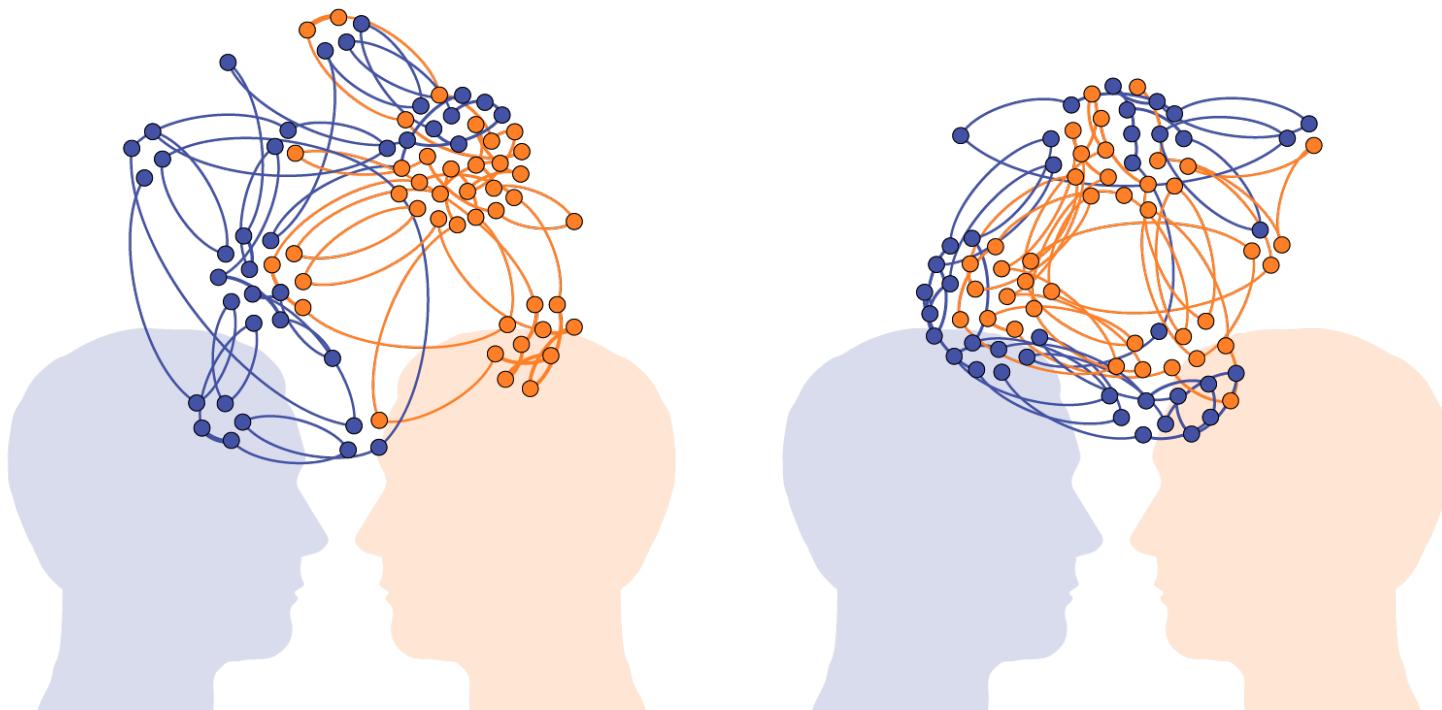




We're in this together?

Communication in Context



1. What is in a signal?

Ray-cat solution, types vs. tokens

2. What counts as context?

Disambiguation, repair

3. What do people construct?

Joint epistemic engineering



How to communicate with

- Tourists
- Preverbal infants
- Aliens
- ... other humans 10,000 years from now?



