

Joint Action and the Emergence of Mindreading Interacting Mindreaders

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Could an interacting mindreader be in a position to know things which she would be unable to know were she unable to interact with her targets?

Ordinary 3rd person interpretation

Csibra & Gergely's principle of rational action: 'an action can be explained by a goal state if, and only if, it is seen as the most justifiable action towards that goal state that is available within the constraints of reality.'^{2,1}

These facts:

1. action a is directed to some goal;
2. actions of a 's type are normally capable of being means of realising outcomes of G 's type in situations with the salient (to any concerned) features of this situation;
3. no alternative type of action is both typically available to agents of this type and also such that actions of this type would be normally be significantly better* means of realising outcome G in situations with the salient features of this situation;
4. the occurrence of outcome G is typically desirable for agents of this type;

5. there is no other outcome, G' , the occurrence of which would be at least comparably desirable for agents of this type and where (2) and (3) both hold of G' and a

may jointly constitute defeasible evidence for the conclusion that:

6. G is a goal to which action a is directed.

*An action of type a' is a better means of realising outcome G in a given situation than an action of type a if, for instance, actions of type a' normally involve less effort than actions of type a in situations with the salient features of this situation and everything else is equal; or if, for example, actions of type a' are normally more likely to realise outcome G than actions of type a in situations with the salient features of this situation and everything else is equal.

Your-goal-is-my-goal

1. You are willing to engage in some joint action or other with me.
2. I am not about to change the single goal to which my actions will be directed.

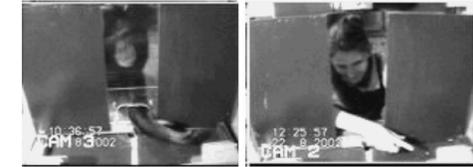
Therefore:

3. A goal of your actions will be my goal, the goal I now envisage that my actions will be directed to.

Application

'to understand pointing, the subject needs to understand more than the individual goal-directed

behaviour. She needs to understand that ... the other attempts to communicate to her ... and ... the communicative intention behind the gesture'⁵



A failed reach (left) and a helpful point (right).³

'the adult's social cues conveyed her communicative intent, which in turn encouraged the child to 'see through the sign.'⁴

References

- [1] Csibra, G., Bíró, S., Koós, O., & Gergely, G. (2003). One-year-old infants use teleological representations of actions productively. *Cognitive Science*, 27(1), 111–133.
- [2] Csibra, G. & Gergely, G. (1998). The teleological origins of mentalistic action explanations: A developmental hypothesis. *Developmental Science*, 1(2), 255–259.
- [3] Hare, B. & Tomasello, M. (2004). Chimpanzees are more skilful in competitive than in cooperative cognitive tasks. *Animal Behaviour*, 68(3), 571–581.
- [4] Leekam, S. R., Solomon, T. L., & Teoh, Y. (2010). Adults' social cues facilitate young children's use of signs and symbols. *Developmental Science*, 13(1), 108–119.
- [5] Moll, H. & Tomasello, M. (2007). Cooperation and human cognition: the vygotskian intelligence hypothesis. *Philosophical Transactions of the Royal Society B*, 362(1480), 639–648.
- [6] Southgate, V., Johnson, M. H., & Csibra, G. (2008). Infants attribute goals even to biomechanically impossible actions. *Cognition*, 107(3), 1059–1069.