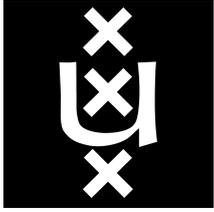


Mechanisms and meanings in the moral brain: hermeneutical and cognitive neuroscientific contributions to moral action



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PhD project: **Mechanisms and meanings in the brain: explanatory pluralism, hermeneutics and cognitive neuroscience of action understanding.** (defense 2010)



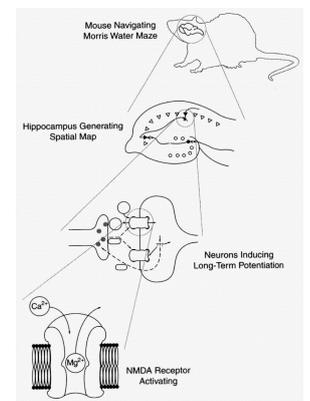
Moral action as an (aristotelian) habit: automatization aspect can be explained mechanistically. Moral aspect of it requires foundation in hermeneutic interpretation. Ergo: required is an explanatory account that allows integration of a theoretical plurality, of cognitive neuroscientific and hermeneutic insights.

Hermeneutics of action understanding: Hermeneutics suggests that the process of understanding an action is intersubjective, and reciprocally influences also the action determination process. (cf. Ricoeur's *Time and Narrative* (1984); *Oneself as Another*, (1992))

Action determination: hierarchical and planning theories of action can be taken as an account of action coding and reducing complexity in action determination, relevant in cognitive neuroscientific explanations too (cf. H. Frankfurt: *Necessity, volition, and love* (1999); M. Bratman: *Structures of Agency* (2006))

Mechanistic explanation: multi-level, heterarchically organized systems require different types of explanation at each level. Each level allows different contextual influences on the mechanism. (C. Craver: *Explaining the brain* (2007); W. Bechtel: *Mental mechanisms* (2007))

'Sculpting the response space': action response selection is partially determined by previous experiences and practices. (cf. C. Frith: *The role of dorsolateral prefrontal cortex in the selection of action as revealed by functional imaging* (2000))



Generative entrenchment: multi-level and dynamical (developing, learning) systems can integrate (entrench) external information in their mechanisms. Consequentially, the innate-acquired distinction is not always useful to make. Example: imprinting behavior is open to external information. Similar observations hold for **moral action** (lit.: Wimsatt, W. C. (1986). *Developmental Constraints, Generative Entrenchment, and the Innate-Acquired Distinction.*)

Limited Relevance of Mirroring and Shared Representations for action understanding: considering the complexity of action determination and the socio-cultural meanings that are entrenched in human brain mechanisms, action understanding is to a large extent a matter of 'sharing a sculpted response space' instead of shared representations or mirror neuron activities. In this process external (socio-cultural, verbal, moral) information plays a crucial role.

Recent publications:

The diverging force of imitation. Integrating cognitive science and hermeneutics – M. Keestra, *Review of General Psychology*, 12;2 (june 2008), 127-136.

Foundationalism and neuroscience; silence and language (Review article on 'Philosophical Foundations of Neuroscience' by M. Bennett & P. Hacker) – M. Keestra with S.J. Cowley -*Language Sciences*, 31;4 (july 2009), 531-552