Minimal Theory of Mind

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1. Questions

1. In some cases (e.g. shape) we can distinguish between conceptual and non-conceptual awareness. Does this distinction apply in the case of psychological notions like belief?

2. Suppose deception requires appreciating, of some beliefs which I do not have, that others can have them. Does this also involve understanding that beliefs can be false?

2. Puzzles

- Children in their second year point in ways that provide relevant new information to others[1] and predict actions of agents with false beliefs about the locations of objects[2, 3]

- Scrub-jays selectively re-cache their food in ways that prevent competitors from knowing its location[4]

- Chimpanzees select routes to approach food which conceal them from a competitor's view[5] and retrieve food using strategies that optimise their return given what a dominant competitor has seen.[6]

6. Principles and concepts

An agent's *field* = a set of objects related to the agent by proximity, orientation, lighting and other factors.

An agent *encounters* an object = it is in her field

Goal-directed action = a sequence of object-directed actions, which (1) has an outcome that is an outcome of the whole sequence and not any of its constituents, and (2) occurs in order to bring about this outcome.

Principle 1: one can't goal-directedly act on an object unless one has encountered it.

Application: the "uninformed" condition of Hare et. al's 2001 experiment with food hiding.[6]
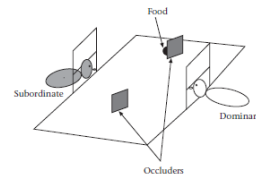
A subordinate observes as food is placed. The subordinate can see the dominant. There are three conditions: control—the dominant sees food being placed; "uninformed"—the dominant's view is blocked while the food is placed; and "misinformed"—the dominant sees the food being placed then has their view blocked while it is moved.[6]

An agent *registers* an object at a location = she most recently encountered the object at that location.

Correct registration = the object is at the location it is registered at.

Principle 2: correct registration is a condition of successful action.

Applications: the "misinformed" condition of Hare et. al's 2001;[6] scrub-jays, after being observed caching food by a competitor, re-cache that food.[4, 34]

Principle 3: when an agent performs a goal-directed action and the goal specifies an object, the agent will act as if the object were actually in the location she registers it at.

Application: Onishi and Baillargeon's false belief tasks.[2]

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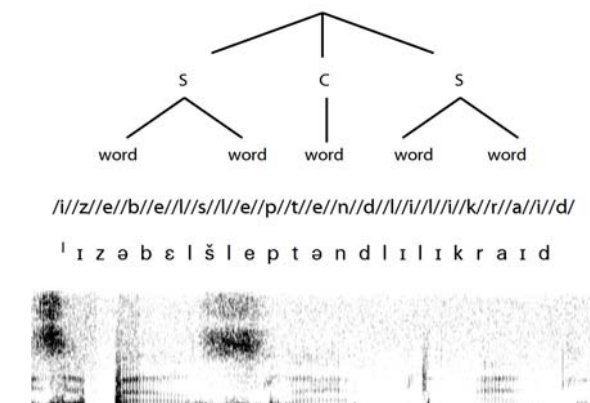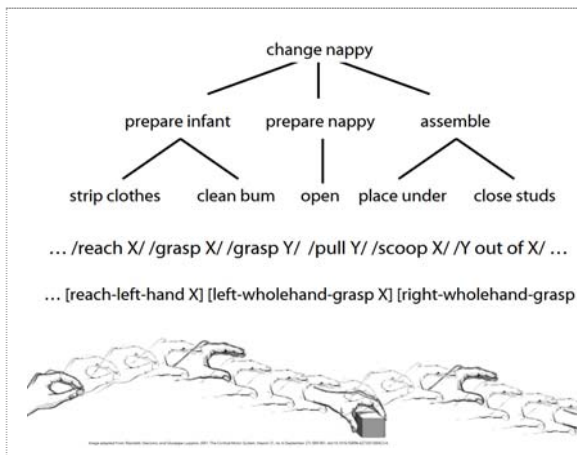
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