

It's that simple?

Animal Communication



1. Collective decisions

Bee nest-site selection, amoeba transportation

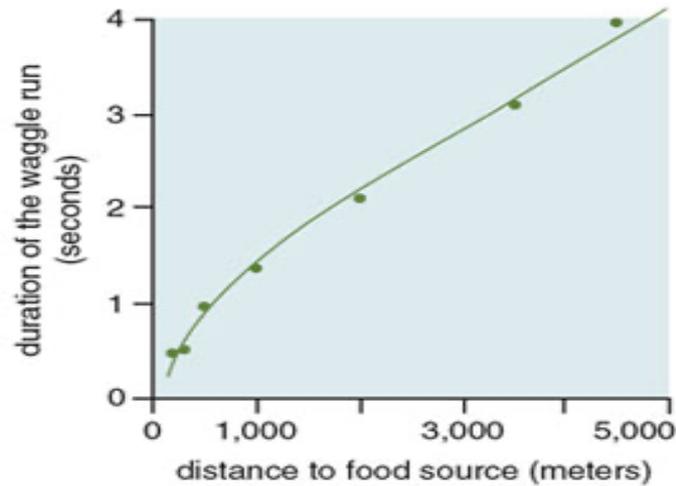
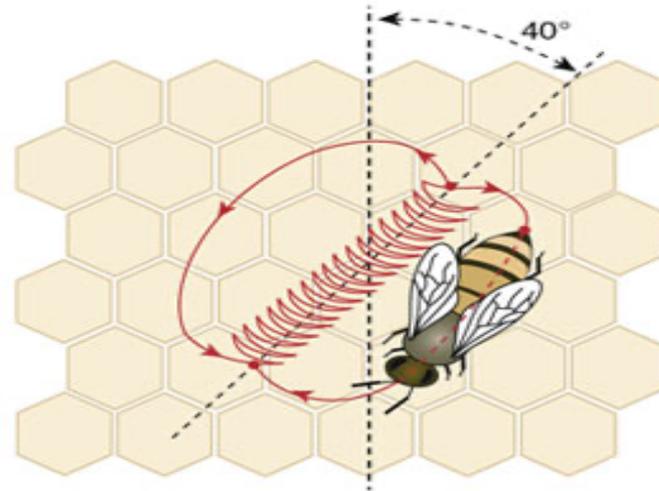
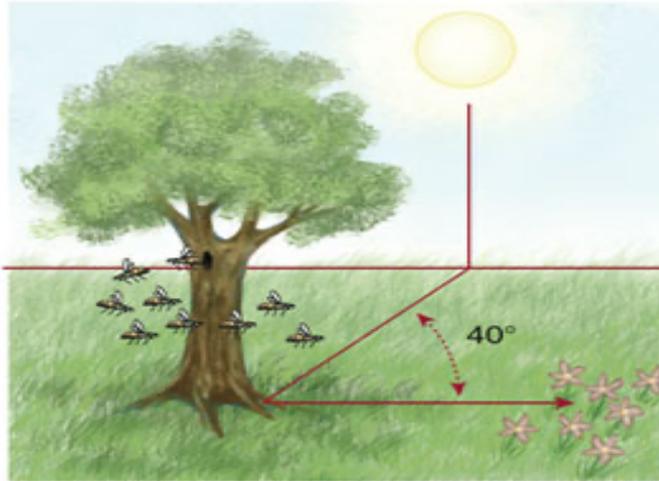
2. Primate communication

