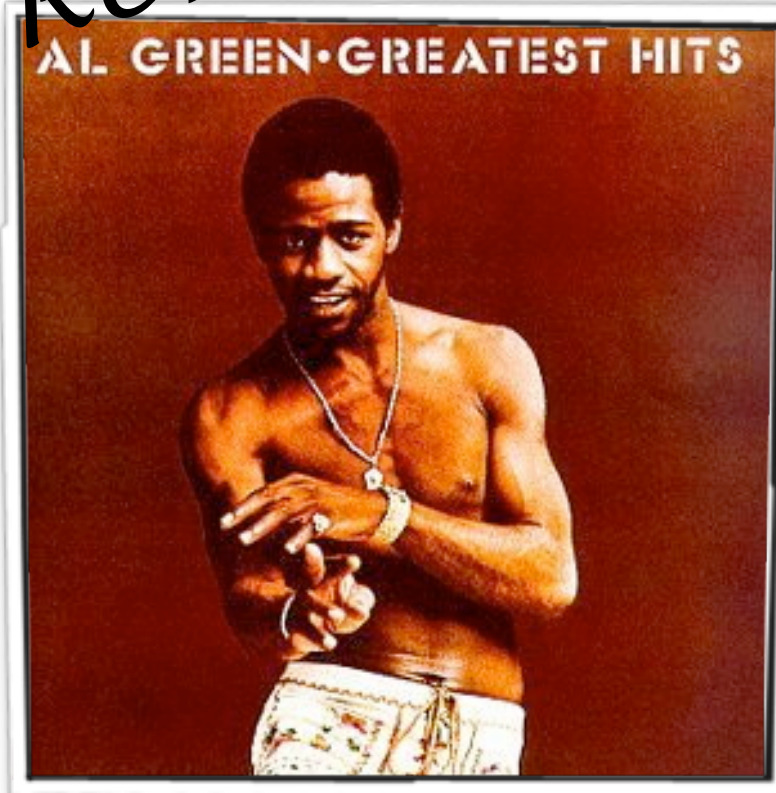


Creating illusory social connectivity in Amazon Mechanical Turk

Starting Fall, 2011 Nick Duran & Rick Dale
University of California, Merced

How you get to...

The Reverend



Perspective-taking

- ❖ People can take the perspective of another to ensure communicative success; do so in a way that takes partner attributes into account (audience design)
- ❖ But only when communicative contexts demand it?
 - ❖ Egocentric bias (Keysar)

The world from a privileged view

- ❖ Our representations of the world “embodied” from an egotistical perspective
- ❖ But, there are other minds, and to communicate successfully, must readily adapt to the beliefs, knowledge, etc., of others (Brennan)



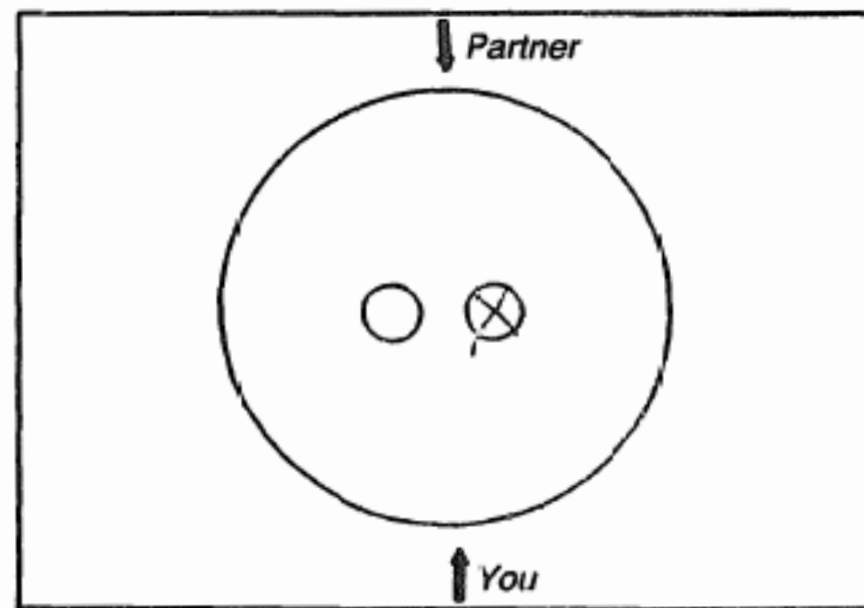
Referential communication tasks

- ❖ Examines the conditions in which a person might consider (or fail to consider) partner attributes when producing referential expressions
- ❖ Usually quite involved to set-up

