

~~Why do~~ **Do** ~~infants but not~~ *and* ~~great apes~~
understand pointing?

Pointing comprehension in great apes



○ object choice tasks

- children 12 months > chance (Behne et al. 2012)
- so are dogs (Hare & Tomasello 1999)
- **chimpanzees** at chance (Tomasello, Call & Gluckman 1997; Hare & Tomasello 2004; Herrmann & Tomasello 2006)

Two hypotheses



Problems of pragmatic
interpretation

Hypothesis 1: Communicative intent

- Apes do not understand communicative intent.
 - Early hypothesis (→ 2006) (Tomasello & Call 2006)
 - succeed in a *reaching* task (Hare & Tomasello 2004)
 - pointing is pragmatically difficult
- Still **influential** – e.g. Tomasello (2008), Scott-Phillips (2014)
 - motivated by influential theoretical considerations (e.g. Grice 1957)

H1: Gricean communication is uniquely human



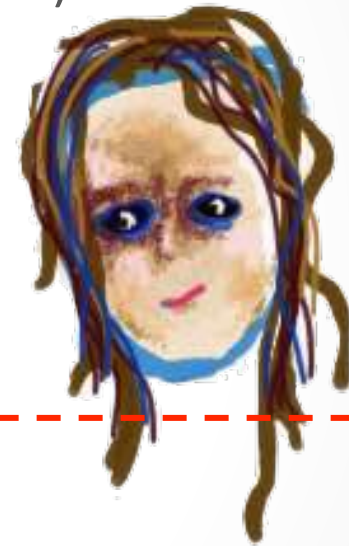
“With respect to Gricean communicative intentions – involving the embedding of one intention within another ... – apes are simply, in my view, not capable of either understanding or reproducing these.”

(Tomasello 2006)

Uniquely human ToM emerges late in ontogeny

- explicit ToM (3-4yrs)
(Wimmer & Perner 1983)

- fourth-order ToM
(11-12yrs)
(Liddle & Nettle 2006)



- Implicit/minimal ToM
(Onishi & Baillargeon 2005;
Krupenye, Kano et al. 2016)



