

Comparison of the intonation of two question types in Estonian

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Abstract

The present paper compares the intonation of two question types in Estonian: tag questions (või-questions) and morphosyntactically unmarked questions. Measurements of accent peaks in controlled data revealed a significant difference in the nuclear pitch accent between the two types. This finding is interpreted with reference to work on questions in other languages.

1. Introduction

1.1 Background and aim

It seems to be a universal characteristic of questions to have a higher pitch than statements (see Haan et al. 1997 for discussion and references). Research into the acoustic correlates of interrogativity has shown that different types of questions can form a continuum from the most morphosyntactically marked (wh-questions) to morphosyntactically unmarked (or declarative) questions. Thorsen (1980) found for Danish, and van Heuven & Haan (to appear) for Dutch, that declination, which is steepest for declarative utterances, is suspended or reversed in morphosyntactically unmarked questions; between these two extremes lie utterances with word order inversion and/or interrogative particle, and non-final utterances.

The experiment reported in this paper builds partly on a previous study that compared the nuclei of statements and questions. Asu & Nolan (to appear) showed that in Estonian the nucleus of a question has on average a higher pitch than that of a statement. Their study, which involved yes/no questions and wh-questions (the two types were analysed together as in Estonian both start with an interrogative particle), suggested that this could be the result of a phonological choice (an upstepped nucleus) which may or may not be used by the speaker to signal a question. The present paper compares the intonation of unmarked questions and tag questions which both can be classified as yes/no questions. It is hypothesised, in accordance with previous studies (e.g. Haan et al. 1997), that intonation plays a more important role in questions that lack morphosyntactic marking.

1.2 Interrogative intonation in Estonian

To the date only a couple of studies have addressed the issue of the intonation of different utterance types in Estonian. Vende (1982) showed that for monosyllabic synthesised utterances questions were higher than statements. Pajupuu (1990) studied the intonation of morphosyntactically identical utterances differing only in their communicative function. Otherwise, the occasional comments in the linguistics literature are largely based on general observations and are often not very specific.

Intonation is sometimes considered to be unimportant in marking interrogativity in Estonian: e.g. Metslang (1981:26) claims that "on the whole we do not pay attention to the intonation of an interrogative sentence", and Erelt et al. (1993:173) observe that it is

not inherent in Estonian to form a neutral yes/no question with the help of intonation only. Still, intonation is regarded as one of the possible (although often additional) grammatical means for signalling a question alongside interrogative particles, inversion and tags.

References to intonation occur most frequently in connection with morphosyntactically unmarked questions. According to Metslang (1981:28), such questions can be expressed by intonational means only by placing a focus stress on the verb of the utterance (e.g. *Sa JAKSAD raamatuid täis kohvrit üheksandale korrusele tassida?* 'You'll MANAGE to carry the suitcase full of books to the ninth floor?'). Pajupuu (1990), however, in her study, points out that in questions as compared to identical statements, what is focused is the important information at the end of the utterance (e.g. *Ta läks ÄRA?* 'He/she went AWAY?').

It is clearly the case that more (instrumental phonetic) research is needed into this aspect of Estonian in order to investigate the relationships between the different forms of utterances and their functions.

2 Method

2.1 Materials

The study reported here used part of a set of materials designed for an experiment investigating the properties of declination in Estonian. The materials analysed for the present purposes consisted of tag questions and unmarked questions. Tag questions form one of the most common ways of asking yes/no questions in spoken Estonian. They are formed with the help of the particle *või* 'or', or its colloquial form *vä*, which is added at the end of a declarative sentence. The unstressed particle is normally pronounced together with the last word of the utterance without a pause (Lindström to appear). Unmarked questions, too, primarily occur in spoken discourse. In the light of this, the material used here is slightly unnatural as it consists of tightly controlled read speech.

The utterances were controlled for the number of accented and unaccented syllables. Each utterance contained four accents, and either one or three unaccented syllables between the accents. Thus in both types of questions there were utterances consisting of four disyllabic feet such as *Mai näeb laadal suuri loomi (või)?* 'Mai sees at the market big animals (or)?', or tetrasyllabic feet such as *Leena lamab Jaanusega maalilisel laevakesel (või)?* 'Leena is lying with Jaanus on a picturesque little boat (or)?'.

Additionally, the design of the utterances kept in mind segmental constraints (as few obstruent sounds as possible), and the quantity (Q) and form of the accented syllables (only Q2 and Q3 and open syllables were allowed). The material consisted of 8 different sentences (there were four different utterances for each type of the foot structure).

