

It's that simple?

Animal Communication



1. Collective decisions

Bee nest-site selection, amoeba transportation

2. Primate communication

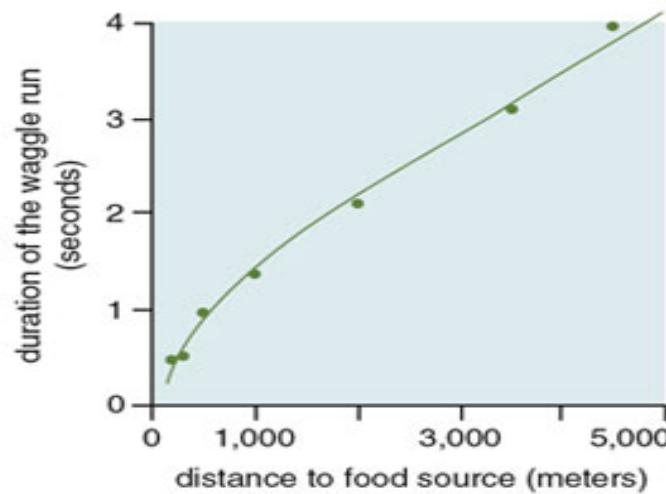
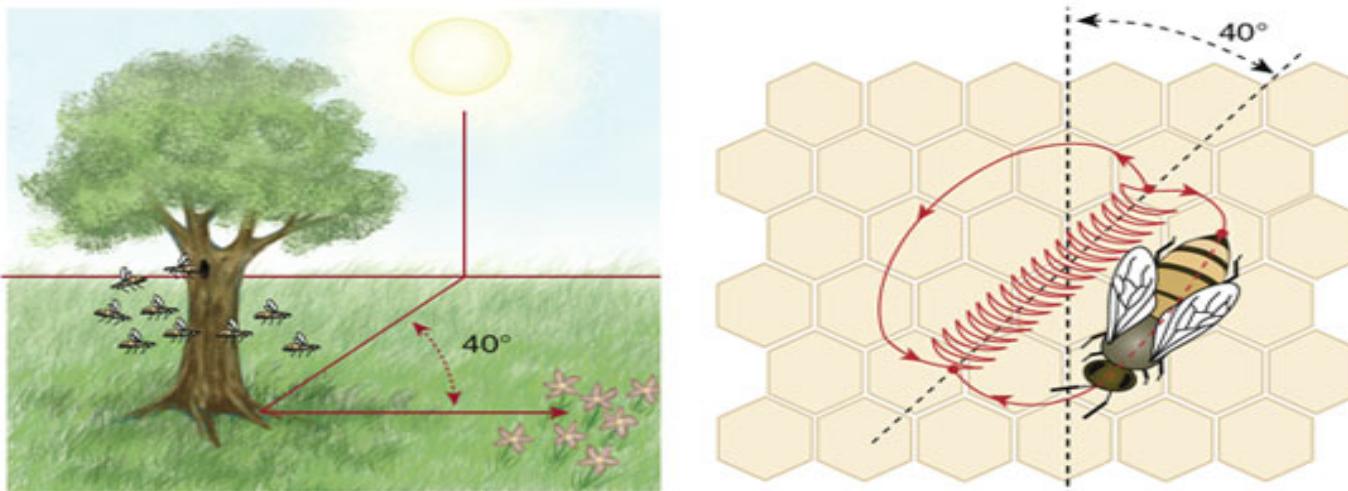
Monkey talk, alert hoos