Monkey talk, alert hoos

3. Referential flexibility

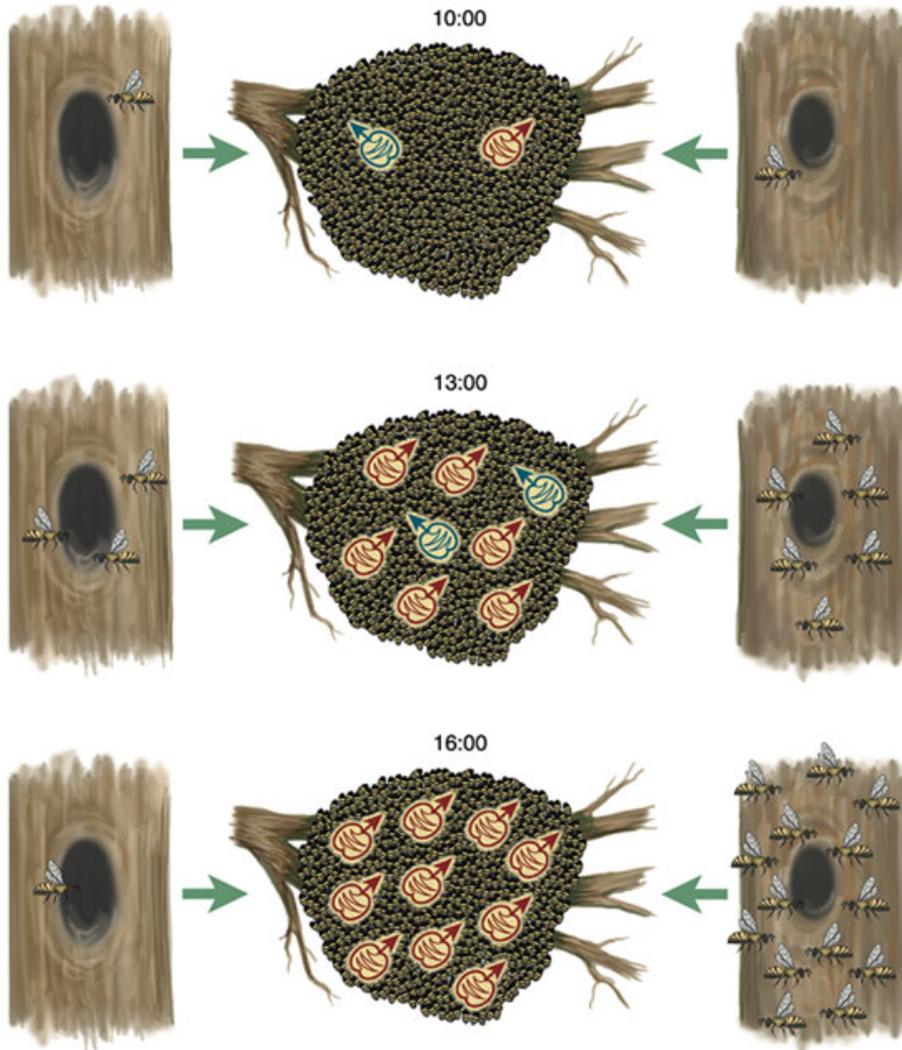
Yo, Nicaraguan Sign Language, conceptual alignment

