Between form and meaning: using intonation cues to identify confirmation-seeking requests

The aim of this work is twofold: (i) to show that European Portuguese (EP) confirmation-seeking questions and information-seeking questions exhibit predominantly different intonation patterns; (ii) to show that the distribution of pitch accents in confirmation-seeking questions is a cue to different discourse/pragmatic values.

Research on languages such as English, German, Italian or Swedish has shown that intonation can distinguish questions according to discourse/pragmatic values (function) (see Rodríguez & Schlangen 2004, Edlund, House & Skantze 2005, Venditti, Hirschberg & Liscombe 2006, a.o.). Specifically, studies based on Map-Task corpora (see Grice et al. 1995, for German, Italian and Bulgarian) identify pragmatically different subtypes of confirmation requests and show that these subtypes affect the distribution of rising/falling contour or pitch accent types. Viana et al. (2007), based on a Map-Task corpus, suggested that intonation in EP may distinguish information-seeking from confirmation-seeking questions. However, there is no work on EP proving an association between intonation patterns and pragmatic/discourse subtypes of confirmation-seeking questions.

For this study, we selected and coded a corpus of child directed speech (Santos 2006), which by its nature presents a broad range of communication problems favouring the occurrence of different sub-types of confirmation requests. We analysed a sub-corpus of 11h of spontaneous child-adult dialogue and selected 160 confirmation-seeking questions answered by children and uttered by three different adults. These questions include 73 sentences and 87 fragments, mainly yes-no questions (156) but also including wh-questions (4) that are interpreted as yes-no questions (which receive yes-no answers). The utterances were tagged according to three main levels of action: contact, perception and understanding (Clark 1996). A preliminary attempt to classify the data showed that confirmation-seeking questions related to ‘understanding’ should be distinguished according to ‘acceptance’, another level of action (Clark 1996). Additionally, those related to “perception” were distinguished according to two subcategories: high/low level of confidence that the information received is correct (Grice et al. 1995). The corpus was transcribed using a system based on the first P_Tobi proposal (Viana et al. 2007) and F0 values corresponding to high and low targets within nuclear pitch accents and final boundary tones were measured. The pragmatic / discourse coding was done by one researcher and the intonation analysis was independently done by other.

The results obtained lead to two different types of generalization. First, even though there is a wide consensus concerning the contour of information-seeking yes-no questions in EP (H+L* LH%) (see Frota 2002 for an overview; Viana et al. 2007, for examples from read and spontaneous speech), only 8.8% of the confirmation-seeking questions that were analysed present this pattern. Second, confirmation-seeking questions are not associated to a single intonation pattern; pitch accents tend to vary according to the discourse/pragmatic functions of this type of questions. A Fisher’s Exact Test shows a significant correlation ($p < 0.001$) between function (perception and understanding) and pitch accent: H* and L+H* mainly occur in confirmation-seeking questions coded as ‘perception’ related; L*+H mainly occurs in confirmation-seeking questions related to ‘understanding’. A further correlation may be identified concerning the distribution of pitch accents in confirmation-seeking questions coded as ‘understanding’: H+L* (the most commonly used pitch accent in information-seeking questions) occurs in those cases that were coded as neutral at the level of “acceptance”, whereas L*+H and ^H* are dominant in the questions expressing different types of negative ‘acceptance’. Crucially, L*+H has been associated with narrow focus in interrogative questions (Frota 2002) and ^H* was associated with specification or correction of given information by Viana et al. 2007. This may be explained if confirmation requests, in particular those expressing negative acceptance, share some properties with contrastive / identificational focus (see Kiss 1998).

Furthermore, confirmation-seeking questions most commonly end on a non-falling boundary tone (LH%, H%, !H%). An analysis of the F0 height of LH% and H% boundaries shows that the boundary F0 varies according to function: understanding related questions are lower than perception related ones and these are lower than contact confirmation-seeking questions. A one-way ANOVA confirms the correlation ($F(2)=2.944, p = 0.05$).
References