EFFECTS OF MORPHOLOGICAL IDENTITY AND VOICE MISMATCH IN VP ELLIPSIS

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Introduction. Ellipsis provides an important testing ground for investigating how implicit linguistic content is recovered from context. In VP ellipsis (VPE), a verbal predicate and its arguments (*laugh at Jill*) are left implicit (*John laughed at Jill, and then Mary did <laugh at Jill>*). Most accounts of VPE licensing assume that elided material must be, in some way, identical to an antecedent, where identity may be defined in syntactic [1] or semantic [2] terms, licensed pragmatically by discourse requirements [3], or a combination of the above [3,4]. Recent studies have focused on Mismatch effects (1), in which ellipsis is permitted, despite a syntactic mismatch between the antecedent and elided verb [5,6]. Our study concentrates on asymmetrical *Voice Mismatch (VMM)* effects, in which Passive-Active mismatches (1a) are reportedly tolerated better than Active-Passive ones (1b) [7-10].

We propose a memory-based account inspired by the ACT-R architecture [11-12], in which the form of the antecedent verb (i) is maintained in the goal buffer and (ii) spreads activation to variants of the verb with the same form regardless of voice, resulting in lexical competition in declarative memory. Assuming that Active forms are more frequent and have a higher base activation than Passive forms, the asymmetric VMM effect is explained as increased interference from lexical competition from an Active antecedent in Passive-Active Mismatches. In such cases, a Passive antecedent verb spreads activation to an Active form, increasing the chance of illusory match with the Active verb at the ellipsis site. Further, our account makes the novel prediction that Passives with different forms from Actives (*was driven~drove*) do not passively activate Active counterparts and are less susceptible to competition than those with identical forms (*was found~found*), speeding retrieval times for Mismatching ellipsis.

Design and procedure. 24 quartets were constructed in a 2x2 design, crossing antecedent Voice (Active, Passive) by ellipsis Match (Match, Mismatch); see Table. In half of the items, active and passive verb forms were homophonous ("same" morphology, e.g., *John found~was found*); the other half contained irregular, non-homophonous past participial forms ("different" morphology, e.g., *John drove~was driven*). Two experiments were conducted with native English speakers: An acceptability-rating task on a 7-point Likert scale (N=24) over the Internet, and a 2AFC speeded acceptability judgment task (N=64) in an isolated room.

Results. In an LMER analysis of **acceptability ratings**, there were classic penalties for both Voice Mismatch and Passives. There was also a VMM asymmetry: Passive-Active mismatches were rated as more acceptable than Active-Passive ones. However, not all of these effects were observed for different morphology items, which showed only a ratings penalty for Mismatch; Figure 1. For the **speeded grammaticality task**, we constructed Bayesian models with vague priors, testing sum-coded fixed-effect predictors up to a 3-way interaction of Voice x Match x Morphology and full random-effect structures (logistic regression for acceptability and ex-Gaussian for RTs). Significance was assumed when the 95% credible interval (CRIs) excluded 0. Analysis of acceptability responses revealed a large VMM penalty [20% Mismatch vs. 84% Match; CRI (-2.50, -1.80)]. There was an interaction in which VMM doubled acceptance rates for Passive antecedents [26% over 13%; CRI (0.17, 0.69)]; left panel of Figure 2. Items with different forms showed an acceptability penalty [CRI (-0.54, -0.08)], but did not interact with the VMM effect. A model of response times found penalties for Voice mismatch [CRI (1.28, 6.17)] and Passive antecedents [CRI (36.58, 41.51)]. There were also two critical interactions: a slowdown for Passives over Actives in Mismatch conditions [CRI (-25.37, -20.48)], which was greatly reduced when Active and Passive verb forms differed (diff = 9ms) compared to cases where the forms were identical (diff = 224ms) [CRI (3.62, 8.41)]; right panel of Figure 2. (G)LMER models produced comparable patterns.

