

Monitoring and Controlling the Mental States of Others

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1. Terminology

Metacognition is ‘knowledge and cognition about cognitive phenomena.’¹³

Mindreading is the process of identifying mental states and actions as the mental states and actions of a particular subject on the basis, ultimately, of bodily movements and their absence, somewhat as reading is the process of identifying propositions on the basis of inscriptions.³

2. Mindreading is flexible but demanding

Impaired executive processes can lead to severe egocentrism.²¹

Belief reasoning requires cognitive control.⁷

Belief inferences are not made automatically.^{2,5}

Belief inferences are not used automatically.^{16,4}

Holding false beliefs briefly in mind has a measurable processing cost.¹

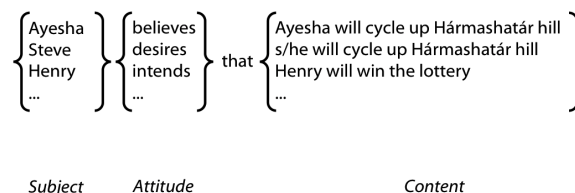
Recursion (e.g., beliefs about beliefs) remains challenging.¹⁹

3. Mindreading is efficient but inflexible

There is involuntary altercentric inference from others’ visual perspectives²², spatial frames of

reference²⁶ and false beliefs.¹⁷ Such interference sometimes occurs without explicit awareness,²³ and without a need for executive control.²³

4. Mental States



5. Defining belief: normativity

‘For any p: One ought to believe that p only if p.

‘the holding of this norm is one of the defining features of the notion of belief [...]. The truth is what you ought to believe, whether or not you know how to go about it, and whether or not you know if you have attained it. That, in my view, is what makes it the state that it is.’⁶

‘belief must be characterized, not just as the attitude having the motivational role, but rather as a truth directed species of that attitude: to believe a proposition is to regard it as true with the aim of thereby accepting a truth.’²⁵

‘Aside from our purposes in forming beliefs or in using beliefs as guides to action, there is nothing they should or shouldn’t be. ... The only fault with fallacious reasoning, the only thing wrong or bad about mistaken judgements, is that, generally speaking, we don’t like them. We do our best to avoid them. They do not—most of the time at

least—serve our purposes’¹²

‘The payments true ideas bring are the sole why of our duty to follow them. Identical whys exist in the case of wealth and health. Truth makes no other kind of claim and imposes no other kind of ought than health and wealth do.’¹⁵

6. Minimal theory of mind⁹

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

An agent *encounters* an object just if it is in her field.

A *goal* is an outcome to which one or more actions are, or might be, directed. (Not to be confused with a *goal-state*, which is an intention or other state of an agent linking an action to a particular goal to which it is directed.)

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

Applications: subordinate chimps retrieve food when a dominant is not informed of its location;¹⁴ when observed scrub-jays prefer to cache in shady, distant and occluded locations.^{11,10}

An agent *registers* an object at a location [first approximation] just if she most recently encountered the object at that location.

A registration is *correct* just if the object is at the location it is registered at.

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

Applications: 12-month-olds point to inform depending on their informants' goals and ignorance;¹⁸ chimps retrieve food when a dominant is misinformed about its location;¹⁴ scrub-jays observed caching food by a competitor later re-cache in private.¹⁰

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.

Applications: some false belief tasks^{20,24,8}

7. Signature limits

	Propositional attitude	Relational attitude
level-1 perspective taking	Y	Y
level-2 perspective taking	Y	N
false beliefs about non-existence	Y	N
false beliefs about location	Y	Y
false beliefs about identity	Y	N

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