

Why Do Humans Alone Acquire Language?

An introduction to great ape communication

Great ape gestures are “[t]he original font from which the richness and complexities of human communication and language have flowed” (Tomasello, 2008)



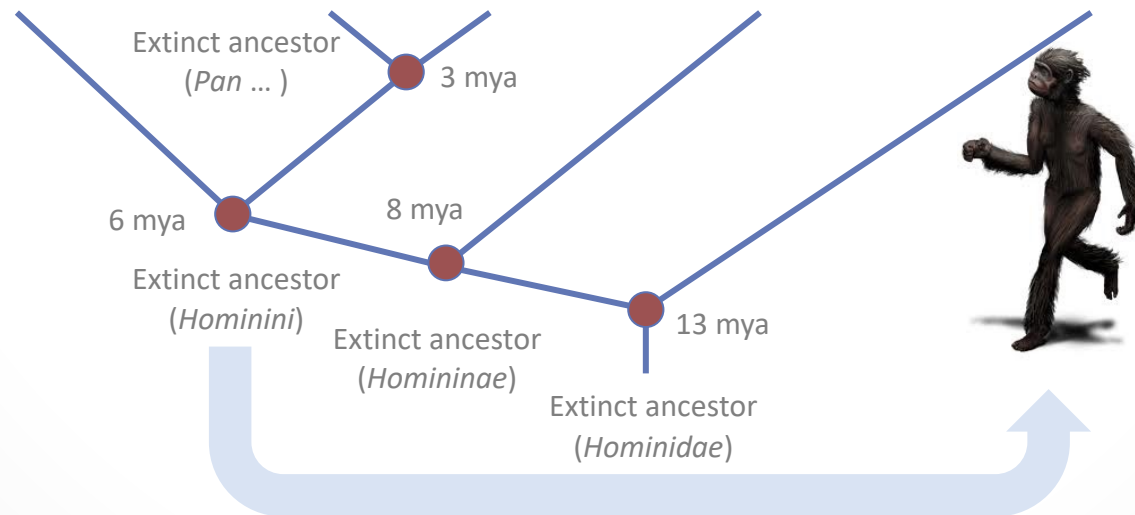
Human
(*Homo sapiens*)

Chimpanzee
(*Pan troglodytes*)

Bonobo
(*Pan paniscus*)

Gorilla
(*Gorilla gorilla*)

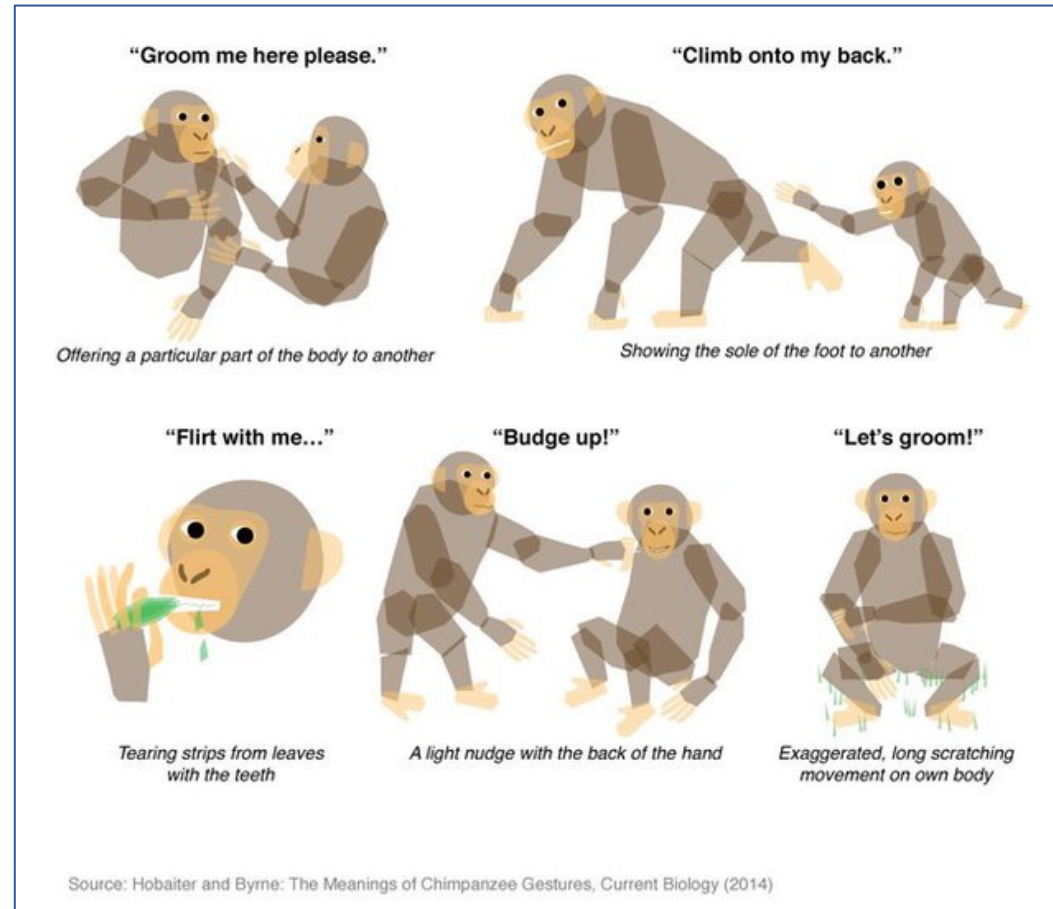
Orang-utan
(*Pongo pygmaeus*)



