

THE TYPOLOGY OF SENTENCE INTONATION SYSTEMS

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The study of the intonation system is efficient if the distinctions are made between universal, typological and specific phenomena. The report sets out some data on the prosodic units from this point of view and the ways of reconstruction intonation system of different languages. Some phonetic laws are reconsidered. The "law of language evolution" is put to discussion: increase of information per speech unit leads to the development of the suprasegmental sentence features (presuppositions and intonation contours including) since the human perception capacity is limited.

1.1. We consider the intonation system as a complex of three functional prosodic parameters:  $F_0$  frequency, duration and intensity.

1.2. At the contemporary stage of intonological investigation it is reasonable to distinguish two complementary plans:  
1/ synchronic intonational typology;  
2/ diachronic intonational typology.

2.1. In both cases it is necessary to differentiate such three strata: universal, typological and language specific one /1/. This distinction is not an easy one, and we have to elaborate a method for it. Let us turn our attention to one of prosodic phenomena: intensity curves in a word and in a sentence. We know that in a word an intensity curve is usually declined, so in Slavic languages the stressed syllable occupying the last place (or the penultimate syllable) can be a little lower than the unstressed initial one. For example, the Polish word *zakładzie* has such intensity curve (in mm): 15-13/12/8; the Ukrainian word *tikáti* has 9/4/4; the Russian word *ubežál* has 9-8/7-3/2-3 and so on. The data of other languages confirm this regularity /2/. And there seem to exist so-

me premises to consider the intensity declination as a prosodic universal. And it is easy to find an explanation for it in communication and articulatory programmes. Yet in Turkish languages the situation is quite different /3/. The intensity has rather a rising than a falling contour in the word. Moreover, it turns out, that in Turkish environment the Slavic speech is influenced by this Turkish tendency (we have data of the Bulgarian language and some Russian Volga dialects). The intensity curve in them may be risen either to the stressed syllable or to the end of the word end (Bulg. *papagal* - 30/45/50; Russian Volga dialectal: *tópota* - 6/2/8; general Russian: *tópota* - 6/4/4; /4/). Thus the word intensity direction is not universal but a typological phenomenon. And now let's analyse the sentence intensity curve. All languages known (Turkish including) demonstrate a clear tendency to declinate intensity /5/. In any case we don't know any other data. So, these two intensity curves - in a word and in a sentence - are factors of different character. The former is typological, the latter is universal.

2.2. The rise/fall opposition (in questions vs in declarative sentences) has been interpreted many times /6/. But in reality the solution is not quite so trivial. Namely: 1/ the falling melody in declaratives is universal; 2/ the question melody movement is of special interest.

First of all, generally speaking, there is no question as such: we have some types of questions each with its own function and specific melody. And thus we have a certain correlation between two sets: the intonation construction set and the number of questions types. In the former set we should in the first place separate the *wh*-question which has a quasi-universal intonation type with a falling end /7/. It is universal too.

2.3. The second issue is an ontological one. What is namely the rising melody? For example, there are two dominant types of questions melody in Slavic languages: they split the Slavic group into two subgroups, the Western group and the South-Eastern one.

The first type is characterized by the

rising tone in the final unstressed syllables (boundary tones) including the last unstressed syllable; the final stressed syllable (under sentence stress) can take a lower position.

The second type is characterised by a high steep rise on the stressed syllable, post-stressed syllables have a falling tendency, thus the whole contour has a low end. West Slavic languages use the first type in general (yes-no) questions and the second type - in alternative and repeated questions. South Slavic languages and, specially, East Slavic languages, on the contrary, use the second type in general questions and the first type in repeated questions /8/. Now if we are to accept O'hala and Bolinger's viewpoint literally, then we may have two answers: 1/ the first answer is: no, the second figure is not rising one, if rise means to be rising to the very end; 2/ the second answer is: yes, it is, if we treat question-declarative melody opposition as the high-low opposition because the frequency interval in East-Slavic (Russian) yes-no question is very large and the stressed syllable is intoned very high.

And now we propose to replace the opposition: rising-falling (as universal question-declarative opposition) to the opposition: high-low (with rising-falling as part of it).

