

Predictive processing in children acquiring a head-final language: Evidence from Turkish Relative Clauses

Previous research has shown that in head-final languages although the verb appears sentence finally, adults parse utterances incrementally using the available cues to predict the forthcoming structure (Kamide & Mitchell, 1999; Kamide, Altmann, & Haywood, 2003). However, research on children's parsing suggests that English-speaking children rely dominantly on verb-information in their parsing commitments (Snedeker & Trueswell, 2004), whereas Korean children use case-marking cues, ignoring upcoming verb-information (Choi & Trueswell, 2010). These data might lead one to suggest that children use only the reliable cues of their language while ignoring the less reliable ones. Yet, this would require them to postpone interpretation until the valid cues became available, rendering their parsing mechanisms qualitatively different from adults. The present study addresses the issue of whether or not children acquiring a head-final language with rich morphosyntax and variable word order use the available cues as incrementally as adults when they process sentences in real-time.

35 5-to-8 year-old children and 35 adults completed an auditory-moving-window task including 32 experimental items with relative clauses (RCs) and 32 control declarative sentences in various orders (SOV-SVO-OSV-OVS). Turkish RCs have non-canonical word order and rich morphosyntax. Object-RCs appear in SVO (1) and object relativization is carried by a subordinating suffix '-DIK' on the embedded verb followed by possessive morphology agreeing with the genitive subject (1). Subject-RCs appear in OVS and subject relativization is carried by '-EN' without extra morphology (2) (c.f., declarative SOV (3)).

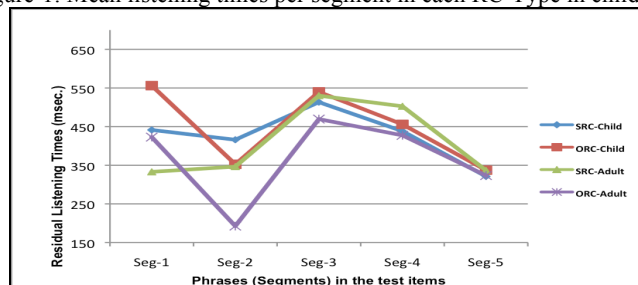
- (1) [Naughty gorilla-Gen]₁ [softly kiss-DIK-3sgPoss]₂ [strong lion-Nom]₃ [slow elephant-Acc]₄ [pushed]₅
'The strong lion that the naughty gorilla softly kissed pushed the slow elephant.'
- (2) [Naughty gorilla-Acc]₁ [softly kiss-EN]₂ [strong lion-Nom]₃ [slow elephant-Acc]₄ [pushed]₅
'The strong lion that softly kissed the naughty gorilla pushed the slow elephant.'
- (3) [Naughty gorilla-Nom]₁ [strong lion-Acc]₂ [softly kiss-Past]₃ [yesterday morning]₄
'The naughty gorilla softly kissed the strong lion yesterday morning.'

Repeated-measures ANOVAs for each segment in the experimental items with the factors Group (Children, Adults) and RC-Type (Subject, Object) indicated that in Segment-1 both groups showed longer RTs in object-RCs involving genitive case vis-à-vis subject-RCs involving accusative case [$F(1,68)=33.97, p<.001$]. Genitive is ambiguous and marks either a possessor or an embedded subject, whereas accusative unambiguously marks the direct object. In Segment-2, both groups had shorter RTs in object-RCs vis-à-vis subject-RCs [$F(1,68)=26.70, p<.001$]. In object-RCs, this segment involves 'V-DIK-3sgPoss', which is the head of the preceding 'NP-Gen'. Processing of the head after 'NP-Gen' seems to be highly predicted and this may have caused the facilitation in relation to subject-RCs. Paired-samples t-test also favoured this: RTs in object-RCs were shorter in Segment-2 compared to Segment-1 [$t(69)=14.84, p<.001$] (Figure-1).

Children showed longer RTs than adults in both segments (Segment-1: [$F(1,68)=8.58, p<.05$]; Segment-2: [$F(1,68)=5.92, p<.05$]), but there was no RC-Type by Group interaction. For the remaining segments, there were no significant effects or interactions (Figure-1).

These results suggest that 5-to-8-year old children parse sentences as incrementally as adults and are able to make use of morphological cues to predict incoming lexical and morphosyntactic material.

Figure-1: Mean listening times per segment in each RC-Type in children and adults



References

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