All great apes species gesture communicatively

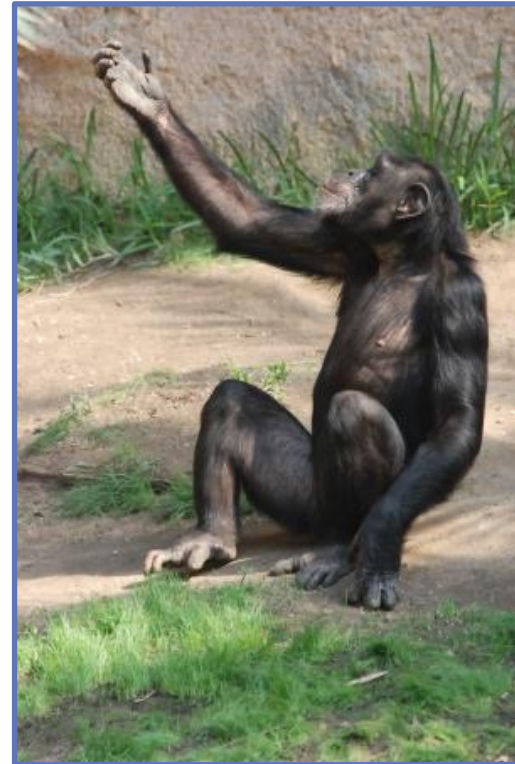
- **intentional**, goal directed (Leavens, Russell & Hopkins 2005)
- **directed** at others (see slide 8)
- **substantial repertoire** (chimpanzees >60 gestures, \approx 8 vocalisations) (Hobaiter & Byrne 2014)
- **used flexibly** (Roberts et al. 2012; Hobaiter & Byrne 2014)
 - same gestures can be used for multiple messages
 - multiple gestures can be used to express same message

Gestures have stable semantic properties (Hobaiter & Byrne 2014)



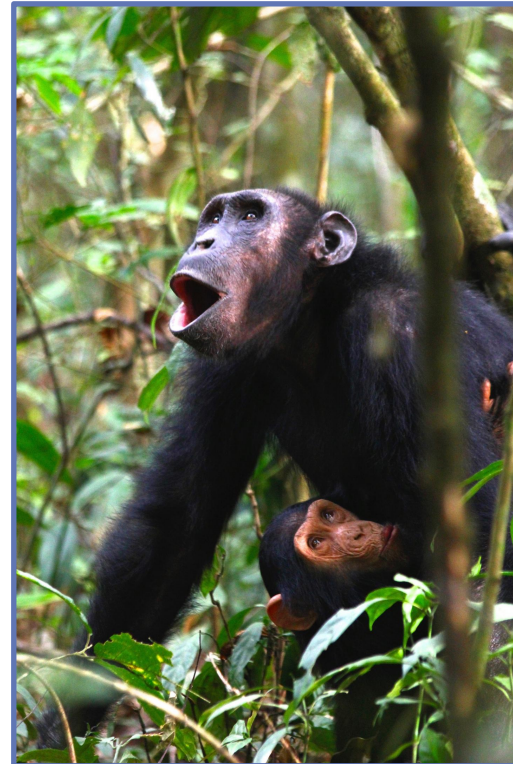
How similar are great ape gestures and human language?