2.2 Subjects, recording, and analysis

The data was recorded by five native speakers of Standard Estonian. They were all female, from Tartu, and between the ages of 20 and 29 (AO 29, KK 29, LL 27, KO 22, PH 20). The recordings were conducted in a quiet environment, using a Sony TCD D8 portable DAT tape recorder. The subjects read the utterances from a list where each utterance was repeated 5 times. The two types of questions were presented separately, tag questions first, but in a similar semi-randomised ordering.

The data was digitised at 16 kHz on a Silicon Graphics Unix workstation. An F0 contour was computed for each utterance using Xwaves+. Each utterance was measured either at 6 or 7 points depending on the type. The initial F0 value, 4 accent peaks, and the utterance final F0 value were measured for both types of question; for tag questions, an additional measurement was taken before the tag, i.e. at the end of the last content word. Utterances that contained a reading error (hesitation resulting in two intonational phrases, or a correction of a misread word), or where the speaker used a narrow focus on one of the accents, were excluded from the analysis. All in all the analysed data comprised 187

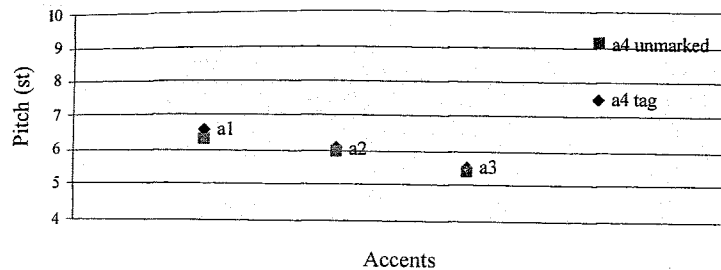


Figure 1. Comparison of the four accent peaks in unmarked and tag questions (all speakers).

unmarked questions and 182 tag questions. All accents measured were falls (H*+L). For the purposes of statistical analysis, means were taken of the available repetitions of each sentence.

In order to make a reliable comparison between the material of different speakers the pitch values in Hz were converted into semitones. Furthermore, for each speaker the final low (the averaged lowest value) was subtracted from the peak accent values, on the assumption that the final low refers to the 'floor' of the speaker's pitch range (Lieberman & Pierrehumbert 1984).

3 Results and discussion

A preliminary statistical analysis showed no consistent differences in pitch between the utterances with disyllabic and tetrasyllabic feet, and so these utterances were pooled. Figure 1 shows a comparison of the unmarked and tag questions averaged over all five speakers. The pitch of the final accent peak is clearly higher in unmarked questions than in tag questions. In a speaker by speaker analysis, paired samples t-tests showed that for four out of the five speakers accent 4 was significantly higher ($p < 0.001$) in unmarked questions than in tag questions. The exception was the speaker KO for whom there was no significant difference between tag and unmarked questions in utterances of neither foot type. There is no immediate explanation to her different behaviour. No difference across question types was found for the first three accents in any speaker.

Considering the relation of the final peak within each utterance type to the preceding accent, a paired t-test showed that for all speakers the difference between accent peak 3 and accent 4 was highly significant ($p < 0.001$) in unmarked questions. The same difference was significant for tag questions in the case of three speakers (AO, KO, PH) ($p < 0.01$), and not significant for the other two speakers (LL, KK).

These results lead us to assume that the boosting of the nuclear accent is an obligatory intonational device for signalling an otherwise unmarked question. The situation with tag questions where a morphosyntactic interrogativity marker, the tag *või*, already exists, is less clear-cut. Speakers have a choice between boosting the final accent relative to the preceding one, or not signalling this type of question intonationally. Arguably the advantage of such signalling is advantageous in tag questions because, unlike other morphosyntactically marked yes/no questions, the evidence of question status is otherwise unavailable until the very end of the utterance.

It was observed that the tag was normally at the same level as the end of the preceding content word. There was a slight rise on the tag in the case of one speaker (LL) who incidentally also was the only one who chose to use the colloquial tag form *või* in her tag questions. Further work is needed to establish whether in this case there is any connection between the form and the slightly rising intonation.

4 Conclusions and further research

The study reported in this paper seems to confirm what has been found for other languages (e.g. Danish, Dutch): intonation plays a more important marking role in the case of morphosyntactically unmarked questions. In Estonian, the two types of yes/no questions that were studied differ in respect to the height of the nuclear accent: unmarked questions have a significantly higher nucleus than tag questions.

Further work is needed to establish the declinational properties of Estonian, to see whether, as in Danish, there is a continuum from declaratives to unmarked questions. This would involve adding other types of question to the comparison such as yes/no questions marked at the beginning with a questioning particle *kas* 'whether', and wh-questions.

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