Natalie Parde UIC CS 421

- Turns: Individual contributions to the dialogue
 - Typically a sentence, but may be shorter (e.g., a single word) or longer (e.g., multiple sentences)

Natalie: Hi, I would like to order thirteen buckets of cheesy popcorn.

Salesperson: Um okay when do you need those?

Natalie: I want to bring them to a party on Saturday.

Salesperson: And what size buckets would you like?

Natalie: Extra large.

Salesperson: Okay, our cheesy popcorn is really popular. Would you be okay with six buckets of cheesy popcorn and seven buckets of caramel popcorn?

Natalie: No.

Salesperson: Okay, what about some of our other flavors? We have ranch-flavored popcorn-

Natalie: I'll take that. Eight buckets of ranchflavored popcorn and five buckets of cheesy popcorn.

Salesperson: Okay.

Natalie: Actually, wait. Seven buckets of ranch and six buckets of cheesy popcorn, still all in extra large.

Salesperson: Okay, we will have seven extralarge buckets of ranch-flavored popcorn and six extra-large buckets of cheesy popcorn ready for you to pick up on Friday.

Turn

- Understanding turn structure is very important for spoken dialogue systems!
- Systems must know:
 - When to stop talking
 - Dealing with interruptions
 - When to start talking
 - Detecting when the human user has finished speaking
- Detecting when a user has finished speaking is called endpoint detection
 - Challenging due to noise and speech pauses

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Turn

- Speech Acts: Types of actions performed by the speaker
 - Also referred to as dialogue acts
- Major dialogue act groups:
 - Constatives
 - Directives
 - Commissives
 - Acknowledgments

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- Constatives: Making a statement
 - Answering
 - Claiming
 - Confirming
 - Denying
 - Disagreeing
 - Stating

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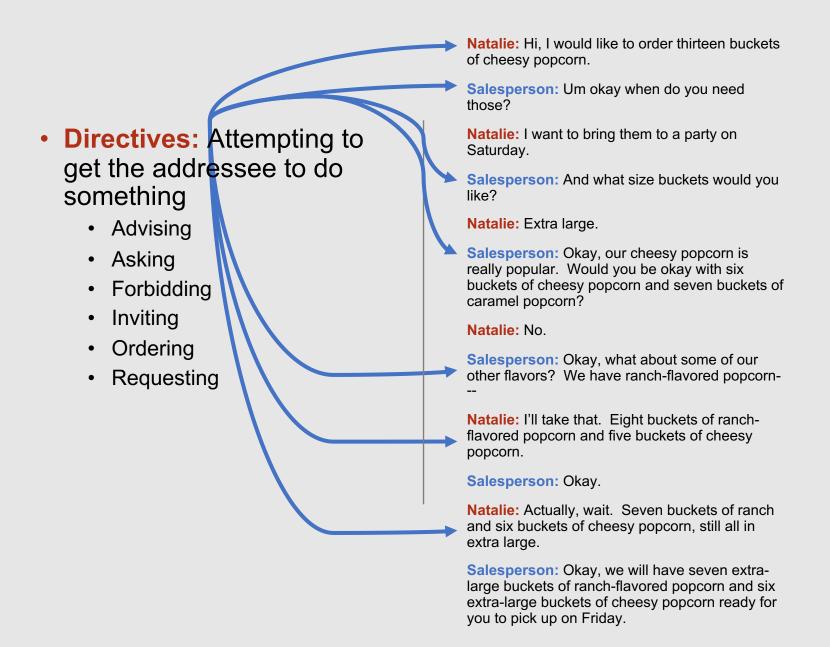
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 Commissives: Committing the a future action

- Promising
- Planning
- Vowing
- Betting
- Opposing

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- Acknowlegements:

 Expressing the speaker's attitude regarding some social action
 - Apologizing
 - Greeting
 - Thanking
 - Accepting

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- Grounding: Establishing common ground by acknowledging that the speaker has been heard and/or understood
 - Saying "okay"
 - Repeating what the other speaker said
 - Using implicit signals of understanding like "and" at the beginning of an utterance

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Salesperson: We will have your popcorn ready for you to pick up on Friday.

- Conversations have structure
 - Questions set up an expectation for an answer
 - Proposals set up an expectation for an acceptance or rejection
- These dialogue act pairs are called adjacency pairs
 - First pair part: Question
 - Second pair part: Answer

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- However, two dialogue acts in an adjacency pair don't always immediately follow one another!
- Adjacency pairs can be separated by side sequences or subdialogues
 - Interruptions
 - Clarifying questions
 - Corrections
- Some adjacency pairs also have presequences
 - Requests may be preceded by questions about a system's capabilities

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- Initiative: Conversational control
- Generally, the speaker asking questions has the conversational initiative
- In everyday dialogue, most interactions are mixed-initiative
 - Participants sometimes ask questions, and sometimes answer them

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- Although normal in humanhuman conversations, mixedinitiative dialogue is very difficult for dialogue systems to achieve!
- In question-answering systems (e.g., "Alexa, what's the weather like right now?") the initiative lies entirely with the user
 - Systems such as these are called user-initiative systems
- Opposite of user-initiative system: system-initiative system
 - Can be very frustrating!

Salesperson: Which variety of caramel popcorn would you like?

Natalie: I don't want caramel popcorn.

Salesperson: Which variety of caramel popcorn would you like?

Natalie: Can I quit?

Salesperson: Which variety of caramel popcorn would you like?

Natalie: Um, regular.

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- Inference: Drawing conclusions based on more information than is present in the uttered words
- Implicature: The act of implying meaning beyond what is directly communicated

Mentioning the party on Saturday (especially in response to the salesperson's question!) implies that the popcorn will be needed by that time

The salesperson infers that the popcorn should be ready for pickup by Friday

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Summary: Properties of Human-Human Conversation