Extreme flexibility as a core property of human communication



Ray-cat solution



Designing an intrinsically unambiguous message is hard, if not impossible



Types vs. tokens

Types

Human communication as information transfer

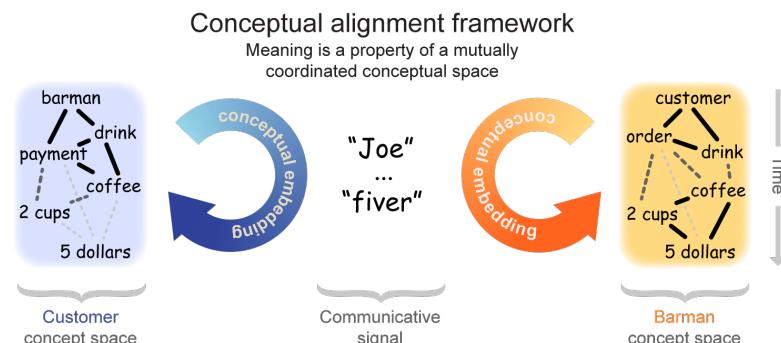
- Signals have *stereotyped* and *publicly invariant* consequences
- People (eventually) learn the same set of signals and referential mappings



Tokens

Human communication as intrinsically ambiguous

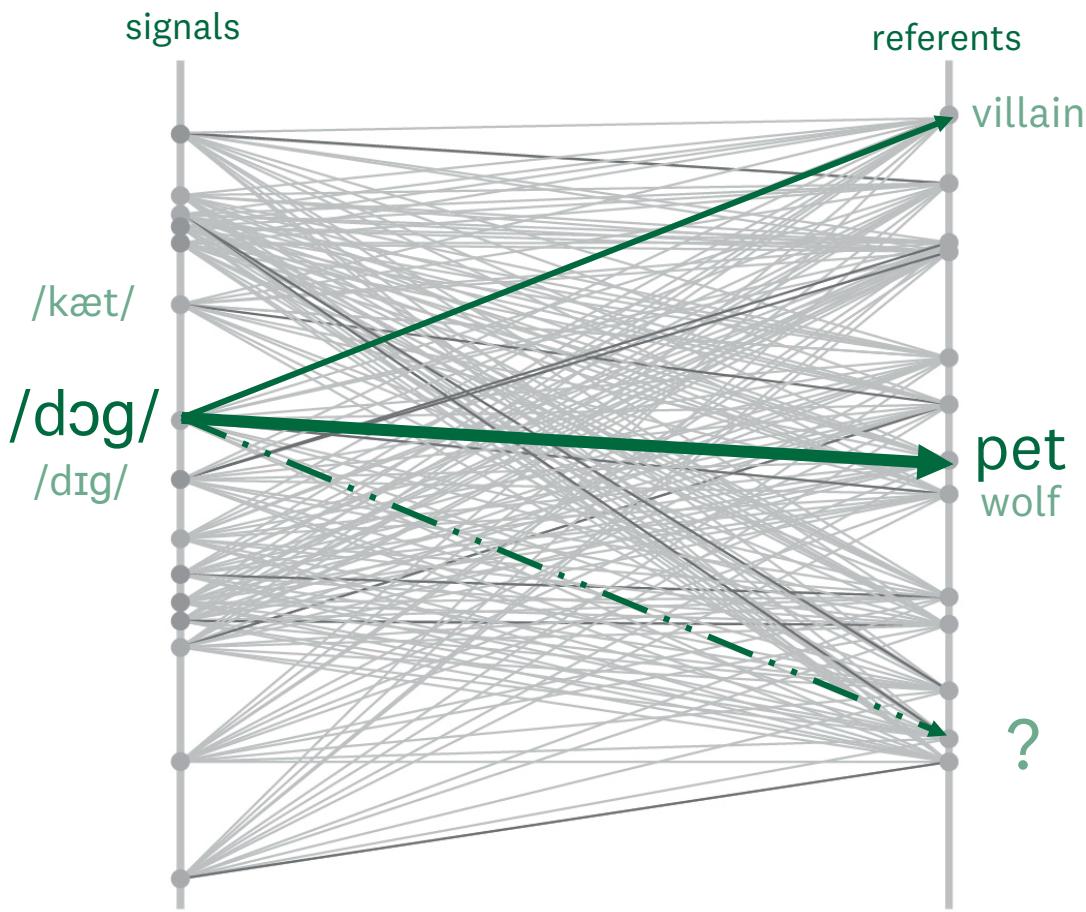
- Signals are referentially contingent on the *current circumstances*
- People (jointly) develop a situated source of interpretational constraints