3. Referential flexibility

Yo, Nicaraguan Sign Language, conceptual alignment



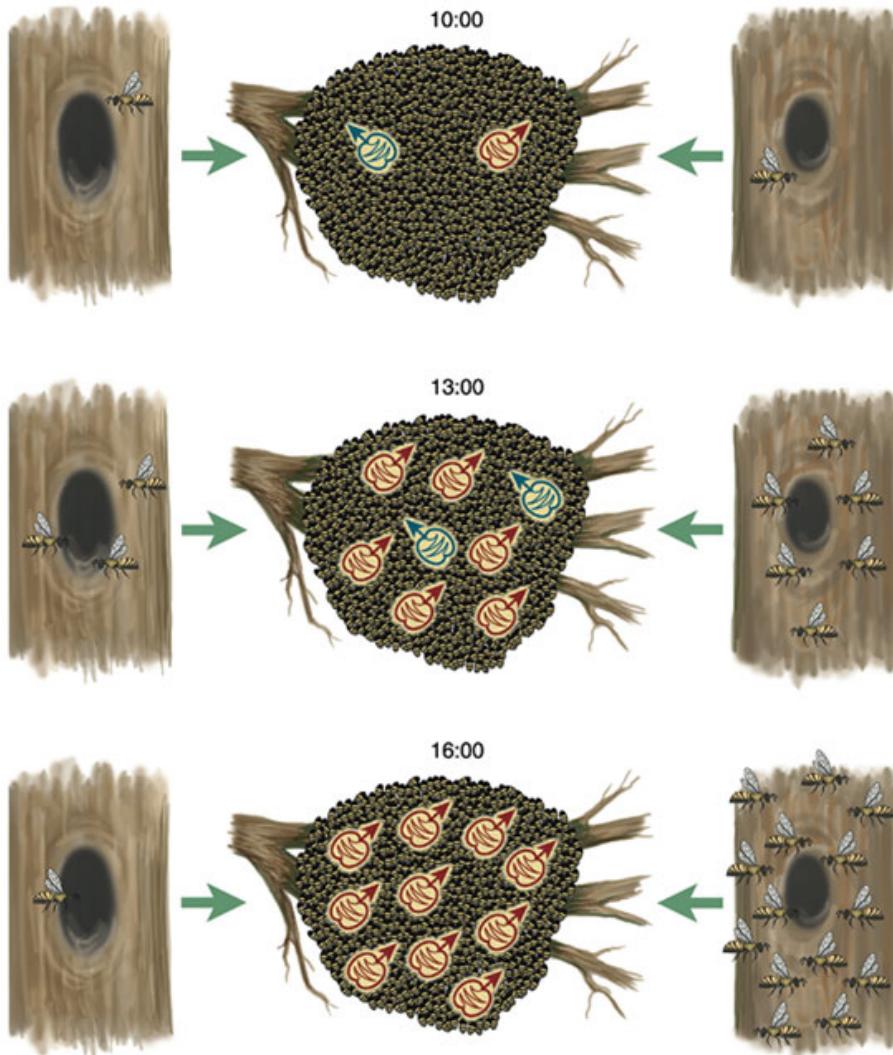
Bee waggle dances



Encoding/decoding polar coordinates of food sources



Bee quorum sensing



- i) individual group members only communicate locally
- ii) no direct comparison of nest sites by single individuals is necessary
- iii) all information contributes to the decision outcome, but no single individual has to ‘hold’ or ‘compare’ the total available information

