On the prosodic expression of focus within complex noun phrases in Finno-Ugric languages

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This comparative study investigates the prosodic marking of focus in noun phrases (NPs) in Finnish, Estonian and Hungarian. Sharing word-prosodic properties (e.g., word-initial stress and quantity contrasts; [1]), these languages differ in their phrase-level prosody, including tone inventory and prosodic focus expression. In Finnish, there is a raising of the H phrase tone in sentence-initial, -medial and -final focus occurrences [2]. Estonian exhibits the highest f0-peak on the focused word either sentence-initially or -finally, compared to other pitch accents in the sentence [3]. Hungarian typically shows the highest f0-peak on the pre-verbal focused constituent, usually embedded in a falling f0-contour on that constituent [4-5]. This study aims to investigate whether the characteristics of sentential focus marking also occur within complex NPs.

Testing focus within NPs in a production study, comparable target sentences across the languages were constructed (1). A sentence-initial target subject NP was elicited (e.g., 'cheerful famous knights') with focus either on the first adjective (e.g., 'cheerful'), on the second one (e.g., 'famous'), on the noun (e.g., 'knights') or on the whole NP (e.g., 'cheerful famous knights'). Target words were disyllabic and controlled for vowel quantity, i.e. half of the items contained phonemically long vowels and the other half phonemically short vowels in the first syllable of all target words. 20 speakers per language were asked to read aloud ten different target sentence items in four different contexts eliciting the different focus conditions (20 x 10 x 4 = 800 sentences per language). Participants were recorded in Helsinki, Tartu and Budapest. For each word in the NP, i.e. the first, the second adjective and the noun (excluding the determiner in Estonian and Hungarian), ten equidistant f0 points were extracted in Praat [6]. These f0 measurements (in st) were fitted with Generalized Additive Mixed Models (GAMM; [7]), estimating the effect on f0 over normalized time for each focus condition and detecting the windows of significant differences between them (Figure 1). In addition to a parametric coefficient for focus and by-focus smooths for time, all GAMMs also included by-speaker and by-item smooths for focus condition.

Initial analysis indicates striking similarities in the phrasal prosody of these three languages. Specifically, all languages exhibit a consistent NP-initial f0-peak across focus conditions, which is consistently the highest f0-peak in the NP independent of the focus condition. After the initial f0-peak, every word in the NP carries an f0-peak, which is downstepped (except for NP focus in Hungarian). Focus on the second adjective or noun leads to an f0 peak whose f0 is boosted compared to the downstep f0-peak but does not reach the height of the initial f0-peak.

These findings differ from those for NP-internal focus marking in other European language families: Germanic languages exhibit focal f0-raising on the focused word and deaccenting of other words, while Romance languages (except French) accentuate all words within an NP [8]. In these languages, NP-internal focus marking seems to be comparable to sentential focus marking. However, when considered alongside earlier findings on sentential prosody, this study highlights a distinction in prosodic focus marking within NPs compared to sentential focus marking in Finno-Ugric languages. These findings imply the necessity of revising and expanding the focus typology proposed by [9]. If a language's prosodic profile were to predict the expression of sentential and phrasal focus, Finno-Ugric languages would not align with classical stress-based systems such as Germanic or Romance languages. While Finnish has been categorized as a phrase-language [2], Estonian has been argued to be similar to Germanic languages [10], while the classification for Hungarian is less straightforward. These categorizations for prosodic types nevertheless fail in predicting asymmetries in phrasal and sentential focus marking in Finno-Ugric. However, if the similarities in focus marking within the NP in Finno-Ugric languages align with the similarities at the word-prosodic level [1], especially the NP-initial f0-peak as the most prominent peak in the NP may be interpreted as an areal feature of Eastern European languages. These findings hold great potential for future comparative research to gain insights on the interaction between sentence-level and word-level prosody, and to refine prosodic focus typology.

