

Understanding Human Action. Integrating Meanings, Mechanisms, Causes, and Contexts

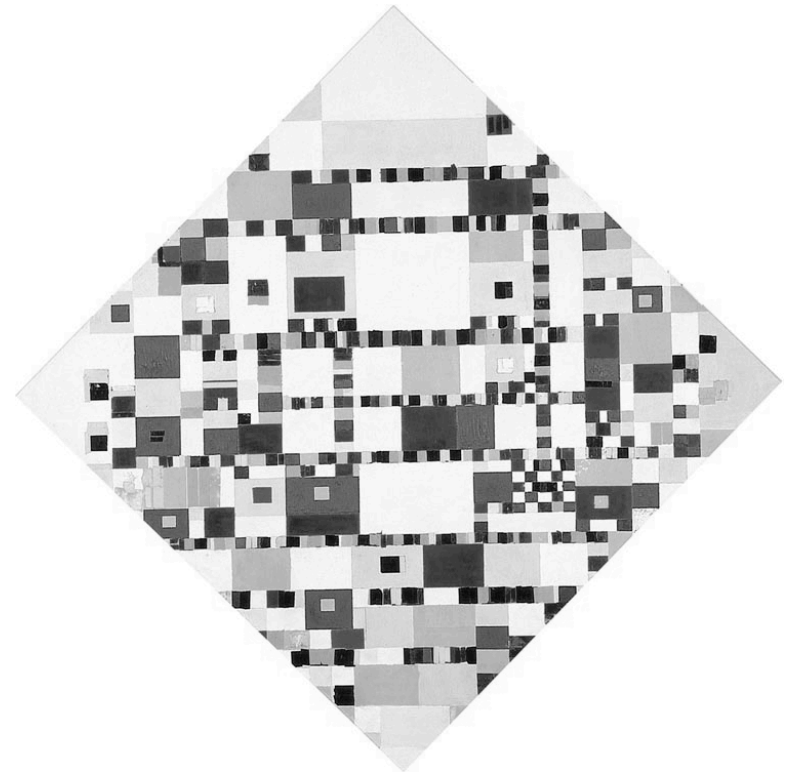


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Cultural neuroscience & a trend towards a ‘cognitive view of culture’

Bradd Shore (‘Culture in Mind’ 1996): “requires a *cognitive view of culture* and a *cultural view of mind*” (p. 39)

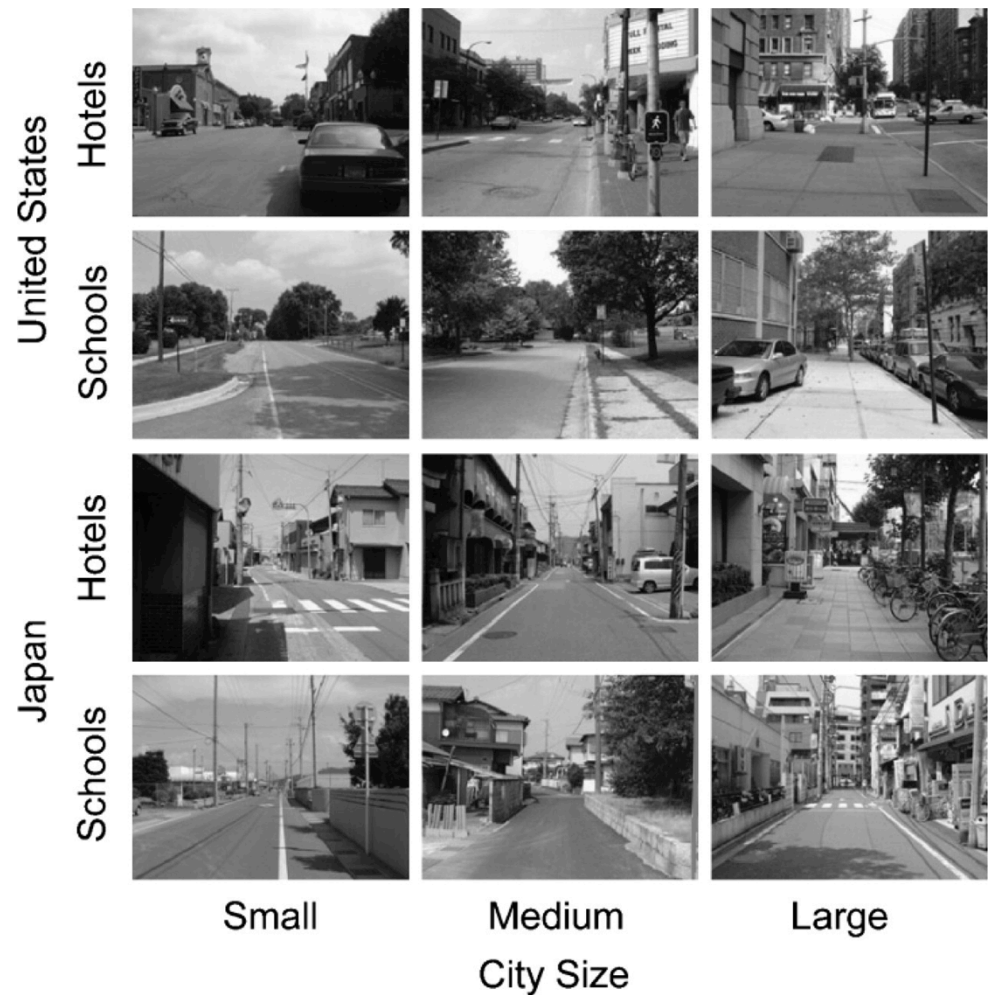
Dan Sperber (‘Explaining culture. A naturalistic approach’ 1996): “Cultural phenomena are ecological *patterns of psychological phenomena*” (p. 60).



