

① Background

- In a classical view of mind, the **cognitive process** consists of interactions among unobservable internal representations and **Cognitive architecture** is a scheme providing merely functional characterization of cognitive task but not a definition of its implementation (Hutchins, 2010).
- **Cognitive task** can be realized in physically, organizationally and ontologically diverse forms.
- **Active engagement** of the body with elements of working environment is a form of thinking. **By tracing these interactions we can study much of the thinking setup directly.**

In his *Biocultural Theory of Religion*, Geertz (2010) recognizes extension and situatedness as two critical factors of religious cognition. Likewise, Bulbulia (2010) concerned with cooperation in ancestral communities addresses religious culture as a system of cues that automate behavior (see also Sosis (2017), Alcorta and Sosis (2005).

② Ecological Perspective Key Proposals:

- A **system approach** to description and explanation of rituals in their typical contexts as embodied, embedded practices.
- A search for the **emergent patterns** of activity that come and dominate the constitutive components.
- Appreciating **the coupling** – living systems are not separable from their abiotic components.
- In the **ritual enaction** particular states of mind, patterns of song and dance, aromas, fires or sacrifices, are necessary to accomplish the effects.
- **Causality** is implicit to complex adaptive systems and characteristic by continuous reciprocal causation.
- **Agency** refers to the ability to determine action or effect an outcome irrespective of the ontological status of its proponent.

McGraw, J. J., & Krátký, J. (2017). *Ritual Ecology*. *Journal of Material Culture*.

③ Constitutive role of materiality in a ritual ecology. Illustration 1.

Constraining and enabling role of materiality in the emergence of ritualized behavior.

In a classical conception of ritual, Bell (1992) suggests that ritualization temporally structures a space-time environment through a series of physical movements. Ritual Ecology approach proposes to reverse a causal direction and study ritualization as an emergent effect.

(A) Ritualization in its cultural context: A Case of Tallensi Ritual dance



Stone arrangements in the shrine for rather than representing static markers serve to structure movements of a dance (Insoll, 2012). In such a causal scheme material elements of culturally organized environment act as defining and constraining factor shaping limbs and body towards ritualized forms of movements.

(B) Ritual micro-Ecology in the lab: A case of spontaneous Ritualized behavior



Material artifact provided a very possibility to isolate and derive those aspects of cultural rituals that were deemed as culturally invariant – ritualistic motor behaviors – and brought these elements into life in the laboratory setting.

Lang, M., Krátký, J., Shaver, J. H., Jerotijević, D., & Xygalatas, D. (2015). *Effects of Anxiety on Spontaneous Ritualized Behavior*. *Current Biology*, 1–6. ■ Krátký, J., Lang, M., Shaver, J. H., Jerotijević, D., & Xygalatas, D. (2016a). *Anxiety and ritualization: Can attention discriminate compulsion from routine?* *Communicative & Integrative Biology*, 889 (June), 4–7.

④ Constitutive role of materiality in a ritual ecology. Illustration 1 The critical role of dimensionality in the prosocial effect of agency cue in a naturalistic setting

- **Routine sensing** is a critical factor behind the effect of an artificial agency cue in a naturalistic setting.
- Routine sensing requires agent's **active presence** with a **high degree of immersion**. **Presence** as a phenomenon of normal awareness that requires direct attention is based on the interaction between sensory stimulation and environmental factors providing adequate feedback to the agent.
- In a naturalistic setting, 2-dimensional flat image lends itself to instant decoding whereas **3-dimensional object** is less often sensed as a representation of a target domain; phenomenally object becomes target domain itself thus elicits the desired prosocial effect.
- Contrasting to the laboratory experiments conducting experiments in a naturalistic setting demands naturalistic experimental stimuli.

Krátký, J., McGraw, J. J., Xygalatas, D., Mitkidis, P., & Reddish, P. (2016). *It Depends Who Is Watching You: 3-D Agent Cues Increase Fairness*. *Plos One*, 11(2), e0148845.



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GENERAL REFERENCES

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