

Beyond a primate origin of agent-based event cognition: the case of domestic horses (*Equus caballus*)

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Begin date: February 2024

Duration: 8-10 months (flexible)

Location: University of Neuchâtel (Switzerland) and Haras national suisse d'Agroscope in Avenches

To apply: Send CV, copy of transcripts and short motivation letter to Sarah Brocard (sarah.brocard@unine.ch) and Vanessa Wilson (vanessa.wilson@unine.ch)

Background:

Language is structured around event descriptions with grammars functioning to communicate the “who did what to whom” perception. The following two events, (1) *the boy plays with the dog* and (2) *the dog chases the boy*, involve both the same entities, but depending on whether the *boy* is responsible for the action, he is either the agent or patient of the event (same for the *dog*).

If two or more entities participate in an event, they are not granted the same attention by human observers. Across cultures, agents attract most attention and across languages they tend to be placed before patients or receive simpler case markings, a pattern observed experimentally regardless of whether subjects simply watch or actively describe events.

Two recent studies highlighted that humans and our closest living relatives the great apes show similar patterns when asked to freely watch video clips of dyadic interaction (Wilson et al., *under revision*) and had a similar preference for the agent when required to make an active choice (Brocard et al., *under revision*). These findings suggest that the agent bias is deeply rooted in the primate clade, raising the question of how evolutionary ancient this is.

The project:

This project aims to extend the protocol of Brocard et al. (*under revision*) to a group of horses hosted in the Haras national suisse d'Agroscope in Avenches. The interest of testing horses is two fold. Firstly, horses are a social species, thus they should focus on agents to keep track of past interactions, in order to decide who to interact with in the future. Secondly, they are a prey species which means that they should have an extreme sensitivity to action which is often related to agency.

In the original protocol the participants were trained to watch video clips of a single actor, and to press on the actor directly on the touchscreen. When the participants reached the success criteria, the task consisted of watching video clips involving two actors (one agent and one patient) and to make a choice between them at the end of the video. The participating student will adapt this protocol for use with horses trained to use touchscreen.

We are looking for a highly motivated student to work on this project, who is capable of working independently. The student will be responsible to find and edit the stimuli, train horses to participate, and conduct the experiment in autonomy.

Requirements:

- Knowledge of Matlab programming (with PTB-3) or motivation to learn.
- Knowledge of data analysis with R (or other) and motivation to analyze large and complex data set.
- Candidate must be fluent in French and English and must show good communicative skills.

Useful skills:

- Knowledge of linguistics
- Experimental (or hands on) experience with animals
- Video editing

Recommended reading:

- Wilson et al., 2022. Sci. Adv. DOI: 10.1126/sciadv.abn8464
- Zuberbühler, 2021. WIREs. DOI: 10.1002/wcs.1587
- Isasi-Isasmendi et al., 2023. Open Mind. DOI: 10.1162/opmi_a_00083