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If you presume relevance, you don't need a bifocal lens

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Abstract

We argue for a relevance-guided learning mechanism to account for both innovative reproduction and faithful imitation by focusing on the role of communication in knowledge transmission. Unlike bifocal stance theory, this mechanism does not require a strict divide between instrumental and ritual-like actions, and the goals they respectively fulfill (material vs. social/ affiliative), to account for flexibility in action interpretation and reproduction.

Main text

We argue that bifocal stance theory (BST) overlooks the central role that communication plays in guiding cultural transmission and outline an alternative framework that builds on the cognitive bases of human ostensive communication (Csibra & Gergely, 2009, 2011; Heintz & Scott-Phillips, 2022; Sperber & Wilson, 1986). Our main argument is that being addressed by knowledgeable others induces an expectation of relevance in naive learners, which is sufficient to account for both flexible (and potentially innovative) and high-fidelity aspects of cultural transmission. Communicative demonstrations function to bring into focus the parts of the ostensively manifested action that are relevant, and as such should be learned and faithfully re-enacted. As the authors also point out, given that the physical–causal relation between the observed actions and their consequent outcomes often appear causally opaque to the naïve observers, relying on others’ communicative behavior is an efficient strategy that novices can exploit to decipher what is relevant for them in a given context. Critically, the same instrumental action could be interpreted and represented as being transparent or opaque simply as a function of the particular context in which it is performed. For example, seeing someone take his hat off while sweating in hot weather could be interpreted by the observer as a causally transparent action performed to achieve the teleologically transparent goal of cooling one’s head. However, if a juvenile learner observes the same instrumental action being performed by someone in a cool place such as a temple – a place of worship – then the sub-goal the instrumental action serves (as a means to express respect) remains teleologically opaque to the juvenile. In such cases ostensive behaviors accompanying the performance of the cognitively opaque means action can be highly useful to inform the naive

learner that despite its apparent teleological opacity the ostensibly highlighted means action is relevant for the apprentice to acquire and faithfully re-enact.

Several developmental studies corroborate the role that communication plays in relevance guided cultural learning (e.g., Brugger, Lariviere, Mumme, & Bushnell, 2007; Király, Csibra, & Gergely, 2013; Nielsen, 2006; Southgate, Chevallier, & Csibra, 2009). For example, in a study by Király et al. (2013) an experimenter demonstrated a peculiar sub-efficient action, that is, lighting up a touch-sensitive box by contacting it with her forehead. When the demonstration occurred in a communicative context, 14-month-old infants were more likely to faithfully re-enact the sub-efficient manner through which the experimenter lit up the box and perform the causally opaque sub-efficient head-touch means action. In contrast, when they observed the same action but without being preceded by ostensive communicative behavior, infants tended to freely emulate the outcome in a more efficient way, by using their hands to light up the box. These findings demonstrate how ostension modulates action interpretation: When accompanied by communicative behaviors the sub-efficient manner was interpreted as a relevant sub-goal to achieve the end goal despite its apparent opacity. By contrast, in the absence of ostensive demonstration infants selected and used a more efficient behavior to emulate the end goal, while ignoring the observed causally opaque and sub-efficient head contact action. These findings, along with several others (e.g., Southgate et al., 2009) show how ostensive behavior can flexibly change how an action is interpreted, without requiring a bottom-up analysis of “the relative number of perceived cues that convey conventionality or instrumentality,” which BST hinges on to induce either a ritual or an instrumental stance.

This relevance-guided learning mechanism can dispense with the need to postulate different stances associated with different motivational drives and specific sets of cues to yield different interpretations of observed actions: Variation in copying fidelity can be explained by the presumption that what is ostensibly demonstrated is relevant for the addressees, even if it is opaque. Thus, learners do not need to rely on identifying the various cues indicative of the different stances and weight their combined strength to decide which stance is appropriate to take, which then activates the corresponding imitation profile. Furthermore, a relevance-guided learning mechanism does not assume a discrete partitioning of the reward landscape into social versus

instrumental benefits, which, in the proposed BST framework, are respectively tied to the ritual and instrumental stance. We deem this assumption untenable for two reasons. First, social rewards often accrue to novices also when attending to demonstrations of transparent instrumental actions: Together with learning how to fulfill new instrumental goals, children extract information about the communicators' social and epistemic value, knowledgeability, reliability, and benevolence, which helps them preferentially interact with partners who are more likely to provide relevant learning opportunities in the future (e.g., Begus, Gliga, & Southgate, 2016; Brosseau-Liard & Poulin-Dubois, 2014). Second, many non-instrumental, goal-demoted, or causally opaque actions (which by BST criteria fall under the ritual stance) are established for reasons other than to signal affiliation: Conventions serving purely as coordination devices (e.g., driving on one side of the road) are typically enacted and complied with because they constrain individual behaviors in collectively profitable ways, not because they signal the group membership and degree of affiliation of their adopters (Bicchieri, 2005). Furthermore, the acquisition of such "opaque" practices is often not primarily motivated by affiliative needs, but by a fundamental epistemic drive to learn the relevant knowledge of their cultural communities (Gergely, 2013; Gergely & Jacob, 2012; Király et al., 2013). This is evidenced by selective imitation studies showing children's faithful copying of cognitively opaque actions from ingroup demonstrators even in their absence (Altınok, Király, & Gergely, 2022; Buttelmann, Zmyj, Daum, & Carpenter, 2013). In sum, unlike BST, which presupposes social interactions to reflect the segregation of diagnostic indexes (cues) and payoff types (rewards), the relevance-guided learning mechanism sketched here dispenses with such assumptions. It suggests instead that flexible acquisition and reproduction of socially shared practices are possible irrespective of whether these serve instrumental, coordinative, or affiliative functions. We conclude that studies of cultural evolution would strongly benefit from integrating the theories of ostensive communication, which provide key insights about why and when people faithfully copy opaque actions.

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