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

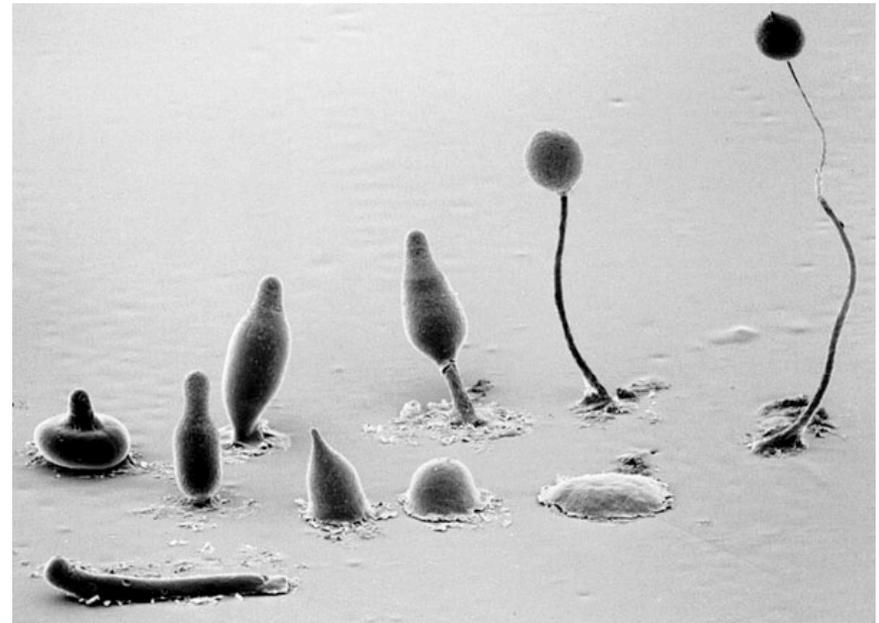
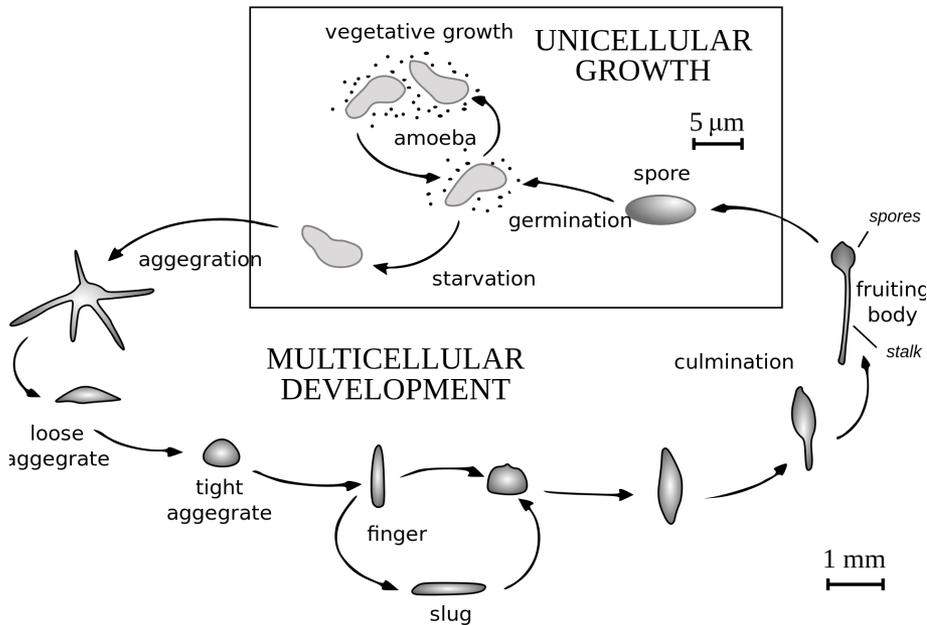
Collective decisions by a population of detectors