Thomas D. Seeley · P. Kirk Visscher

Quorum sensing during nest-site selection by honeybee swarms

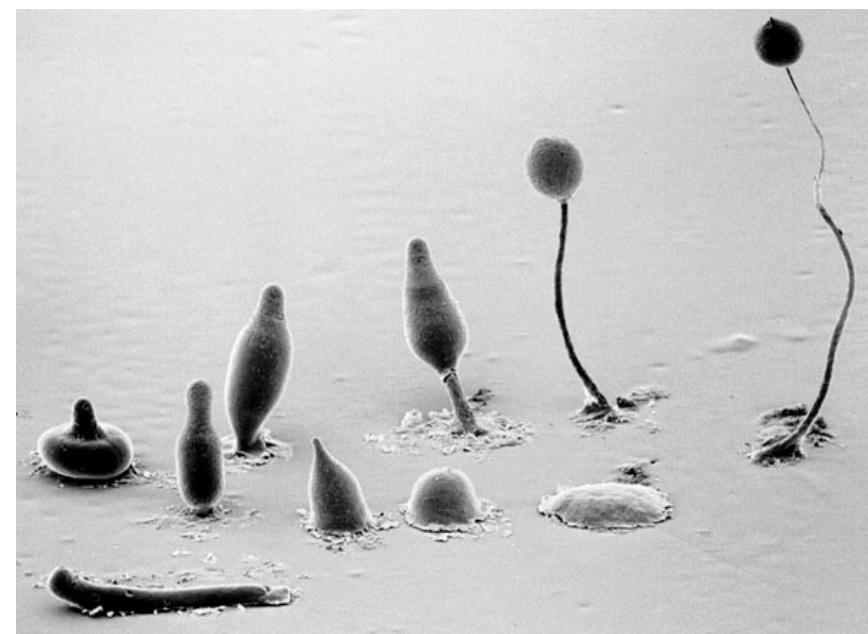
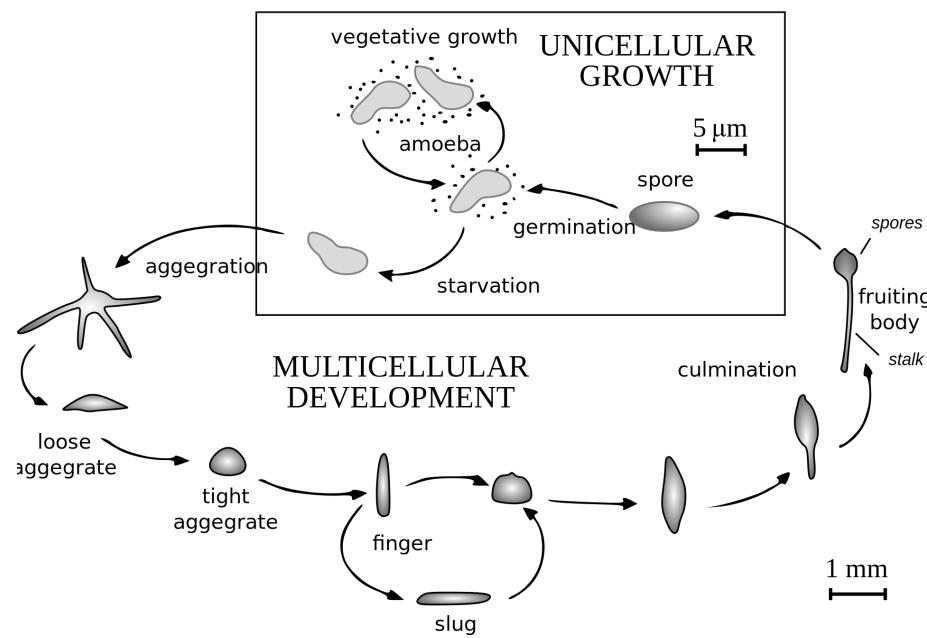
Collective decisions by a population of detectors

Dictyostelium discoideum



Amoeba, as unicellular organisms, they cannot travel far on their own

Lifecycle of *D. discoideum*



Population genetics such that specialized cells can form a multicellular organism

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Vervet monkey alarm calls



A blurry, out-of-focus photograph of a vervet monkey's head and shoulders, positioned in the upper portion of the slide. The monkey has a dark cap and a light-colored face. It appears to be looking towards the right side of the frame.

Can Monkeys Talk?

