

It's all about verb-type: Passives are not inherently more complex than actives

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Complexity of passives has often been imputed to agent-first heuristics (Bever 1970; Ferreira et al. 2003; Townsend & Bever 2001). In passives, agent-first would result in an inaccurate sentence representation, revealed by comprehension errors, unless the output is corrected by algorithmic processes of the parser. These revision processes should impose higher processing costs (observable, e.g., as longer reading times) in passives than actives, where reanalysis is not required. In line with this view, offline studies demonstrated that passives are harder to process than corresponding actives (Ferreira 2003). Online studies, however, do not provide supporting evidence for higher processing costs in passives. On the contrary, the main verb in passives is read at the same speed as in actives, if not faster (Carrithers 1989; Rohde 2003; Traxler et al. 2014). The asymmetry could be generated by several factors. English passives are often ambiguous between a verbal and an adjectival interpretation. Disambiguation depends largely on a combination of verb type and the presence of a *by*-phrase. The majority of previous studies of verbal passives, however, did not control the properties of the predicates selected in the experimental stimuli (which included perceptual and psych verbs, activities and accomplishments/achievements). In the current study, we control for these variables by using: (1) only eventive predicates which introduce a clear consequent state sub-event, (2) German verbal passives, which, contrary to English, are unambiguously introduced by the auxiliary *wurde*.

Method: 34 native German-speakers participated in a self-paced reading task contrasting actives and passives. Each of the 30 experimental and 60 filler sentences was followed by a comprehension question.

Results: There was *no significant difference in Accuracy* scores (83.5% passives vs. 86.1 actives) and *Response Times* in comprehension questions. There was also *no significant difference in Reading Times* at the verb. Both the offline and online results clearly indicate that passives are not inherently more complex than actives once certain properties of the verb are controlled for and, consequently are problematic for agent-first heuristics. Differences between present and previous findings (the uniformity of our offline and online results) are rooted in the properties of the predicates used across studies. Two classes of verbs commonly used in previous experiments are known not to freely participate in verbal passivization (perceptual/object experiencers). We further show that unambiguous verbal passives of subject-experiencer predicates (another type of stative verb commonly used in the previous literature) are severely restricted with episodic *by*-phrases and prefer generic ones, in both German and Italian. We take the limited availability of verbal passivization with states (Gehrke & Grillo 2009) to be the source of the problem with previous experiments, and argue that alternative, frequency-based, accounts (Street & Dabrowska, 2006) miss this important generalization. A follow-up study with stative predicates in unambiguous verbal passives is under way to obtain a clearer picture on both accounts.