A preliminary investigation of intonation in Danish sentences with parenthetical phrases

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A preliminary investigation of intonation in Danish sentences with parenthetical phrases

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Abstract
This paper is a condensed version of my BA-thesis, which set out to investigate the f0 movements of Danish sentences with parenthetical phrases. The initial hypotheses were that the intonation of a sentence would not be affected by the insertion of a parenthetical phrase (i.e. the intonation of the carrier sentence would continue after the parenthetical phrase as if there hadn’t been any parenthetical phrase at all) and that the intonation pattern of the parenthetical phrase itself would be relatively flat.

There was also the implicit assumption that the f0 contour of the sentence could be described on the basis of the stressed syllables alone, since the f0 movement of the stress group is believed to follow a fixed pattern.

The result of the experiment indicates that there is a complicated relationship between the intonation of the carrier sentence and the parenthetical phrase, and that the f0 movements of the stress group may not necessarily follow a completely fixed pattern.

Introduction

Definition of the parenthetical phrase
According to Aage Hansen (1957) parenthetical phrases (and asides) may be characterized as "words, phrases, or sentences which are 'on another level' compared to the surroundings (sentence, utterance) in which they are inserted. These parenthetical phrases are spoken in a lower tone and/or with pauses preceding and following them."

It is not possible to come up with a syntactic definition of what may be considered a parenthetical phrase. Furthermore it is possible to come up with ambiguous examples, where the speaker may choose whether or not to use this particular intonation to make part of a sentence a parenthetical phrase. For example:

Han er (,) sandt for dyden(,) en opvakt fyr
"He is (,) indeed(,) a bright fellow"

Prisen er(,) vel at mærke(,) i svenske kroner
"The price is(,) one must note(,) in the Swedish currency"

This lack of a clear syntactic definition poses a problem of circularity for this investigation, since the only sure indicator of what is to be considered a parenthetical phrase is the intonation, which is exactly the subject under scrutiny here. The only solution is to rely on intuition.

My attempt to meet this problem has been to construct parenthetical phrases which only with difficulty could be construed as anything other than a parenthetical phrase.

A brief introduction to Danish sentence intonation
The default sentence intonation for ASC (Advanced Standard Copenhagen) in accordance with Gronnum (1997) may be described in this way: The stressed syllables carry the intonation contour. All sentences are characterized by a more or less declining intonation contour. The degree of this decline co-varies with the type of sentence: Ordinary declaratives and syntactically marked questions have the most declining contour, and syntactically unmarked questions (i.e. echo questions) have the least declining (almost level) intonation contour.

Each stressed syllable initiates a stress group. The stress group is characterized by a certain fixed f0 pattern which is superimposed on the sentence intonation contour. For ASC this pattern may be described as a rise from the
stressed syllable to the first post-tonic syllable followed by a decline through the rest of the stress group. This pattern is truncated depending on the number of unstressed syllables in the stress group (which typically ranges from 0 to about 5).

If an utterance contains more than 4-5 stressed syllables it is likely to be split up into a number of phrases with a partial resetting of the intonation contour. These resettings need not coincide with syntactic boundaries, but some syntactic boundaries are often (but not necessarily) associated with resettings (N. R. Petersen & P. M. Hansen 1994)

This experiment

The aim of the investigation

The aim of the thesis was to perform a preliminary investigation of

- whether the intonation of a carrier sentence is affected by the insertion of a parenthetical phrase, and
- the intonation of parenthetical phrases. Furthermore to see if a possible variation might depend on
  - the length of the parenthetical phrase (short, medium, long)
  - the placement of the parenthetical phrase (early, mid, late)

The hypotheses were that

- the intonation of a (carrier) sentence would not be affected by the insertion of a parenthetical phrase
- the intonation contour of the parenthetical phrase (as defined by the f0 of the stressed syllables) would be relatively flat
- there would be no systematic variation caused by the placement or the length of the parenthetical phrase

Pilot experiment

An initial tape-cutting experiment was conducted in which I recorded a sentence without a parenthetical phrase, and the same sentence with parenthetical phrases of varying length, which I then edited out. The edited versions were auditorily compared to the original sentence without a parenthetical phrase. Except for the longest parenthetical phrase (which was as long as the carrier sentence itself) all were judged to be perfectly normal, and the version where the longest part had been edited out was still acceptable. Afterwards I pasted the cut-out parenthetical phrases into the first sentence (which was originally spoken without a parenthetical phrase) and compared these to the corresponding recordings of the sentences with parenthetical phrases. Again they all sounded normal, except for the version with the longest parenthetical phrase inserted, which sounded slightly deviant. Thus the results of the pilot experiment lent some support to the hypotheses.

