PROCESSING CORRELATES OF ACTION VERB SPECIFICITY

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We investigated in two experiments how semantic specificity influences verb processing. Findings from the interface make two hypotheses conceivable: (H1) Semantic specificity on action details is an instance of semantic-conceptual complexity and slow down verb processing (similar to findings of [1] for event structures). (H2) Semantic specificity leads to multiple-coding of the verb concept and additional image codes and/or stored action simulations speed up verb processing (cf. findings in [2], [3]).

In Exp. 1, single-word processing times of specific and unspecific German action verbs, e.g., *besticken* (to embroil) vs. *verzieren* (to ornament), were investigated in a lexical decision task. Verb pairs were selected such that the specific verb semantically entails the action described by its unspecific counterpart. Specific verbs specify a method by which the action is carried out, whereas unspecific verbs do not encode a specific method. The results revealed significantly longer response latencies for specific verbs (main effect in a likelihood ratio test of LME-models). The finding demonstrated that processing correlates of verb specificity resemble processing correlates of semantic complexity as found in [1]. Thus, we argue in the same line that specific verbs, which denote increased method information, are costlier to encode (compared to unspecific action verbs) due to their conceptually more complex action representations.

In Exp. 2, short contexts such as (1) with specific vs. unspecific action verbs were presented for self-paced reading. The short contexts were identical for both verb conditions except for the critical action verb in the first sentence. The agent of the action was always named initially by a forename and continued as agent in the second sentence.

(1) *Jasper bestickt* | *verziert das Sofakissen. Er hat dafür ein edles Design entworfen.*
(Jasper is embroidering | ornamenting the scatter cushion. He has created a fancy design for it.)

The completion of Exp. 2 is currently ongoing. Preliminary results demonstrated that processing correlates of verb specificity go into reverse when verbs are embedded in sentences. We found shorter reading times for specific verbs. The results suggest that additional non-semantic codes are part of the mental representation of specific verbs and the multiple-coding facilitates verb processing in sentences. We will discuss the knowledge of the agent as a reason for the distinct findings in Exp. 2. Knowledge of the agent at the time when the verbs are encountered enables to derive a benefit from the specificity. Method information can immediately be applied to the agent; action and agent representation become densely connected. This improves the whole event representation and boosts the activation of the image and sensorimotor codings. As a result, processing of specific action verbs becomes more readily than processing of unspecific verbs (in contrast to their processing in isolation).

In sum, the results suggest that semantic specificity of action verbs as such is an instance of semantic-conceptual complexity correlating with higher processing costs, but as soon as the additional non-semantic codings of specific verb concepts become salient specificity seems to be beneficial for verb processing.

[1] Gennari, S., & Poeppel, D. (2003). Processing correlates of lexical semantic complexity. *Cognition*, *89*(1), B27-B41.
[2] Marino, B. F., Gallese, V., Buccino, G., & Riggio, L. (2012). Language sensorimotor specificity modulates the motor system. *Cortex*, *48*(7), 849-856.
[3] Van Dam, W. O., Rueschemeyer, S. A., & Bekkering, H. (2010). How specifically are action verbs represented in the neural motor system: an fMRI study. *Neuroimage*, *53*(4), 1318-1325.