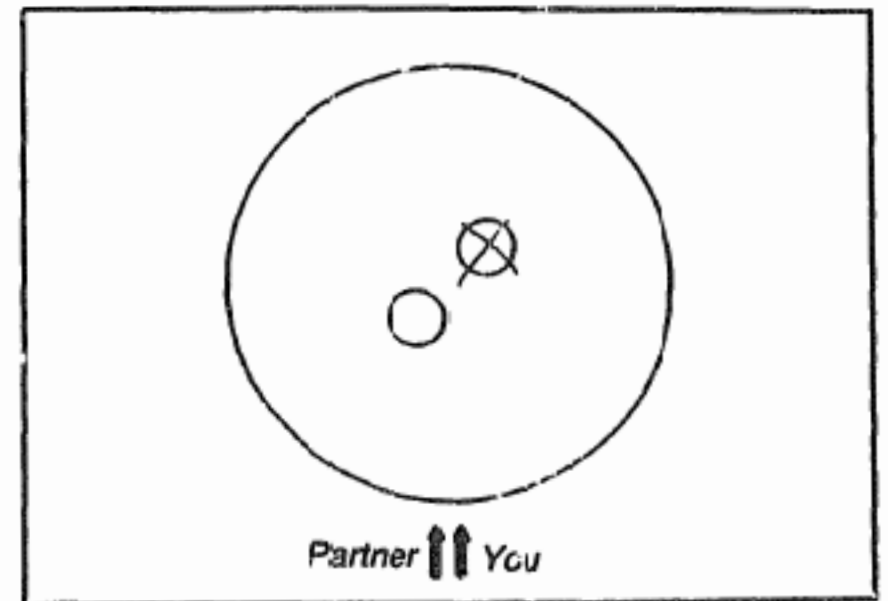
Stripped-down reference

- ❖ Loosely based on Schober (1993), which in turn is loosely based on Krauss and Weinheimer (1964, 1966)

ambiguous



shared

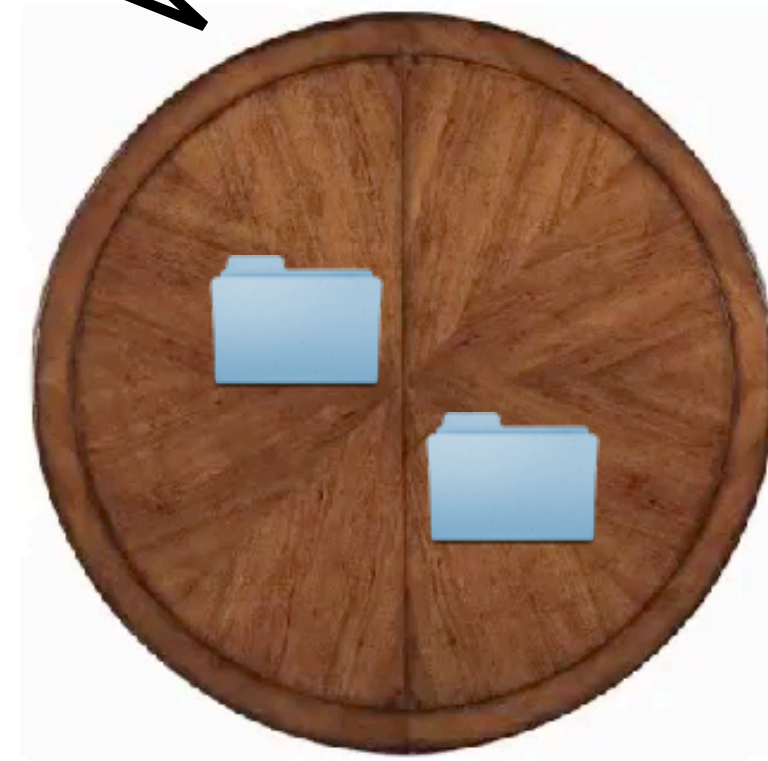


*allocentric ("other-centric")
and egocentric*

“Flash-based mini-task”

“Give me the
folder on the left”

- ❖ Partner is known to be simulated
- ❖ Between-subjects: Participant told partner **does** know or **does not** where they are located



Partner

You

Using Mechanical Turk

- ❖ Task implemented using Adobe Flash and uploaded to external web server
- ❖ The x,y coordinates of participants' mouse movements are captured and saved via a PHP script to server