Example: how do we explain cultural differences in change blindness?

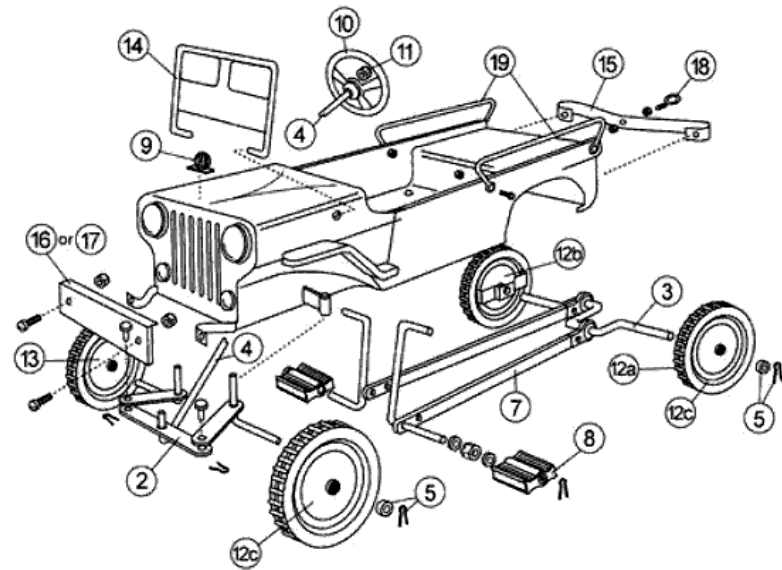


Interdisciplinary explanation: mutual influences of brain, cognition, learning & environment



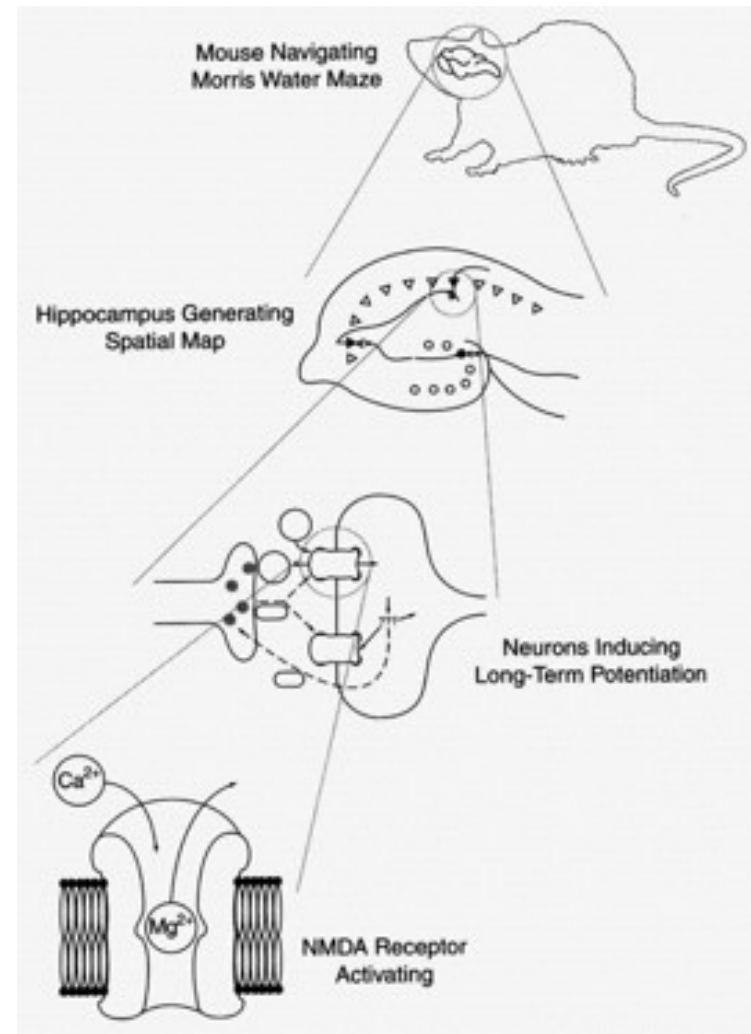
Different types of scientific explanations involved in cognitive (neuro-)science