Signal-referent mappings

- Shannon (1948)
fixed mappings, shared between individuals
- Grice (1957)
deviations possible if you *mark them as such*
- Peirce (1931)
mappings are subject to *interpretation*





Fixed-code fallacy

- We tend to confuse regularities in the signal with regularities in the content. The sound /dɒg/ is a relatively invariant percept that maps onto a highly variable, high-dimensional conceptual space in people's minds
- Perfect symmetry does not exist, such that two people rarely, if ever, share the same default set of candidate meanings when interpreting a signal
- People need context, but *what counts as context?*

"There is not much dependence to be placed upon these Constructions that we put upon Signs and Words, which we understand but very little of, & at best can only give a probable Guess at their Meaning."

-- David Samwell, ship surgeon on James Cook's HMS Discovery, Hawaii, 1779

No two people share the same experience and expertise

1. What is in a signal?

Ray-cat solution, types vs. tokens

2. What counts as context?

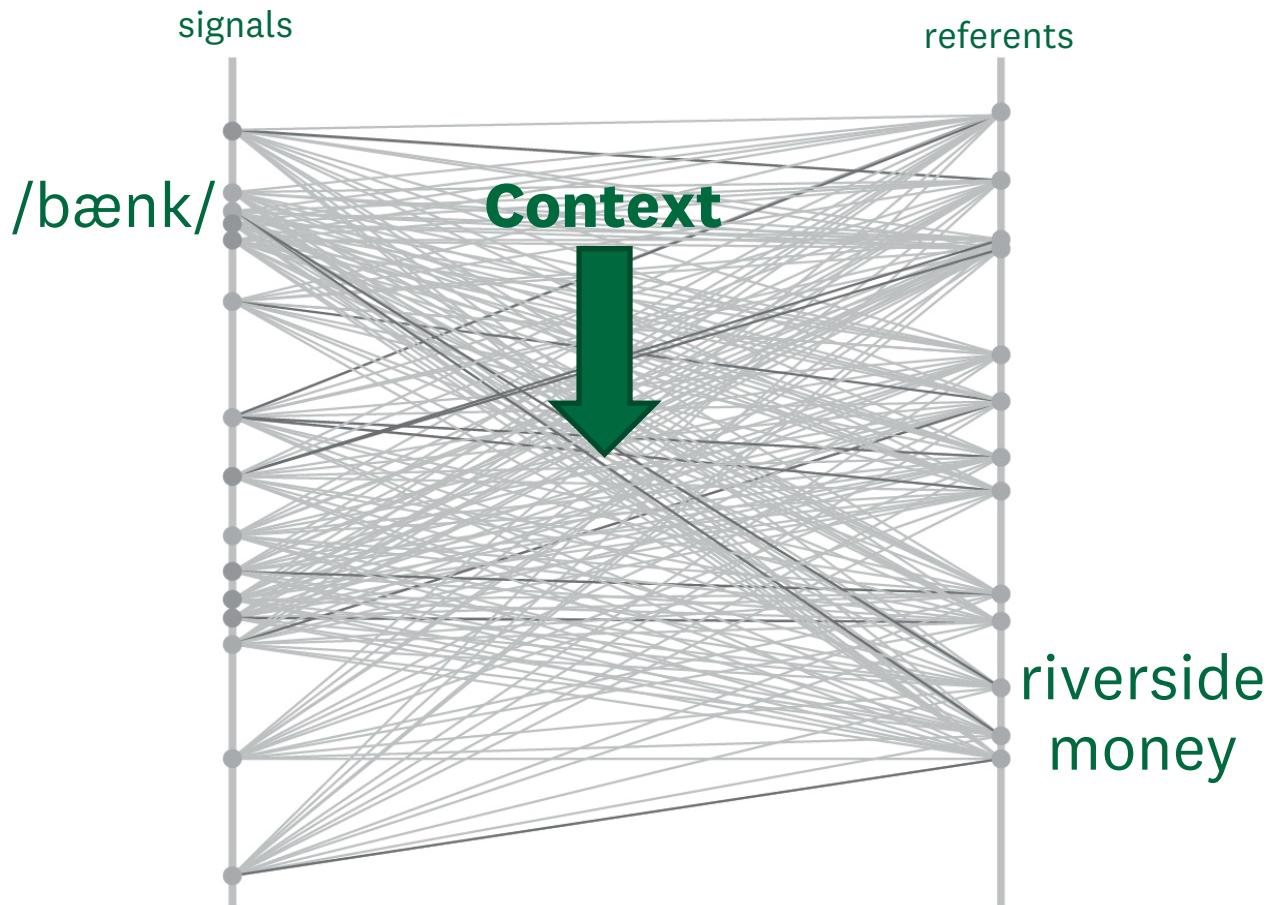
Disambiguation, repair

3. What do people construct?

Joint epistemic engineering



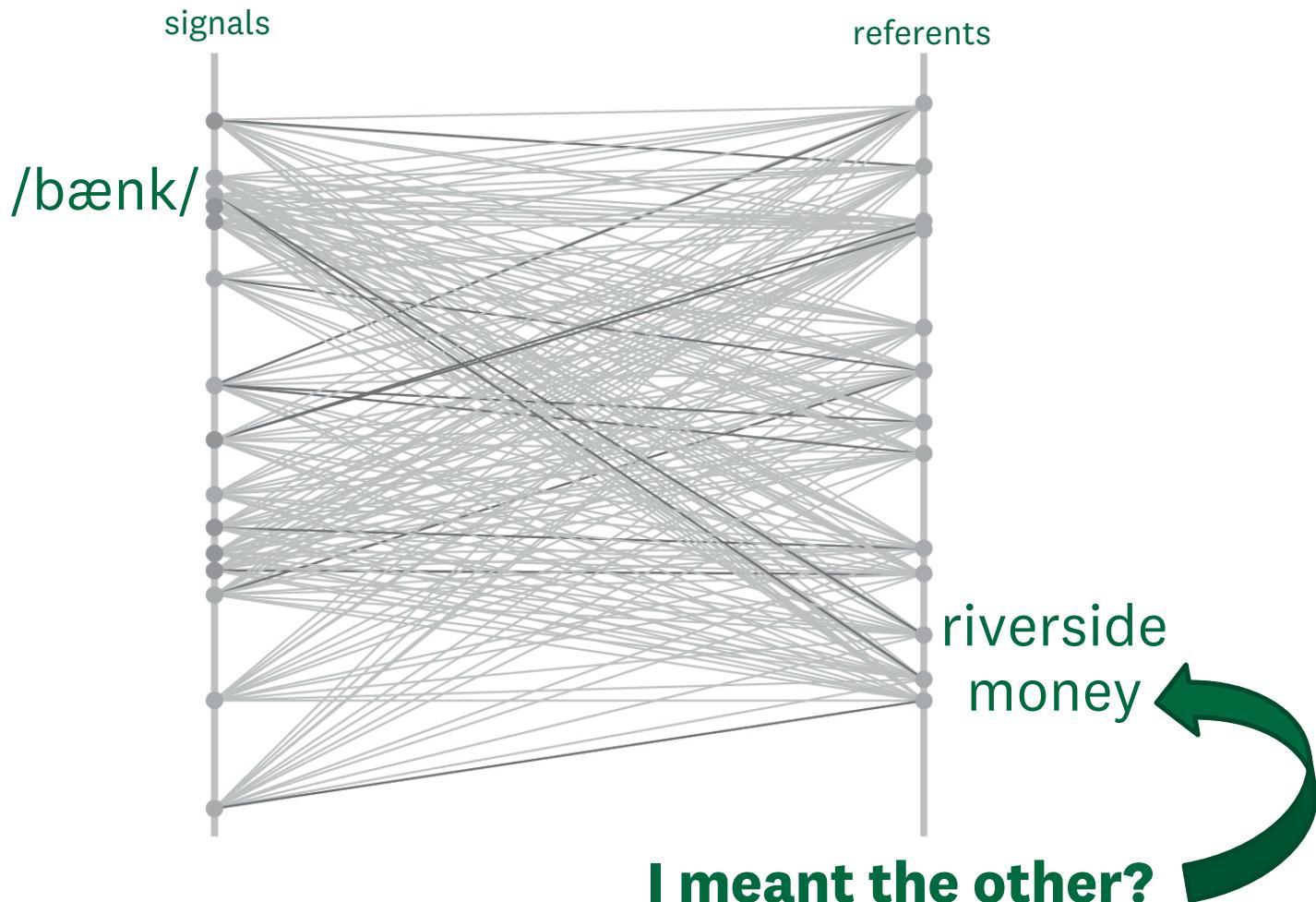
Disambiguation



Context is as ambiguous as the signal being disambiguated



Repair



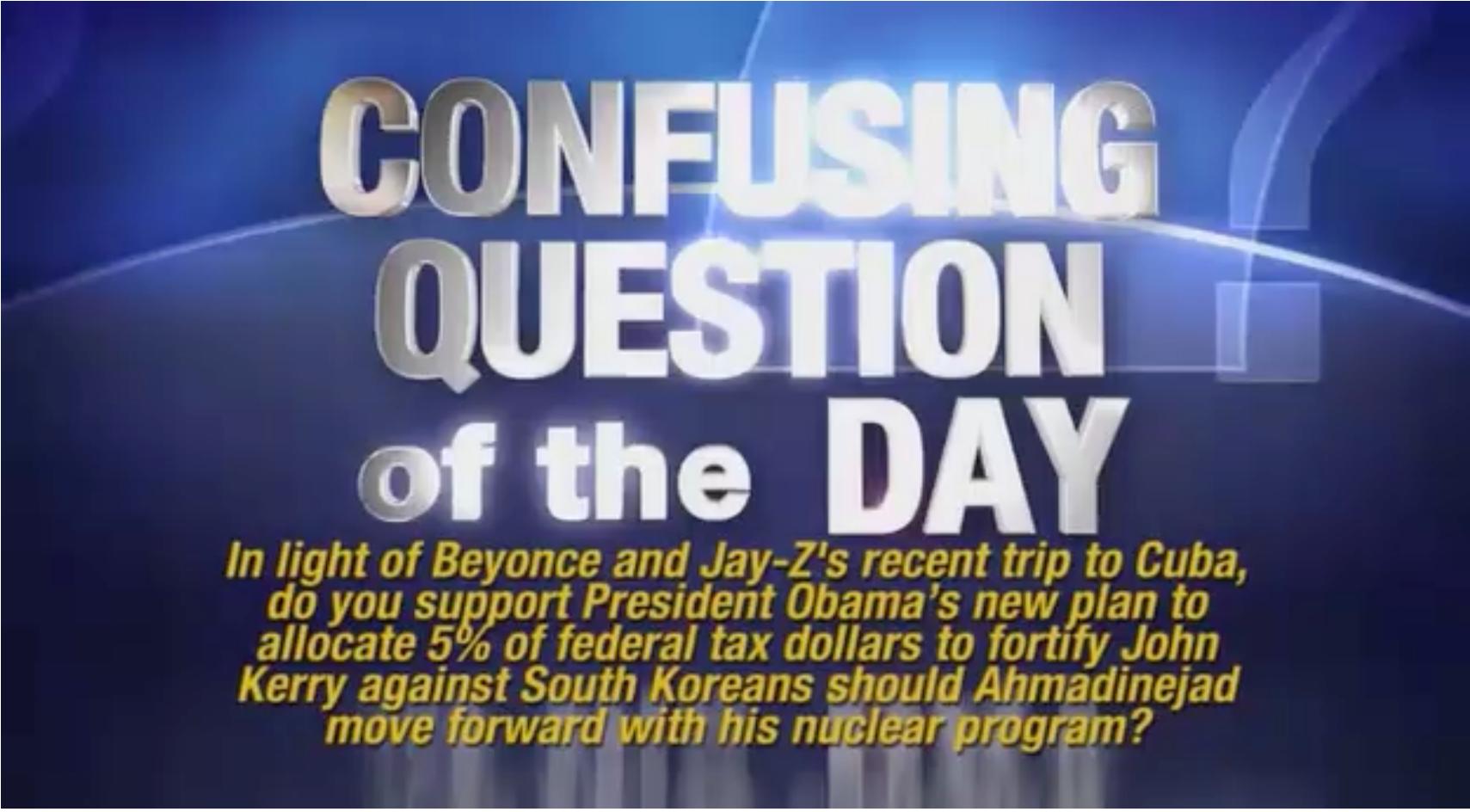
Repair moves the problem into a secondary channel as complex as the original



