

“Gießener Abendgespräche Kognition und Gehirn“

Mittwochs, 18.00 bis 20.00 Uhr, Raum F009

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“Closed-world reasoning supports knowing what to do, when, what for”

Alexandra Varga, Ph.D.
(Universität Gießen)

The overall topic of my talk is practical rationality viewed as a manifestation of closed-world reasoning (Stenning & van Lambalgen 2008) about actions. Practical rationality is displayed in the actions of human agents, as well as in the comprehension of other agents' actions. In particular, goal-directed, or instrumental, human actions constitute a symptom of the use of practical reason. The reasoning that connects a goal to an action need not be explicit and/ or expressed in language. In fact I disregard (explicit) deliberation and focus on implicit reasoning, which may occur even when the capacity for language has not been developed yet, or has been damaged via lesions. Reasoning serves to organize actions and states of affairs along a relative means – ends hierarchy, either from the perspective of an acting agent (whose purpose is appropriate action), or from that of an observer (whose purpose is explanatory). I adopt the classical Aristotelian view according to which the conclusions of practical reasoning are action rules. They connect a goal state to a sequence of actions in a given context. Action rules are context-normative: given a goal, the action arrived at by reasoning must be carried out under those particular circumstances. I introduce a distinction imported from the AI literature, between achievement (concrete) and maintenance (more abstract, higher order) goals. These different goal representations, reasoned over through similar strategies, lead to a wide-scope view of practical rationality.

I emphasize the need to take into account the interpretive processes involved in practical closed-world reasoning, along the lines of the distinction between reasoning to, and reasoning from an interpretation (Stenning & van Lambalgen 2008). From a semantic point of view, the former amounts to the construction of a preferred minimal model of an action context, from which the reduction of a goal to sub-goals and actions may proceed according with cognitive economy considerations. Because closed-world reasoning is well amenable to formalization in Logic Programming, it is likely to provide a useful tool to model certain types of practical reasoning.

I substantiate the last claim by presenting an experiment in developmental psychology (Gergely 2002), whereby preverbal children's skill acquisition manifested in selective imitative behavior can well be understood in this framework of practical rationality. I emphasize the relevance of the preceding theoretical tenets for the interpretation of the empirical findings.