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5 July 2013 Last updated at 12:24 GMT

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Human gestures perplex Asimo, Honda museum robot guide

Honda's popular robot Asimo faced problems with gesture recognition on its first day as a museum guide at the Miraikan science museum in Tokyo.

The machine struggled to differentiate between museum-goers raising their hands to ask a question and raising their hands to take photos, Associated Press reported.

It is "working" as a tour guide at the museum for the next four weeks as a trial.

GETTY IMAGES

Asimo is reported to have had problems identifying arm gestures

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●●●○○ AT&T 📶   9:58 PM   🔋 ▪️

"I like fishing at the river bank"

Got it.

"So where can i find a nice bank"

tap to edit

The best-rated one i found is wells fargo bank on solano ave, which averages 3½ stars.

15 Results
Nearby

Wells fargo bank   0.8 mi
1800 solano ave
★★★⯪   14 reviews on yelp

Wells fargo bank   1.2 mi
1095 university ave

🎤

❓

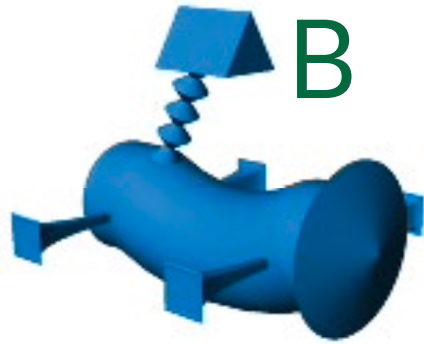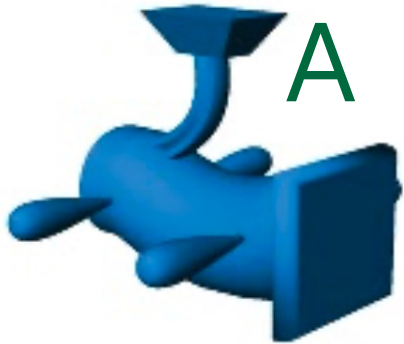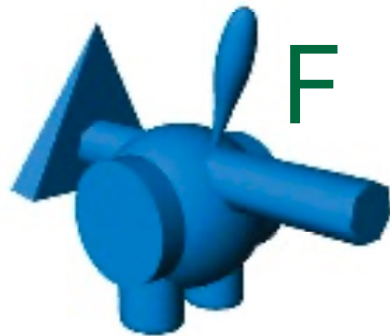# Why is this not an issue for us, humans?

The Social Function of Intellect

Preparation

- Create playgroups of 4

- Each person makes a note sheet, 1, 2, .., 8
  (the Fribbles are named A, B, …, H)

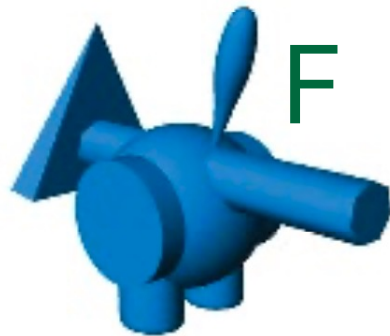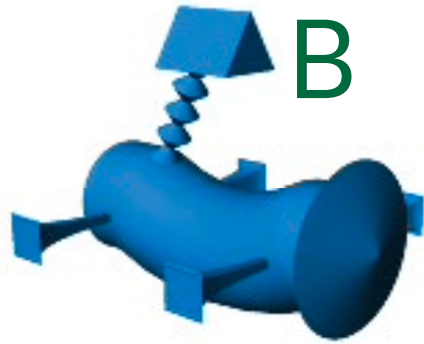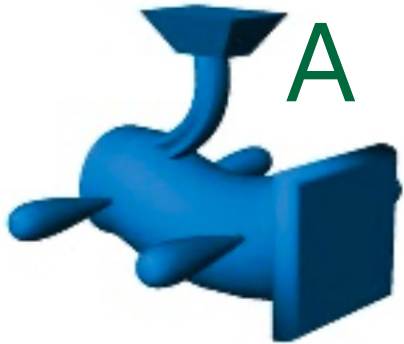| 1	
2	
3	
4	
5	
6	
7	
8	

Fribble names

Round I

- Distribute the 8 same-colored Fribbles (2 per person)

- The first person describes one of their two Fribbles (without showing the Fribble or ever mentioning any of the Fribbles' names)

- Others can ask for clarifications, then write down the presumed Fribble (A, B, .., H)

- Second person goes, and so on, until all 8 have been described (over two rounds)
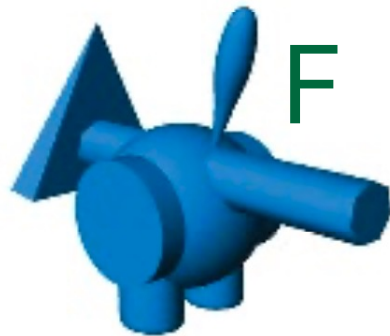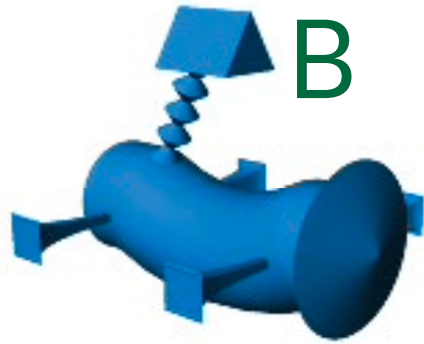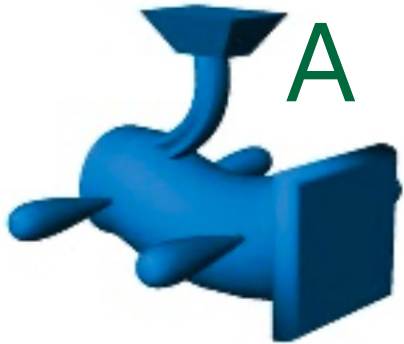
Fribble names

Observations I

- We humans can rapidly converge on a new reference for an object, flexibly putting even existing words to new use

- There appear to be no fixed relationships between concepts and words

What did you observe?

