**Effects of verbal information in the V2-position during parsing: What eye movements reveal about prediction (and integration)**

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**Goal:** We investigate how V2-verbal information affects the parsing of transitive sentences. More specifically, we contrast sentences with a neutral auxiliary with sentences with a lexical verb in second position and determine the effect on predictive processing of arguments, as witnessed by eye movements.

**Background:** In the past decade or so, evidence has accumulated that language users make use of verbal information to predict upcoming referents (e.g. Altmann & Kamide, 1999; Knoeferle et al., 2005; a.m.o.). Previous research has mainly focused on the prediction of a single argument based on the verb and one additional argument. We take this research one step further by investigating the anticipation of both arguments in a transitive sentence and how this is mediated by verbal information and animacy. To this end we crucially exploit the V2-property, which makes it possible to provide the verb before its arguments when an adverbial expression occupies the sentence-initial position (the net result being a V-initial parsing situation).

**Experiment:** We recorded eye-gaze patterns of 87 native speakers of Dutch, while they looked at a two-picture display containing an animate and inanimate character and listened to sentences with an XP-V-NP1-NP2-(Participle)-PP structure, in which NP1 can only be interpreted as the subject. We manipulated two factors: (i) VERB TYPE in V2-position: auxiliary (‘heeft ‘has’) or lexical; (ii) ANIMACY CONFIGURATION of the NPs. This resulted in four conditions:

1. XP-V_AUX-heeft-NP1SU:anim-NP2OBJ:inan-ParticipleV_lex-PP
2. XP-V_AUX-heeft-NP1SU:inan-NP2OBJ:anim-ParticipleV_lex-PP
3. XP-V_LEX-NP1SU:anim-NP2OBJ:inan-PP
4. XP-V_LEX-NP1SU:inan-NP2OBJ:anim-PP

**Results:** We found a significant effect of VERB TYPE in the window from verb offset until onset of NP1+100ms, in which information about NP1 is critically not yet accessible. A lexical verb in second position elicited a larger proportion of fixations to the inanimate character in comparison to an auxiliary verb (see Figure). Also, the data suggests that the later integration of arguments is delayed in sentences with an auxiliary verb in V2-position.
**Interpretation:** Our data suggest a clear effect of V2-information on both predictive processing and integration. The auxiliary verb *hebben* 'have' evokes an expectation for an animate character with a long lasting effect on parsing (not shown in the Figure). Lexical verbs, on the other hand, anticipate an inanimate argument. We suggest that this is an effect of ‘VP’-frequency. Even though NP1 was always the subject in our sentences, in everyday speech a lexical verb in V2-position is most frequently followed by an inanimate object (the subject being in sentence-initial position).

**Implications:** This study suggests a more important role for verbal information occurring in second position than hitherto assumed based on findings from earlier experiments on German (Scheepers et al., 2000; Bayer & Bader, 2006). It also contrasts with the theoretical proposal that “the lexical part [of the verb] is evaluated in its base position” (Bayer, 2008, p.3).