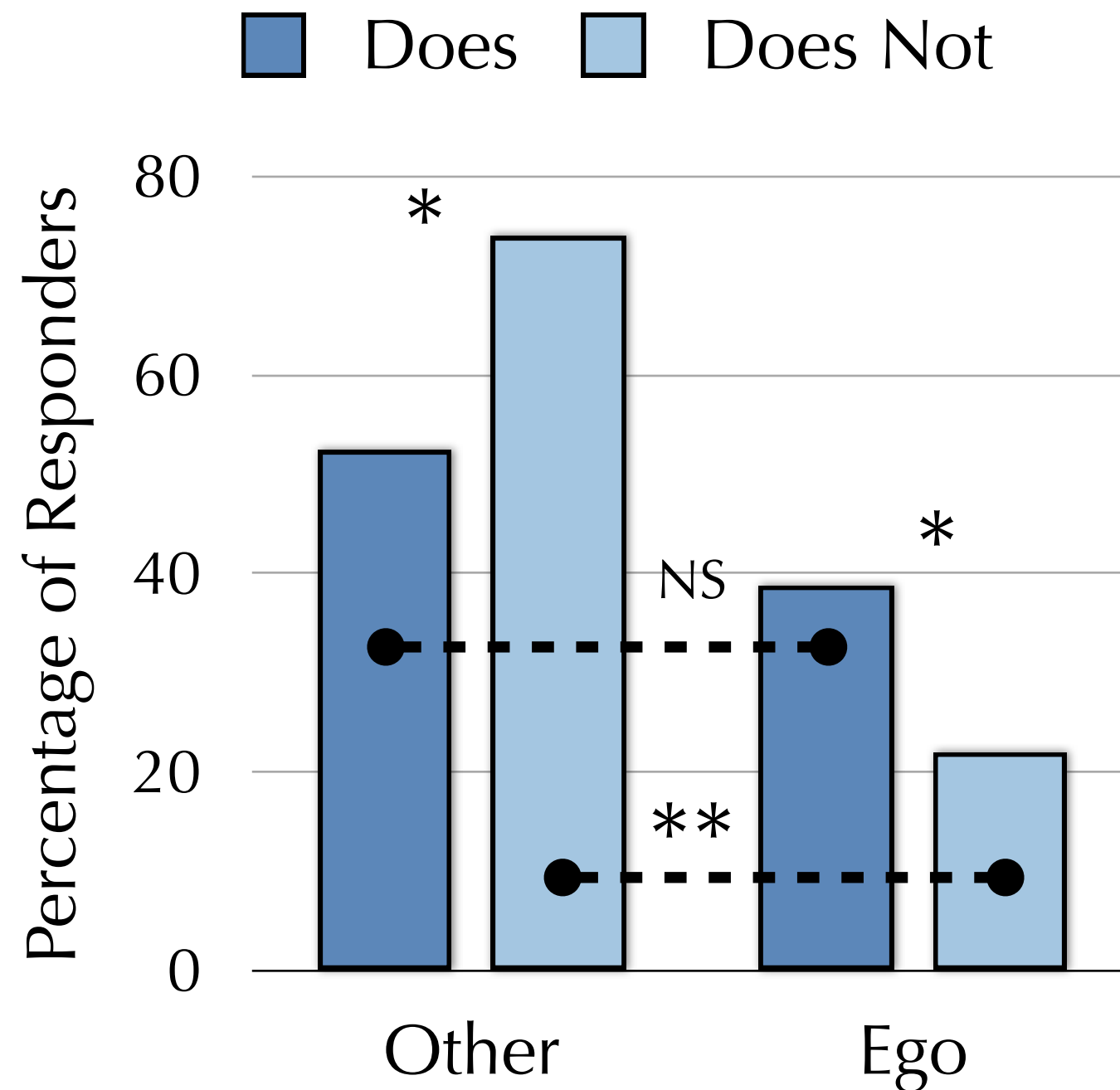


- ❖ Once complete, Mechanical Turk workers enter a unique code given at the end of the task to ensure payment

Experiment

- ❖ 40 trials, 20 ambiguous and 20 shared
- ❖ If 70% of ambiguous trials are egocentric, then considered “ego;” if 70% of ambiguous trials are other-centric, then considered “other”

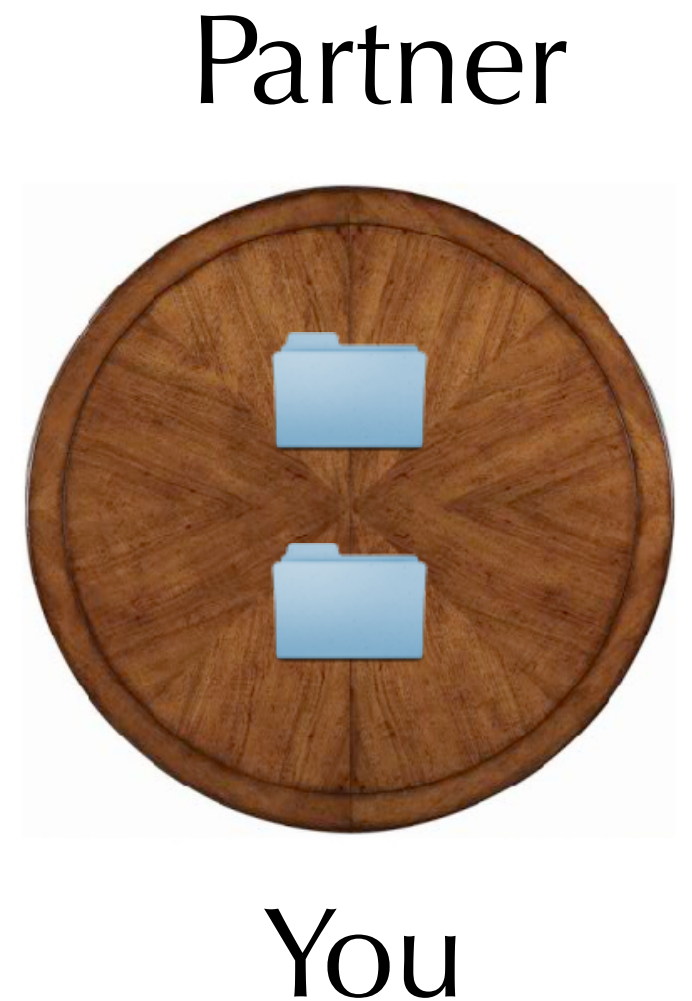
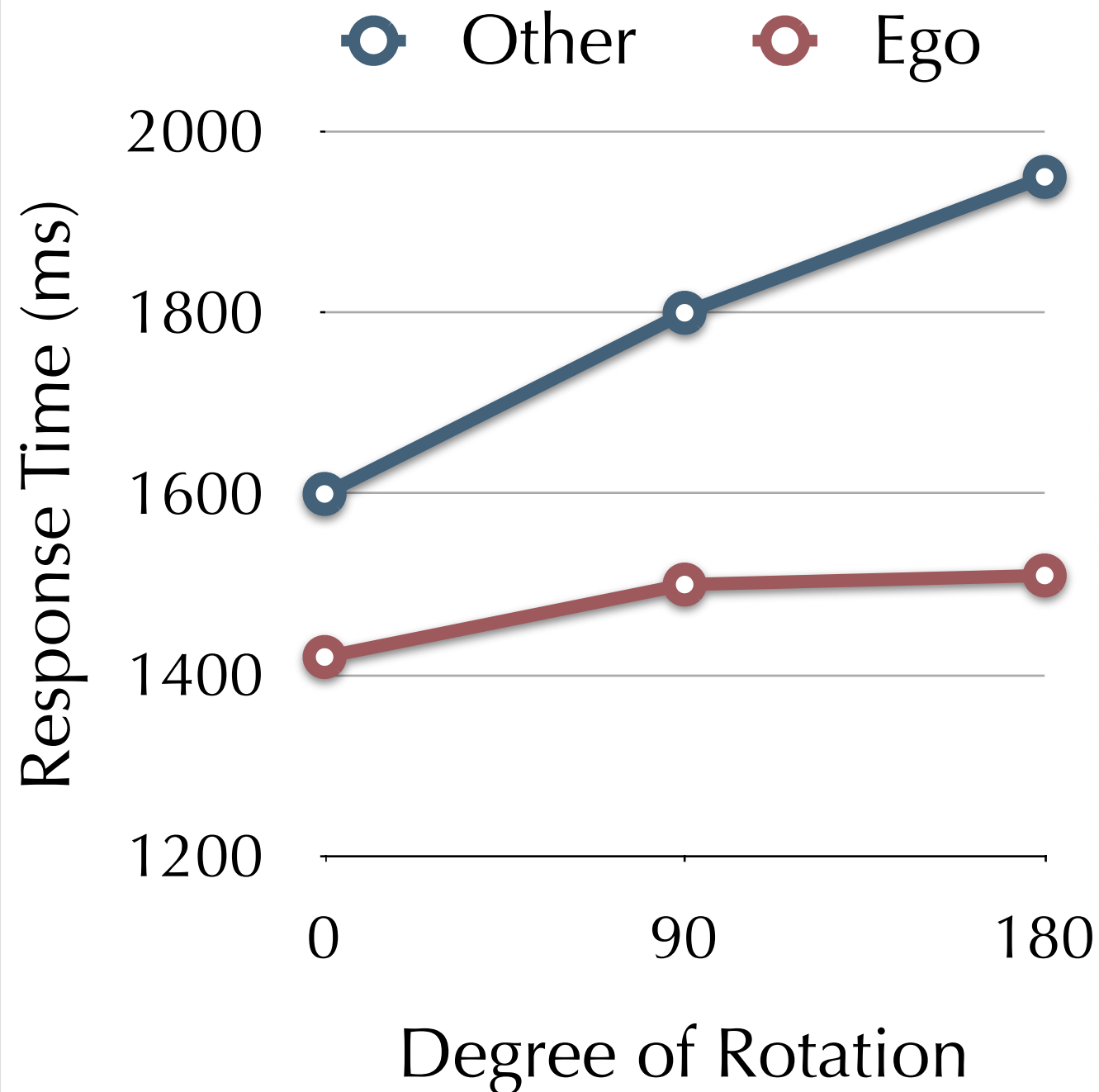
End-point responses



