**The Question at Hand:**

How do we coordinate with and make inferences about the contents of other minds given that they are opaque to direct inquiry?

What processes and activities depend on inferring the contexts of other minds, and how do they relate?

How can we create a formal theory that describes these processes?

In general: how do we communicate and coordinate given that we do not have direct access to the contents of others’ beliefs?

We learn language through contingencies. We use language based on contingencies. Contingencies enable fluid and deep inference about the interlocutor at all points in a discourse, which is something that is not possible from an information-theoretic perspective. More generally, contingency relations enable fluid and deep inference about the mental states, goals, and probable behavior of a partner at all points in a coordination game.

Lots of current literature in linguistics and cognitive science points to the heavy context dependence of concepts and categories and word meanings. Classical models of human communication do not handle this so well for a variety of reasons (explain this). The purpose of this paper is to introduce a framework for the analysis of communication that captures our modern understanding of how humans communicate in a precise formal manner.

Prediction, interlocutor differences, coordination,

**References**:

* On the Same Wavelength: Predictable Language Enhances Speaker–Listener Brain-to-Brain Synchrony in Posterior Superior Temporal Gyrus
  + Suzanne Dikker, Lauren J. Silbert, Uri Hasson, and Jason D. Zevin
  + “Here, we used an intersubject correlation approach in fMRI to test the hypothesis that a listener's ability to predict a speaker's utterance increases such neural coupling between speakers and listeners.”
  + <http://www.jneurosci.org/content/34/18/6267.full>
* Andy Clark 2013 BBS Article
  + Argues that brains are essentially prediction machines
* Ad Hoc Cognition Article
  + Argues that concepts are constructed online
* RSA work
  + Demonstrates that speaker meaning comes from theory of mind type inferences about the speaker
* Herb Clark common ground work
* Alva Noe’s book *Action and Perception*
  + Sensorimotor contingencies for visual perception are similar to the contingencies used to understand other minds
* Meltzoff “Like Me”
  + Discusses how neural mirroring networks facilitate recognition of “self-other equivalencies” and therefore enable social cognition
  + Should help to argue for the similarity basis for generalization bias
* Lewis *Convention*
* Turing test paper

**Terms to Define:**

Contingency: The relation between a state (which includes input) of a system and the next state of that system. This is often expressed in simplified form. It is the coin of the epistemic realm.

Utterance: A unit of language treated as modular.

State:

Subjective system: A system which has state, input and output, and of which the state can only be read from the perspective of the system.

Generalization:

Causality:

Prediction:

Coordination:

Communication:

**A list of the scenarios that will be explored:**

* Chess game
* Serving at Chipotle
* Doctor’s office visit
* Turing test

**What I hope to explore in each case study/scenario and why they are different:**

**What I want to learn from each case study:**

**The moral of each case study:**

**I am hoping that these support a theory that explains X in terms of Y:**

X: Coordination and communication

Y: Contingency, causality, prediction, and generalization

**What does each case study teach us about coordination:**