The main experiment

The material consisted of 2 times 3 sentences (each containing 6 stress groups) which allowed for placement of the parenthetical phrase after either the second, third, or fourth stress group. These sentences were used without parenthetical phrases and the same sentences with parenthetical phrases of varying length (1, 2 and 6 stress groups). This yields a total of 24 test sentences.

The test sentences were mixed with a number of distractor sentences to produce 8 different sets of pseudo randomized test sheets. These were read and recorded by four subjects (two male, two female).

Results

Changes in the intonation contour of the carrier sentence

Insertion of a short parenthetical phrase need not affect the intonation contour of the carrier sentence. But the longer the parenthetical phrase is the more likely it is to affect the intonation contour of the carrier sentence. Also the degree of change seems to depend on the length of the parenthetical phrase.

The change seen is an offset of the intonation contour, similar to the resetting mentioned in the introduction to Danish sentence intonation (above). This probably means that the carrier sentence is split up into two phrases. The length of these phrases, of course, depends on where the parenthetical phrase is inserted and since shorter phrases tend to have a steeper intonation contour it also makes a difference where the parenthetical phrase is inserted.

Changes in the stress group pattern

As mentioned earlier the stress group is characterized by a particular f0 pattern. The f0
span of the stress group pattern varies with the position in the sentence (and the text): largest initially and smaller finally (Thorsen 1985). In this material I have only taken the stressed (and to the extent that it is present) the first unstressed syllable in consideration. This means that I can only say something about changes that occur in the first part of the stress group pattern. What can be seen is, that the rise from the stressed to the post-tonic in the stress groups just before both the boundaries between the carrier sentence and the parenthetical phrase is larger than it is in the preceding stress group. This violates the general rule of decreasing f_0 span in stress groups through a sentence. It is possible that the extended f_0 movement might be perceived as some sort of continuity marker.

The question is whether the important change is the expansion of the stress group pattern or a rising of the f_0 of the last unstressed syllable before the boundary. This cannot be seen from the present material.

The topline

Just as the f_0 of the stressed syllables can be said to define the intonation contour of a sentence, so the f_0 of the first post-tonic can be said to define the topline of the sentence. According to N. R. Petersen 2001 the f_0 of the first post-tonic can be shown to depend on the position in the sentence but not on the position in the phrase. In short, this means that the topline and the intonation contour are independent. (This of course is not completely compatible with the description given above.)

Since the intonation contour is disrupted when a parenthetical phrase is inserted, and since the stress group pattern is modified just before the boundaries of the parenthetical phrase, you might expect the topline to be disrupted too. Some examples show this. But, there are also examples showing that the topline continues all the way through (particularly shorter) parenthetical phrases, and numerous examples showing the topline to continue across the boundaries of the parenthetical phrase, but with some sort of resetting during the parenthetical phrase.

The tonal span of the parenthetical phrases

The intonation contour of the parenthetical phrases is, as expected, to varying degrees lower and flatter than what is seen in the carrier sentences.

Since the topline may continue uninterrupted over the boundary of the parenthetical phrase, even though the intonation contour is lowered, this means that the tonal span of the stress group pattern may be as big, and particularly in the case of the last stress group of the parenthetical phrase even bigger than, what is seen in the carrier sentence. This was quite surprising.

Comparison of the pilot- and the main experiment

Since the results of the pilot- and the main experiment seemed to be pointing in opposite directions, it was natural to reinvestigate the material of the pilot experiment. There are probably two reasons why the tape-cutting experiment went so well:

1. Even though the carrier sentence wasn’t very long, it was in all cases split in two phrases. Only the longest parenthetical phrase seemed strong enough to affect this, but only by moving the phrase split point, which still resulted in an acceptable intonation contour.

2. The stress groups in the carrier sentence only contained stressed syllables. This means that the stress group pattern was as truncated as it could be, and thus gave no possibility for the characteristic rise before the boundary of the parenthetical phrase.

Conclusion

The first hypothesis is weakened, since only a few examples show the intonation of the carrier sentence to be unaffected by a parenthetical phrase. Particularly longer parenthetical phrases will most probably induce a resetting of the intonation contour.

The second hypothesis is strengthened, since the intonation contour of the parenthetical phrase is found to be relatively flat, but it is noteworthy that the tonal span of the stress groups in the parenthetical phrase may well exceed that seen in the carrier sentence.

The third hypothesis can be rejected since it does make a difference how long the parenthetical phrase is, and it also makes a difference where in the carrier sentence the parenthetical phrase is inserted.
References
Grønnum N (1997). Fonetik og fonologi - Almen og dansk, IAAS, København
Hansen Aa (1957). Pausekommaet Dansk sprognævns skrifter Nr. I Gyldendal, København