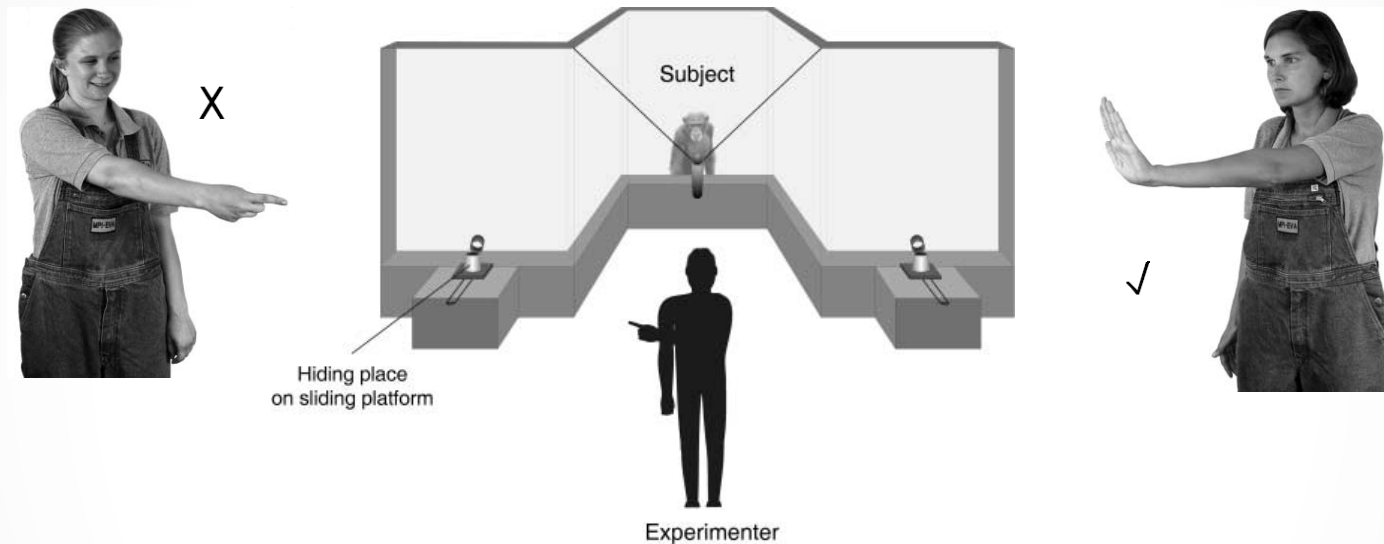
Hypothesis 2: Cooperative communication

- Informative communication requires cooperative reasoning.

“[At] least among primates, only humans engage in declarative communication in which the constitutive motive is either to share experience with someone or to inform them of something they need to know.” (Herrmann & Tomasello 2006, p.526)

“Our hypothesis is that [apes] do not understand communicative acts with either a helping or a sharing motive.” (p.527)

Cooperative communication (Herrmann & Tomasello 2006)



- **competitive** paradigm > chance
- ecological explanation: ape habitats are **competitive** (Hare 2001)
 - do not share location of scarce resources

Two competing/overlapping hypotheses

- H1: ToM problem

- From Gricean analyses of communicative intent (Grice 1989 chapters 5 & 6; Moore 2017)

- H2: Motivational problem

- From Gricean analysis of the *Cooperative Principle* (Grice 1989 chapters 2 & 3)
- Tomasello interprets Grice's analysis in light of H2 (Moore 2018).

Do *and*
~~Why do~~ infants ~~but not~~ great apes
understand pointing?



Returning to the data

Are apes really so bad?

- Apes do sometimes understand informative intentions.
 - Lyn et al. (2010): **enculturated apes** > chance
 - Mulcahy & Call (2009): distal **informative paradigm**
bonobos and chimpanzees (but not orang-utans) > chance
- Additionally, great apes fail in some imperative tasks.
 - (Kirchhofer et al. 2012)

Are apes really so bad?

- Methodological problems?
 - Leavens et al. (2010): enculturation differences
 - differences in age
 - Clark & Leavens (2019): dogs tested with barriers perform like apes
- Meta-analysis
 - Mulcahy & Hedge (2012): chimpanzees statistically > chance
 - aren't paying attention

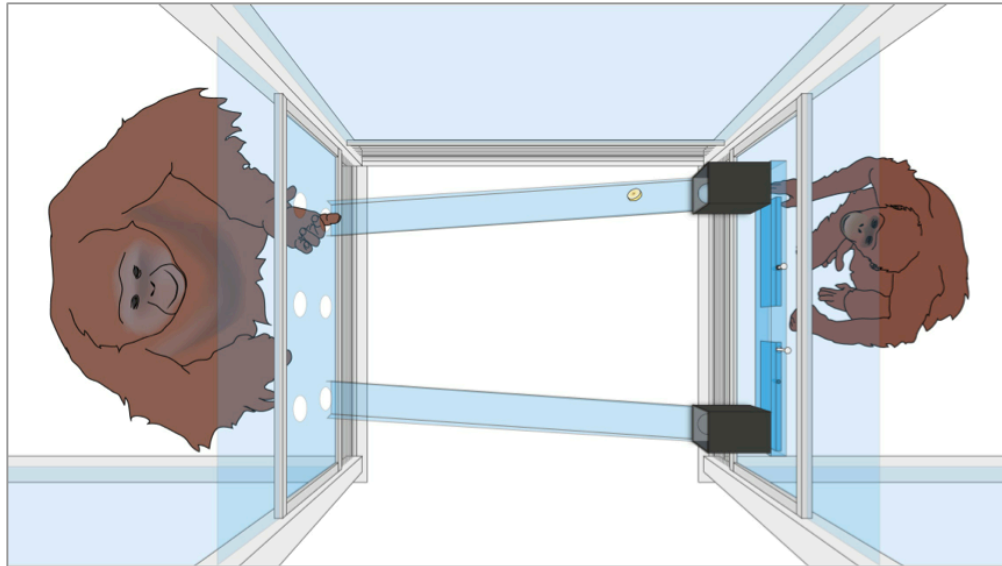
Do *and* ~~Why do infants but not~~ great apes
engage in pragmatic interpretation?