Round II

- Same as round I, but shuffle the Fribbles. Everyone gets two again
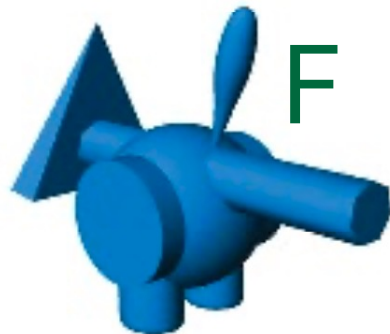
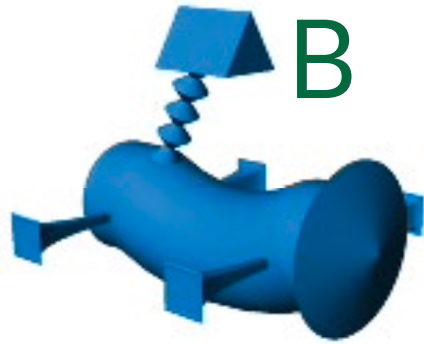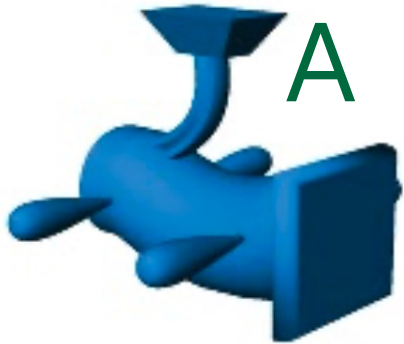# Fribble names

Observations II

- Communicative history helps in achieving mutual understanding of the references

- Simplification of *conceptual pacts*

What did you observe?

Round III

- Same as rounds I & II, but shuffle the groups such that 2 players from group A form a new group with 2 players from group B

Fribble names

Observations III

- Again, communicative history helps

- *Conceptual pacts* are partner-specific

- Assumptions about background knowledge

What did you observe?

1. Challenges facing a (social) organism
   Cultural memory, reputation, transitive inference

2. Pressures on (social) brain development
   Cost-benefit of a larger brain, social brain hypothesis, foraging brain

3. Course expectations
   Reflections, summaries, final synthesis

What problems does a (social) organism need to solve?

Acquire information about the environment

- By interacting with the physical environment (personal information)

- By monitoring others' interactions (social information)

Retain that information: inheritance/transmission systems

- Genetic inheritance system

- Epigenetic inheritance system

- Ecological niche construction

- Behavioral inheritance system

- Rapid communicative innovations

Deal with an environment made of other cognitive agents

- By, among other things, keeping track of relationships and reputations

Cultural memory

Copying others is smart because everyone does the best thing they know — individuals tend to perform tried-and-tested, high-payoff behaviour from their repertoire. By copying, individuals access a pool of ideas that are, on average, far more productive than what they could otherwise have picked up through trial-and-error. If this 'adaptive filtering' was switched off in the simulations, copying no longer paid. With this filtering, *other individuals become a vast memory store of highly valuable information*.