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



Can Monkeys Talk?

First gleanings of what may eventually become human language

Baboon contact calls

Proximate Factors Mediating “Contact” Calls in Adult Female Baboons
(*Papio cynocephalus ursinus*) and Their Infants

Drew Rendall, Dorothy L. Cheney, and Robert M. Seyfarth
University of Pennsylvania

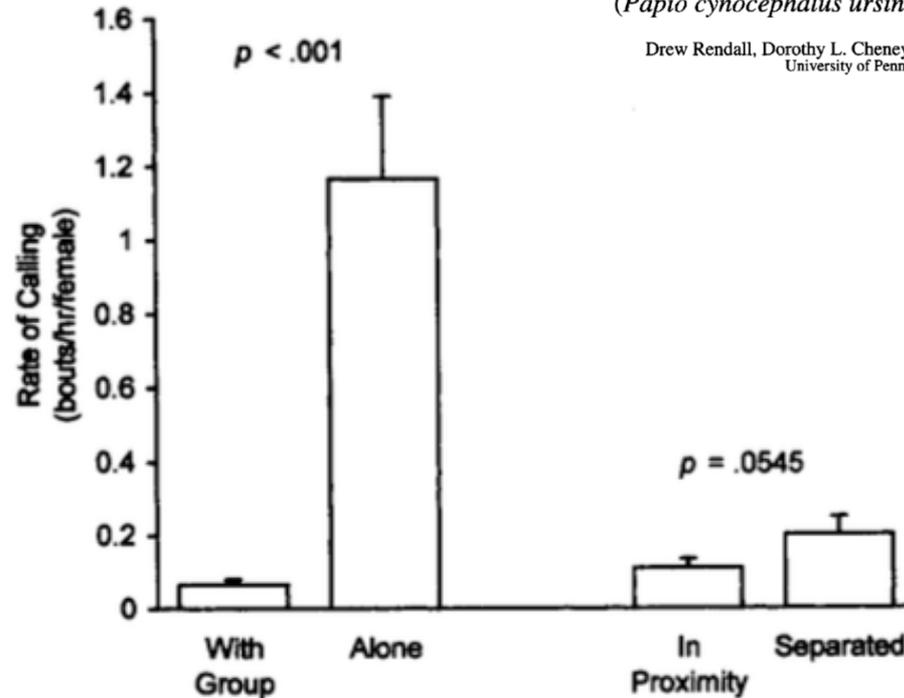


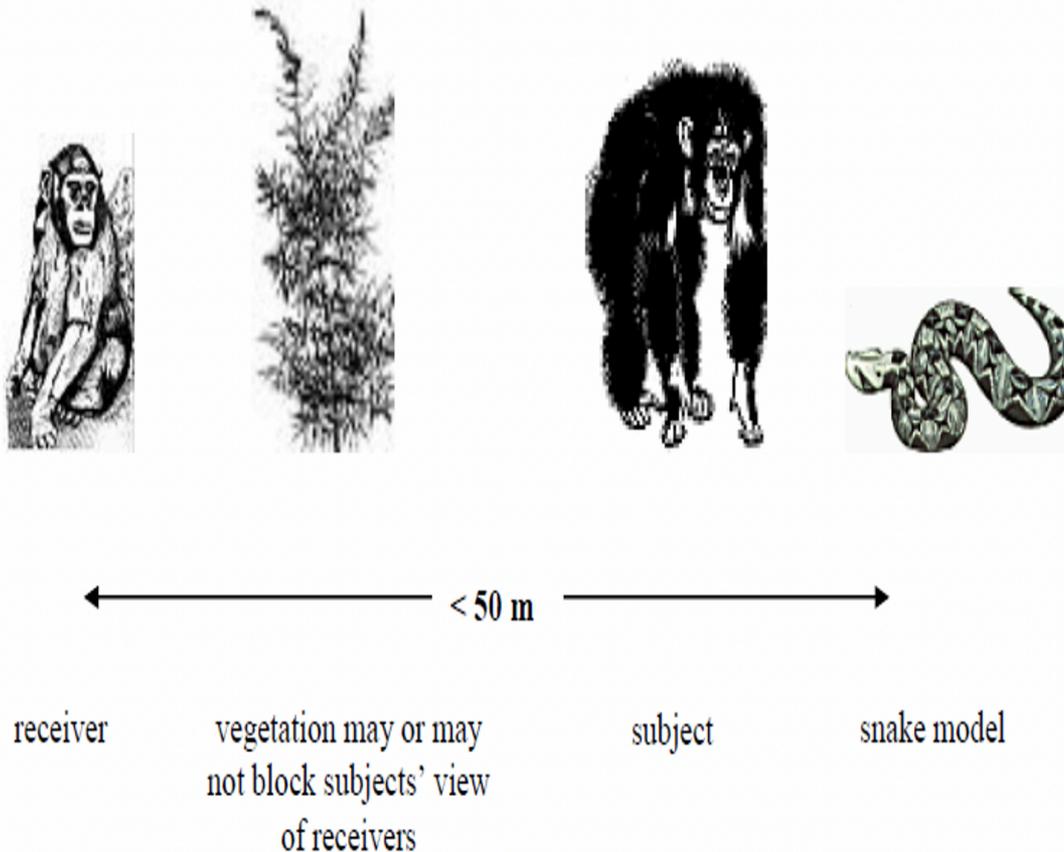
Figure 2. The mean (+SE) rate of calling by adult female baboons as a function of their proximity to the group (with the group or alone) and to their infants (in proximity or separated).

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}



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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Yo, Nicaraguan Sign Language, conceptual alignment

Referential flexibility

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.