Thus the intonation types are heterofunctional and may be represented in the following way:

Melody curve in declaratives is Universal;  
Melody curve in *Wh*-questions is Universal;  
Intensity curve in declaratives is Universal;

Intensity curve in words is Typological;  
Melody curve in not-*Wh*-questions is Typological.

(This list may be continued in fact).

The above described analysis proves that the description of language reality is not simple, it may be contradictory and not at all economic.

2.3. In our description the term "typological" means "non-universal". It shows that the intonation system of a language is to be correlated with a certain set of features which it can share with another language. This set is not always conditioned by genetic or areal reasons. For example, it is known that in African languages with lexical functions of tones the differentiation of questions and declaratives is realized by pitch registers, and not by contours /9/. R.F. Paufoschima has found traces of lexical tones in North Russian dialects /10/. Later in the same dialects she has discovered the register type opposition between questions and declaratives /11/. Here we ought to see only typological correlations.

I. Lehiste and P. Ivić recently have introduced a new hypothesis about the existence of a "new Balkanism" - yes-no question intonation type /12/. Here we have a case of areal convergency.

2.4. Some years ago I discovered a striking coincidence between the second Slavic yes-no question contour (with falling poststressed syllables) and the yes-no question melody in Finno-Ugrian languages. At the VI International Finno-Ugrian congress in Syktyvkar in 1985 (Komi Republic) I recorded on magnetic tapes the melodies of Finnish, Estonian, Hungarian, Sami, Udmurt, Komi, Mordva and Mari questions. We investigated the melody of the following question types: general, *wh*-questions, alternative, the so-called precisising questions and repeated questions. It turns out that the main types of question melody in Russian and Finno-Ugrian coincide. (I would not like to discuss the reasons of this coincidence now). And yet in order to have the right to speak about this coincidence being systematic, we ought to discover the really rising question in Finno-Ugrian languages /13/, otherwise we won't be able to formulate the distribution type similarity. We have found this rising-to-the-end-melody in repeated questions, echo-questions, questions with the word "and" (And mama?) at the initial position.

3. We have so far discussed the form-function correlation. Yet we have found one very important criterium comparison: the force (or weakness) of influence of sentence prosody on the word prosody. In other words, it is significant to know how the word prosody is modified in different sentence positions. We have experimental data that there is a regularity of the changes in the word prosody due to the position of the word in the sentence (the beginning- the middle- the end; the sentence type and so on). There may be strong sentence positions and weak sentence positions /14/. But this prosodic change is maximal in some languages and minimal in others. In the second case we may speak about a word-per-word (by-word) prosodic realizations, in the first case - about strong grammaticalization of the intonation type, thus the word is no longer a basic prosodic unit, but only a part of a larger unit, i.e. syntagm, or a sentence /15/.

4. The criterium discussed above deals with an idea of diachronical intonation typology. This is a new problem and has not been considered so far. In other words we deal with sentence intonation reconstruction. Linguists do not yet possess any direct evidences for it. But intonologists are capable to draw conclusions from indirect proofs of archaic intonation states. We have to the point of adopting some hypotheses now. In my opinion it is high time to part with an idea of sentence as

a certain wire upon which words stressed and unstressed are moving. It is not the case. Sentence intonation has the right to have its autonomous structure and its own autonomous history as segmental phonetics has. And we have to reveal it and to describe it.

What indirect evidences do we have to discuss?

1/ The folk music and folk songs. The intonologist can draw from it information on word prosody, stress and pause means.

2/ Church music and church reading. For example, in Russian church reading there is a manner called "po-glasica" /16/ - a structural unit for reading which corresponds to a sense group. In Vladyshevskaya examples we can see a narrow pitch range (F<sub>0</sub>) and very important role of T-structure. There exist special recordings with such data.

3/ Archaic texts such as fairy tales, legends, etc. These texts have specific prosodic form even to-day.

4/ Signs on manuscripts. In this case the intonologist can help the graphic interpretation.

5/ Re-interpretation of well known "phonetic laws" from the prosodic point of view. For instance, to my mind, the famous Wackernagel's law about the clitics and unstressed words in the second position can be re-formulated. I assume that it was not the words themselves but the position itself was so weakened, unstressed /17/ that it was hardly audible.