Participants incorporate partner attributes in interpretation

Mental rotation response times

*To take
another's
perspective
requires
mental
rotation;
more
cognitively
complex*



Interpretation

- ❖ In a context where...
 - ❖ ...there is no real risk of a communication breakdown
 - ❖ ...it is clearly more challenging to take the partner's perspective
- ❖ Participant's proceeds to disambiguate the referent from their partner's perspective
- ❖ **Why?**

Collaborative least effort

Clark, etc.

- ❖ Optimize understanding by attempting to minimize effort for both themselves
- ❖ If one partner is deemed to be a poor contributor, the other partner will expend greater effort to ensure mutual understanding
- ❖ Here, the limitations of a simulated instruction-giver are deemed sufficient to act other-centrally

Setting-up the illusion

- ❖ Interacting with a “real” person, if the instruction-giver can share in the task of ensuring mutual understanding, greater likelihood of egocentric responding

Reference 2.0

- ❖ Using the natural roles within Mechanical Turk to induce the illusion of “real” connectivity

Make Money by working on HITs

HITs - *Human Intelligence Tasks* - are individual tasks that you work on. [Find HITs Now](#)

As a Mechanical Turk Worker you:

- Can work from home
- Choose your own work hours
- Get paid for doing good work

Find an
interesting task



Work



Earn
money



[Find HITs Now](#)

or [learn more about being a Worker](#)

Get Results from Mechanical Turk Workers

Ask workers to complete HITs - *Human Intelligence Tasks* - and get results. [Register Now](#)

As a Mechanical Turk Requester you:

- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you're satisfied with the results

Fund your
account



Load your
tasks



Get
results



[Get Started](#)

Getting connected

*Instruction
screen gives
cover story of
testing one-way
chat software*

*To test, will be
connected to
another worker or a
requester (between-
subjects)*

tabletop are two folders. The other Turk worker has already been given instructions one of the two folders. Please note that you SHOULD take the worker's perspective.

Pressing "Connect" below, you will type in a code word given to you by the other worker. Once a chat connection has been made. Then you will see an empty tabletop and the worker will place a particular folder. The word "GO" will appear. Press "GO" to reveal two folders and the location of where you and the other worker are seated. To give the folder to the worker, you will place a folder and deposit it in a box near the "Worker" label.

There will be 40 such interactions. This task should take no longer than 15 minutes. Also, Do not close your browser after the task has started, otherwise the connection to the other worker will be lost and you will not receive payment. Click "Connect" to get started.

