

Zita McRobbie-Utasi: *Quantity in the
Skolt (Lappish) Saami Language: An Acoustic Analysis*

Indiana University Uralic and Altaic Series Volume 165
Indiana University Research Institute for Inner Asian Studies
Bloomington, Indiana, 1999. pp. xvi + 255

The volume presents the results of ten years of research into the phonetic and phonological structure of Skolt Saami, an Eastern Saami dialect spoken by about 400 speakers in North-East Finland. It is based on extensive fieldwork and laboratory analysis.

grade (Grade III). The relationship between the strong grade of consonants of the x-series and the xx-series may be summarized as follows (p. 29):

	Weak Grade	Strong Grade
x-series	C	CC
	C	C:C
xx-series	CC	C:C

McRobbie classifies the Skolt Saami disyllabics into six structural types on the basis of the consonants following the first vowel. In Type 1, the consonants are long geminates. In Type 2, there is a long consonant cluster. Type 3 has a short intervocalic consonant. In Type 4, the intervocalic consonant is a short geminate - in Type 4a, it is either a liquid, nasal, or voiced fricative, and in Type 4b - a plosive, affricate, or a voiceless fricative. In Type 5, there is a short consonant cluster. Type 6a has geminates, Type 6b a consonant cluster. Type 6a has two subgroups - 6a1, where the consonants are liquids, nasals, or non-sibilant fricatives, and Type 6a2, where the consonants are plosives, affricates, or sibilant fricatives. The difference between Types 6b and 2 is based on the nature of the second syllable vowel, which will be described later.

Duration measurements taken from the *over 3000* disyllabics yield the following overall averages, in milliseconds (reproduced from Table 2.30, page 67):

Disyllabic type V1		Intervocalic Consonant(s)		V2
Type 1	175	248		85
Type 2	152	366		84
Type 3	299	87		88
Type 4	238	(a) 163	(b) 197	93
Type 5	225	174		90
Type 6a	148	(a1) 249	(a2) 355	85
Type 6b	161	323		90

On the basis of these results, the author observes that there are two contrastive durations for vowels: half-long (between 148 and 175 msec) in Types 1, 2, and 6, and long (between 225 and 299 msec) in Types 3, 4, and 5. The consonant(s) following the first vowel occur in three contrastive durations: short (Type 3), half-long (Types 1, 4, 5, and 6a), and long (Type 6b). The second vowel is uniformly short, with an average duration of 87 msec. The author observes a complementation between V1 and intervocalic consonant durations - when the vowel is shorter, the consonant is longer, and, vice versa.

The two different durations of the first syllabic vowel, and the three different durations of the consonant(s) following it, seem not to be affected by the duration of the second syllabic vowel, which remains constant for all structural types. McRobbie claims that this constitutes evidence for the importance of syllables: "The implications of this are twofold: (i) contrary to earlier research, second syllabic duration seems to be irrelevant in the distribution of duration in the first syllabic vowel and the consonant(s) following it; (ii) this being so the claim hitherto made, that the syllable has no status whatsoever within the disyllabic rhythmic unit, has to be reconsidered." (p. 100)

Looking at the measured averages quoted above, certain differences between the Saami and Estonian three-way quantity contrasts become obvious. As far as vowels are concerned only two contrastive durations occur in the relevant position, namely as first vowel of the disyllabic stress-group. From an Estonian point of view, the Saami vowels would be long and overlong; there is no phonetically short vowel in the contrastive position, even though such vowels are found in the second vowel position in the disyllabic. The consonant durations would correspond to Estonian short, long, and overlong degrees. Overlength in Estonian is usually described to have arisen as a result of compensatory lengthening after syncope and/or apocope of a vowel in the following syllable.

In addition to three phonological quantities, Estonian also has a two-way system of morphologically determined strong and weak grades. The two systems - quantity and gradation - are basically independent of each other; thus a word in the strong grade can be in the short or overlong quantity, a word in the weak grade can be in the long or overlong quantity, or - in the case of qualitative alternation - both the strong and the weak grade of a word can be in the same short quantity. (Examples: *tugi* 'support', nom.sg., strong grade, is in Q1. *toele* 'support', allat.sg., is in the weak grade, but in Q3; *kate* 'cover', nom.sg., is in the weak grade, and in Q2, *katte* 'cover', gen.sg., is in the strong grade, and in Q3; *sada* 'hundred', nom.sg., is in the strong grade, and in Q1, while *saja* 'hundred', gen.sg., is in the weak grade, and likewise in Q1). A considerable number of words do not participate in grade alternation, but all words occur in one of the three phonological quantities.

In Saami the overlength of consonants is part of the phenomenon of consonant gradation. Consonants may occur in three different grades: the weak grade (Grade I), the strong grade (Grade II), and the overlong grade (Grade III). As the phonetic conditioning factors for the application of gradation rules have disappeared, consonant gradation has become completely morphologized. According to McRobbie, disyllabics in Skolt Saami can be classified according to two principles, the first being the system of disyllabic stress group types established on the basis of durational patterns, and the second being consonant gradation. Since there are many words in the language that do not undergo consonant gradation, and since durational differences in the vowels do not seem to be determined by the quantity degree of the consonants, she claims that classification according to consonant gradation should be subordinated to classification according to structural type.

The relationship between structural types and consonant gradation is presented in Table 3.25 (p. 102). Unfortunately this table seems to contain a crucial error: the numbers signifying the structural types appear to be misaligned, so that there are no entries under Structural Type I, and there is a final column of entries that has no type number. The problem appears solvable by shifting the sequence of structural type numbers one step toward the right. The summary given below is based on the adjustment that I found necessary for interpreting the data.

The table classifies disyllabics according to three principles: the series to which the intervocalic consonantism belongs (x, xx, xy), degree of consonant gradation (I, II, and III, or

difference was found to be statistically significant. The author leaves open the question whether this difference is also significant linguistically. It might be recalled here that the distinction between structural types 2 and 6b is based on the characteristics of the second syllable.

It had been hypothesized by earlier researchers that stress differences might play a significant role in distinguishing between quantity degrees in Skolt Saami. To test the hypothesis, McRobble carried out three types of measurement on the data using the RMS amplitude envelope. Measurements were made of the amplitude peak (the maximum amplitude within a syllable nucleus). The "total amplitude" value - an approximation of the intensity integral - was established by measuring amplitudes at every 10 msec and adding up these values. Finally, the "average amplitude" was calculated by dividing the total amplitude by the duration and then multiplying by ten (p. 175). The point in time at which peak amplitude was reached was also established. The measurement results showed again a difference between structural Types 1-5 and Type 6: second syllabic vowels in type 6 reach their amplitude peak earlier and maintain it longer, and both peak amplitude values and average amplitudes are higher than in types 1-5.

Together with the earlier finding regarding fundamental frequency, the amplitude measurements suggest that the second syllable of disyllabics of Type 6 has special status.

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All these issues have been studied extensively and intensively in Estonian. The current study has established certain similarities and differences between Estonian and Skolt Saami. In both languages, other prosodic factors besides duration have to be taken into consideration in establishing quantity degrees. There is also a three-way system of oppositions in both languages. The main difference is in the domain of the quantity patterns: in Estonian, it is a disyllabic sequence, whereas in Skolt Saami it is the first vowel and the following consonant(s) of the disyllabic unit. There are also differences in the phonetic realization of the contrastive patterns.

The author summarizes her contributions to the study of Saami prosody on pp. 225-230. They will be quoted in part with 5w

All these 11 main groups are based on quantity patterns: in Estonian and basic unit of contrastive patterns. To be taken into account 0.0378 Tw

