

Effects of Conversational Agent and Robot on User Decision

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Outline

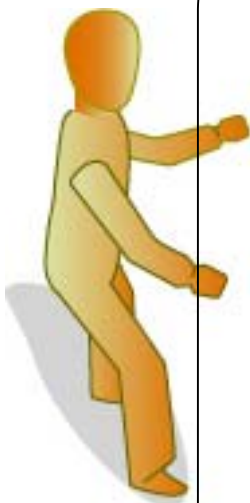
- Introduction
 - Research goals
- Experiment
 - Effects of interaction strategies of screen agents/physical robots
- Discussion

Introduction

- Research goal:
 - Embodied social agents that cohabit with humans.
- Subgoals:
 - Evaluation methods
 - Design rules
of human-agent/robot interaction

Design issues

Character design

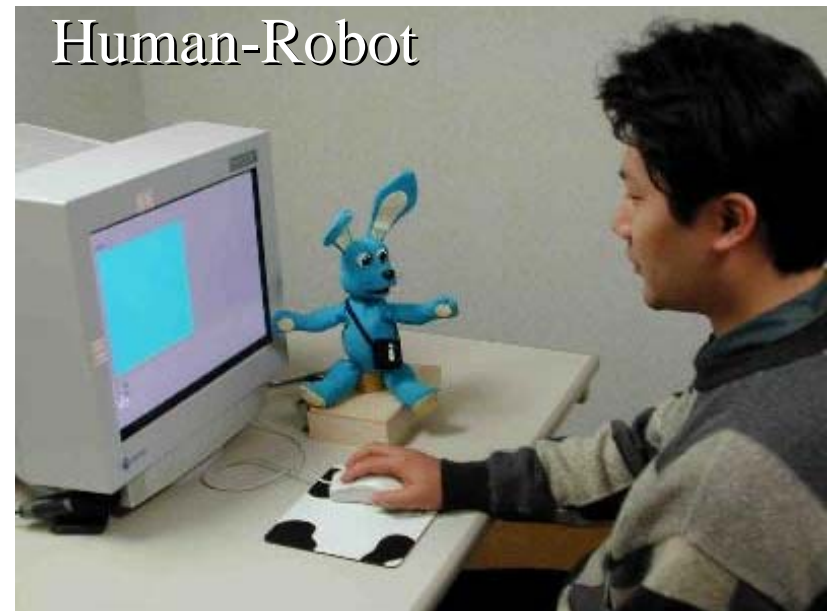
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- Voice
 - Parlance
 - Facial expressions
 - Gestures
 - Agent/Robot
 - ...