- What is ‘seeing X’?
- Why does X obtain?
- What causes/constitutes X?
- What effect does neural area Q activation have on X?
- How is ‘seeing X’ dependent upon learning?
- What is the role of the environment in ‘seeing X’ or learning to see X?



Integrative technique of Mechanistic explanation: 3 heuristics & a multi-level system

- Definition of the phenomenon (domain boundaries)
 - Decomposition of the phenomenon
 - Localization of the phenomenon
- Reiteration of this process (including re-constitution of the phenomenon)



First step in ‘Understanding human action’: decomposition in three interrelated components

- *What* is the action? = ‘Action recognition’
- *Why* is the action being done? = Intention understanding
- *Who* is the agent? = Narrative understanding

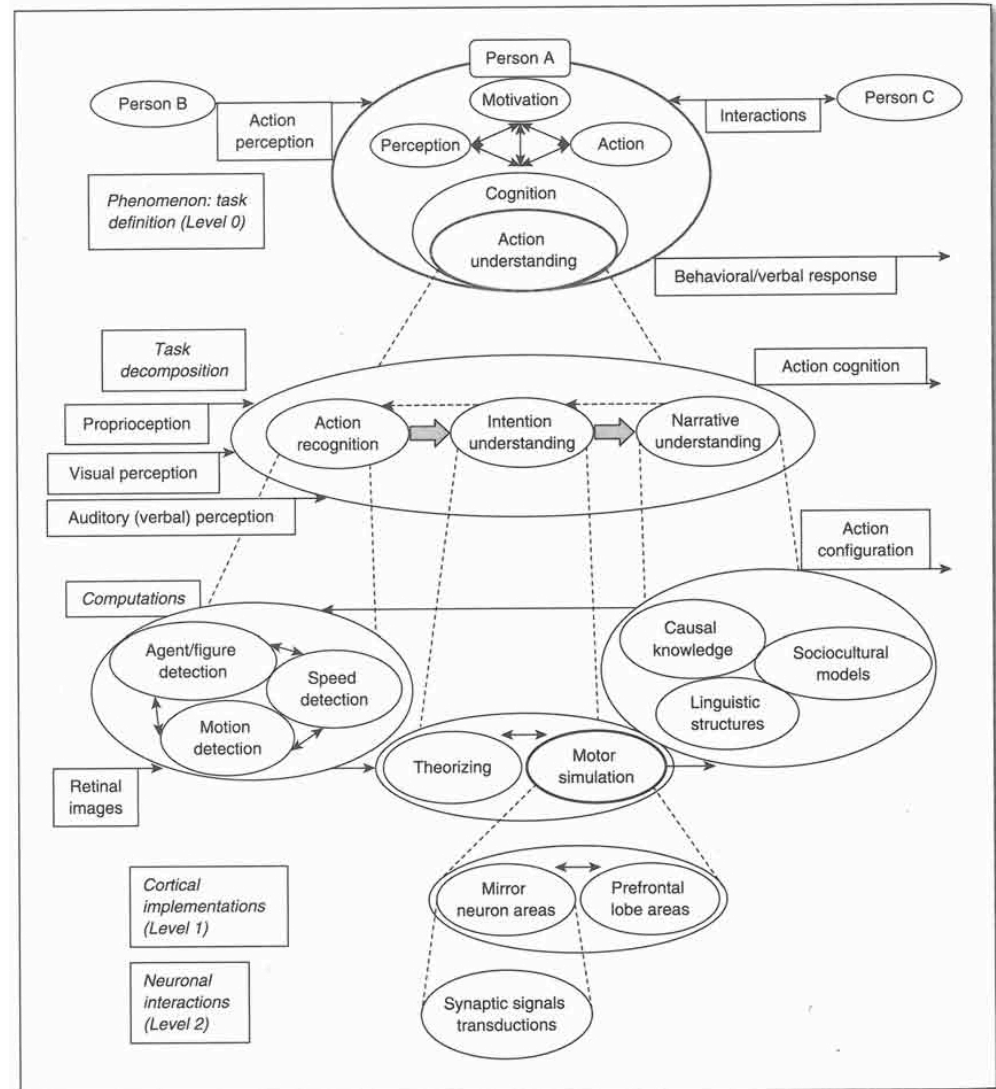
(cf. Ricoeur’s hermeneutic questions)