- limited evidence of **syntax**
(see week 9)
- mostly **imperative**
- mostly **dyadic** (Tomasello 2008)
- little evidence of **pointing**
(although see slides 8.2)



What about vocalisations?

- historically dismissed (Tomasello 2008)
- recent findings of audience effects suggest intentional production
 - chimpanzees **inform** ignorant others (Crockford et al. 2012)
 - food grunts produced more for friends (Slocombe et al. 2010)
- often **triadic** (see above examples)



Are ape gestures produced ostensively?

Scott-Phillips (2015 p.170; after Grice 1957):

“For a signal to be meaningful in the Gricean sense, **it must be overtly intentional**, and we do not have good evidence of overt intentionality in any non-human species.”



Are ape gestures ostensive?

- Gómez (1994, 1996) and Moore (2016): *What about directed gaze?*
 - standard measure in child studies
(e.g. Senju & Csibra 2008)
 - uncontroversial in apes
- sensitive to others' attentional states
 - modify communication in light of **interlocutor attention**
(Hostetter et al. 2001; Povinelli et al. 2003; Liebal et al. 2004)

Why is language uniquely human?

Standard View

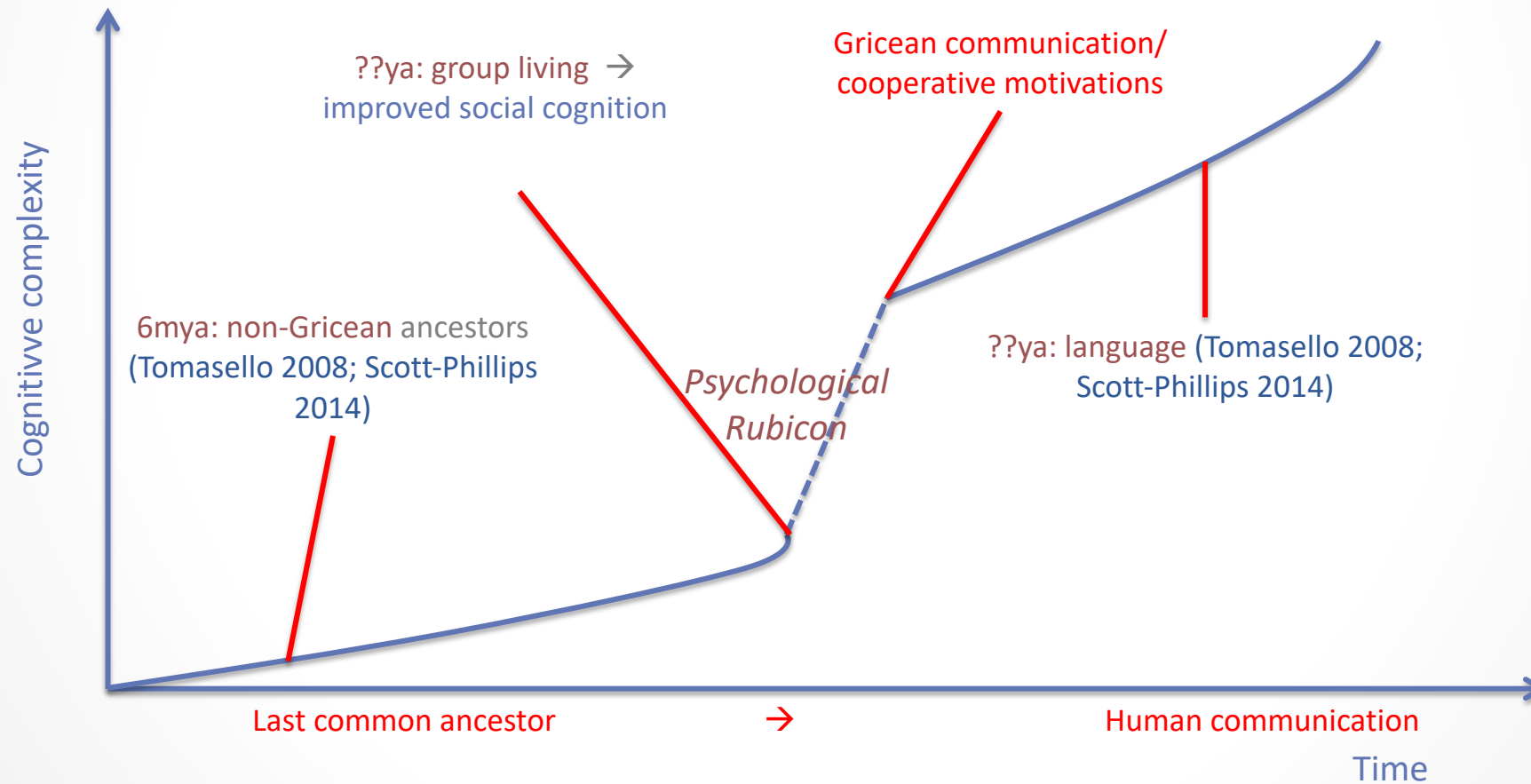
- language requires **Gricean intentions** (Tomasello 2008; Scott-Phillips 2014)
- which in turn requires **cooperative communicators**
- apes/LCA are neither cooperative nor Gricean communicators

