

# Mindreading & Joint Action

## **9. Interacting Mindreaders**

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# conjecture

The prior existence of capacities for shared agency partially explains how sophisticated forms of mindreading emerge in evolution or development (or both)

1. All shared agency involves shared intention.

2. Shared intention requires sophisticated mindreading.

Therefore:

3. The prior existence of capacities for shared agency ~~partially explains~~ cannot explain how sophisticated forms of mindreading emerge in evolution or development (or both)

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G is a distributive goal: it is an outcome to which each agent's actions are individually directed and it is possible that: all actions succeed relative to this outcome.

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shared motor action

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G is a collective goal

- (a) it is a distributive goal;
- (b) the actions are coordinated; and
- (c) coordination of this type would normally facilitate occurrences of outcomes of this type.

1. we each have a motor representation of G;
2. we are each disposed to inhibit some (not all) of the resulting planning or actions;
3. we each expect that if G occurs, we will all be agents of its occurrence; and
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communication  
by language

natural  
pedagogy

shared  
intentionality

referential  
communication

*minimal theory  
of mind*

shared  
motor represent<sup>n</sup>

understanding  
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pure goal  
ascription

step 1: pure goal ascription to minimal theory of mind

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pure goal ascription

- (1) reliably:  $R(a,G)$  when and only when  $a$  is directed to  $G$
- (2)  $R(a,G)$  is readily detectable
- (3)  $R(a,G)$  is readily detectable without any knowledge of mental states

$R(a,G) =_{df}$   $a$  is the most justifiable/efficient action towards  $G$  available within the constraints of reality and  $G$  is desirable

$R_M(a,G) =_{df}$  if planning mechanism  $M$  were tasked with producing outcome  $G$  it would plan action  $a$ , and  $G$  is desirable.

Limits of pure goal ascription

The problem of false belief

contents

actual

believed

---



North

owl

cat

South

cat

owl

contents

actual

believed

---

action →

North

owl

cat

South

cat

owl

pure goal ascription: the goal of her action is to get the **owl**

goal+belief ascription: the goal of her action is to get the **cat**



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**Your-goal-is-my-goal**



## **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.

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

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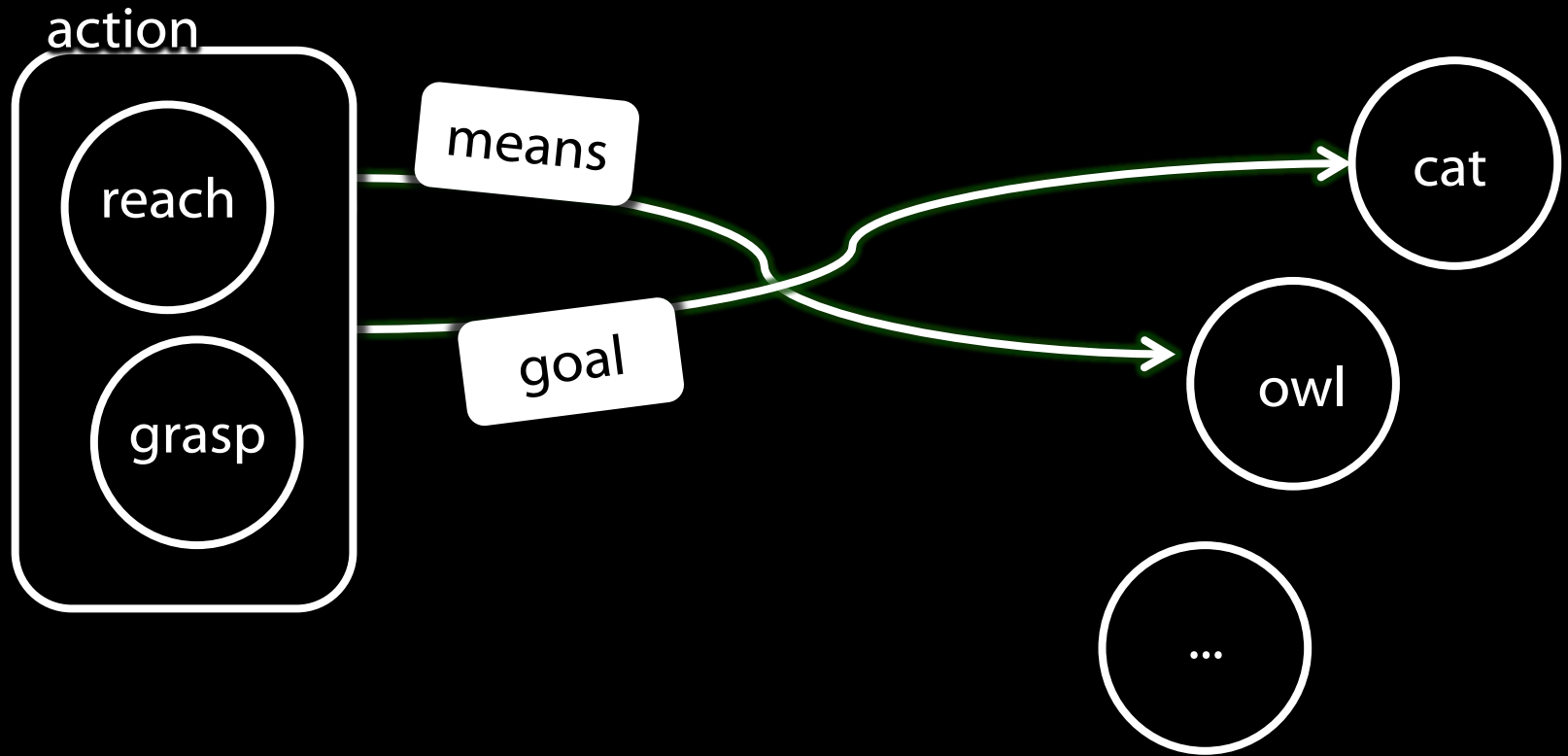
owl