First gleanings of what may eventually become human language



Baboon contact calls

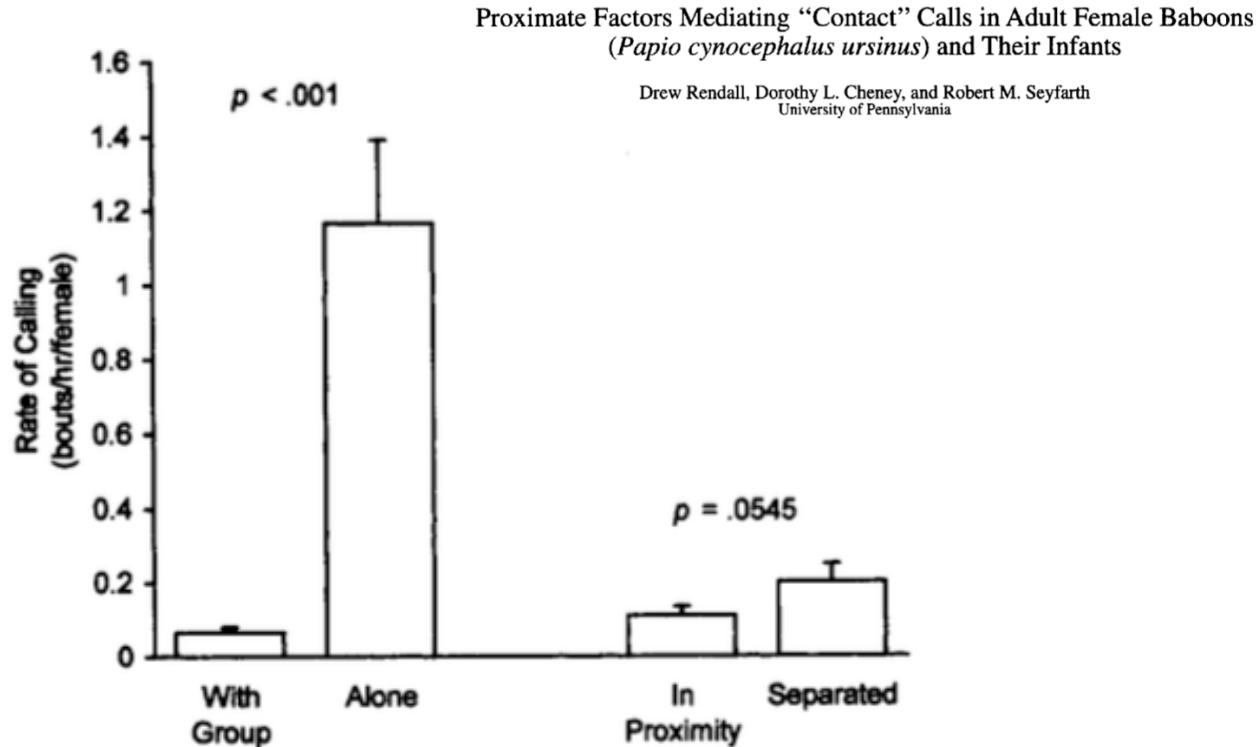


Figure 2. The mean (+SE) rate of calling by adult female baboons as a function of their proximity to the group (with the group or alone) and to their infants (in proximity or separated).

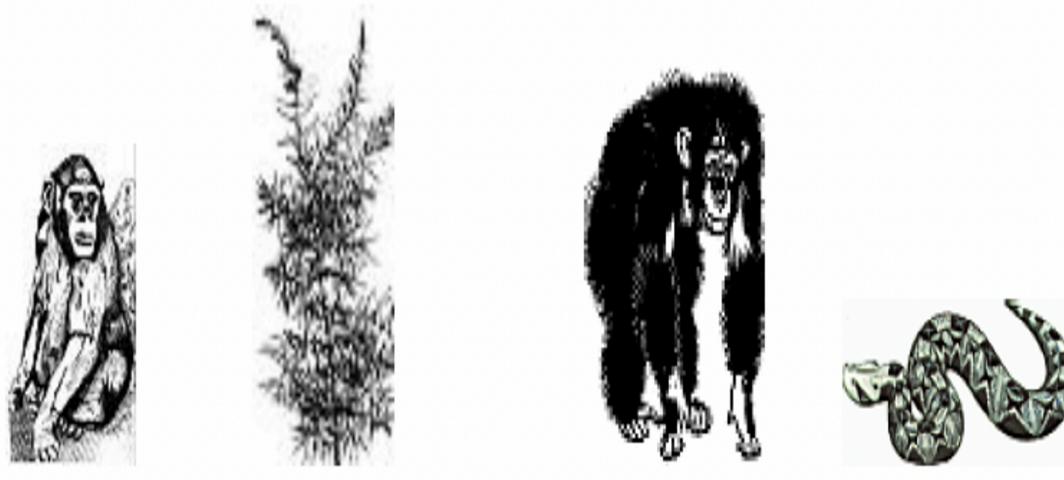
Contact calls not primarily for the benefit of others



Chimpanzee alert hoos

Wild Chimpanzees Inform
Ignorant Group Members of Danger

Catherine Crockford,^{1,2,4,*} Roman M. Wittig,^{1,2,3,4,*}
Roger Mundry,³ and Klaus Zuberbühler^{1,2}



receiver

vegetation may or may
not block subjects' view
of receivers

subject

snake model

Chimps monitor information available to others and communicate accordingly



Chimpanzee alert hoos



Figure 1. Influence of Receiver Information on Subjects' Likelihood to Emit Alert Hoos upon Seeing the Snake Model

Chimps monitor information available to others and communicate accordingly

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Referential flexibility

DARTMOUTH

Yo is a single-tap zero-character communication tool.