Kevin N. Laland* and Luke Rendell

Acquiring information about the environment

Reputation beyond cultural information
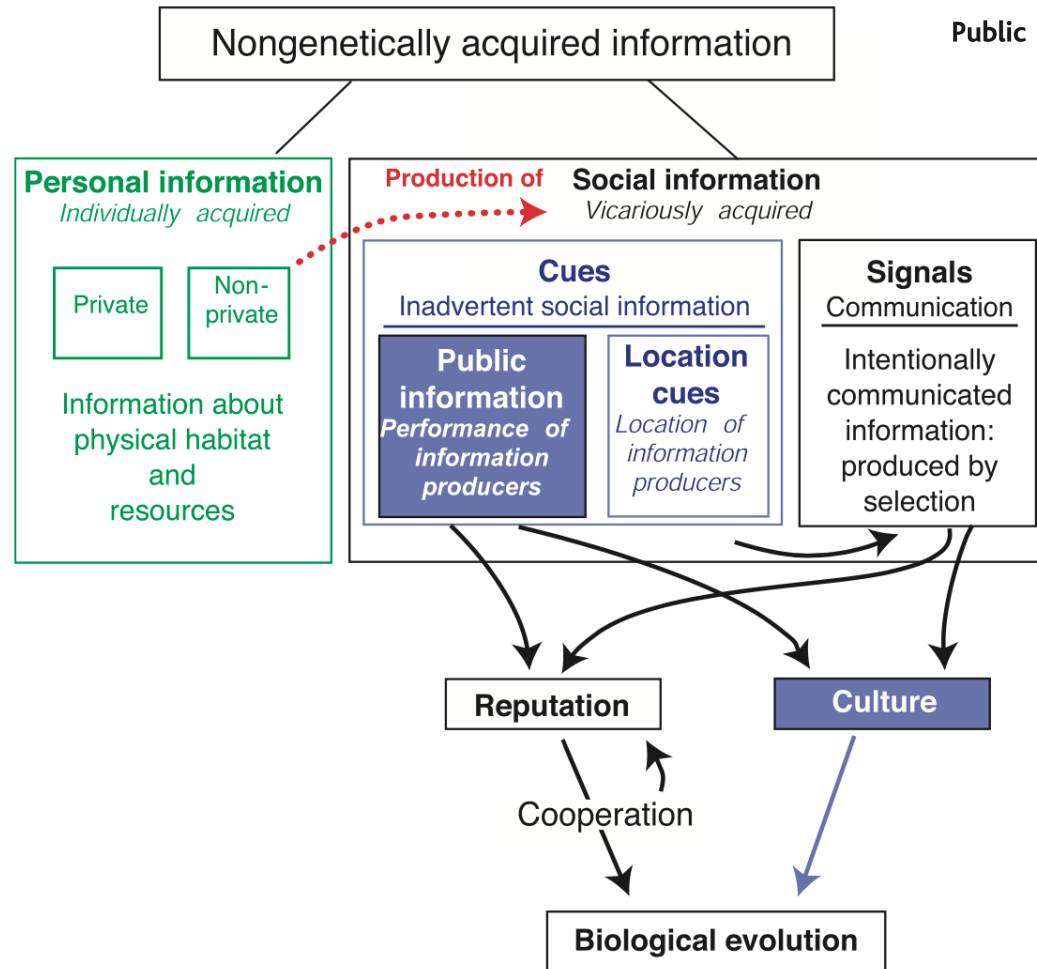
Public Information: From Nosy Neighbors to Cultural Evolution

Étienne Danchin,[1] Luc-Alain Giraldeau,[2] Thomas J. Valone,[3] Richard H. Wagner[4]

Fig. 1. The various forms of nongenetically acquired information (apart from parental effects). Information is anything that reduces uncertainty. Personal information is acquired individually by interact-

Retaining information about the environment

Tracking relationships

Ahla, the goat-herding baboon

When Ahla comes home in the evening after feeding, she will first go to the enclosure and from there through a door to the lambs' enclosure. From here, she can only hear the adult animals, but not see them. Once she hears from inside the voice of a lamb that is calling for its mother, she will retrieve the correct lamb and jump through the opening between the two enclosures and put it underneath the mother so it can drink. She does this flawlessly even when several other mothers are calling and several lambs are responding at the same time. Apparently, she knows every animal in the herd but it seems unclear how she effectively recognizes them.
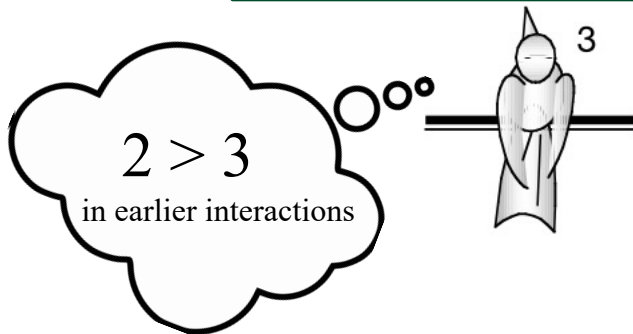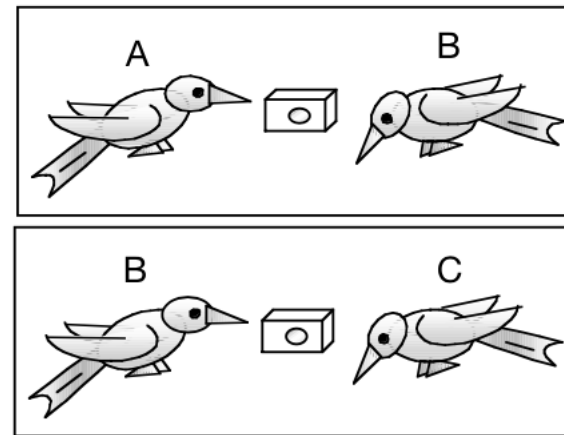
Dealing with an environment made of other cognitive agents
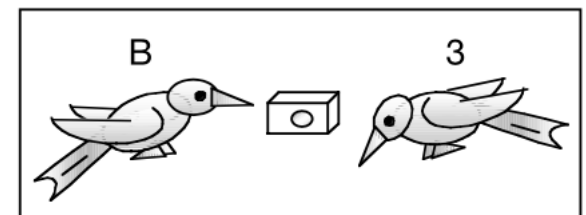
Transitive inference

