

# Groups of humans and robots

## Understanding membership preferences and team formation

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Team formation  
Membership preferences  
Multi-party game context

Learning Goal Theory

Competitive

Relationship-driven



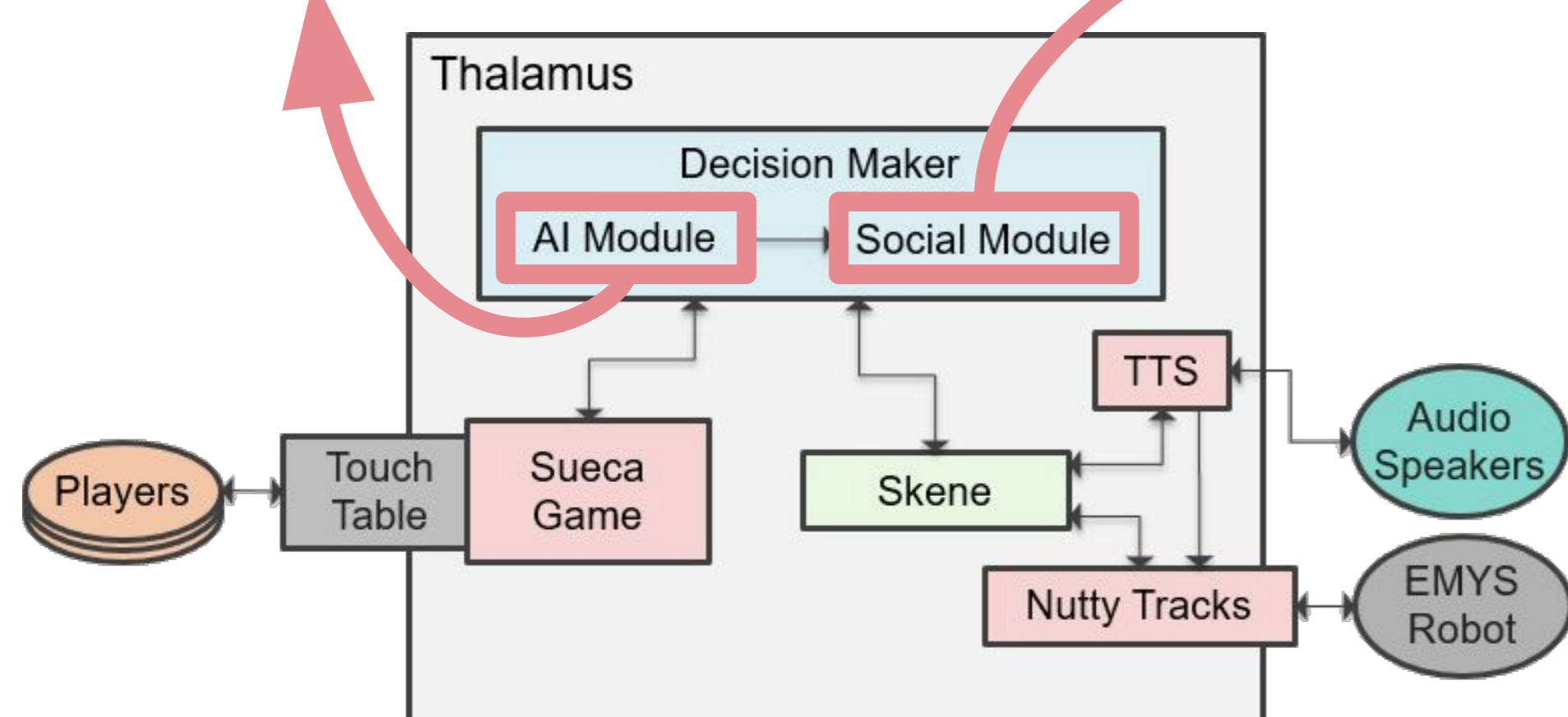
Creating two characters



Which robot will people prefer to partner with? ...and why?

### 1. Development

PIMC algorithm for both characters  
**same performance**



Game State	Emys	Glin
End game (loss)	"This cannot continue like this! You have to play better!"	"No worries partner, next time we will do better!"
Playing	"Watch and learn how this is played."	"I am so proud of being in your team!"

More competitive, fostering the best score, blaming others (Emys)  
More supportive, encouraging, uttering hope (Glin)

Two-phase handshake protocol for **Robot-Robot Interaction**:

1. to inform of an intention to speak;
2. to respond to an intention to speak
3. to inform that an utterance has started;
4. to inform that an utterance has finished.