Yo is everything and anything, it all depends on you, the recipient and the time of the Yo.

Wanna say "Good morning"? just Yo.

Wanna say "Baby I'm thinking about you"? - Yo.

"Done with my meeting, come by my office" - Yo.

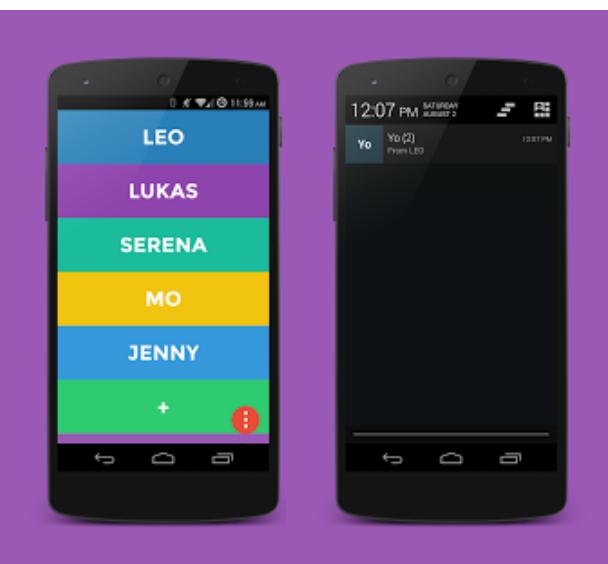
"Are you there?" - Yo

You determine the context.

We don't want your Email, Facebook, or Twitter. There is no search, no nothing. Just Yo.

Open the app, tap on a friend, that's it. The possibilities are endless!

It's that simple, Yo.



www.justyo.co — Yo — It's that simple.

Yo — It's that simple.

Postvak IN (439) - a.stolk8@gmail.com - Gmail

YO

It's that simple.

Download it from [App Store](#) Download it from [Google Play](#) Available at [amazon](#) Download from [Windows Phone Store](#)

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The simplest and most efficient communication tool in the world



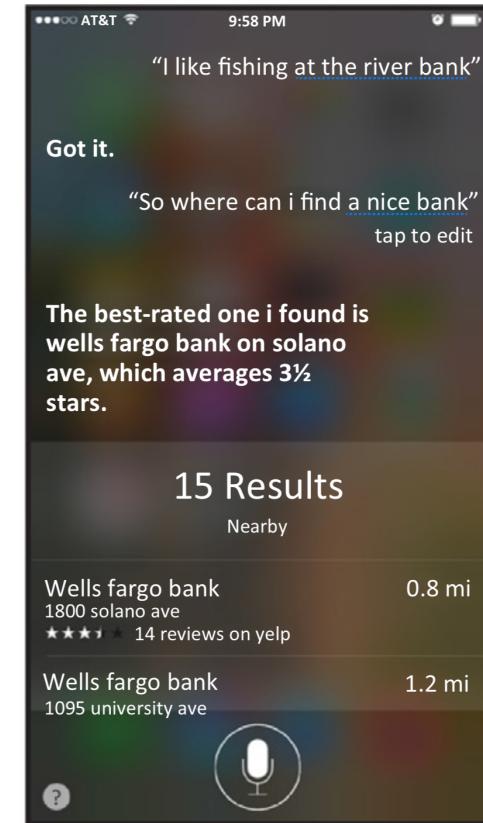
How did people make up words when there weren't words before?



People can rapidly build a new communication system if they need to



The BBC News Technology website features a red header with the BBC logo and navigation links for News, Sport, Weather, Capital, Culture, and Auto. Below the header, the word "NEWS" is prominently displayed in large white letters, followed by "TECHNOLOGY". A sub-navigation bar includes Home, UK, Africa, Asia, Europe, Latin America, Mid-East, US & Canada, Business, Health, and Sci/Envir. The main headline reads "Human gestures perplex Asimo, Honda museum robot guide". A sub-headline states: "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 text continues: "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." A caption below a photo of Asimo interacting with visitors says: "Asimo is reported to have had problems identifying arm gestures". The photo is attributed to GETTY IMAGES.



