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## On the Evolutionary Origins of the Bifocal Stance

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### Abstract:

In this commentary, we advance Jagiello et al.'s (2022) proposal by zooming in on the possible evolutionary origins of the 'bifocal stance' that may have enabled a major transition in human cultural evolution, arguing that the evolution of the bifocal stance was driven by an explosion in cultural complexity arising from cooperative foraging, that led to a feedback loop between the ritual and instrumental stances.

### Main Text:

Jagiello, Heyes, and Whitehouse (2022) offer an exciting proposal for a theoretical unification of work in cultural evolution on both high-fidelity transmission of knowledge and the production of innovations. Not only does their *Bifocal Stance Theory* (BST) mimic Daniel Dennett's highly successful attempt at building a theoretical framework for the study of thinking about other minds (the intentional stance; see Dennett 1987; Veit et al. 2019), but it also provides us with a decidedly teleonomic framework. Indeed, they offer us an evolutionarily plausible explanation for why the mimicking of causally irrelevant behaviour can itself be explained in an adaptive way, rather than just seeing it as a byproduct of the copying of successful actions by others. We find these features of their account extremely compelling as a pathway to bring together the diversity of work on cultural evolution, showing that rather than having one type of cultural learning arise only as a by-product of the other, both can be seen as adaptive in their own right.

Our goal in this commentary is to further advance their proposal by zooming in on the possible evolutionary origins of the bifocal stance, that may have enabled a major transition in human cultural evolution. As Jagiello et al. (2022) recognize at the end of their article, "the bifocal stances [...] may hold the key to understanding the evolutionary origins of human uniqueness", and it is this idea that we want to focus on here, since the authors themselves appear to treat this as the greatest potential of their theoretical framework.

The bifocal stance theory describes two different stances agents can take toward social and cultural learning. The first is the instrumental stance, that focusses on the accomplishment of end goals and allows for innovation to achieve these ends, and the ritual stance, where the focus is on affiliation with

group members, and through which high-fidelity transmission takes place. As the authors note, the truly unique part of the bifocal stance is the second of these. The ability to learn socially is fairly widespread throughout many species of mammals and bird, and potentially even some invertebrates (Whiten 2019). This appears to be via the instrumental stance, where animals are focussed on the end goals. However, what is not seen in other species is the behaviour of ‘overimitation’, in which causally irrelevant idiosyncratic aspects of a behavioural sequence are also copied. This ability, a signifier of the high-fidelity copying associated with the ritual stance, appears unique to humans; while other animals typically ignore behaviours that are unrelated to the goal (Horner & Whiten 2005).

Humans appear to have the ability to adopt these two different stances toward social learning, along with an acuity towards identifying situations in which innovation matters more than cultural fidelity and vice versa. What, then, is the unique feature of human social life that has allowed for the development both of the ritual stance alongside the more common instrumental stance, and the bifocal stance that allows flexible switching between both? We think that light can be shed on this question through an investigation of how it may have emerged in our hominid ancestors. Following Sterelny’s (2012) account of the evolution of human cognition, that emphasizes feedback loops between learning, environmental scaffolding, and cooperative foraging, we maintain that the evolution of the bifocal stance should be understood in the context of cooperative foraging. This type of social arrangement creates unique pressures and opportunities that can support the development of both types of cultural learning, as well as the ability to move between them as appropriate.

Successful cooperative foraging can provide a surplus under which investments into cultural learning can be sustained before they inevitably have to pay off. Elsewhere, one of us has argued that it is in this context that we can understand the evolution of resolve as a means to enable interpersonal exchange (Veit & Spurrett 2021). Here too, the value of the instrumental stance increases. With sharing and trading becoming a central feature of the lives of our early hominid ancestors, there was a need to evolve both motivation and attention towards keeping track of the instrumental value of different actions, which could be scaffolded to promote a greater awareness of the instrumental value of both behavioural innovations and other people’s actions. With more complex foraging methods developed, the value of learning and innovation also increases, further expanding the human foraging niche. However, importantly, this also has the potential to have facilitated the development of the ritual stance. Human societies are unique in the degree of reliance of individuals on the community. Under these conditions, the risks from social ostracism are much higher, as it would be near impossible for an individual to survive in isolation. As the authors have demonstrated, the salience or threat of social ostracism seems to lead into the ritual stance, where copying fidelity increases. In general, as the rewards of social cohesion increase, along with the costs of ostracism, we should expect to see the elaboration of the ritual stance; and this is precisely what occurs with the rise of cooperative foraging.

Cultural learning is far more complex in humans than any other species, seemingly responsible for many of the features we take to be unique about human cognition and societies. Although other animals, particularly some non-human primates, show some forms of social learning and cultural transmission, right now it appears that only humans are capable of the high-fidelity copying that arises from the ritual stance, and of moving flexibly between the different types of learning as need suits. We suggest that it is through the emergence of cooperative foraging, and the unique selective

environment thus created, that the bifocal stance will have truly come into its own, creating feedback loops that have led to its current form.

**Conflict of interest statement:**

The authors have no conflicts of interest to report.

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