Conclusion. We presented a competition-based approach to ellipsis which accounts for VMM asymmetry in terms of increased lexical interference from Passive antecedent verbs to Active forms in voice Mismatch. We also found support for the novel prediction of reduced lexical competition in ellipsis with Matching voice when the form of the Passive antecedent differs from the Active. A computational model is currently being developed for simulations.

(1) a. John was teased by Mary, and then Paul did <tease John>, too. (Passive-Active)
b. ?? John teased Mary, and then Paul was <teased by John>, too. (Active-Passive)

Table. Two sample quartets with examples of same and different verb forms. 24 quartets total.

Morphology	**Voice**	**Main clause**	*Match*	*Mismatch*
Same	*Active*	John found Mary, and then Peter	did too	was too
	Passive	Mary was found by John, and then Peter	was too	did too
Different	*Active*	Abby drove Frank, and surprisingly Sloan	did too	was too
	Passive	Frank was driven by Abby, and surprisingly Sloan	was too	did too

Figure 1. Acceptability ratings task.

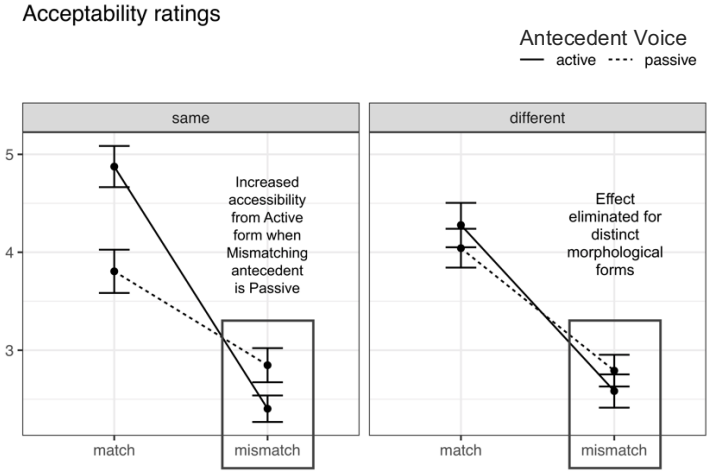
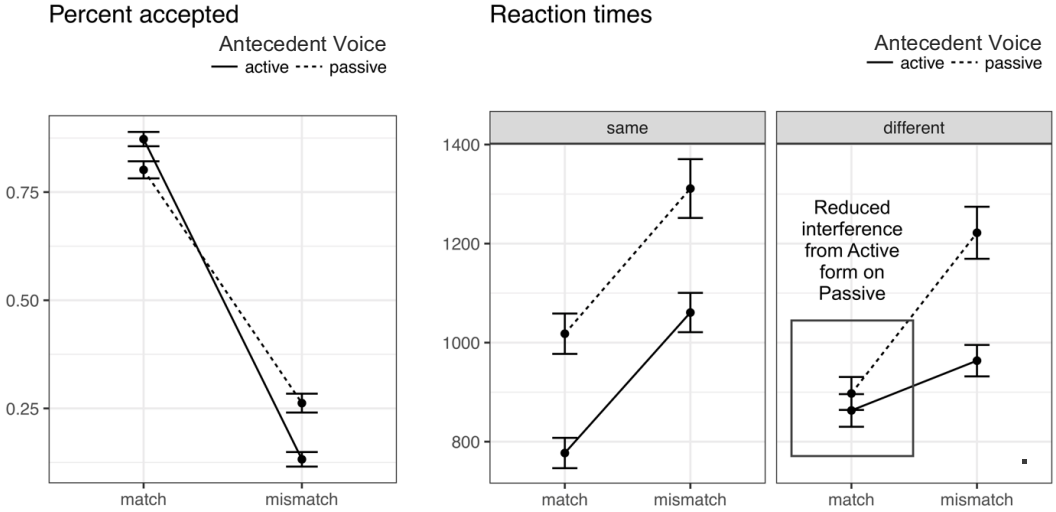


Figure 2. Speeded acceptability judgment task.



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