Interaction design

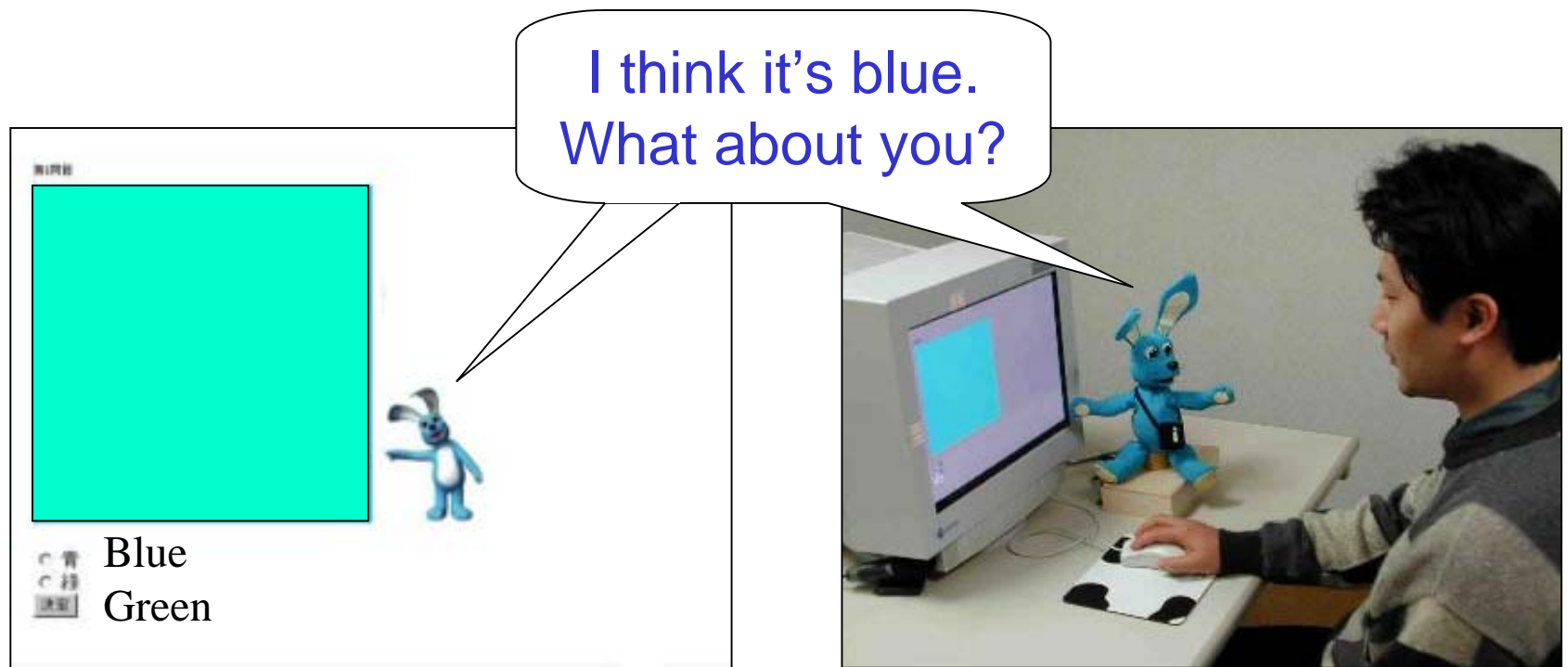
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- Nodding
 - Turn taking
 - Eye contact
 - Shared attention
 - Strategies
 - ...

Experiments

- Subject's task:
 - Color name selection from two candidates.
 - No correct answer.
- Conditions:
 - 30 questions/subject
 - 30 subjects x 4 groups
 - With/without recommendation by agent/robot
- Measurements:
 - Subject's selection ratios.
 - Questionnaire (5-scaled).



Interaction with agent/robot

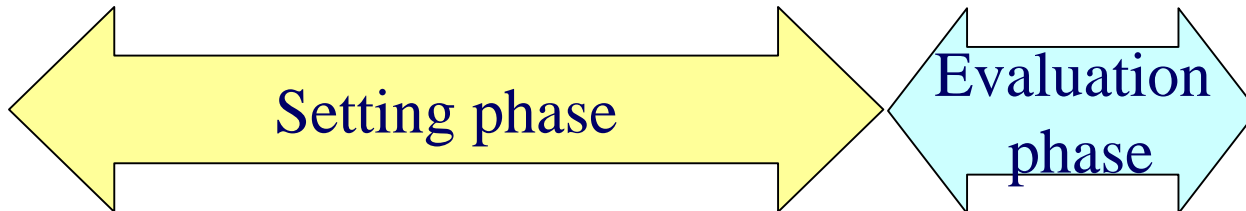
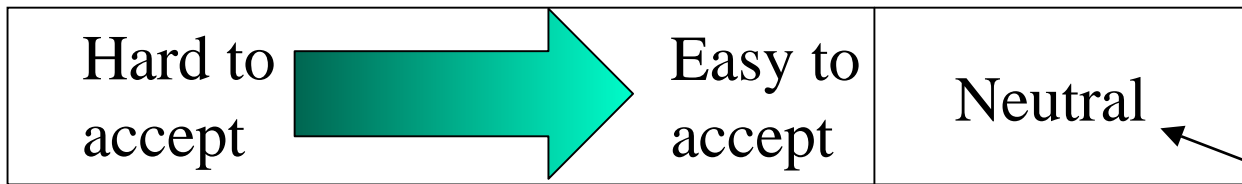