Connect



Getting connected

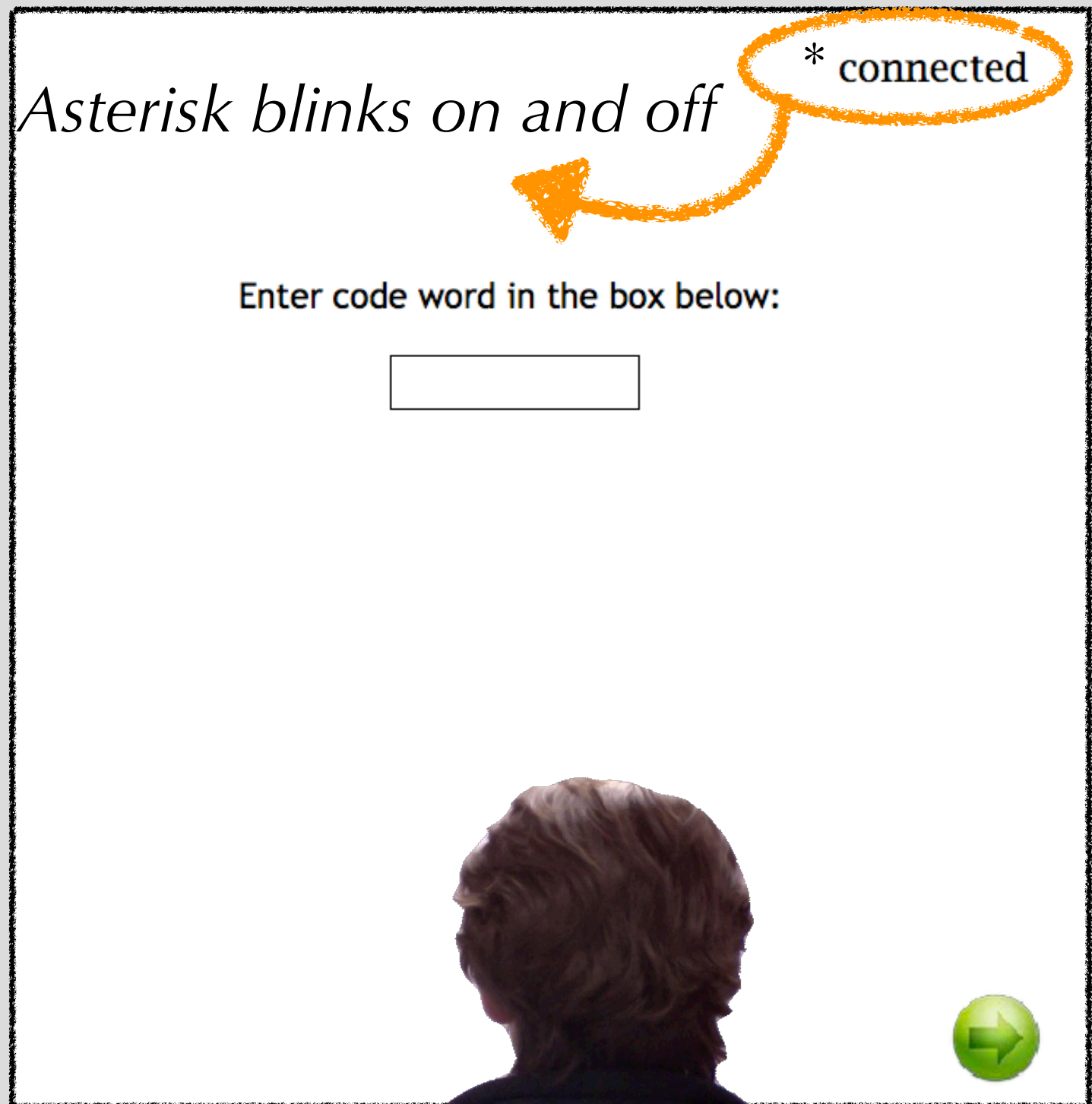
A lag of a few seconds to establish a “connection;” ellipses dynamically update to appear as if the system is indeed connecting

Connecting to another worker, please wait a few seconds ...