A screenshot of a mobile phone screen shows a messaging interface. The top status bar indicates it's 9:58 PM, connected to AT&T, with battery level. The message history includes:

- "I like fishing at the river bank"
- "Got it."
- "So where can i find a nice bank" (with a "tap to edit" placeholder)
- The best-rated one i found is wells fargo bank on solano ave, which averages 3½ stars.

Below the messages, a search result section titled "15 Results" shows nearby locations:

Location	Distance
Wells fargo bank 1800 solano ave ★★★☆☆ 14 reviews on yelp	0.8 mi
Wells fargo bank 1095 university ave	1.2 mi

At the bottom right is a microphone icon with a question mark inside.

Fixed signal-meaning mappings don't get you far in human interactions

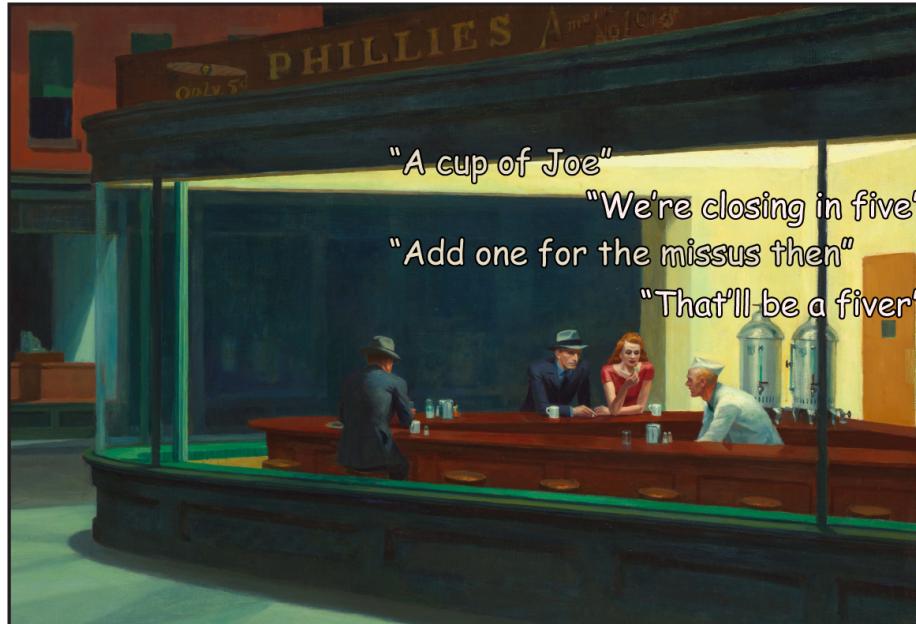


Referential flexibility

DARTMOUTH

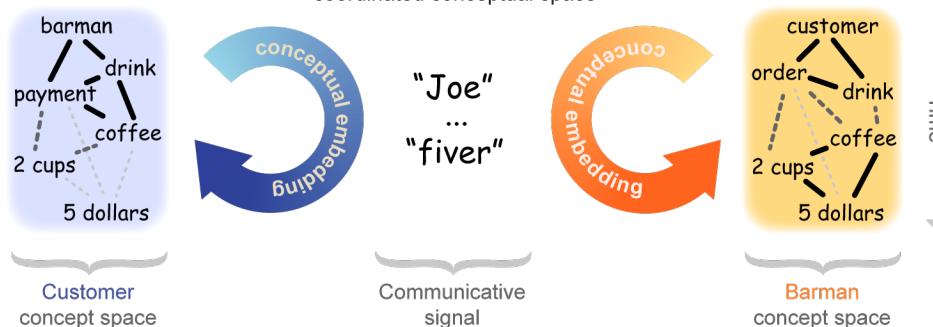
Signal-centered frameworks

Meaning is a property of the signal



Conceptual alignment framework

Meaning is a property of a mutually coordinated conceptual space



Conceptual Alignment:
How Brains Achieve Mutual
Understanding

Arjen Stolk,^{1,*} Lennart Verhagen,² and Ivan Toni³

- Collective decisions might not need a population consensus or that each individual has access to all available information
- Human communication involves (much) more than encoding/decoding signals. Its (extreme) referential flexibility remains largely unaccounted for

- Human Communication