→ **socio-cognitive revolution**



Procranthropus afarensis, by Mike Keeseey:
<http://3lbmonkeybrain.blogspot.de>.

When did Gricean communication emerge?



Challenges to Tomasello's (2008) argument



Tomasello's argument is built on potentially intellectualised accounts of cognition. 'De-intellectualising' them undermines claims of human uniqueness.

- There may be undemanding forms of Gricean communicators ([Week 6](#))
- There may be simple forms of joint action, for which cooperative motivations are less important ([Week 5](#), [Week 7](#))

Challenges to Tomasello's (2008) argument

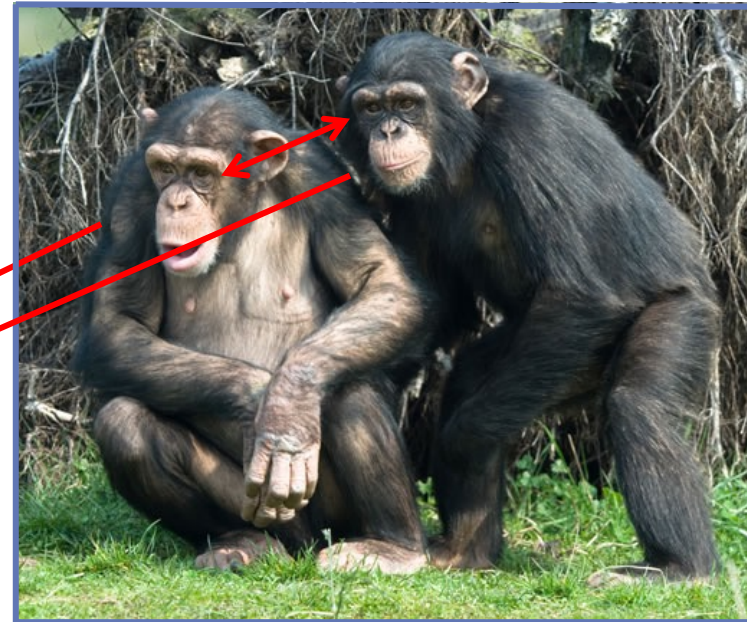
Moreover, the empirical foundations of Tomasello's claim seem less robust than he claims.

- Might chimpanzees be Gricean communicators? Some understand pointing – Tomasello's *sine qua non*. (Week 6)
- There is some evidence that chimpanzees engage in joint action (Duguid et al. 2018; Melis & Tomasello 2018). (Week 5)
- There is also evidence that chimpanzees communicate to inform (e.g. Crockford et al. 2012).

