The Lule Saami language presents a phonological three-way consonantal quantity system. Cross-linguistically rare, this ternary system allows for both lexical and morphological contrast. Lule Saami uses consonant gradation (i.e. morpheme-edge modifications of consonant quantity and/or quality) to express lexical and grammatical distinctions. Word-medial non-cluster consonants can occur with three different degrees of length. These are sometimes referred to as quantity (Q) 1, 2 and 3, or as singletons, geminates and supergeminates. Other Finno-Ugric languages also display phonological three-way length contrast in consonants and/or in vowels; for example Estonian, Inari Saami, and North Saami.

The Lule Saami language community in Tysfjord, Norway, displays generational differences in language use and fluency due to historical assimilation pressures. This study investigates the manner in which the phonetical implementation of the ternary quantity contrast varies according to speakers’ age groups. We recorded seven native speakers of Lule Saami aged 26 to 81, four men and three women from Tysfjord, Norway. All speakers’ consider themselves as being native speaker of Lule Saami and they are all at least bilingual (Lule Saami / Norwegian). The corpus consisted of six verbs in three different forms (i.e. six minimal triples) that allowed us to measure alternations across the three quantities in an identical (C)VÇV context. The consonants tested were [l], [m], [n], [r], [s] and [v]. Data were segmented, annotated and analyzed using Praat. Both temporal and non-temporal acoustic variables were analyzed. The data was sorted according to three age groups; group A included two speakers born after 1985, group B two speakers born earlier than 1985 and after 1960 and group C comprised three speakers born earlier than 1960.

We found that the Lule Saami three-way contrast is phonetically implemented through significant durational differences between singletons, geminates and supergeminates for all the consonants tested and across all age groups. The average consonant duration across age groups was 90 ms for singleton (Q1), 215 ms for the geminate (Q2) and 323 ms for the a supergeminate (Q3), and there was a slight readjustment effect on adjacent vowels. We evaluated the influence of age group on consonant duration and found no significant difference in consonant duration between age groups in quantities Q1 and Q2; however, speakers in groups B and C produced a significantly longer Q3 consonant compared to the youngest speakers (group A).

We can conclude that age may have an influence on durational contrasts in Q3; speakers in groups B and C had a significantly longer Q3 target consonant duration than those of group A. It seems that older speakers (born earlier than 1985) use duration to a larger extent to oppose consonants in Q2 and Q3 than the younger speakers (born after 1985).