The Encoding of Information Structure in Beaver (Athabaskan)

Gabriele Müller
Westfälische Wilhelms-Universität Münster

Introduction

Beaver is a Northern Athabaskan language with lexical tone. There are in total about 150 elderly speakers on several reserves in Northern British Columbia and Alberta, Canada. The data collected represents the Northern Alberta dialect of Beaver which is still spoken by 20 people on two reserves.

Northern Alberta Beaver has a high lexical tone, a low (unmarked) tone and a restricted falling tone: H, L and HL.

Information structure in tone languages is often signalled by manipulations of pitch range or duration (cf. e.g. Xu 1999, on Mandarin; Pan 2007 on Taiwanese). For Navajo, a remote relative of Beaver, McDonough 2003 states that information structure is not signalled by prosodic means.

In Beaver, a falling phrase accent –HL has been found in the spontaneous data, and the manipulation of pitch range for signalling information structure was measured in a more controlled set-up.

Materials & Method

The data were collected on six fieldtrips to the Northern Alberta communities between 2005 and 2009.

Spontaneous data:

• 12 narratives (9 speakers)
• 200 fixed recordings (2 speakers)
• 2 other task oriented dialogues (2 speakers)

Controlled data:

• the ‘Animals’-task from QOUS (Skopeteas et al. 2006) in slightly adapted form
• speakers were asked to name animals of different colors, sizes and numbers
• recorded with 7 speakers
• labelled by hand for pitch maxima and minima, vowel onset and offset.

Analyses were performed using praat.

Results I

The intonational tones which have been found in the spontaneous data are summarized in the table below.

In contexts where a contrastive reading is intended, the phrase accent –HL is used. In fig. 1 and 2 below, this accent coincides with a lexically high (fig. 1) and a lexically low syllable (fig. 2). This intonational tone aligns with the latitudinal syllable of the phrase and is often accompanied by expansion of pitch range and followed by pitch range (cf. Xu 1999 and Pan 2007). While on the other hand, reporting on a phrase accent –HL marking contrast, which is linguistically rare.

Some information was produced with an increased pitch range for four speakers, while one speaker raised both baseline and topline, using a higher pitch range. In fig. 3, the handlabelled minima and maxima per word have been plotted for each speaker, showing that the maxima are significantly higher in now than in given words for all speakers, while the minima are not affected in the same way.

In the more controlled set-up, we found that new/contrastive information was produced with an increased pitch range for four speakers, while one speaker raised both baseline and topline, using a higher pitch range. In fig. 3, the handlabelled minima and maxima per word have been plotted for each speaker, showing that the maxima are significantly higher in now than in given words for all speakers, while the minima are not affected in the same way.

Summary & Discussion

In the spontaneous corpus, we found that a falling phrase accent –HL can be used to mark contrast. This intonational tone overwrites the lexical tones. However, a quantitative study or a perception study would be needed to decide whether the lexical tones are still retrievable in the signal.

In the controlled data set, pitch range was shown to be an important cue in differentiating new/contrastive from given information. Two different speaker-dependent strategies were found: for both, the maxima were raised, however, some speakers did not raise the minima while others did. For duration a tendency could be noted for vowels to be longer in the new/contrastive context.

These findings from Beaver complement current knowledge about intonation in tone languages: On the one hand, they provide more evidence for the widespread mechanisms of pitch range expansion and increase in duration as reported for other tone languages by e.g. Xu 1999 and Pan 2007. While on the other hand, reporting on a phrase accent –HL marking contrast, which is cross-linguistically rare.

We also add a description of another language of the same family with different strategies for marking information structure to the report on Navajo by McDonough 2003, showing that the Athabaskan family displays some interesting variation in the domain of prosody. The interaction of syntactic, lexical and intonational features in this language family could provide an interesting area of study because the languages are prosodically and syntactically diverse.

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www.mpi.nl/DoBeS/projects/beaver

For further information contact:
Gabriele.Mueller@uni-muenster.de

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