Getting connected

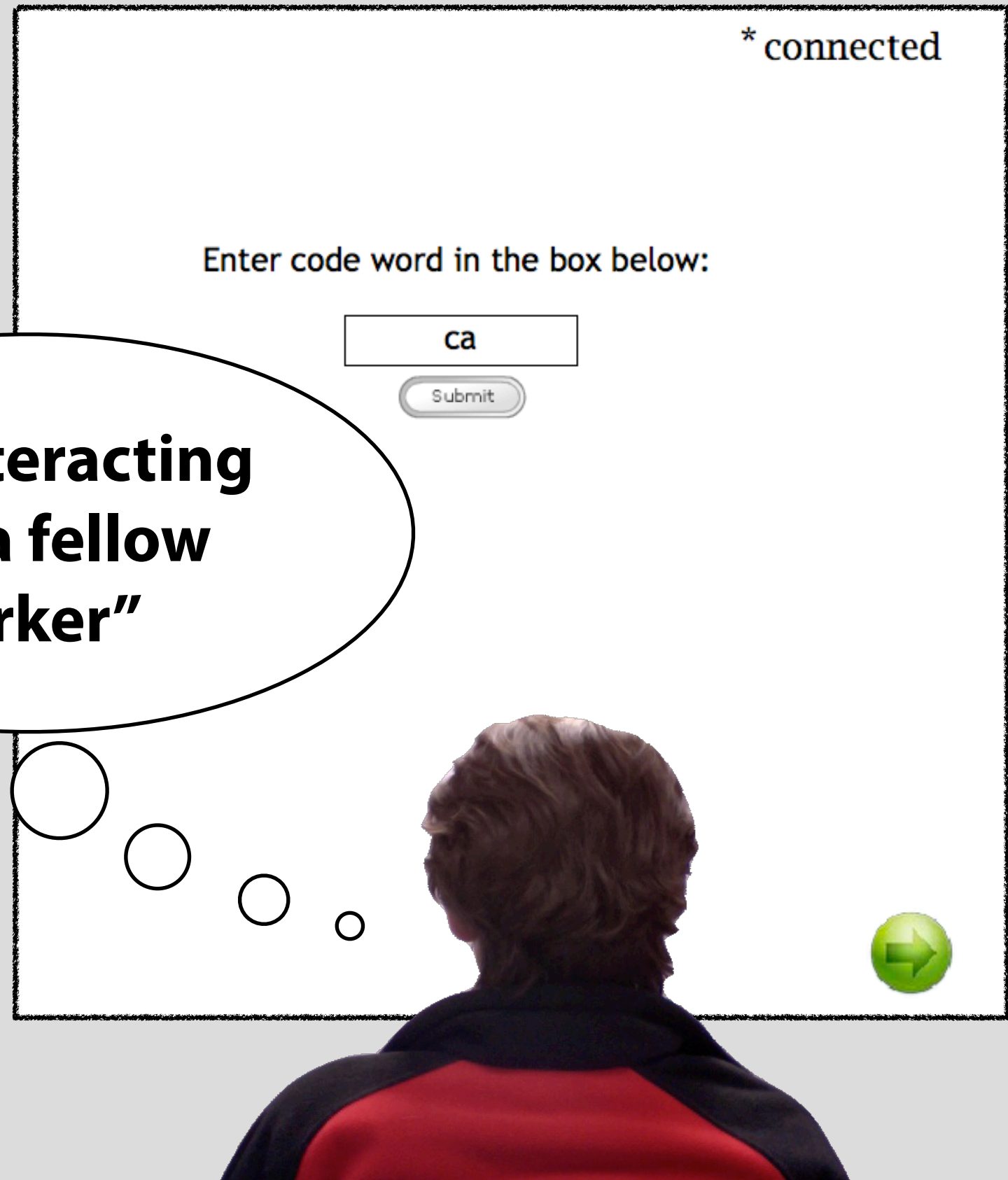
*A recorded
“partner”
introduces
themselves*



Getting connected

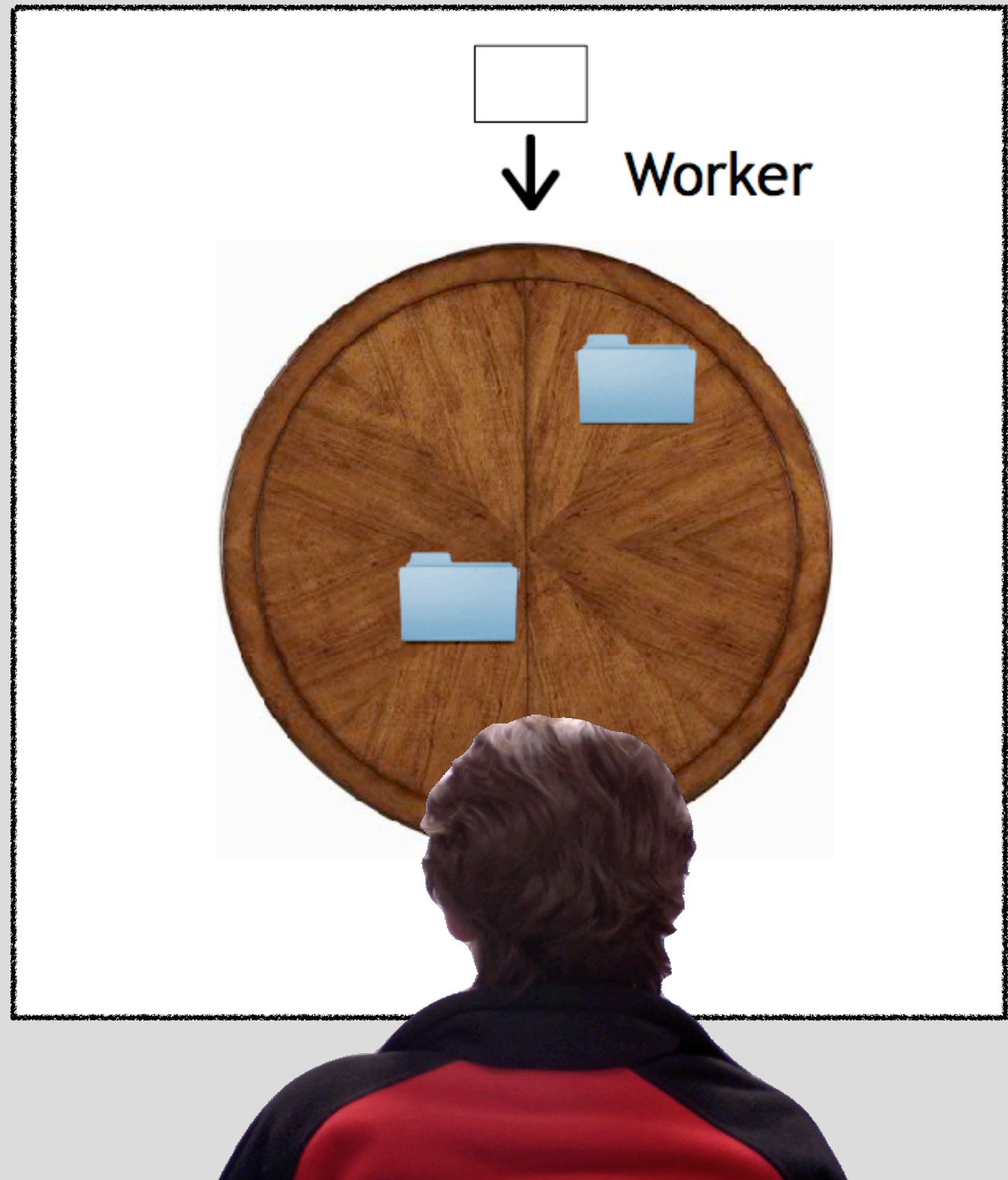
A code word must be typed by participant to ensure a connection has been made (and to make sure speakers are on)

