

The processing of resumptive pronouns and gaps in the Arabic diglossic brain: An ERP study

Arabic object definite relative constructions are introduced with an obligatory complementizer (*ʔallaḏii* or *illi*). They generally involve a resumptive pronoun (RP) which refers to the antecedent DP and is obligatorily realized as a clitic on the verb (*ʔal-raʔul ʔallaḏii qaabaltu-hu* ‘the-man who I met-him’) in most Arabic spoken varieties (Brustad 2000). However, Modern Standard Arabic (MSA) allows a gap strategy where this clitic is lacking: *ʔal-raʔul ʔallaḏii qaabaltu__* ‘the-man who I met’) (Aoun et al. 2010).

In this ERP study we used MSA written sentences to investigate whether these alternating structures are processed as simple variants, irrespective of the syntax of the spoken variety, and whether and in what manner it differentiates between either structure and a RP which violates agreement with its antecedent DP. Given that our participants (all university students) have access to both the MSA grammar and the grammar of their spoken variety, we hypothesize the processing system should slightly differentiate between the two structures. And given the importance of agreement in all Arabic varieties, RPs presenting agreement mismatch with the antecedent DP should be treated as clear violations.

To test these hypotheses, we used object-relative sentences of the form N-Comp.-V_(RP)-Adv.-Adj. The nouns were (masculine and feminine) singular human common nouns. The RP either fully agreed with the antecedent DP (the grammatical condition), or it violated number agreement (RP agreement violation), or was completely absent (no-RP). The adverb was kept identical (*bi l-ʔams* ‘yesterday’) in all conditions. This way, any effects at the adverb would be attributable to the experimental manipulation at the verb-clitic. Stimuli (40 sentences per participant per condition; all conditions equiprobable) were pseudo-randomised including fillers, and presented in a rapid serial visual presentation. Participants (28 right-handed Arabic native-speakers) performed an acceptability judgement and a probe task.

Planned comparisons at the position of the verb_{RP} revealed that RPs violating number agreement elicited a late-positivity effect (600-800 ms) as opposed to the grammatical condition, whereas there was no such effect for the no-RP condition. A small negativity (500-600 ms) for the no-RP condition as opposed to the grammatical condition reached significance only in that narrow time-window, and only in the midline regions. At the position of the following adverb, there was a left-anterior negativity effect (350-550 ms) for the RP-number violation condition as opposed to the grammatical condition, whereas no such effect ensued for the no-RP condition. Mean acceptability ratings were: grammatical condition 83.66%, RP-number violation 21.19%, no-RP condition 61.91%. To summarise, the processing system perceived the absence of the RP, evoking a small negativity, probably in response to the ungrammaticality of the gap structure in the spoken variety. This is also reflected by the acceptability ratings. By contrast, RP agreement violation poses syntactic integration difficulty (Kaan et al. 2000), as reflected in the late-positivity effect, and the agreement violation further evoked a left-anterior negativity typical for morphosyntactic violations (Molinaro et al., 2011). These results suggest that the diglossic processing system is sensitive to the status of the spoken variety structure in parsing its MSA counterpart. However, while the ungrammaticality of the gap strategy in the spoken variety is mitigated by its acceptability in MSA, agreement violations are treated as such in both systems.