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On the prosodi properties of Hindi Relative Clauses

Aim. This paper aims at examining the prosodic properties of object relative clauses in Hindi and at investigating whether differences with respect to the preferred attachment site of the relative clause, namely, high or low attachment result in prosodic differences as well. In (1) the relative clause preferentially modifies NP1 (high attachment interpretation), while in (2) the relative clause preferentially modifies NP2 (low attachment interpretation).

High attachment
(1) Lata-ne [**gaaRi** kii]$_{NP1}$ caabii DhoonDi   [**jo** naukar-ne saaf kii thii]$_{Relative\ Clause}$
     Lata.ERG car   of.GEN key   searched   REL.   servant.ERG   cleaned   had
     "Lata searched for the keys of the car that the servant had cleaned."

Low attachment
(1) Lata-ne gaaRi kii   [**caabii**]$_{NP2}$ DhoonDi [**jo** naukar-ne kho dii thii]$_{Relative\ Clause}$
     Lata.ERG car   of.GEN key   searched   REL.   servant.ERG   lost   had
     "Lata searched for the keys of the car that the servant had lost."

We ran a production experiment including three kinds of object relative clauses (RC), (i) the RC preferentially modifies NP1 (ex.1), (ii) the RC preferentially modifies NP2 (ex.2) and (iii) the RC modifies NP1 or NP2 with equal likelihood. The attachment preferences were determined by an independent paper & pencil questionnaire where the participants had to answer a forced choice question which was formed on the basis of the RC (*eg* What had the servant cleaned? (a) the car (b) the key). We recorded a total of 1008 stimuli (3 kinds of RCs × 24 instantiations of a kind × 14 speakers). The recording sessions took place in New Delhi in March 2011.

Results. With respect to the prosodic properties of the RC, our data suggest that the RC forms an independent intonational phrase having a boundary at its left edge. This boundary can be realized in three ways: (i) with a pitch rise on the verb of the main clause, (ii) with a pause between the verb of the main clause and the RC, (iii) with a pitch reset at the beginning of the RC. These three correlates of prosodic boundary do not need to be present simultaneously; 10% of our data had no pause before the RC.

With respect to the prosodic differences between High Attachment RCs and Low Attachment RCs our data suggest that when the RC modifies NP1 (1), there is a longer pitch rise on the verb of the main clause than when the RC modifies NP2 (2). The two structures differ also with respect to the realization of NP2: when the RC modifies NP1, there is a rise on NP2, while when the RC modifies NP2, the NP2 remains flat.

Discussion. Hindi is an SOV language, which implies that no element of the complex NP (NP.GEN NP) is adjacent to the relative clause. Nevertheless the same phenomenon which has been repeatedly reported for many languages is visible here as well. If the relative clause modifies the first NP, the most embedded one in Hindi, there is a stronger prosodic boundary than when it modifies the second one. Our results on different strengths of prosodic boundaries speak for an effect of complexity and distance between constituents (Watson & Gibson 2004) rather than of syntactic embeddedness (Wagner 2005).

References

Wagner, M. (2005). Prosody and recursion. Doctoral Dissertation, MIT, Cambridge, MA.
Watson, D. & E. Gibson (2004). The relationship between intonational phrasing and syntactic structure in language production. *Language and Cognitive Processes* 19/6, 713-755.