Salient differences between human and great ape communication

Joint attention

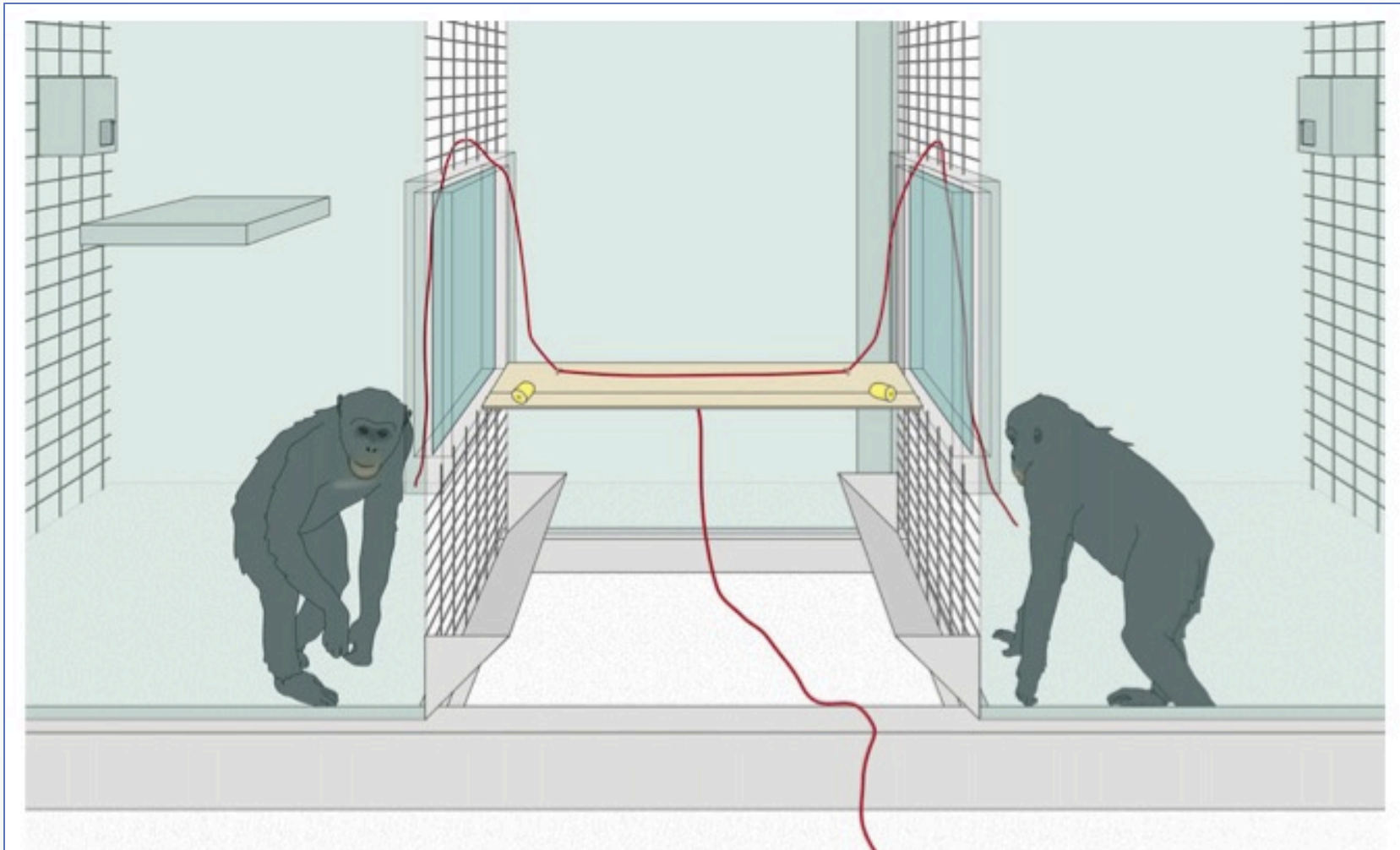
- apes follow gaze
(Bräuer, Call & Tomasello, 2005)
- no joint attention
(Carpenter & Call 2013; although see
Leavens & Racine 2009)



Pointing

- little evidence from the wild (Vea &
Sabater-Pi; Hobaiter, Leavens & Byrne 2014)

The Stag Hunt (Bullinger et al. 2011, Duguid et al. 2014)



