not discuss this apparently universal tendency any further. My concern is to test the possibility of formalization of the given/new distinction in Russian texts. That is why I put aside such hardly formalizable concepts as presupposition and the so called "fund of common assumptions".

In the experimental material only ca.75% of "new" words had the main stress and in ca.15% of cases the main accent was on "given" words despite the formal in-

dication of their givenness in the context. Thus the degree of accent is not fully determined by the context.

Many of the deviations from the noted tendency can be explained by the factors discussed above. For example, if a new concept is expressed not by one word but by a word-group, then only one word of the group will get a stronger accent according to syntactic and semantic rules. This indicates that the word-group is understood as a whole. Otherwise the unity of the concept is destroyed.

Other deviations can only be explained if we consider new factors. Both deaccenting the "new" and accenting the "given" can be explained by the concept of "focus", which is closely connected with the theory of Functional Sentence Perspective (in Russian linguistics commonly "Actual Sentence Division").

7. Actual sentence division

This universal and high level factor influences both the placement of accents and their type (thematic vs. rhematic accents) in Russian. Sentence stress patterns are essentially different in "undivided" (actually non-segmented) and "divided" utterances. In both kinds of structures a further subdivision into different "degrees of importance" /23/ or "information centres" /24/ is often possible. In oral speech the main means of expressing the ASD in Russian is the system of sentence accents which is far more common than either the syntactic or lexical means of distinguishing the theme from the rheme.

In the texts studied, the coincidence of different accent patterns and the corresponding ASD types was very high. As for the formalization of this factor we must admit the free choice of the author in selecting the type of ASD (divided/undivided) and the type of focus (broad or narrow). But this freedom is not unlimited. Certain communicative conditions show a high degree of affinity to certain ASD types. For example, when the speaker wants to express the meaning not only of contrast but also of result, reaction, estimation or negation, he tends to use a narrow focus, thus singling out a part of the whole by means of a "special" stress. Lack of emphasis, on the opposite, leads to the use of neutral stress, that is, to accenting the word-group as a whole.

CONCLUSION

This pilot study of the distribution of sentence accents in Russian has shown that the place and the type of sentence stress in Russian texts is to a certain extent predictable and therefore formalizable, but only with due regard for the highly complicated interplay of various

factors which expose different hierarchies under different communicative conditions. In reading - both by man and machine - we proceed from word order, constituent structure, lexical meaning and other formalizable factors to the underlying actual sentence division type and from that to accent pattern. In listening we move from the perceived accent pattern to the intended actual sentence division and from that to communicative meaning. In speaking - from communicative meaning through actual sentence division to the realization of an accent pattern.

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