Experimental

Control

$2 > 3$

in earlier interactions
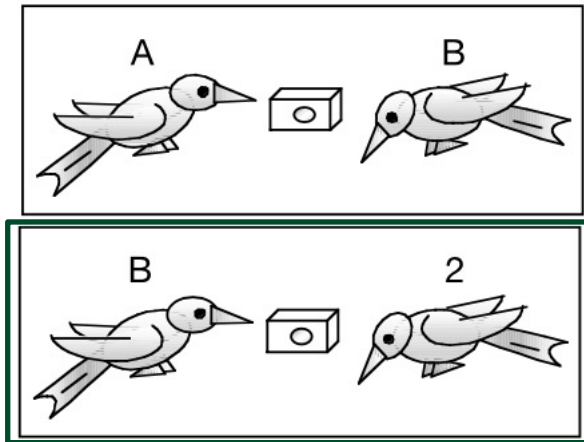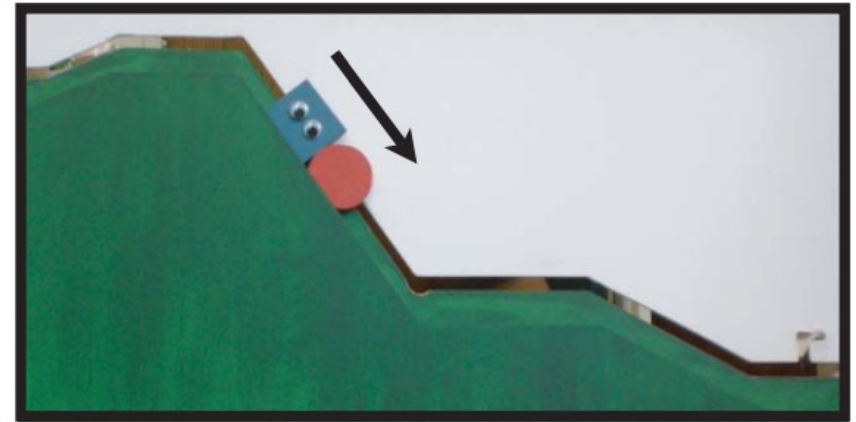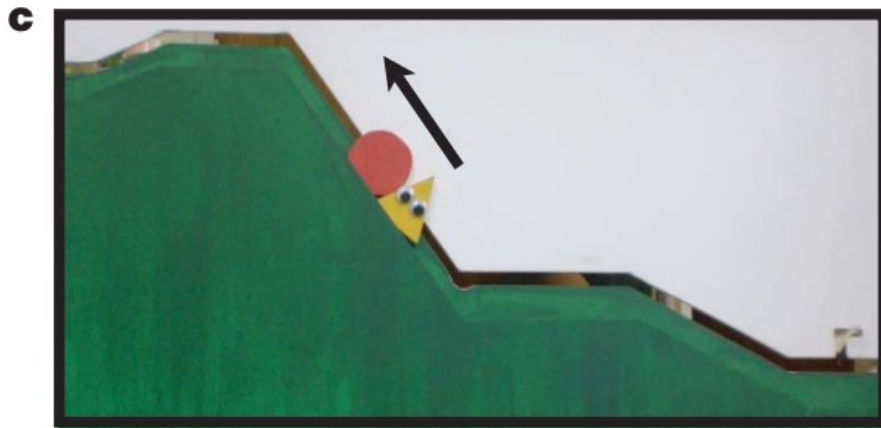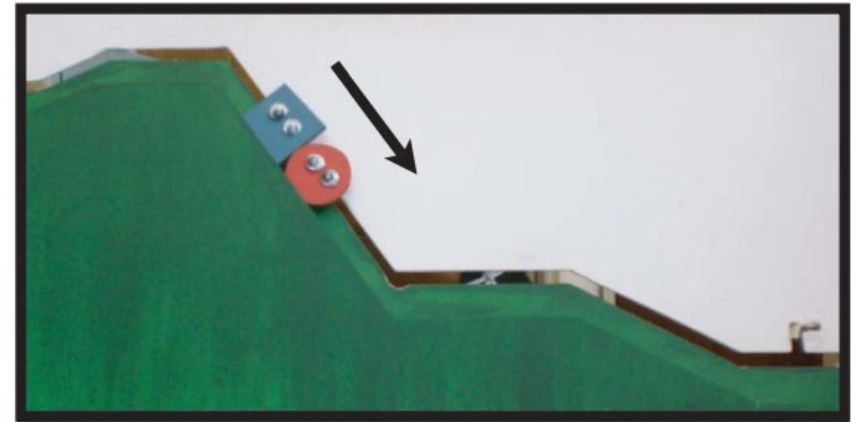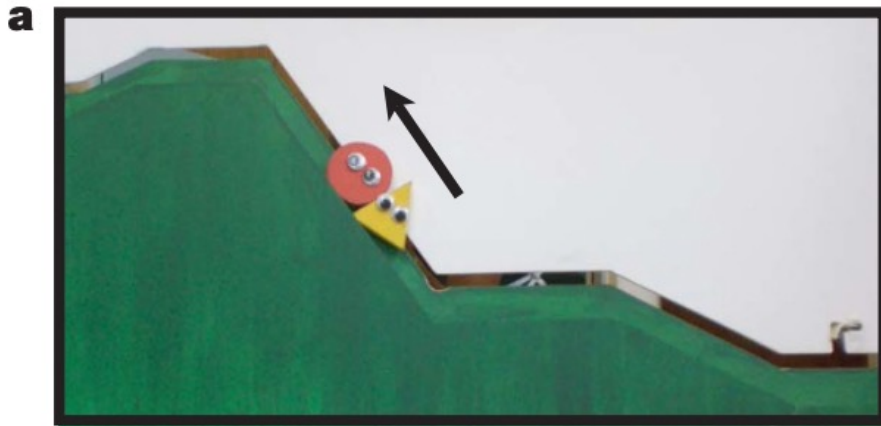
A, B and C are strangers to 3

Test

Pinyon jays use transitive inference to predict social dominance

Guillermo Paz-y-Miño C[1], Alan B. Bond[1], Alan C. Kamil[1,2] & Russell P. Balda[3]

