

Exploring Vague Language in Human-Agent Collectives

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Aims

Starting with speech our aim is to explore vague language use in an agent instructed assembly task. This is the first step in:

- Developing a greater understanding of how agents using vague language affect human responses, agent perception and relationship dynamics
- Assess how this may also affect user performance
- Investigate whether the introduction of external stress changes either of these points

Background

Vague language describes the ‘fuzziness’ of human communication. It refers to any utterance that can be contrasted with another but mean the same thing e.g.

I think that’s wrong

***I’m not sure* that’s *completely* correct**

I’m not sure = plausibility shield [conveys doubt to protect speaker from committing to an utterance]

completely = approximator [affects the truth condition of an utterance; lacks commitment to full membership of an expression]

Vague language promotes a strong social rapport and attempts to minimise gulfs in speaker/listener power.

Its use in agent development has shown benefits in pedagogical and advice giving domains.

Assembly Task

Participants are given two assembly tasks with two different Lego models

The instructions to build the models are provided by a spoken agent - **no visual cues are provided**

Participants are allowed to repeat the current instruction or proceed to the next one

Four conditions are being tested:

Direct agent – provides only the instructions needed to build the model

Vague agent – modifies the above with vague language

Stressed environment – just achievable visual time limit based on pilot averages

Non-stressed environment – participants are not made aware of the time limit



Direct vs. Vague Agent

The direct agent uses the minimal language needed to provide the participant with the necessary information for each step:

“Attach them to the remaining black ball joints on the outside of each leg. Position the widest end so it is closest to the feet”

The vague agent attempts to minimise any face threat and imposition on the speaker by adopting various communication strategies borrowed from human interaction:

“Now just attach them to the remaining black ball joints around the outside of each leg. The wider end of each piece should pretty much be closest to the feet”

Now just = reduces markedness on the imperative ‘attach’

around / pretty much = provides user with options by not committing to precision; protects face with minimal imposition

should = attribution shield allowing the agent to direct the potential face threat towards someone or something else e.g. the manufacturer of the instructions

Measuring Outcomes

User performance

- Pieces successfully assembled in the time limit
- Errors made
- Users completing a step before the agent finishes speaking / user requests next step – *when this occurs and after which utterances*

Agent perception

- Post-task questionnaire on agent attributes – *friendly, trustworthy, controlling, rude, likeable*
- Post-task debriefing – *Would you be happy to interact with the agent again? In which domains would you do so?*

Future Work

- Introduce visual information e.g. remote gesturing, embodied agent assistance
- Contrast Agent > Individual with Agent > Group
- Other domains – navigation, advice, medical assistance
- Explore the Disaster Response paradigm