- Recommendation by speech synthesis
- Similar gesture for both agent and robot
- Happiness/sadness expression after subject's selection

Two Recommendation Strategies

Question order: based on the selection tendencies of the Group 1 result (No recommendation)

- **Up** (cf. door-in-the-face technique)



Same Recommendations

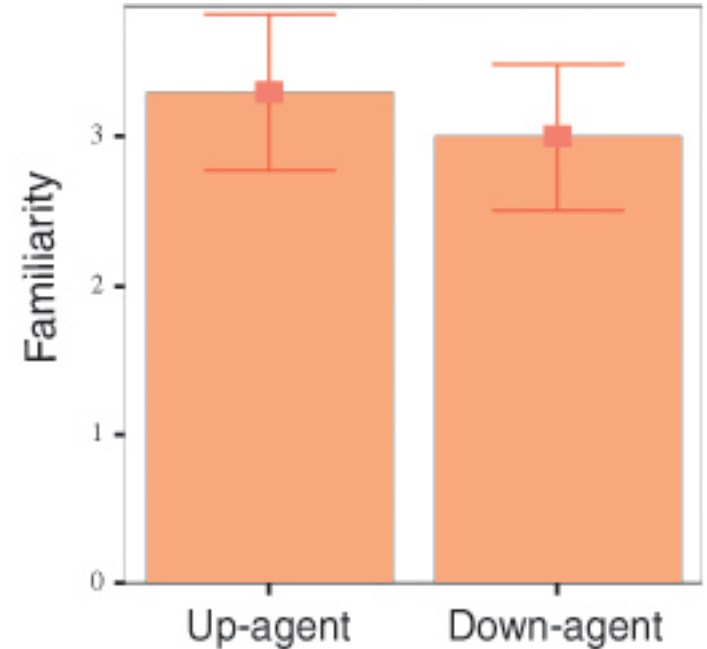
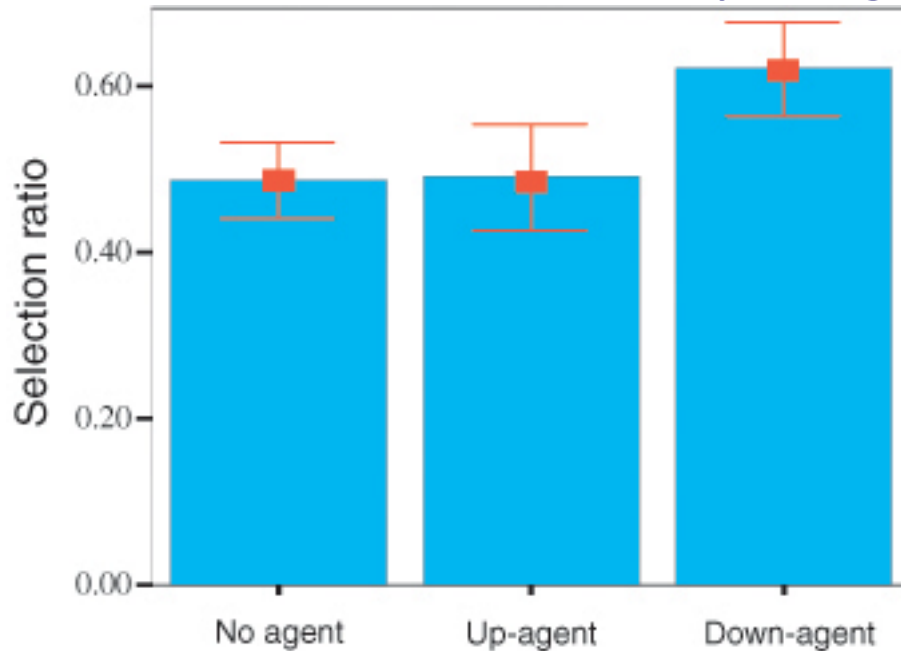
- **Down** (cf. foot-in-the-door technique)