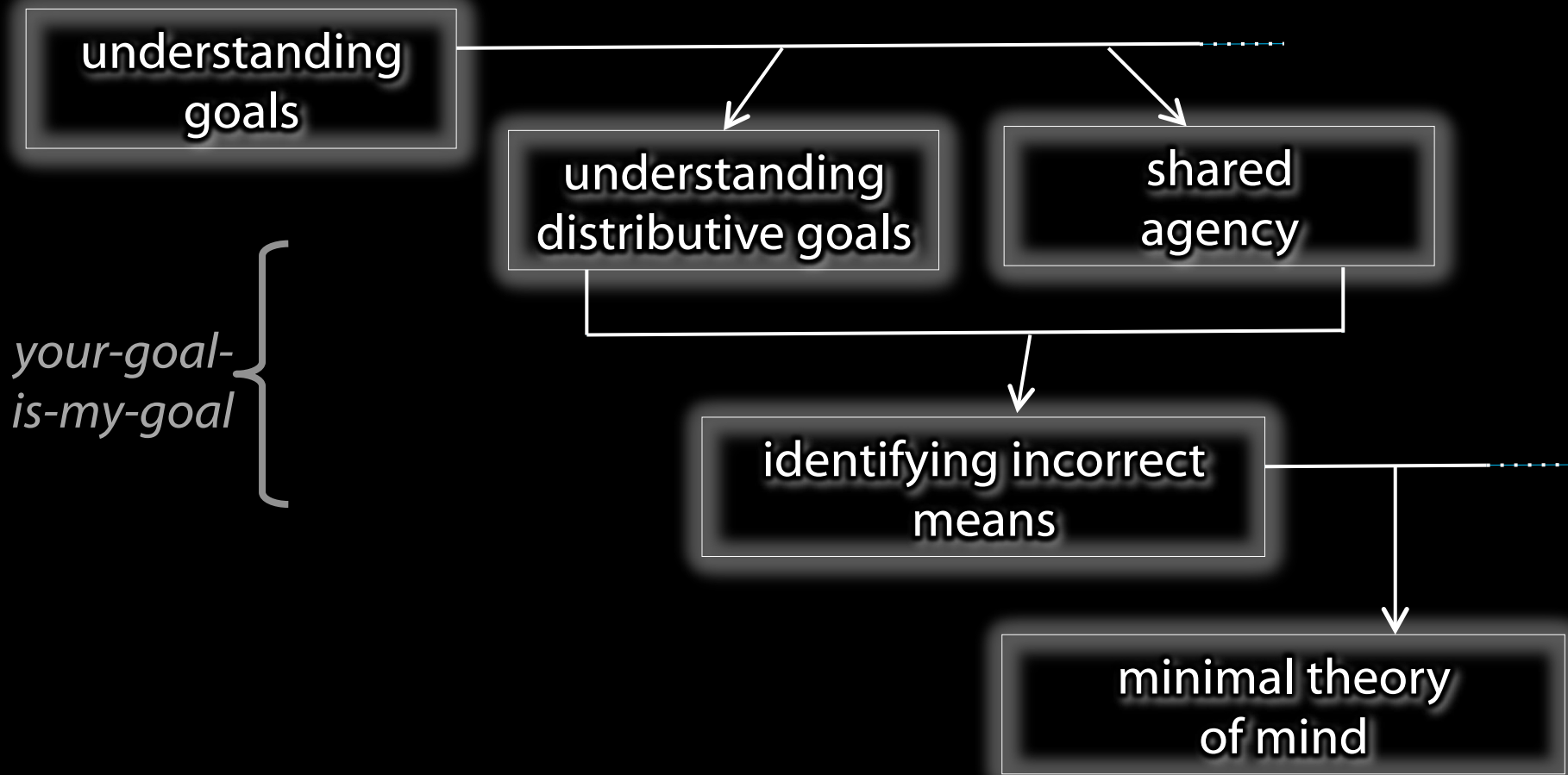
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goal+belief ascription: the goal of her action is to get the **cat**







