Making conversation work: Prominence in the intonation of feedback signals

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The importance of backchannels (BC) as other-oriented feedback signals is widely recognized [1, 2, 3]. BCs play an important role in constructing and maintaining shared knowledge in conversation. Tasks like the Map Task [4] are commonly used to elicit conversations that contain a large number of feedback signals. In this task, two participants collaborate to transfer a given route from one participant's map to the other without any visual contact, i.e. using only spoken language. In order to solve the task without seeing the interlocutor's map, a clear understanding about what is *common ground* (shared knowledge between interlocutors) [5] is indispensable. In spontaneous speech, on the other hand, absolute certainty about the current status of common ground is not quite as important from a strictly functional perspective [6], and BCs might therefore be seen here to serve a wider range of social functions [7].

BCs are often classified according to their function as *acknowledgement tokens* (typically with falling intonation) or *continuers* (typically with rising intonation). To investigate the interplay of the intonation of backchannels with different conversational settings, we conducted a pilot study, using recordings of two dyads of monolingual German speakers in two settings. Subjects were recorded first while having a spontaneous conversation, and then while taking part in a Map Task. It is important to note that the visual channel was available only in spontaneous conversations.

A first exploration of our data set (Map Task:198 BC tokens; spontaneous: 37 BC tokens) shows that in task-oriented conversation, speakers use more 'standard' BC types like "ja", "mmhm", and "okay" as compared to spontaneous speech, where almost a quarter of all utterances were 'non-standard' BC types (subsumed under the category "other" in related work [8]). For the prosodic analysis, we categorized intonation contours into rising, falling and level contours by measuring the difference in semitones between the beginning and end of each token. We found that intonation contours differed according to conversational setting. Table 1 shows that, in task-oriented conversation, speakers used predominantly rising tokens (53.1%) while in spontaneous conversation most tokens were produced with falling or level intonation (fall: 45.9%, level: 40.5%). Moreover, we found that BCs in task-oriented conversations have greater intonational salience in terms of greater overall pitch excursions (2.84 ST averaged across tokens) as compared to those in spontaneous conversation (0.94 ST averaged across tokens), as shown in Figure 1 and table 2.

These findings suggest that backchannel use differs between task-oriented and spontaneous conversations. While in Map Tasks there is an inherent, functional motivation for interlocutors to continuously update and confirm the current status of common ground using continuers with prominent pitch movements [9], spontaneous conversation does not necessarily require the same degree of precision and speakers seemed to use more subtle pitch movements on their feedback signals. Subjects also used a greater variety of lexical types in spontaneous conversation, suggesting that, overall, BCs are used in a more varied and flexible manner in the absence of a constraining and goal-oriented conversational context.

Figure 1: Pitch movement in semitones for individual BC tokens in spontaneous and Map Task conversation. Cyan diamonds represent mean values, positive values represent rising contours, negative values represent falling contours.

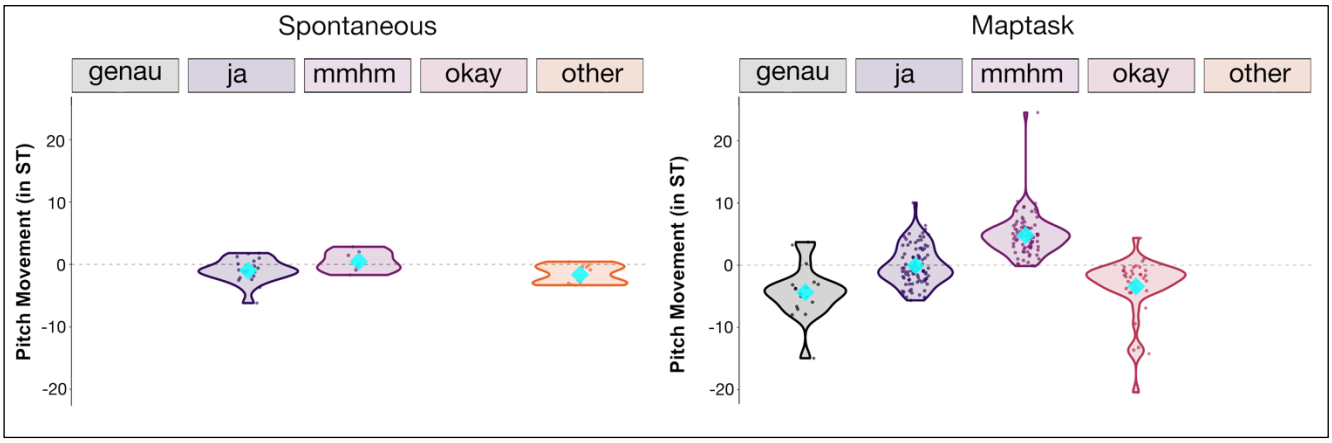

Table 1: Proportions of intonation contour by condition

	Fall	Level	Rise
Map Task	30.6 %	16.3 %	53.1 %
Spontaneous	45.9 %	40.5 %	13.5 %

Table 2: Mean values of rising and falling contours in semitones by condition and BC type (standard deviations in brackets)

	Ja	Mmhm	Genau	Okay	Other
Map Task	-0.18 (2.95)	4.82 (3.34)	-3 (3.54)	3.37 (5.11)	-
Spontaneous	-1 (1.91)	0.18 (1.51)	-	-	1.64 (1.49)

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