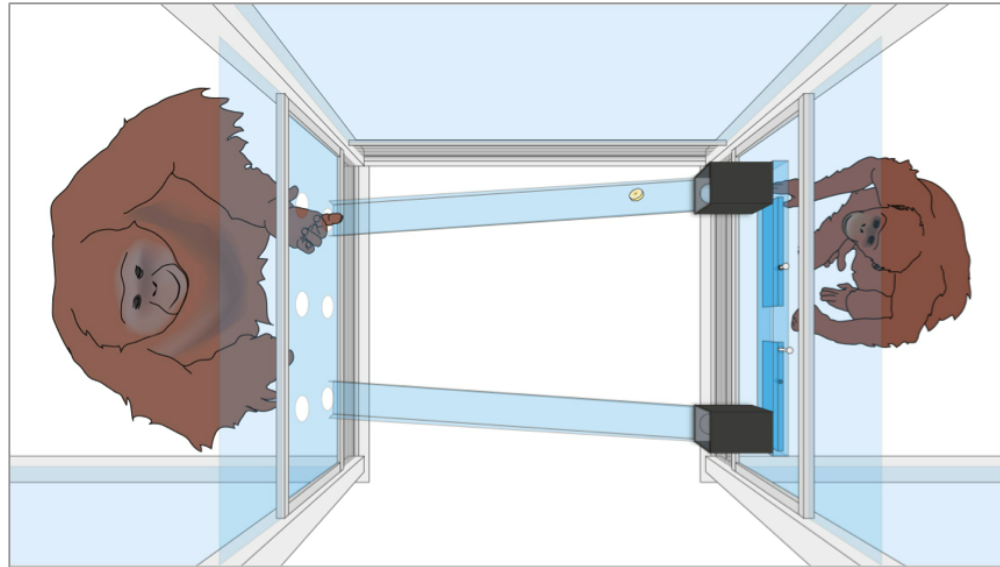
The Stag Hunt

- **low stakes** (Bullinger et al. 2011; Duguid et al. 2014):
 - 4-yr-old children and chimpanzees coordinate
 - post-movement communication
- **higher stakes** (Duguid et al. 2014):
 - children alone succeed
 - prospective communication



Orang-utan 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.



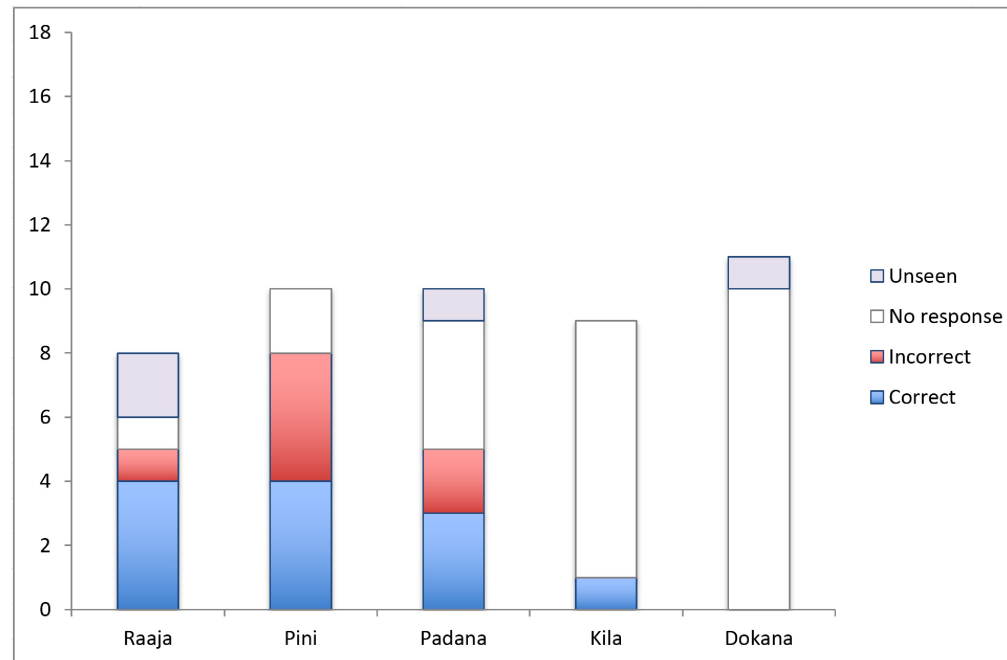
- Bimbo can point to indicate the location of the hidden food.
- Hiding boxes have transparent front so that he can always see food.

Results (Moore, Call & Tomasello, 2015)

Bimbo pointed more often for E1 than for conspecifics (100% vs. 54%, $p < 0.001$).

However, his points were no less accurate (93% vs. 94%, Fisher's exact $p = 1$).

Comprehension of Conspecific's Points (18 trials)



- This sample size is too small to generate meaningful statistics.

Problem:

- In a subsequent run of 18 more trials per female, Bimbo became frustrated and stopped pointing.