step 1: goal ascription to minimal theory of mind

step 2: goal ascription to referential communication

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The prior existence of capacities for shared agency partially explains how sophisticated forms of mindreading emerge in evolution or development (or both)

failed reach



point



*source: Hare & Tomasello (2004)*

failed reach



point



*source:* Hare & Tomasello (2004)

communicative actions are opaque

failed reach



point



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“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”

(Moll & Tomasello 2007)

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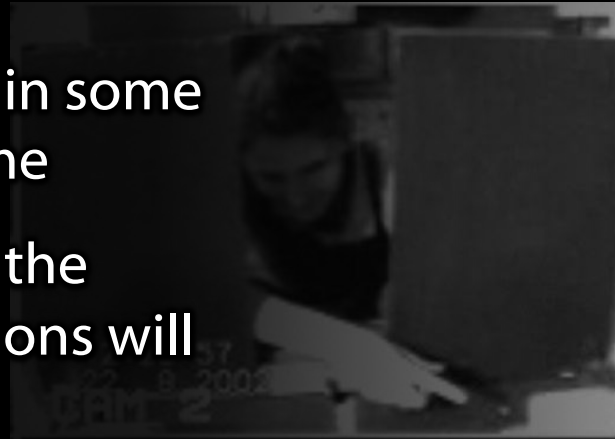
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	<b>goal</b>	<b>target object(s)</b>	<b>status</b>
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<b>ascribed</b>	discover the reward	the right box	failure

<b>how identified</b>	your-goal-is-my-goal	association, causal reasoning, ...	observation
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ascribed	[my goal]	[associated object]	failure

application to Natural Pedagogy

`infants, by decoding ostensive signals, recognize the communicative intentions of communicators ... Attributing a communicative intention is attributing a second-order intention' (Csibra 2010: 160; cf. Gergely & Csibra 2012: 7)

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`the assumption of relevance requires the learner to decode the teacher's manifestation with respect to his own knowledge. ... the pedagogical question driving the learner's inferential interpretation of the teacher's demonstration is this: "What is the new information in this manifestation that I don't yet know and would not be able to figure out myself?"

(Csibra & Gergely 2005: 7)

