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Affordances and contextual flexibility

Comment on "Action Semantics: A unifying conceptual framework for the selective use of multimodal and modality-specific object knowledge" by Michiel van Elk, Hein van Schie and Harold Bekkering

The theory proposed by van Elk et al.[1] is compelling and I believe it will greatly contribute to the debate in the field. In my commentary I will briefly report some recent studies performed in our lab and in other labs demonstrating that the context (intended in terms of the task and of the physical and social context) influences the activation of affordances, in line with the perspective outlined by van Elk et al.[1].

The influence of the task was demonstrated by experiments showing that a task requiring to process object shape influenced affordance activation, but a color categorization task did not ([2]; see also [3]).

Further studies showed that action evocation during object processing was modulated by the physical context. Behavioral [4] and EEG results [5] demonstrated that motor information was differently activated when a target-object was presented together with a second object, functionally or spatially related to the target, and with a hand displaying either a manipulative or a functional grip (see also [6]). [7] showed the effect of a complex visual context on activation of action related to conflict objects which could evoke either a clench or a pinch grip.

Finally, other studies highlighted the influence of the social (e.g., [8]) and of the linguistic context (e.g., [9][10]) on affordances activation.

Overall these studies highlight the flexibility and contextual dependency of affordances. However, their results are not necessarily in conflict with the view according to which affordances are automatically activated. The context could indeed work also as a late filter which solves a competition between multiple affordances of a given object. Further research is needed to determine the time-course of activation of affordances and context.

The proposal by van Elk et al.[1] takes some steps in the direction of a better understanding of the relationship between affordances and context. However, while I do really appreciate the effort made to provide a review and a theoretical proposal that integrate aspects debated in different fields, I wonder why van Elk et al.[1] did not refer to the robotics and computational literature as well, where the notion of affordance is frequently used and debated (see [11] for a recent review). Referring to this literature and outlining a computational model would help to strengthen this integrative theory, which could be further validated through computer simulations.

References

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