Attachment disambiguation in a NP1-NP2-RC structure has received much attention in the psycholinguistic literature (e.g. Cuetos & Mitchell, 1988; Carreiras & Clifton 1993; Gibson & Schuetze1999; Hemforth et al., 1998; Desmet, Brysbaert & De Baecke 2002; Scheepers 2003). However, if such disambiguation cues are unavailable, listeners may draw upon other information sources such as prosody. Indeed, prosodic structure does influence how listeners interpret syntactically ambiguous utterances. It has been shown that the absence or presence of a strong phrase boundary (IPH) can act as a cue to resolve different attachment ambiguities (Lehiste 1973; Price, et al.1991; Schafer, 1997; Carlson, Clifton & Frazier, 2001; Snedeker & Casserly, 2010). The experiments presented here were designed to compare the effectiveness of prosodic and semantic cues in relative clause (RC) attachment. Twenty-four items like 1 (a. – c.) were used.

(1) a. John talked to the mother of the girl -IPH- who was standing next to him.
   b. John talked to the mother of the girl who was standing next to him.
   c. John talked to the mother of the girl who was wearing a moustache.
   d. John talked to the mother of the girl who was wearing a skirt.

(1a,b) were disambiguated prosodically. The presence of the IPh before the RC indicated high attachment (HA) and absence low attachment (LA). (1c,d) were disambiguated via plausibility cues (no IPH present). A norming study showed that RCs in (1a,b) were equally plausible in combination with NP1 and NP2, and that RCs in (1c) and (1d) were more plausible in combination with NP1 and NP2, respectively. The prosodic manipulation was verified via an acoustic analysis of the pre-boundary syllable duration and the F0 at the offset of NP2.

In Experiment 1, participants were presented with spoken sentences like (1a-d), and they indicated their interpretation after each sentence in a forced choice task e.g. Who stood next to her/was wearing a moustache/skirt? The father < > The girl. It was found that both prosody (1a,b) and plausibility (1c,d) significantly biased participants’ judgments towards the appropriate attachments, but that plausibility was a stronger disambiguation cue than prosody, possibly because the task gave plausibility cues an advantage (e.g. whether the girl was wearing a moustache could be decided even without considering the spoken sentence).

Experiment 2 employed a syntactic priming paradigm. The spoken sentences in (1) were used as primes, followed by written target sentence fragments (e.g. The tourist guide mentioned the bells of the church that ...) to be completed verbally by participants. Log-linear analyses of participants’ target completions indicated very clear priming effects (more HA after HA primes, more LA after LA primes) for both semantic (1c,d) and prosodic (1a,b) primes. There was no indication of plausibility cues being more effective for priming than prosody cues.

This suggests that with an implicit, unbiased task, prosody and plausibility are equally effective cues for relative clause attachment.
References