Dealing with an environment made of other cognitive agents
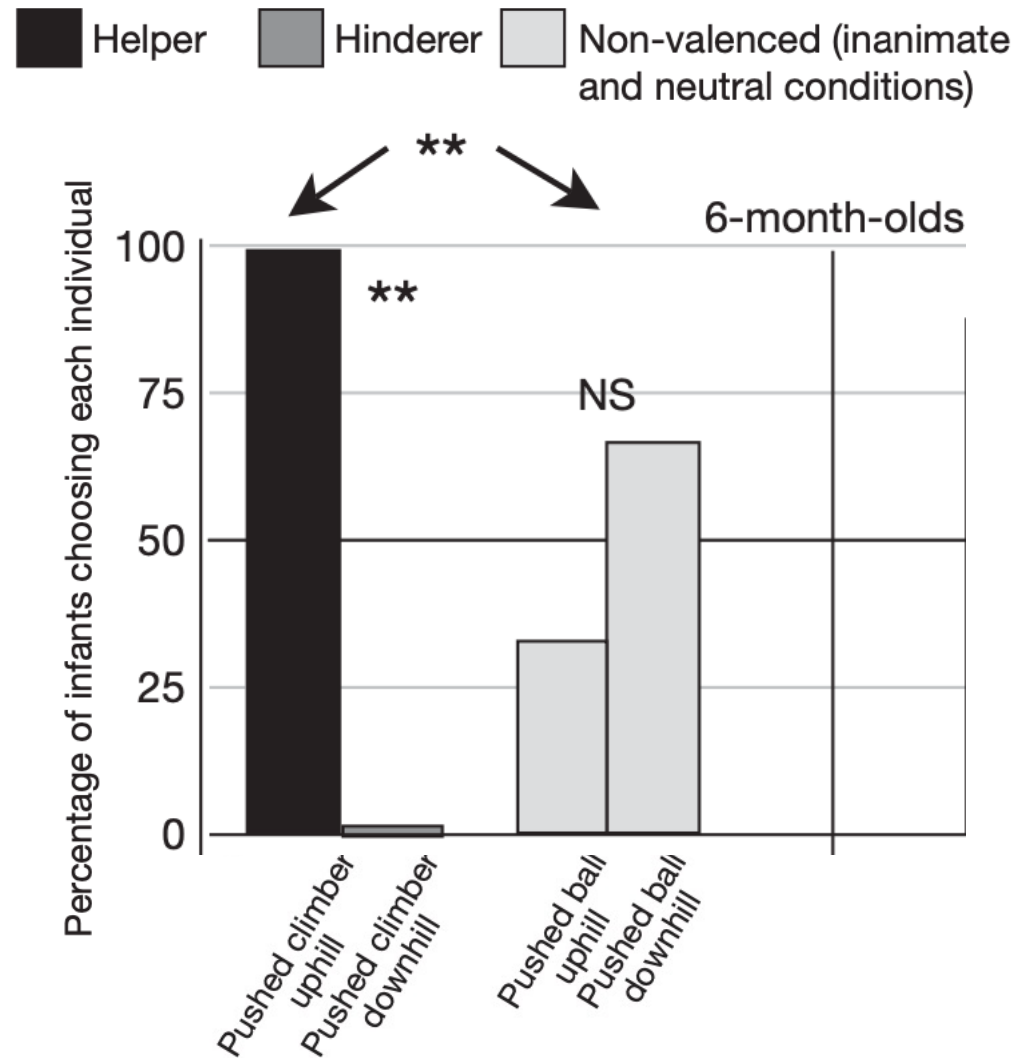
Reputation