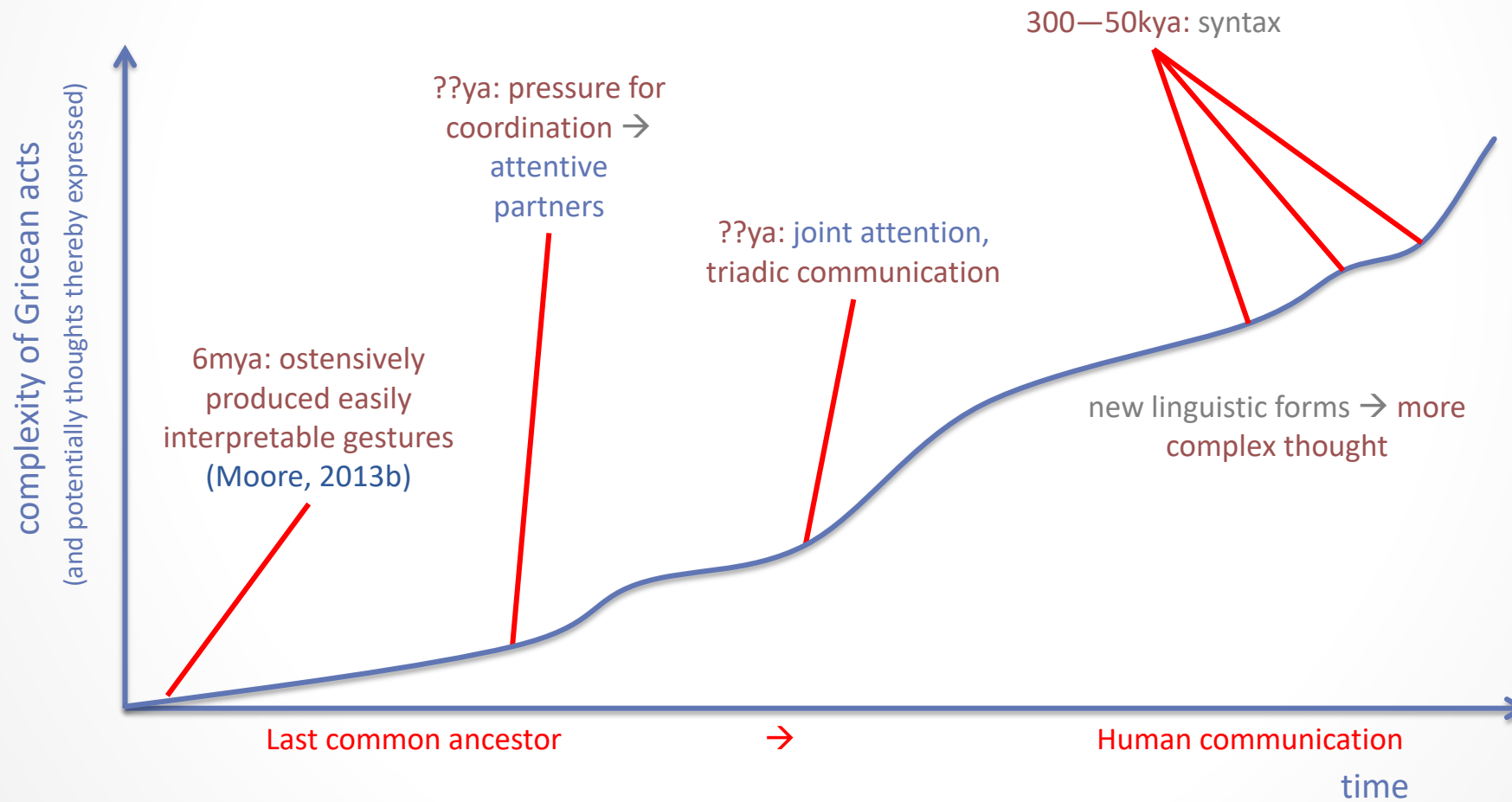
An alternative to the Standard View

Continuity hypothesis

- Chimpanzees gesture with simple and easily interpreted goals
 - **ostensively addressed** (Gomez 1996; Moore 2016, 2017)
 - simple **inferences about *S*'s goal** (Yamamoto et al. 2012)
- Poor at using communication to solve coordination problems
 - inattentive
 - largely **unmotivated**
 - → ecological change



Communicative intent: a constant in recent language evolution



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