Repair avoidance

Repair Avoidance: When Faithful Informational Exchanges Don't Matter That Much  

Bruno Galantucci,^{a,b}  Benjamin Langstein,^a Eliyahu Spivack,^a Nathaniel Paley^a



CONFUSING QUESTION of the DAY

In light of Beyonce and Jay-Z's recent trip to Cuba, do you support President Obama's new plan to allocate 5% of federal tax dollars to fortify John Kerry against South Koreans should Ahmadinejad move forward with his nuclear program?

People may forego repair of even critical misunderstandings

1. What is in a signal?

Ray-cat solution, types vs. tokens

2. What counts as context?

Disambiguation, repair

3. What do people construct?

Joint epistemic engineering



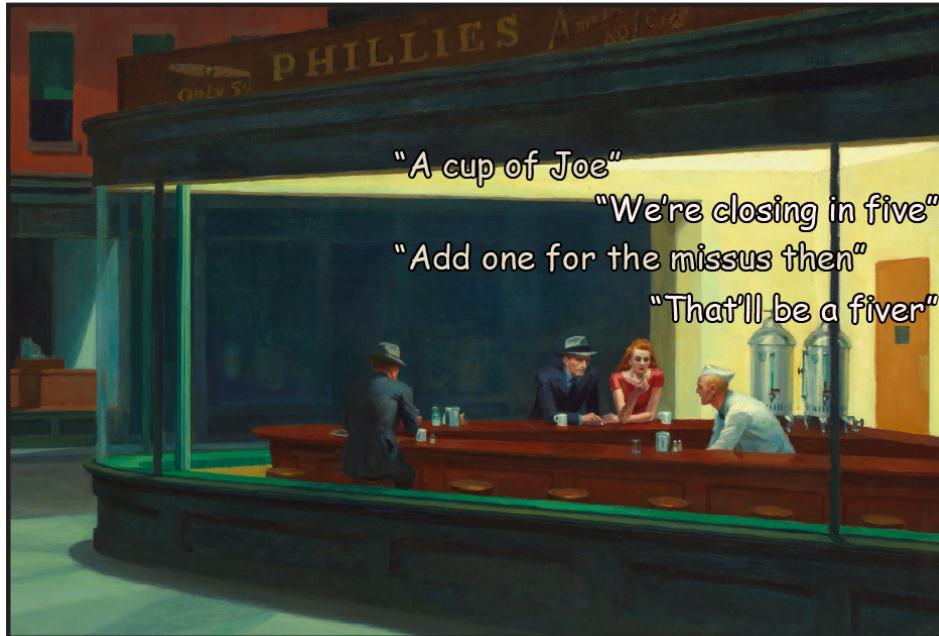
Joint epistemic engineering

- How do people rapidly find relevant context for each other's ambiguous signals, despite interpersonal asymmetries?
- A large portion of the context of use of a signal might be constructed on-the-fly by people
- People use *multi-layered signals* as a tool to simultaneously probe, align, and shape their conceptual structures of the interaction:
 - Shannon-signal: targets stereotyped associations
 - Grice-signal: marks its own communicative value
 - Peirce-signal: hints at its current contextual frame

Context is constructed on-the-fly by members of the interaction



Engineering a bar conversation

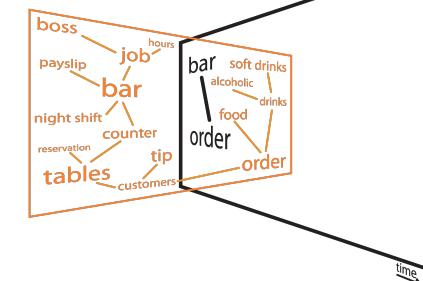
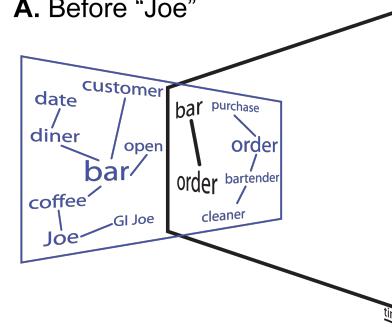


