

# THE EVOLUTIONARY ROOTS OF RITUALS: STUDYING ANIMAL INTERACTIONS

SIMONE PIKA \*<sup>1</sup>

\*Corresponding Author: [simone.pika@uni-osnabrueck.de](mailto:simone.pika@uni-osnabrueck.de)

<sup>1</sup>Institute of Cognitive Science, University of Osnabrück, Osnabrück, Germany

Human collective rituals are powerful communicative interactions that foster social assimilation and solidarity (Whitehouse and Lanman 2014; Fischer et al. 2013). They are causally opaque, involve synchronous and coordinated behavioral displays and are culturally transmitted (Whitehouse and Lanman 2014) and are often accompanied by symbolic value and sacred beliefs (Rossano 2015; Bell 1997). Specifically extreme and intense rituals involve costly and hard-to-fake signals that communicate honest commitment to in-group values and influence perceived trustworthiness, prosocial activities and community longevity. Collective rituals have been thought to have played a crucial role in the evolution of complex societies (Rossano 2015) and have been argued to have evolved from ‘rule-governed’ communicative exchanges and individualistic and competitive manipulative displays (Knight 1994; Dal Pesco and Fischer 2020).

In this paper, I will briefly review the existing body of work on animal interactions with a special focus on ritualized and ‘rule-governed’ behaviors. Subsequently, I will introduce a newly discovered interaction—insect applications—in chimpanzees in the wild, which are used by chimpanzees to treat their own wounds but also the wounds of other conspecifics (Mascaro et al. 2022). The interactions involve subtle signals such as tactile gestures and gaze alternations and the context of wound tending provides a useful scenario to study the development of socially negotiated signals, context-specific roles, and role-reversal. Wound tending behaviors in chimpanzees may thus provide a useful window onto evolutionary precursors of human communicative rituals, specifically healing rituals, and scenarios of ritual/speech coevolution (Knight 1998).

## References

- Bell, C. M. 1997. *Ritual: Perspectives and dimensions*. New York, USA: Oxford University Press.  
Dal Pesco, Federica, and Julia Fischer. 2020. On the evolution of baboon greeting rituals. *Philosophical Transactions of the Royal Society B Biological Sciences* 375 (20190420):9.

- Fischer, R., R. Callander, P. Reddish, and J. Bulbulia. 2013. How do rituals affect cooperation? An experimental field study comparing nine ritual types. *Human Nature* (24):115–125.
- Knight, Chris. 1994. Ritual and the origins of language. Paper read at Conference on Ritual and the Origins of Culture, at London.
- Repeated Author. 1998. Speech/ritual co-evolution: A solution to the problem of deception. In *Approaches to the Evolution of Language: Social and Cognitive Bases*, edited by J. R. Hurford, M. Studdert-Kennedy and C. Knight. Cambridge: Cambridge University Press.
- Mascaro, Alessandra, Lara M. Southern, Tobias Deschner, and Simone Pika. 2022. Application of insects to wounds of self and others by chimpanzees in the wild. *Current Biology* 32:R97-R115.
- Rossano, M. J. 2015. The evolutionary emergence of costly rituals. *PaleoAnthropology* 78–100.
- Whitehouse, H. , and J. A Lanman. 2014. The ties that bind us: ritual, fusion, and identification. *Current Anthropology* 55:674–695.