Social evaluation by preverbal infants

J. Kiley Hamlin[1], Karen Wynn[1] & Paul Bloom[1]

Dealing with an environment made of other cognitive agents

Reputation

Dealing with an environment made of other cognitive agents

1. Challenges facing a (social) organism
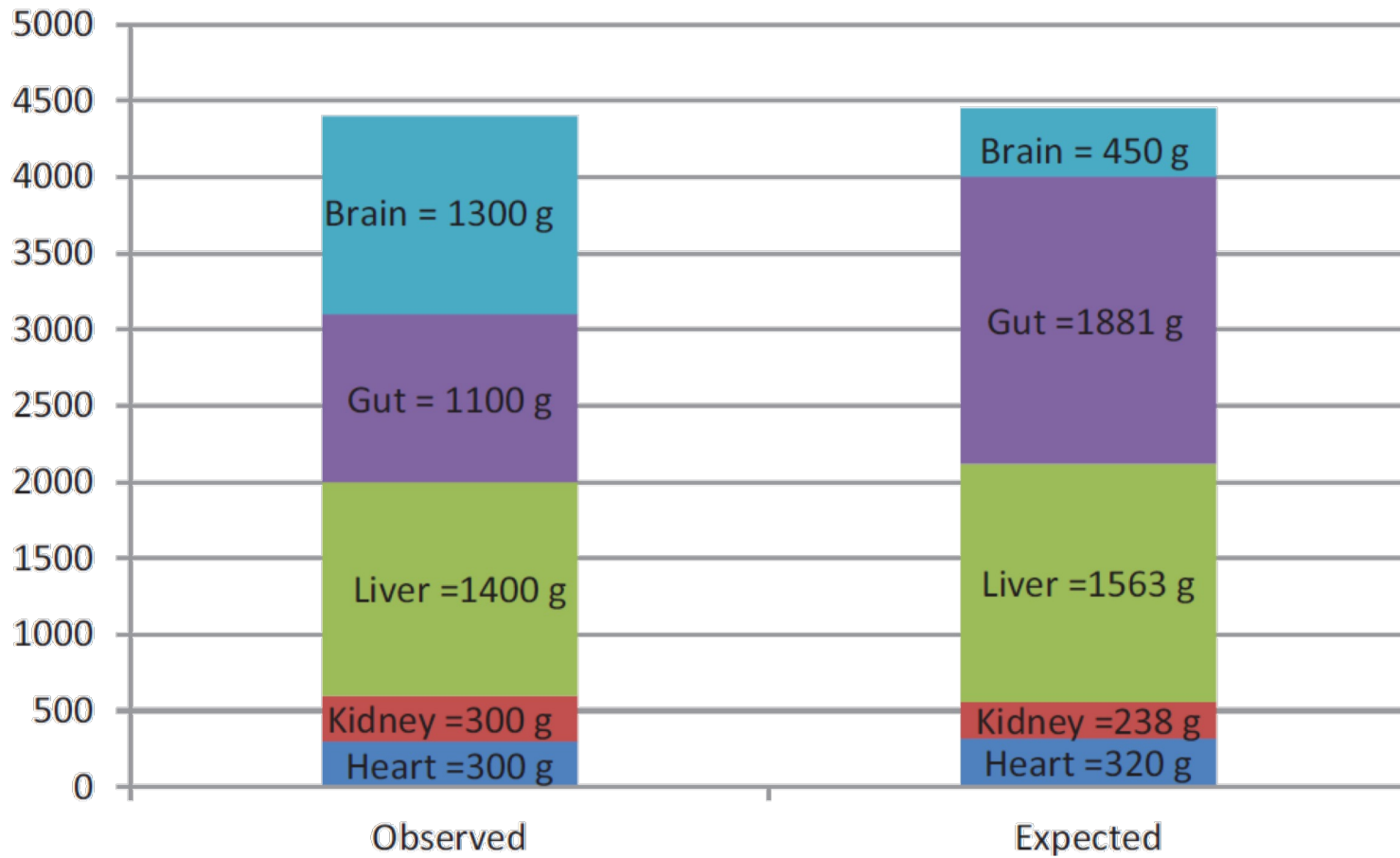   Cultural memory, reputation, transitive inference