Even before voicing “A cup of Joe”, the customer would need a build conceptual scaffold that approximates the scaffold presumably used by the bartender (black structures)

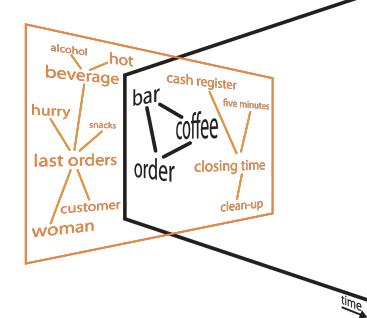
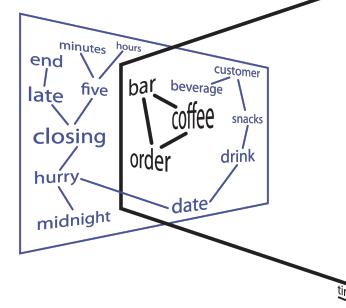
Besides placing an order (*a Shannon-signal*), the customer’s opening statement doubles as a tacit request to probe the conceptual scaffold shared with his interlocutor (*a Peirce-signal*), and to be recognized as such (*a Grice-signal*)

Besides conveying recognition of communicative intent (*a Grice-signal*) and additional details about the bar (*a Shannon-signal*), the bartender’s disclosure of the approaching closing time also operates as a tacit invitation to negotiate the customer’s current request or make another (*a Peirce-signal*)

A. Before “Joe”



B. After “closing in five”





Engineering a bar conversation

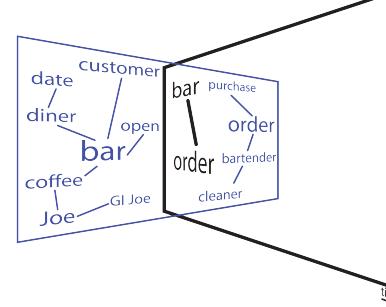


By considering background knowledge (blue/orange structures) in light of the current conceptual frame, interlocutors can reference a wealth of presumably shared or readily shareable semantic content for integration into their conceptual frame

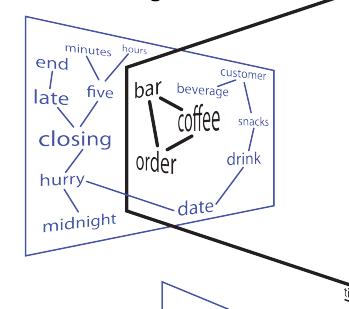
For instance, the bartender's "That'll be a fiver" references background knowledge (concept of payment) he expects his interlocutor to also consider in the context of their current conceptual frame. That reference would have been out of place in other moments of the exchange, e.g., before the customer's order

By exploiting their jointly assembled conceptual space, the interlocutors can even generate plausible hypotheses about novel signals, as when a customer hears "fiver" for the first time

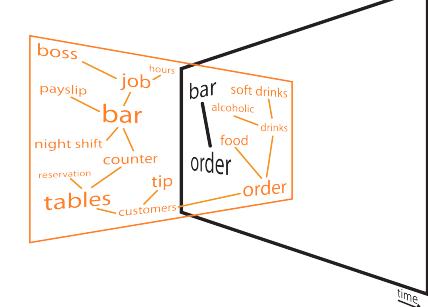
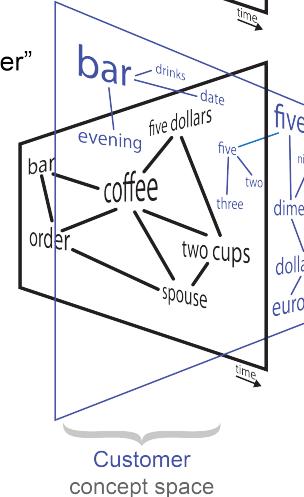
A. Before "Joe"



