

QUANTITY AND PHONEMIC ANALYSIS

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Of prosodic or suprasegmental distinctive features, quantity has received less attention in phonemic analyses than has been given to pitch and stress. This is understandable since the languages of prime interest to the phonemist offer little material of value on this point. Quantity is rather a redundant feature. Yet since quantity in the Finno-Ugric languages – in Finnish, particularly in Estonian and in Lappish – is a phonetic phenomenon of special significance, and since its phonemic status is still awaiting a solution, it may be appropriate to make a study of the subject, however briefly or superficially, at this congress.

All research workers agree that Estonian and Lappish, from the phonetical point of view, contain numerous quantitative degrees. Up to five or six degrees can be distinguished even disregarding the quantitative differences connected with the specific character of the phonemes, and regardless of such a fact, among others, as that vowels are longer when they precede voiced, as opposed to voiceless, sounds. Phonometric and other experimental studies have shown for the Finno-Ugric languages as for others, that the quantitative degrees cannot be determined arbitrarily on the basis of measurement results, but must in the first place be determined auditorily.

The methods by which these numerous quantitative degrees should be phonemically interpreted are the subject of some dispute. There are two main opposing theories. One, connected with the phonologist-school of Trubetzkoy and Prague, holds that no language can have more than two phonologically relevant quantitative degrees. Where more degrees are to be distinguished phonetically, and accompany other concurrent or adjoining prosodic features, the question is one of dependent quantitative degrees. This theory has met with criticism particularly from experts on Estonian and Lappish, though on the other hand Lauri Posti, for example, one expert on Estonian, has accepted Trubetzkoy's theory of two phonologically relevant quantitative degrees.

It should be pointed out immediately that the quantitative systems of the Finnish language on the one hand, and of Estonian and Lappish on the other, differ considerably from each other. It may be useful to study briefly where and how this difference appears, since in my opinion this is the gist of the matter.

Standard Finnish recognizes two quantitative degrees for both consonants and vowels. The geminate degree of consonants is definitely in opposition to the single

consonant, for example, *tuli* "fire" – *tulli* "customs", after a stressed syllable, and *sanelee* – *sanellee* (from the verb *sanella* – "dictate"; the former is present tense indicative, third person singular, and the latter potential mood, third person singular) after an unstressed syllable. In vowels, again, the long and the short vowel form a distinct phonologic pair, for example, *tuli* "fire" – *tuuli* "wind". The same opposition is visible in an unstressed syllable, *tule* "come" – *tulee* "comes", and even in monosyllables, for example, *te* "you" – *tee* imperative of "do", or "tea". In the Finnish language, quantity is independent of intensity. In those minimal pairs in which the phonemic shape of the pair is identical apart from quantity, substitution can be effected for one phoneme while the rest of the environment remains the same, or at least almost the same. Distinctive quantity, therefore, is bound to one phoneme, either a vowel or a consonant between vowels. In a system of this type it is difficult to imagine other than two distinctive degrees, the occurrence of which itself imposes certain restrictions on the tempo of speech. I would call languages of this type "pure" quantitative languages.

The quantitative system encountered in Estonian and Lappish is different on many points. Quantity, as a distinctive feature, is generally not limited to one single phoneme but is inseparably bound up with the whole, consisting primarily of the first two syllables of the word form. Lapp scholars usually distinguish three different types or structures, viz. consonant-peaked, balanced, and vowel-peaked. An example of this is afforded by: *goar'ro* [Gõä'rru], *goarro* [Goarru] and *goaro* [Gò'arü], all of which belong to the paradigm of the verb *goarrot* "sew". These word forms are of identical phonemic shape. In addition, it can be said that their total quantity is largely the same, and equal amounts of articulation energy have been spent on them. The only difference is that quantity and intensity are differently divided on the different phonemes.

Although the variation of these three types reflects something typical of the different Lapp dialects, the picture is in reality much more varied and the differences between dialects exceedingly great. Numerous different sub-types must be distinguished and the number of structural types is thus manifold. Furthermore, although it is obvious that a certain relationship is constant between the vowels of the first and second syllables and the intervening consonant, this relationship varies widely, as a result of historical development. In Lappish, a long vowel may be followed by a short geminate, for example, *jükkim* "I divided" (cf. *jukkim* "I drank"). A short vowel may be followed by either a long or a short geminate, and by a single consonant, for example, *bor're* "eater", *borre* "edge", *bore* id. genitive-accusative.