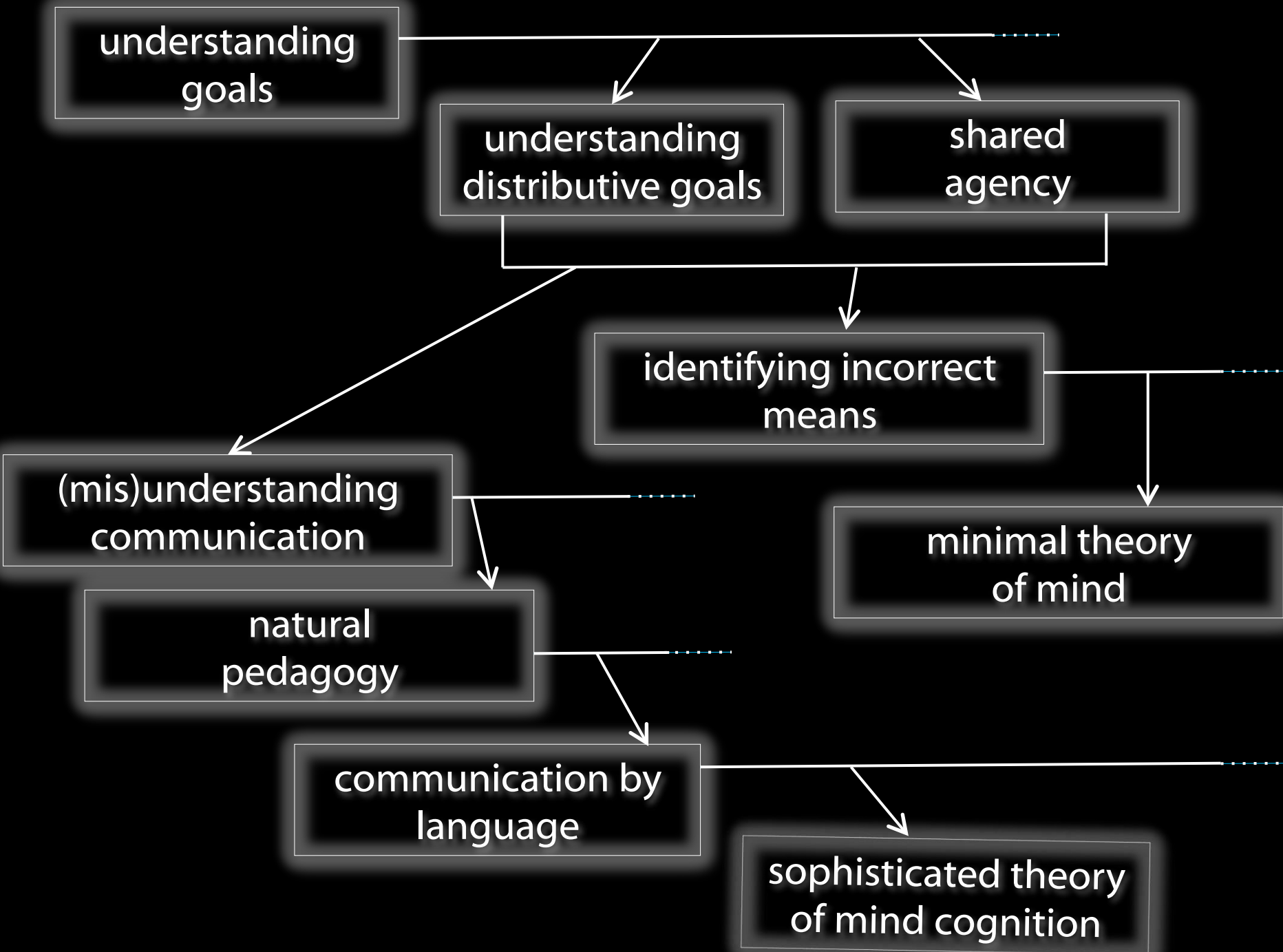
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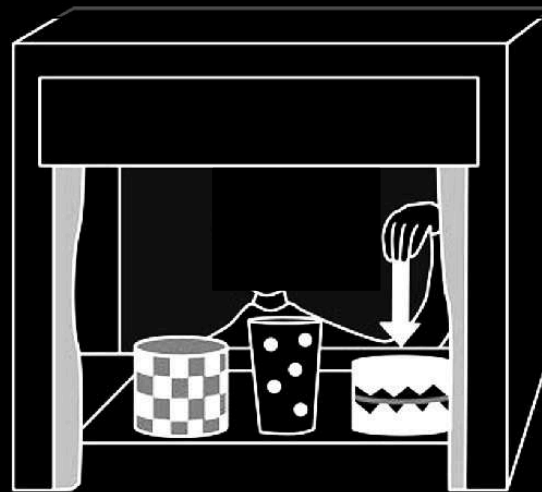
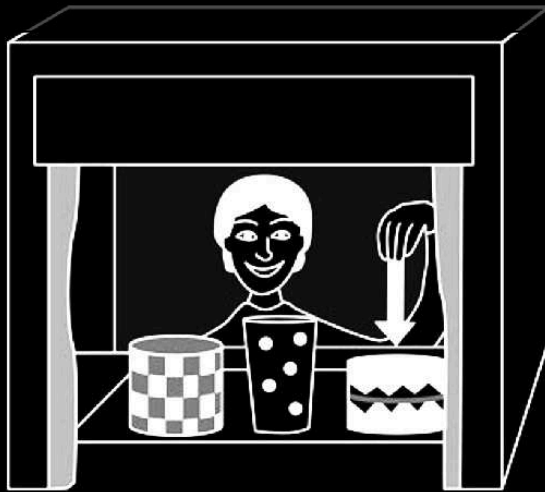
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*source: Hare & Tomasello (2004)*



*source: Leekam et al (2010)*

“the adult’s social cues conveyed her communicative intent, which in turn encouraged the child to ‘see through the sign.’”

(Leekam, Solomon & Teoh 2010:118)



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