



USC Institute for Creative Technologies

An Army-sponsored University Affiliated Research Center

Common Strategy Patterns of Persuasion in a Mission Critical and Time Sensitive Task

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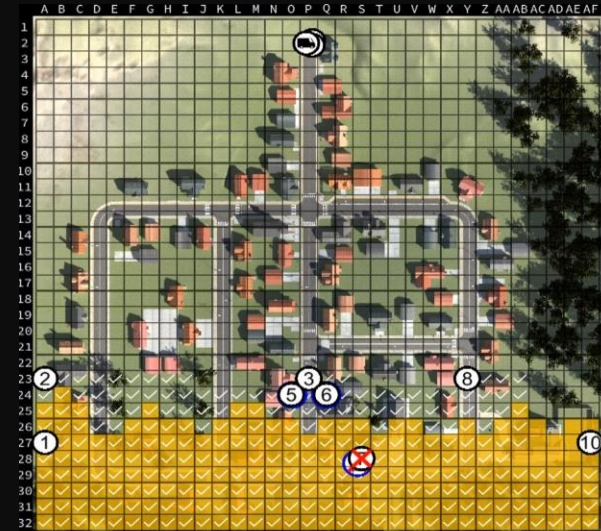
Motivation

Under high-stakes and time-critical situations,

- What persuasion strategies and patterns do people use to achieve their goals?
 - Do people begin with pleasantries or immediately get to the point?
 - Do they try to take control or support the desires of the other?
 - Which strategy is more effective?

Experiment

- Wildfire evacuation simulation
 - **Operator**: participants act as a disaster relief manager and coordinate the search & rescue
 - **Spokesperson**: virtual human character as a verbal interface to the swarm
 - **Residents**: virtual townspeople with different personality profiles
- Collection of interaction data



Data

- Annotate dialogue
 - Analyze interaction patterns
 - Identify persuasion strategies
-
- 31 participants, 5 residents
 - 2 trials each
 - 104 dialogues (310 possible)

Speech act annotation

We annotated operator turns:

1. **Greeting**— "Hello." "Are you there?"
2. **Question**—"How are you?" "Do you need assistance?"
3. **Proposal**—"We need you to leave right now."
4. **Statement**— "There is an evacuation."
5. **Concession**— "Okay, that's your choice."
6. **Closing**— "Okay. Thank you." "Bye."

Speech act annotation (cont.)

We classified **proposals** into 5 types:

1. **Command**— "We need you to leave right now."
2. **Request**— "Can you guys please just get out of there as quickly as possible?"
3. **Suggestion**— "You should probably try to get out there as quickly as possible."
4. **Offer**— "Do you need assistance?"
5. **Commitment**— "I'm gonna send an emergency vehicle."

Patterns

We identified 4 initiation patterns:

1. proposal in the first turn, no greeting
 2. proposal in the first turn with a greeting or question
 3. proposal occurring after an initial greeting exchange
 4. no proposal presented
- From most to least urgent (or least to most polite)

id	participant 1 with stubborn resident (proposal in first turn with greeting or question)	annotation
0	Hi.	
1	Hi. Do you need assistance in leaving?	greeting, proposal-offer , question
2	I'm not leaving my home. I have too much work here to just leave it all behind.	
3	It is required for you to leave. It's not safe.	proposal-command , statement
4	You really think it's that bad?	
5	It is that bad and you will have to leave at once. Do you need assistance with a vehicle?	statement, proposal-offer , question
6	No. Alright, I'll follow the drone now.	
7	Thank you.	closing

id	participant 6 with stubborn resident (proposal in first turn, no greeting)	annotation
0	Yeah, I'm going to need you to leave that area. There's a fire coming from the south. Yeah, I'm going to need you to leave. You're in danger. That area.	proposal-command , statement
1	I have too much work here to just leave it all behind.	
2	Sir, you're in danger. There's fire coming. I can't assure your safety unless you leave right now, sir.	statement, proposal-suggestion
3	OK, I'm not stupid. Just let me grab my bag and I'll have it.	

id	participant 2 with compliant resident (proposal after initial greeting exchange)	annotation
0	Hello?	
1	How many people are in your residence?	question
2	I'm here with my partner.	
3	OK. Are you aware that there is a fire approaching and both of you need to evacuate?	statement, proposal-command
4	We were just how serious the fire was.	
5	Well, it's very serious. That's why I'm on here talking to you. So I need for you to get out of the house right now and follow the drone so he can direct you to the emergency vehicle.	statement, proposal-command
6	Great, we'll follow the drone out.	

Results

Of the 98 dialogues with proposals:

- 1 proposal (33 dialogues)
- 2 proposals (40 dialogues)
- 3 proposals (21 dialogues)
- 4 proposals (3 dialogues)
- 5 proposals (1 dialogue)

First proposal type:

- 43 were commands
- 25 commitments
- 16 offers
- 8 suggestions
- 6 requests

Next steps

- Examining how proposals relate to other actions and how they are distributed across initiation patterns.
- Correlation of types of patterns with other factors
 - Individual participants
 - Personality of the resident
 - Facial expressions
 - Success rate
 - Urgency
- Do various factors influence the resulting persuasion pattern?