### 2. Validation (Study 1)



30 participants  
M = 23,03 ± 4,21

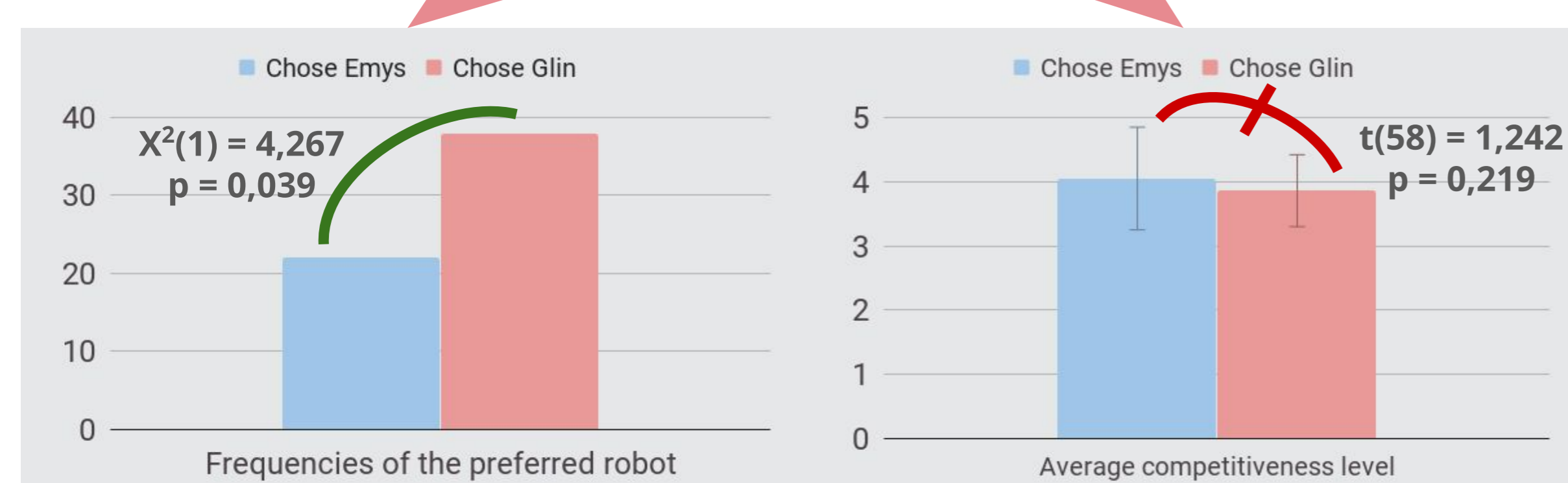
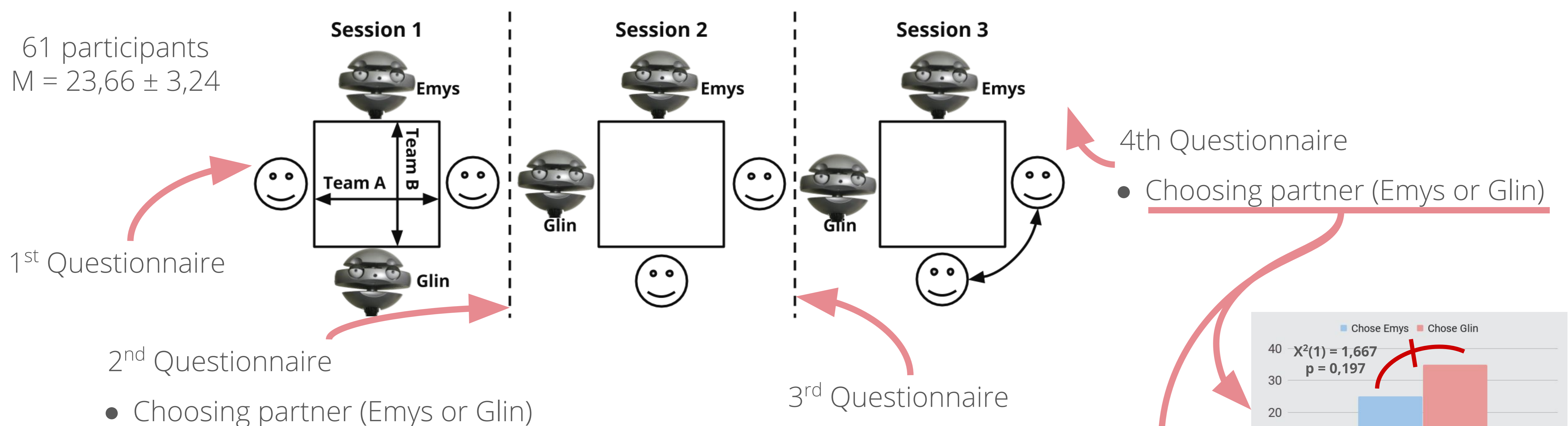
\* p < 0,05

Questionnaire dimensions

	Emys	Glin
Competitiveness Index *	4,57 ± 0,40	3,86 ± 0,33
Help *	3,78 ± 0,89	4,51 ± 0,81
Motivation *	3,79 ± 1,00	4,95 ± 0,69
Emotional Security *	3,26 ± 1,09	4,37 ± 0,77
Relationship Quality *	4,41 ± 0,52	5,32 ± 0,38
Perceived Intelligence	4,59 ± 0,74	4,93 ± 0,49
Likeability *	10,70 ± 0,88	20,30 ± 0,88

### 3. Analysing preferences (Study 2)

61 participants  
M = 23,66 ± 3,24



Winning robot perception  $\xrightarrow{p = 0,008}$  Last choice of robot