2. Pressures on (social) brain development
   Cost-benefit of a larger brain, social brain hypothesis, foraging brain
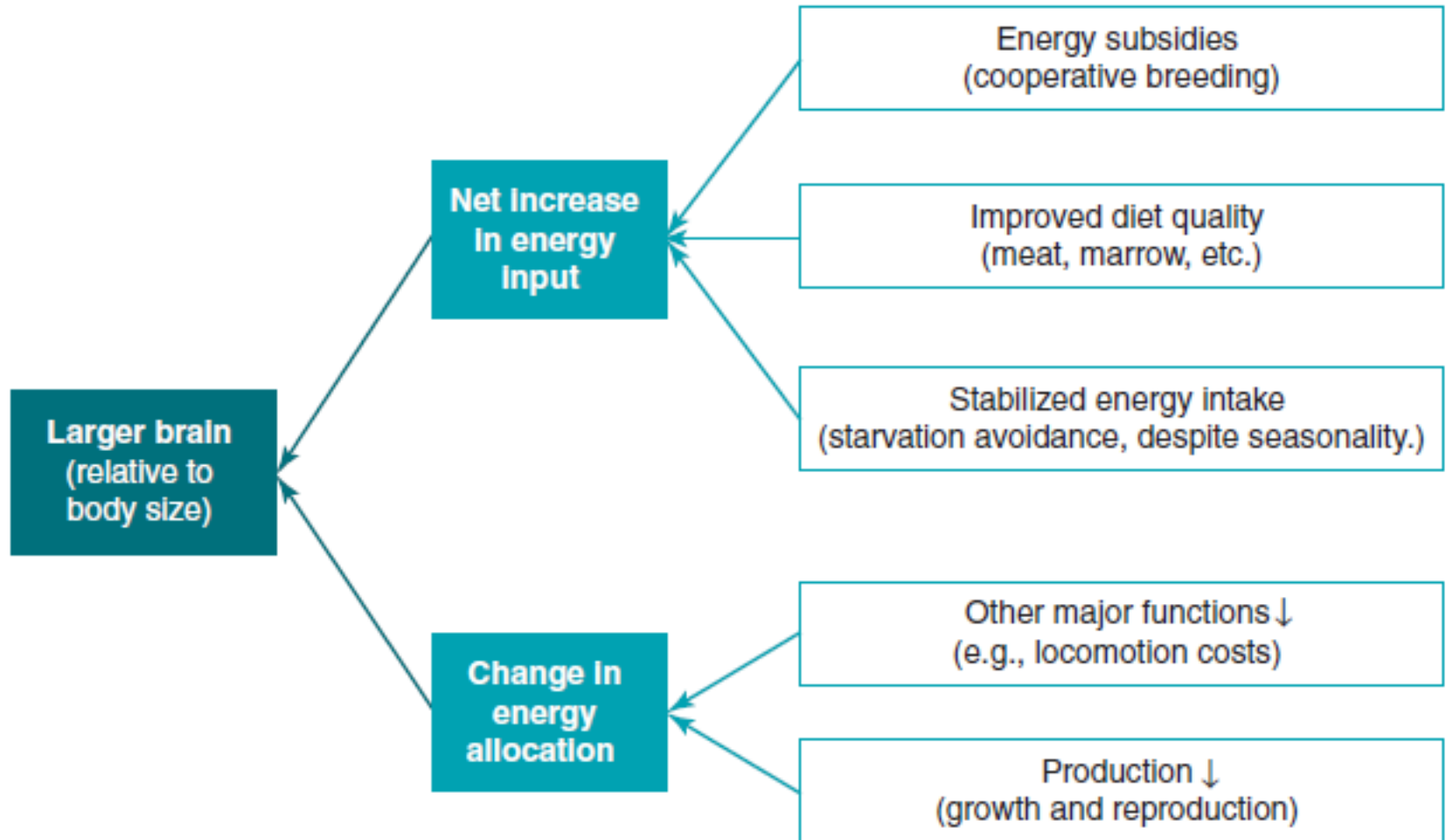
3. Course expectations
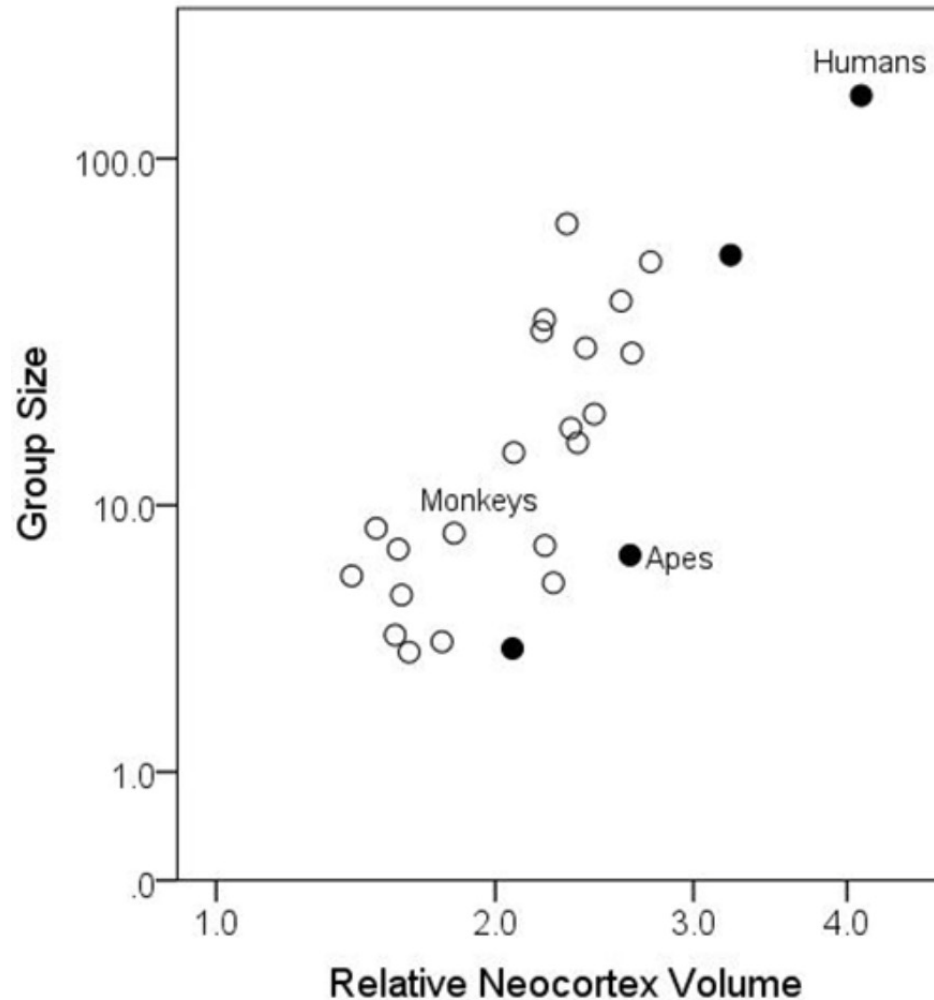   Reflections, summaries, final synthesis

