**Do my hands prime your hands? Effects of (grasped) handles on keypress responses with two-handled objects**

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**Abstract – overview**

Handle correspondence effects consist of location of an object’s handle affecting judging the object’s category. Whether these effects reflect the activation of grasping aﬀordances or of abstract stimulus-response codes is debated. We show these effects persist with two-handled objects (e.g., shears) grasped on one side by allocentric and egocentric hands.

**Supporting summary**

Object-based handle effects refer to the finding of faster and more accurate responses when the location of an object’s handle and the hand making a keypress in response to the object’s position (upright/inverted; e.g., Tucker & Ellis, 1998) or the object’s category (e.g., kitchen/garage; Saccone, Churches, & Nicholls, 2016) match rather than mismatch.

Whether these effects reflect automatic activation of relevant actions with the objects (e.g. Pappas, 2014; Tucker & Ellis, 1998) or the activation of more abstract stimulus-response matching codes (e.g. Cho & Proctor, 2010; Proctor, Lien, & Thompson, 2017) is debated (for reviews see Proctor & Miles, 2014).

Importantly, handle correspondence effects have so far been studied with one-handled objects like cups and frying pans, which present a graspable handle on one side only, and, hence, can be grasped with one hand. In three experiments, we explored whether images of graspable objects that are usually grasped by two hands (i.e. two-handled objects; e.g. shears) may activate congruent motor responses when they are shown as grasped on one side.

Participants were asked to categorize two-handled objects as being mainly used in the kitchen for cooking purposes or during spare time for amusement purposes. Each object could appear as not grasped, as grasped by the two hands, or as grasped by one hand only (i.e., left or right). When the object was grasped by one hand only, the grasping hand could be spatially compatible (on the same side) or incompatible (on the opposite side) with the response key. Across Experiments 1 and 2 we manipulated the perspective in which the grasping hands were shown (allocentric vs. egocentric), whereas in Experiment 3 we manipulated the response mode by replacing between-hands with within-hand responses.

We detected a handle correspondence effect across all three experiments. Interestingly, this correspondence effect varied in size and robustness as a function of the perspective in which the grasping hand was shown. More specifically, the correspondence effect in the egocentric perspective was significantly larger than the one in the allocentric perspective, whereas a significant long-lasting and gradually developing correspondence effect was found only for within-hand responses.

Our findings contribute to the ongoing debate on the nature of the handle correspondence effect and are central for recent views on the action-perception links. Taken together these results suggest two different mechanisms underlying handle correspondence effects. On the one hand, the activation of motoric factors (e.g. Pappas, 2014; Tucker & Ellis, 1998) due to the involvement of an effector-specific component of action and triggered by between-hands responses. On the other hand, the activation of abstract spatial codes (e.g. Cho & Proctor, 2010; Proctor, Lien, & Thompson, 2017) triggered by within-hand responses given that no eﬀector-speciﬁc component is at play when responding to stimuli in such a mode.

Finally yet importantly, our results provide new relevant insight into the ergonomics of graspable objects and the way these objects should be displayed in advertisements aiming at facilitating end-users identification with the depicted users.