6/ Certain concepts of comparative syntactic accentology. For instance, the data that the verb in the main clause was unstressed and in the subordinate clause - it was not. It can be explained in the following way: in Indo-European the subordinate clause usually preceded the main clause. So when the verb was in the end in both cases it had a rising melody in the end of the first clause and the falling one in the end of the main clause.

7/ Inversion data (the movement by which I mean the location of the semantically loaded words to the initial position). A. Meillet underlined that in Old Greek the important word can occupy the initial position: *μὴ δὲ λείπειται τῷ ἀμετέρῳ νόμῳ ὀδοί.* The same is true of Vedic /18/. It means that the beginning of the sentence was distinct, prosodically loaded.

8/ The experimental investigation of poetry data. Experimental observations of Russian verses /19/ demonstrate acoustic prosodic model quite similar to the Ukrainian language intonation, which is, so to speak, more "central" between the Slavic languages for its similarity feature index. It is necessary to note that Ukrainian has non-Slavic contacts to the last degree.

9/ Diachronical proofs of word segmental phonetics such as compensatory lengthening in some languages, prosodic oriented

manipulation in word paradigms in Greek, Latin, Sanscrit, etc. (*γελῶν-γελῶρος, ἀνῶρ-ἀνέρος*). They proved the prosodic autonomy of words during those periods.

10/ Phonetic evolution of different parts of speech conditioned by their different syntactic position. For example, initial Indo-European particles changed very little (*pa-, ku-*) and usually had a fortis consonant in word initial position. Thus the sentence beginning was tense and sharp.

11/ The spoken language phenomena. We know that spoken syntax of many languages has similar structures. The syntactic relations of spoken speech demonstrate the proximity to the "pragmatic code" speech model, as it was described by T. Givón /20/; the syntactic features can help to reconstruct the intonation.

The above mentioned considerations lead us to the hypothesis about different stages in the prosodic evolution. It is necessary to understand that we should distinguish between the unidirection of prosodic evolution on the one hand and the absolute chronology of its manifestation, on the other. For example, the North Russian dialects (see above) have a word-by-word pronunciation, relicts of lexical tones and register oppositions in intonation. This dialect co-exists with literary Russian which has a syntagm speech unit contrary to word-by-word pronunciation, has no proved tones and has large sets of grammaticalized intonation configurations.

5. I want to discuss the following very important hypothesis. In my opinion, the main diachronic universal of intonation typology is a movement in three stages: 1/ before-word stage; 2/ word stage; 3/ post-word stage. At the first stage the unit is utterance, which is perhaps syllable divided and has a certain metric model. It is probable that there were sentences of gnomic or ginnic character, rhythmically convenient for memorizing /21/. The word period (for many languages even to day) is connected with understanding the word-form as an autonomous and well-formed unit (i.e. with morphological development). The post-word period embraces languages with ancient traditions the sentence prosody of which is characterised by well-elaborated melodic contours semantically loaded, and by large prosodic units and meaningful juxtaposition of these large prosodic units.

We don't want to impose the obligatory uniformity for all languages and their prosodic evolution. Languages can stop their development at a certain stage, or they can develop some compensatory means. This naturally calls for future investigations. In fact all recent interesting works on tonogenesis cannot explain why some languages have conserved tones, and others have not.

6. D. Bolinger recently has named intona-

tion the linguistic "Cinderella" /22/. I invite to review this name and propose for discussion the law of language evolution based mostly at the prosodic data. In other words. Language changes transmitting more and more information in one expression unit. Because of the double articulation language has two possibilities of information augmenting: to increase the semantic load and to increase the speech rate, i.e. sense compressing and phonation compressing ways. All the fusion phenomena (such as flexions from pronouns, prepositions from nouns, compounds arising, etc.) are sense compressing. Yet perception capacity of human beings lag behind sense compressing: that is we cannot speak faster than 50-60 msec per sound. Consequently language should develop all suprasegmental phenomena in a broad sense: presupposition of all kinds, semantics of prominence, grammaticalized melodic contours, etc. All these factors help to create supplementary sense lines, i.e. supersegmentals of content plan.

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