The Value of Anecdotes

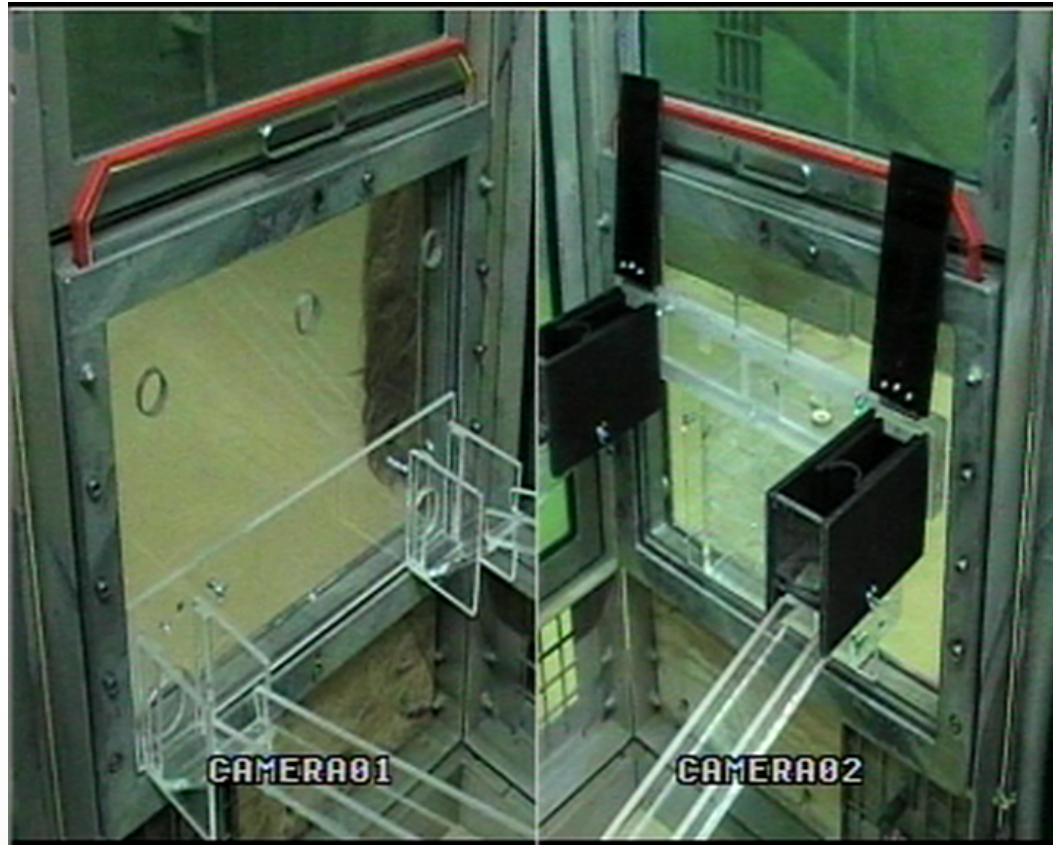
Orangutan pointing procedure (Moore, Call & Tomasello, 2015)

- While female is absent, food is hidden in one of two boxes.
- Female can subsequently release contents of (only) one box to Bimbo.



- Bimbo can point to indicate the location of the hidden food.
- Hiding boxes have transparent front so that he can always see food.

Orangutan pointing procedure (Moore, Call & Tomasello, 2015)



An alternative explanation of pointing “failure”

- Apes ***can*** understand pointing
 - pragmatic inference in general
 - difficult to elicit
- Why do apes fail object choice tasks?
 - motivation/attention
 - poor integration of/reluctance to use human cues (Kano et al. 2018)
 - methodological differences
- Fatal accumulation of paper cuts



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