Björn Collinder, having provided several indisputable examples of three degrees, considers it proven for Lappish – as certain other scholars have proved for Estonian – that Trubetzkoy's binary quantity theory is wrong. To anyone who has not read Trubetzkoy's writings for himself Collinder's article gives the impression that Trubetzkoy was entirely ignorant of the relations in Lappish. This, however, was not so, for Trubetzkoy had in fact gone thoroughly into Lappish phenomena and

readily admits that the consonants in Lappish really have three phonologically relevant degrees. Trubetzkoy proffers the explanation that a quantity used as a distinctive feature is not in reality involved: what is in question is a bundle of intensity and gemination correlation. In the Estonian language, too, he considers only the opposed short/long as quantitative; otherwise the question is one of a difference in intonation to which quantity is attached as an accompanying phenomenon.

I will not now enter into the extremely difficult phonemic question of geminates, nor into the problem of syllabic boundaries inseparably connected with it. I find it difficult, however, to consider these concepts as wholly irrelevant even from the phonemic point of view, for they are necessary before a language like Finnish and Lappish, for example, can be adequately and suitably described.

A feature common to both Lappish and Estonian, in contrast to Finnish, is that the distinctive quantity proper is only encountered in a stressed syllable. Unstressed syllables may show even several quantitative degrees of vowels but they depend on the character of the vowel or on the environment. The short and the long degree cannot be exchanged without substituting at the same time some other component of the word form. This suggests the firm connection between quantity and the other prosodic qualities. Lappish and Estonian cannot be considered pure quantitative languages in the same way as can Finnish. For this reason it is not easy to distinguish, by means of phonemic analysis, the combined prosodic features for the determination of the part played by each. If, however, one compares words like *borre* and *bore*, the most obvious auditoral difference between them is in quantity, irrespective of what other differences may be found in stress and pitch movement and in the different character of transition. Compared with quantity, the other features are redundant. In these circumstances, I believe that two distinct quantitative degrees can be discerned in both the vowels and the consonants of Lappish, although the quantities are not so pure as in Finnish. As to the difference between the long and the short geminate (*bor're* – *borre*), a quantitative difference is far from evident. The difference between the long and short geminate is not quantitative throughout, but the short geminate has a distinctly rising stress and pitch movement, while the long one falls. This stress and pitch movement, incidentally, is characteristic of the whole first syllable.

The fact that the difference between long and short geminate involves a whole bundle of different features and not quantity alone, can be seen from the fact that the difference is often clearly qualitative. For example, *bad'de* – *badde* "cord, rope" is phonetically, roughly, *baddi* – *badi*.

Lauri Posti has skilfully explained the long and over-long degrees of Estonian as allochrones. The over-long degree occurs only when the second syllable has a short vowel; it can never occur in front of a half-long vowel in the second syllable. On the whole I agree with Posti's interpretation. I should not, however, consider the quantitative variation in the second syllable as really distinctive. It is rather an indicator suggesting a different structure. The vowels of a short and half-long second syllable

cannot be changed without altering the quantitative relations of the preceding phonemes. In the first syllable, again, the long and the over-long degree as such are not opposites; they are so only as parts of the different structures to which they belong, cf. *vilù* ~ part. sg. *vilu*, *taĵpà* ~ *taĵpa*.

In summary, I should conclude that the peculiar quantitative systems of the Finno-Ugric languages are not, in my opinion inimical to the binary quantity theory. On the other hand, it is often extremely difficult in phonemic analysis to keep a purely quantitative degree separated from one which is firmly linked to other prosodic features, or is interdependent with the quantitative degrees of the other phonemes of the word form.

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DISCUSSION

I do not see any native speakers of Lappish in the audience, and thus the Lappish case will probably not be argued at this meeting. However, since I am a native speaker of Estonian, I hope to be permitted to make a few comments about this aspect of Professor Ravila's talk. I will not go into the details of the two vs. three degrees argument, beyond pointing out that regardless of how the question is handled on the segmental plane, the three-way quantity contrast still exists on the level of larger phonological structures, such as syllables and words. Thus the theoretical question, whether more than two quantity degrees may be relevant in any one language, cannot be dismissed by making a decision on the segmental level.

I would like to point out one segmental fact, however, which Professor Ravila seems to have overlooked. The quantity oppositions in Estonian are not restricted exclusively to syllables with primary stress. We find them in syllables with secondary stress in such word-pairs as *hommikuse* – *hommikusse*, *paremad* – *paremat*, but we find the opposition also in completely unstressed position, as in the words *kariga* – *karika*, *künnap* – *künnap*, *veskid* – *veskit*, *pered* – *peret*, and in very numerous words of the last two classes mentioned, words of the types *pere* and *veski*. To be sure, in unstressed position the contrast is only a two-way contrast, and it is restricted to consonants.

The Estonian vowel system appears more strongly influenced by stress than the consonant system. As is well known, five of the nine vowels occur only under primary stress. The data strongly suggest that there is a hierarchy of prosodic systems in Estonian, in which stress occupies a higher position than quantity. In this respect Professor Ravila is right: Finnish appears to be a more "pure" quantity language, although Estonian has the more complicated quantity relationships.

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