



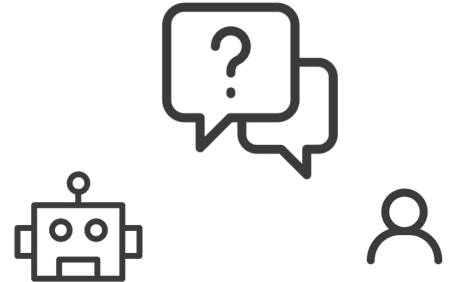
# Communication Principles

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# Grounding

Grounding in communication comprises the collection of "mutual knowledge, mutual beliefs, and mutual assumptions".



Let's meet for coffee tomorrow at noon.

Sure, that sounds great. Do you mean at the café on 5th Street?



Yes, exactly. The one next to the bookstore.

Got it. I'll be there at 12 PM. Looking forward to it!



## Why Grounding

Grounding in communication comprises the collection of "mutual knowledge, mutual beliefs, and mutual assumptions".

# How?

## Theory of Mind

knowledge that others'  
beliefs, desires, intentions,  
emotions, and thoughts

# Gricean Maxims of Conversation

A set of cooperative principles that both interlocutors should adhere for effective communications.

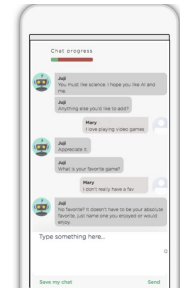
# Gricean Maxims of Conversation

- **Quantity**, where one tries to be as informative as one possibly can, and gives as much information as is needed, and no more.
- **Quality**, where one tries to be truthful, and does not give information that is false or that is not supported by evidence.
- **Relevance**, where one tries to be relevant, and says things that are pertinent to the discussion.
- **Manner**, when one tries to be as clear, as brief, and as orderly as one can in what one says, and where one avoids obscurity and ambiguity.

**How to operationalize?**



# Conversational Survey



# Measure response quality with Gricean Maxims<sup>[1]</sup>

Gricean Maxims	Definition
<b>Quantity</b>	One should be as informative as possible
<b>Relevance</b>	One should provide relevant information
<b>Manner</b>	One should communicate in a clear and orderly manner

# Measure response quality with Gricean Maxims<sup>[1]</sup>

Gricean Maxims	Definition	Quality Metrics	Definition
Quantity	One should be as informative as possible	<i>Informativeness</i>	A participant's response should be as informative as possible
		<i>Specificity</i>	A response should give as much information as needed
Relevance	One should provide relevant information	<i>Relevance</i>	A participant's response should be relevant to a question asked
Manner	One should communicate in a clear and orderly manner	<i>Clarity</i>	A participant's response should be clear

[1]Grice, P. (1989). Studies in the Way of Words. Harvard University Press.

**Can we use Gricean Maxims to guide  
conversational agent?**

# Error repairing

Conversation can go awry. How do we fix it?

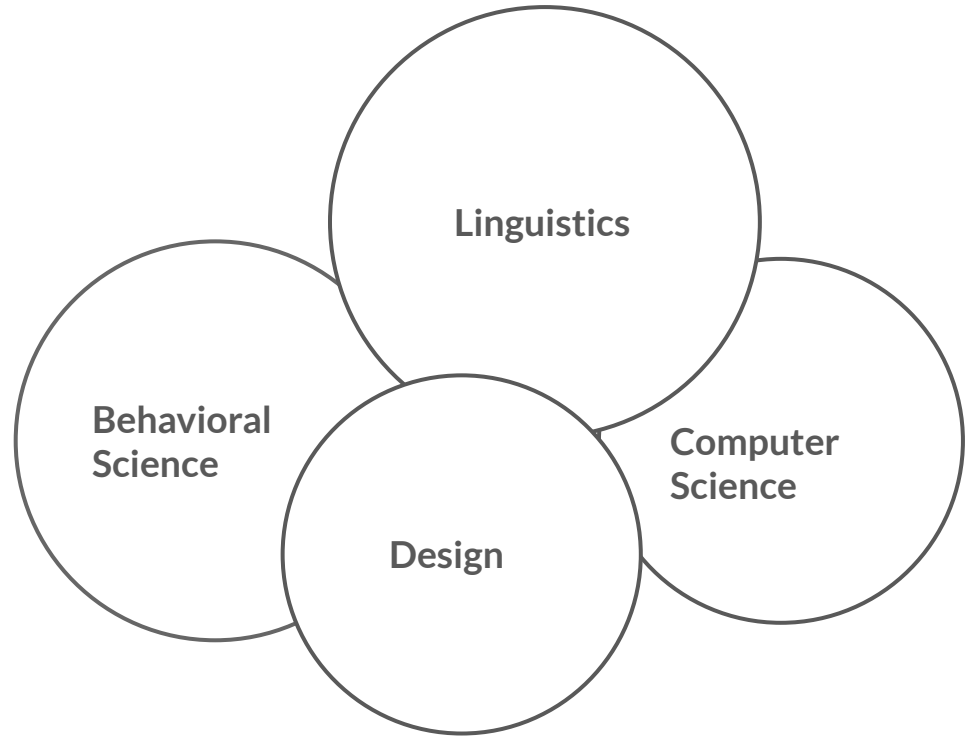
# Source of errors

- **User**
  - Digressions
  - Correction
  - Chit-chat
- **Agent**
  - Understanding Errors
  - Response Errors
  - Style Errors

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  - Digressions
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- **Agent**
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  - Style Errors

**How to fix?**

# Conversational UI







See you next Monday!

Before you go,

1. Find a team
2. Join piazza
3. Looking out for emails regarding next week's discussion assignment/instructions