



An embodied account of teleological processes

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1 | INTRODUCTION

In reviewing findings from a wide range of paradigms (visual habituation, imitation, and action prediction) that incorporate teleological explanations, we arrive at two conclusions regarding the current state of the teleological stance: (a) teleological explanations are plausible for post-hoc evaluations of recently occurring social events, and (b) the ontogenetic origin of teleological processes is still unclear (Juvrud & Gredebäck, 2020). As a result, we emphasize a need for more research and propose our own theoretical framework, the embodied account of teleological processes, to try to explain the inconsistencies in the teleological stance literature and fill the gap in the teleological framework. The proposed embodied account addresses the origins and learning mechanisms involved in the teleological system and is a constructive approach to the development of teleological processes. In regards to the ontogenetic origins of teleological processes, we see a strong potential for an embodied foundation that is grounded in reaching and motor learning and propose that rationality is embedded in our own motor system from the start. We propose that the rationality principle that lies at the foundation of teleological processes is the same rationality that guides efficient motor actions. The key is that the same principle may inform both own actions and the evaluation of other actions.

The contributions by Király & Oláh's commentary bring warranted attention to studies only briefly mentioned and conceptual replications that were outside the scope of the review. We reviewed the published literature incorporating paradigms that explicitly use the teleological framework; therefore, studies that used paradigms but were not under a teleological framework were outside the scope of the review. By

examining empirical studies that prescribe a teleological interpretation across a range of paradigms, rather than focusing on just rational imitation and the head touch paradigm, we approach the issue with a broad scope in understanding how teleological processes may be important for development and where these processes might begin. Notably, K&O highlight their theory on the teleological stance integrated with natural pedagogy as an explanation for rational imitation (Király, Csibra, & Gy, 2013). We did not aim to review all of the literature specifically related to rational imitation, and in fact, another more recent review has done an excellent job of doing just that (see Hoehl et al., 2019). Hoehl et al. raise some important concerns that make us question K&O theory's explanatory power. Concerning the rational imitation paradigm, we agree with K&O that an embodied account 'does not contradict the notion that children apply the teleological stance in imitation'. From our perspective, the jury is still out on rational imitation, the results are not sufficiently conclusive for a firm stance on the matter. Much work is needed before a consensus on infants' early social capacities is reached. K&O's commentary effectively illustrates the need for further discussions, additional empirical assessments, and more in-depth theory development.

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Response to Király & Oláh's commentary on 'The teleological stance: Past, present, and future'

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