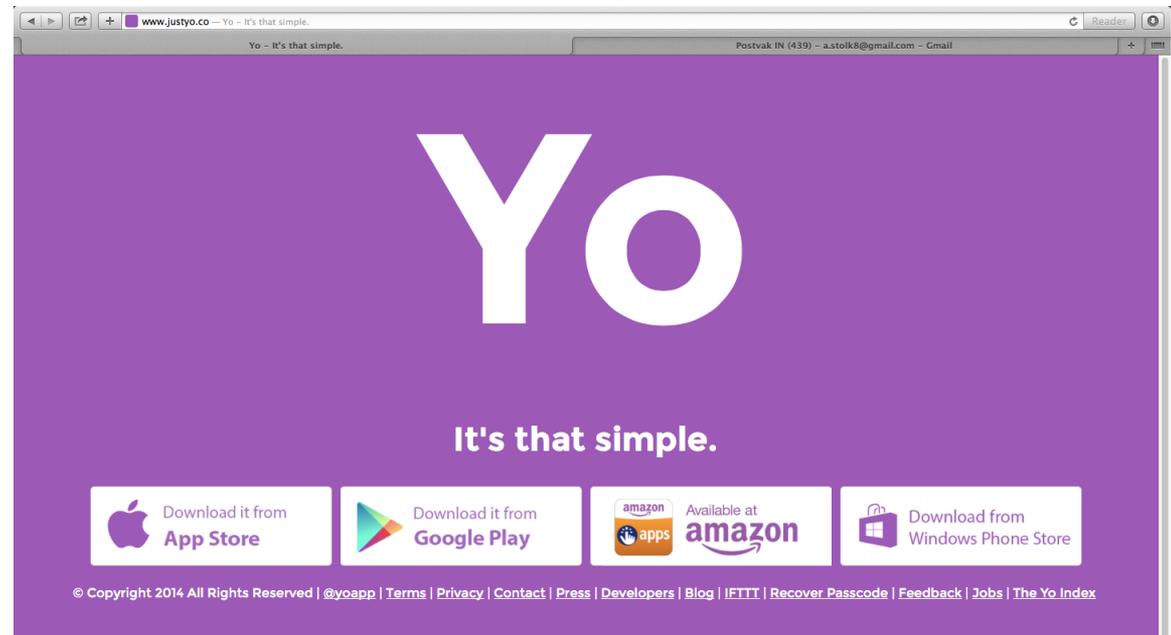
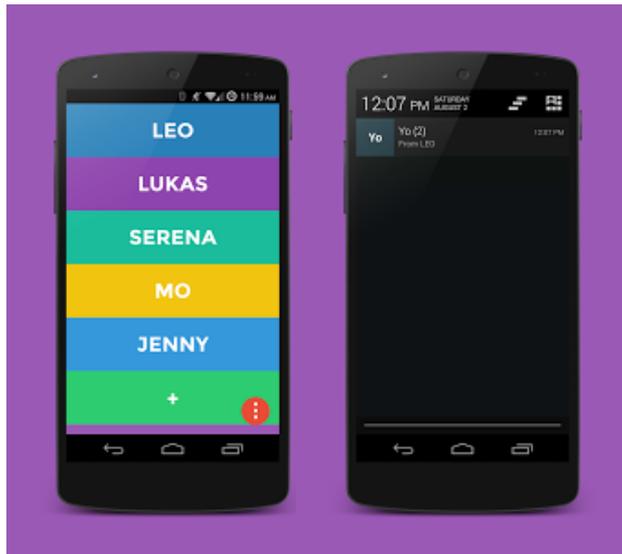
"Are you there?" - Yo

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.



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

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5 July 2013 Last updated at 12:24 GMT

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.

Asimo is reported to have had problems identifying arm gestures

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

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

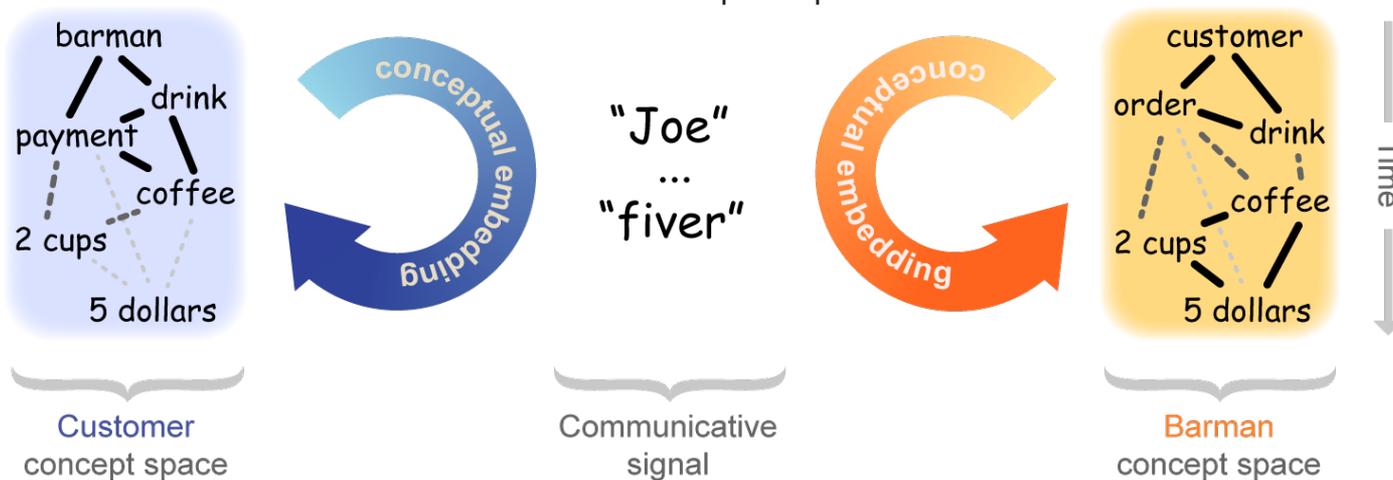
Signal-centered frameworks

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

- 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