20 questions

10 questions

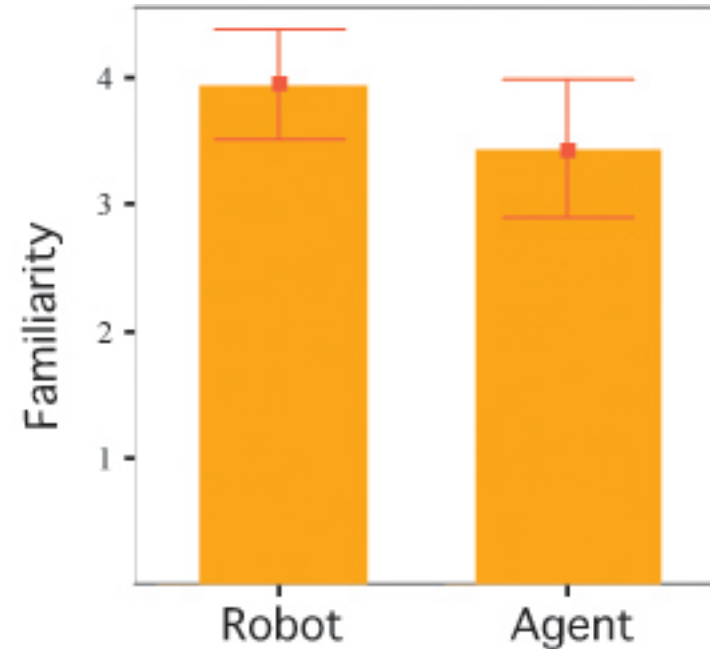
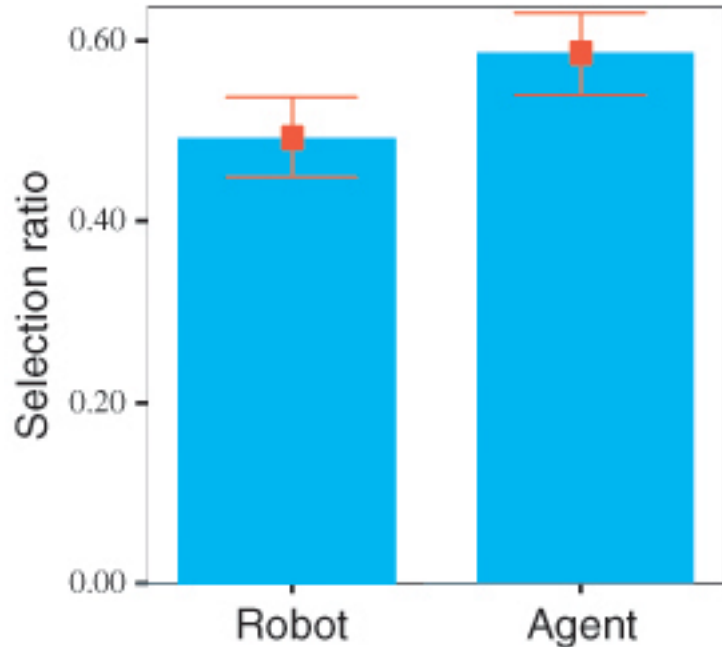
Results: Up vs. Down Strategies by Agent



- Effects of recommendation: **Down > Up** ($p < 0.05$, ANOVA)
- Subjective familiarity: **no significance** between strategies

Results: Robot vs. Agent

Down strategies

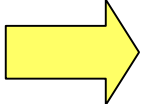


- Effects of recommendation: **Agent > Robot** ($p < 0.01$)
- Subjective familiarity: **Robot > Agent**

Discussion & Conclusion

- Interaction strategies
 - Affect human decision-making
- Familiarity:
 - Robot > Agent , but
- Effects of recommendation:
 - Agent > Robot

...because the robot lacks

- eye-contact
 - shared attention, ...
-  Future experiment