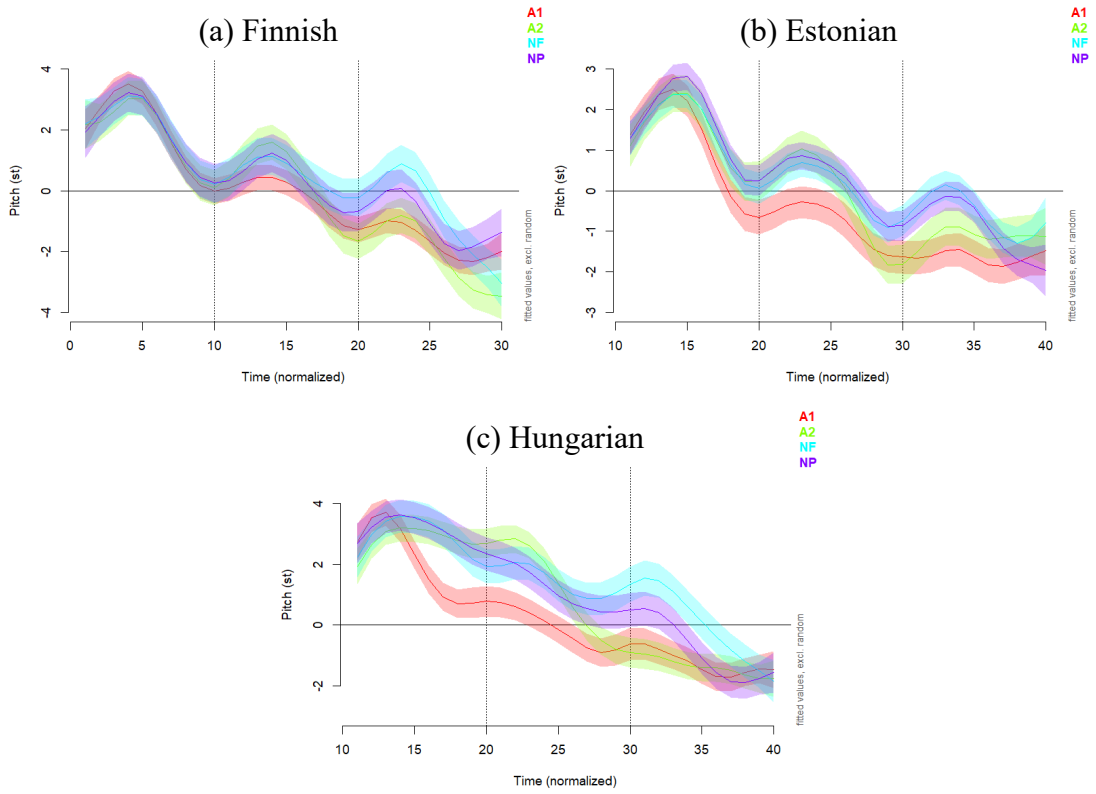

Fig. 1. Smooths for f0 trajectories in NPs (in st) by focus condition estimated by GAMM modelling for (a) Finnish, (b) Estonian, and (c) Hungarian, with shaded confidence intervals. Where confidence intervals of two conditions do not overlap, this suggests significant differences between the conditions. The order per ten f0-points is Adjective 1, Adjective 2, Noun. In Estonian and Hungarian, the sentence-initial definite article is not displayed for comparability, as Finnish does not have articles.

(1) a. Finnish: nolo ruma lelu vaivasi teiniä
embarrassing ugly toy bothered teenager
'The embarrassing ugly toy bothered the teenager.'

b. Estonian: need rõõmsad kuulsad rüütlid jahtisid karusid
these cheerful famous knights chased bears
'These cheerful famous knights chased bears.'

c. Hungarian: a beteg elvált anya hívta meg a húgot
the sick divorced mother invited VPRT the little.sister
'The sick, divorced mother invited the little sister.'

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