“I’m interacting with a fellow worker”



Getting connected

*Same stimuli
and task
conditions as
before (“**Does**”
know
condition)*



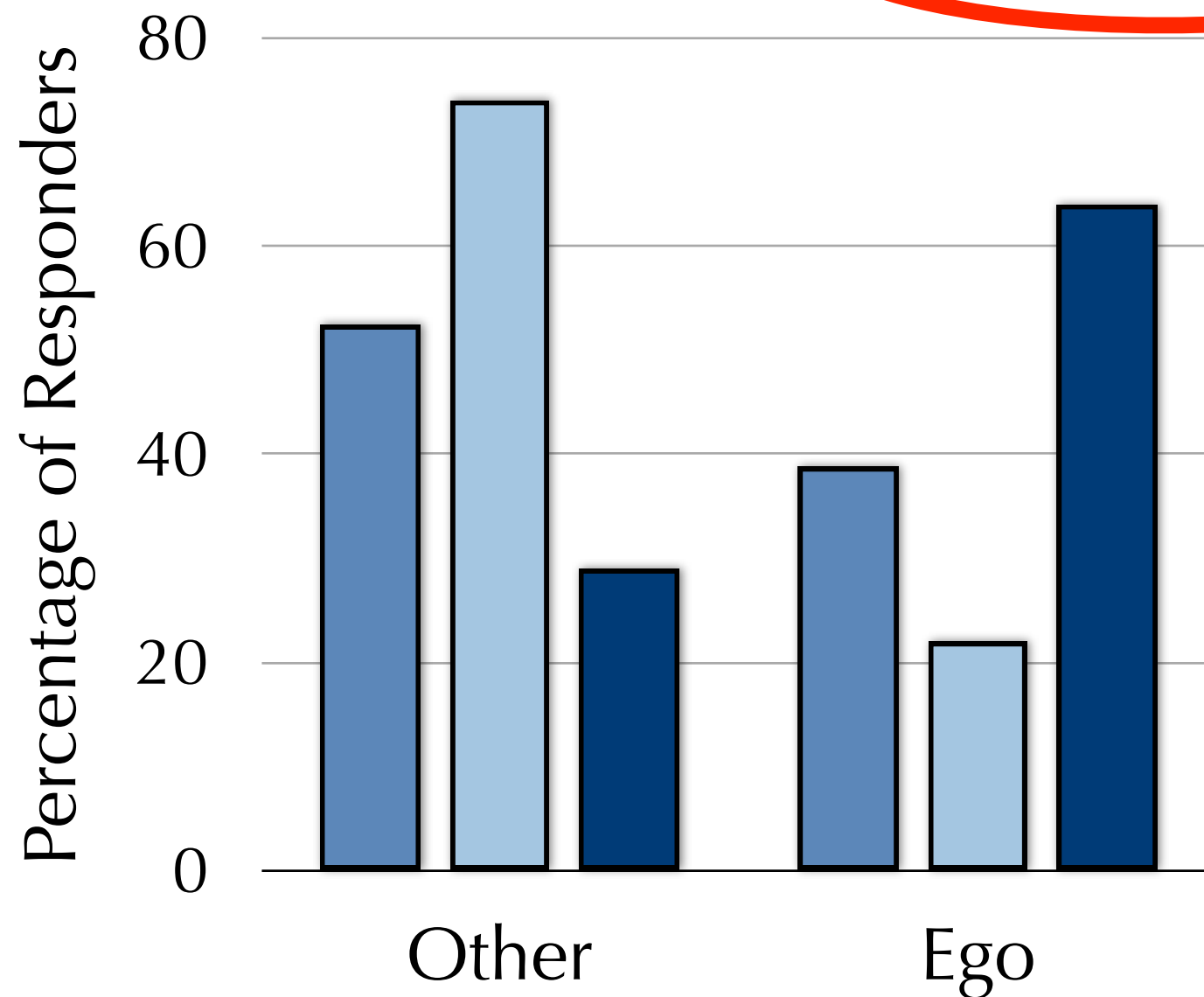
Does the ruse work?

- ❖ After task, ask a few follow-up questions
 - ❖ Two-open ended questions, about general issues relating to task and the partner
 - ❖ And yes/no: “Did it feel like you were connected to an actual person?” “Did you believe you were connected to an actual person?”