B. After "closing in five"



C. After "fiver"



Bartender
concept space



- Signals are referentially contingent on the current communicative circumstances, i.e. tokens rather than types
- Communicators use multi-layered signals to jointly construct a shared conceptual space
- The space is computed from information of the ongoing interaction and provides a scaffold for contextualizing background knowledge as well as understanding novel signals

- Final class: Putting It All Together
- *Exam Questions due next day of class*

Bonus: Job interview in the MRI scanner

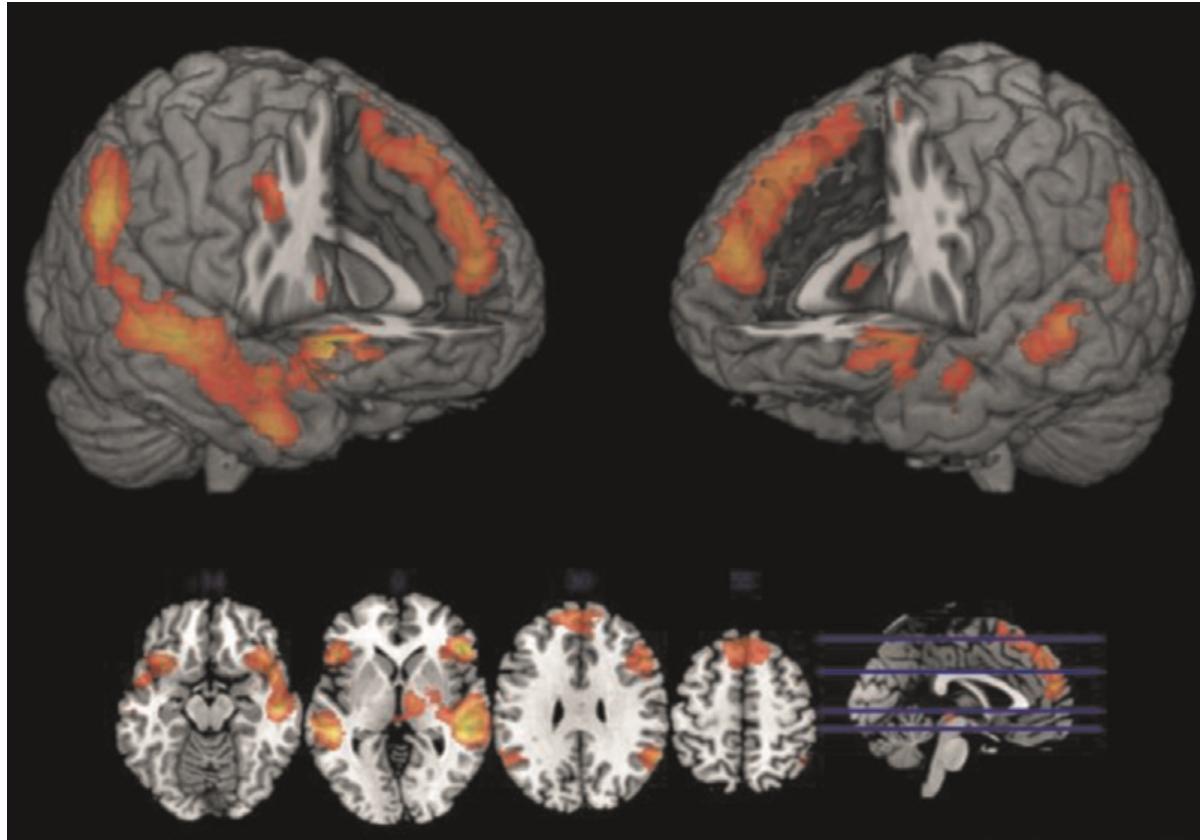
DARTMOUTH

Q: "Are you fluent in any foreign languages?"

R: "I am planning to take a language course this summer" (indirect reply)

Q: "What are your plans after graduation?"

R: "I am planning to take a language course this summer" (direct reply)



A job interview in the MRI scanner: How does indirectness affect addressees and overhearers?

Jana Bašnáková ^{a,b,*}, Jos van Berkum ^d, Kirsten Weber ^{a,e}, Peter Hagoort ^{a,c}

Face-saving indirect replies (Peirce-signals) recruit frontotemporal regions