Filling in a Mechanism schema:

- phenomenon;
- its 3 components;
- and their many constituent parts & their interactions

(fig. from Keestra, 2011 ©)

Figure 8.2 Highly Simplified and Incomplete Mechanism Sketch of Human Action Understanding



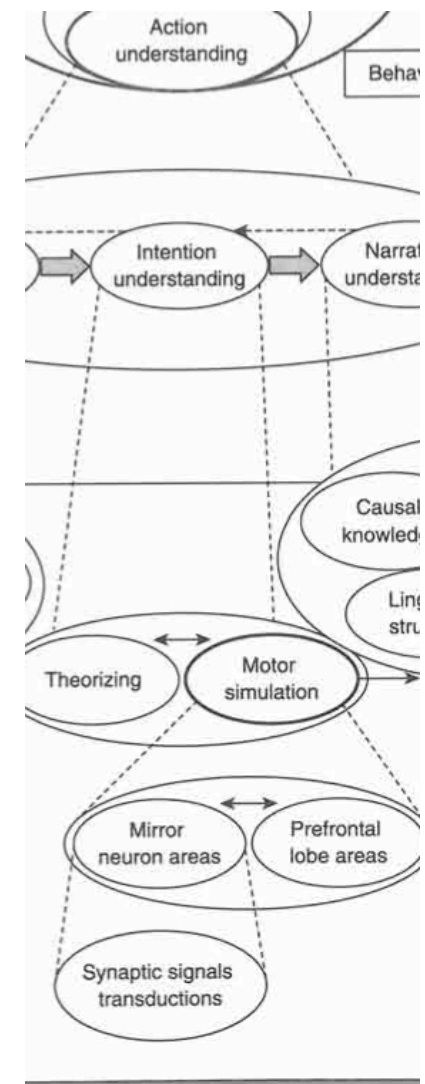
Testing a mechanism by adding 'noise' to low level interactions: constraining high level action understanding

TMS stimulation of mirror neurons constrains responses to possible, not impossible actions.

(Candini e.a., 2008)



Machiel Keestra - AIS conference
Case Studies panel- Oct. 14, 2011

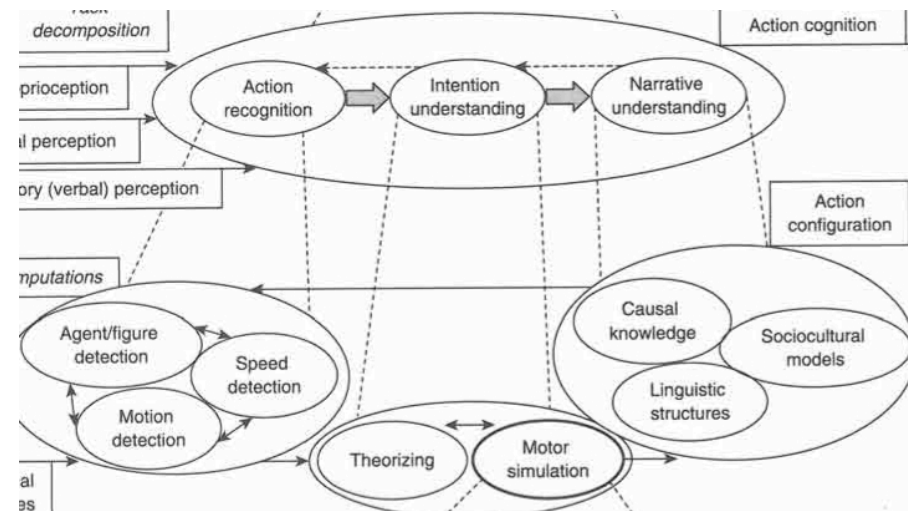


Further confirmation: Narrative understanding facilitates action recognition

Linguistic focus modulates reading response time:

- A fan/handed the runner/ a bottle/of cold/water/which he/ opened/quickly (= opening quickly)
- A fan/handed the runner/a bottle/of cold/water/which he/ opened/happily (= happy runner)

(Taylor & Zwaan, 2008)



Lessons of integration via an explanatory mechanism

- focus possible on distinct components, parts and interactions
- pluralism of causes & their theories
- relative autonomy of different disciplines
- interdisciplinary due to many interactions
- from mechanism sketch to schema: gradual process of filling
- necessary team science