*Around a 75%
deception rate*

End-point response

■ Does ■ Does Not ■ Does (Illusion)

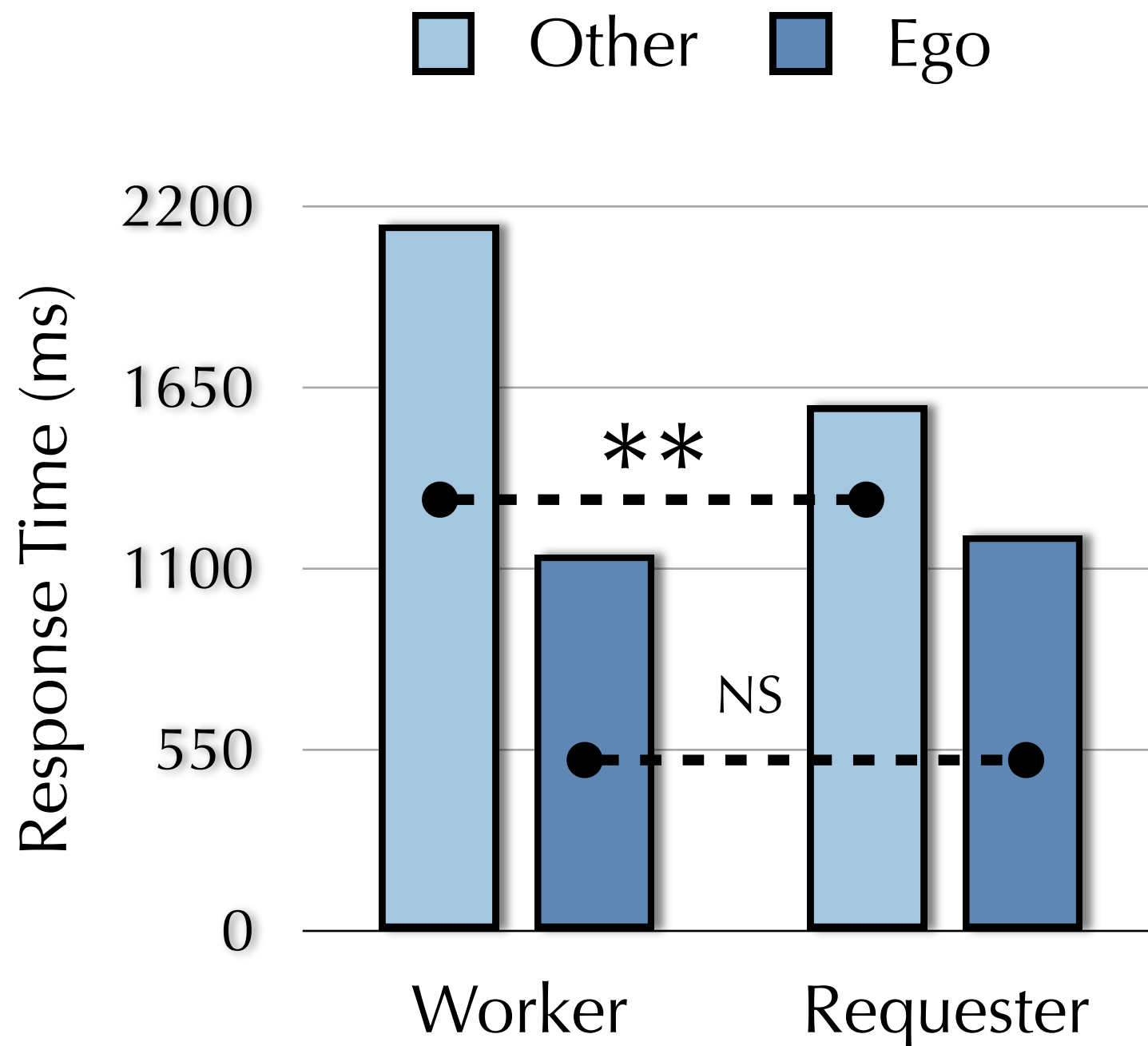


*Instruction-giver
is deemed a
viable partner
who can be held
responsible for
ensuring mutual
comprehension*

Social roles modulate perspective-taking behavior?

- ❖ Participants are “workers;” role defined in Mechanical Turk
- ❖ Connected to fellow worker (**same social status**); or “Requester” (**authority social status**)
- ❖ *Is social status an attribution that effects perspective-taking behavior?*
- ❖ When there is an imbalance in social status; e.g., “winner” versus “loser” shifts, “loser” more sensitive to the mental states of the other (Rutherford, 2005)

Response time advantages



Those that are other-centric, are faster to transform visual space when interacting with a "Requester"

Experimental summary

- ❖ Explore perspective-taking behavior in a visuospatial mental rotation task; objects could be interpreted from the point of view of the participant (egocentric) or a simulated partner (other-centric)
- ❖ Partner's perceived ability to contribute to collaborative mutual understanding modulated perspective-taking behavior
- ❖ Large proportion of participants resolved referential ambiguity in terms of their partner's perspective, even when it was more cognitively costly
- ❖ Perspective-taking strategies not necessarily dictated by "default," but by potent (and subtle) social attributions

Why Turk?

- ❖ Running studies online allows extensions from the laboratory context
 - ❖ Allows plausible “minimalist” designs
 - ❖ Affords natural social identities
 - ❖ Mostly free of experimenter artifacts
- ❖ Extensive demographics are available
 - ❖ Unpublished data looking at age effects; older folks less likely to spontaneously adopt an other-centric perspective



Thanks!