A biological anomaly

Requirements of a larger brain

Social brain hypothesis

Primates with more complicated social lives have bigger brains

DARTMOUTH

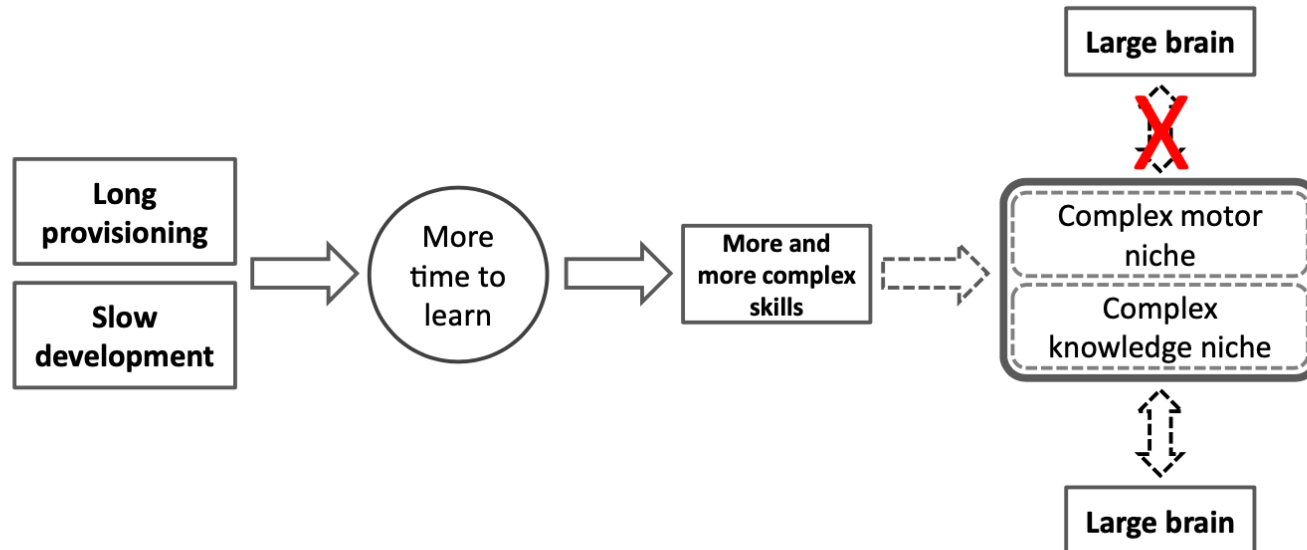# Complex foraging brain hypothesis

Figure 1. Slow development and extended provisioning have been shown to allow for extended periods of learning (later relative age at skill competence [Schuppli at al., 2012]). Here we ask in Part I whether the same two factors ultimately allow species to evolve into more complex niches. In Part II we are interested in how niche complexity relates to relative brain size and expect only the knowledge niche, but not necessarily the motor niche, component to be associated with large relative brain size.

Life history, cognition and the evolution of complex foraging niches

Caroline Schuppli[*, 1], Sereina M. Graber [1], Karin Isler, Carel P. van Schaik

Anthropological Institute and Museum, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland

Animals with more complicated foraging niches have bigger brains
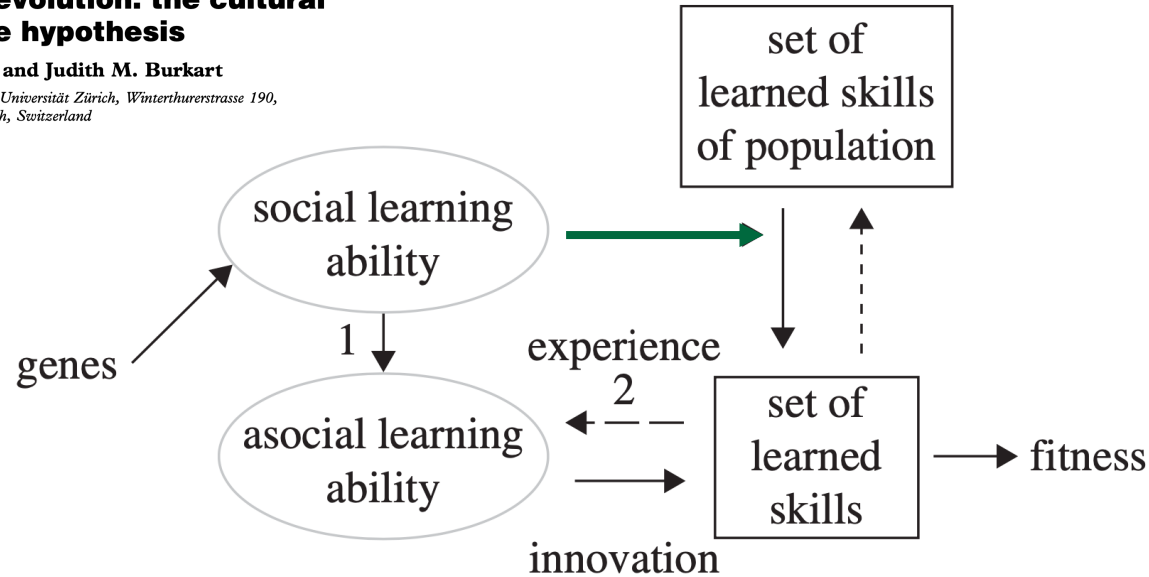
Cultural intelligence hypothesis

Figure 2. The evolution of intelligence through cultural feedback. Selection on an increased set of learned skills is achieved by improved social learning. Owing to the high cognitive overlap, social learning improves the asocial (individual)-learning ability (i.e. intelligence; shown by arrow 1). More learned skills also improve the latter through stronger experience effects (arrow 2).

Animals with role models can rapidly learn and generalize innovative skills

1. Challenges facing a (social) organism

   Cultural memory, reputation, transitive inference

2. Pressures on (social) brain development

   Cost-benefit of a larger brain, social brain hypothesis, foraging brain

3. Course expectations

   Reflections, summaries, final synthesis

stolkarjen.github.io/social-intelligence

Website

- ## Tuesdays: Weekly reading reflections
  Present one of the papers randomly assigned in class (alone or in groups)

  a) What the researchers did

  b) What they found

  c) Bigger implications in the context of the other papers

  Prepare one or more questions based on all papers and ask them in class

- ## Thursdays: Weekly research summaries
  Find and discuss a recent empirical paper related to the topic of the week (upload one page summary by *Wednesday 5pm* – Discussions tab)

- ## End of term: Final presentations and paper
  Hypothetical empirical study with cross-domain relevance (up to 5 slides, ten pages report due on the Wednesday of week 10)

Deliverables

- The Evolving Social Brain