

Are we better able to extract shape from kinematics of self-executed movements versus those executed by others?

Introduction

- It has been shown that people can identify point-light displays depicting themselves vs. friends and strangers, and that this ability depends on the performed action.
- We asked how identification of a shape being traced is affected by *agent-specific* information ('Self' vs 'Other' kinematics).
- We tested this for observation of both traces performed with the *dominant* right hand and the *non-dominant* left hand ('Skilled' vs 'Unskilled' movements).

Method

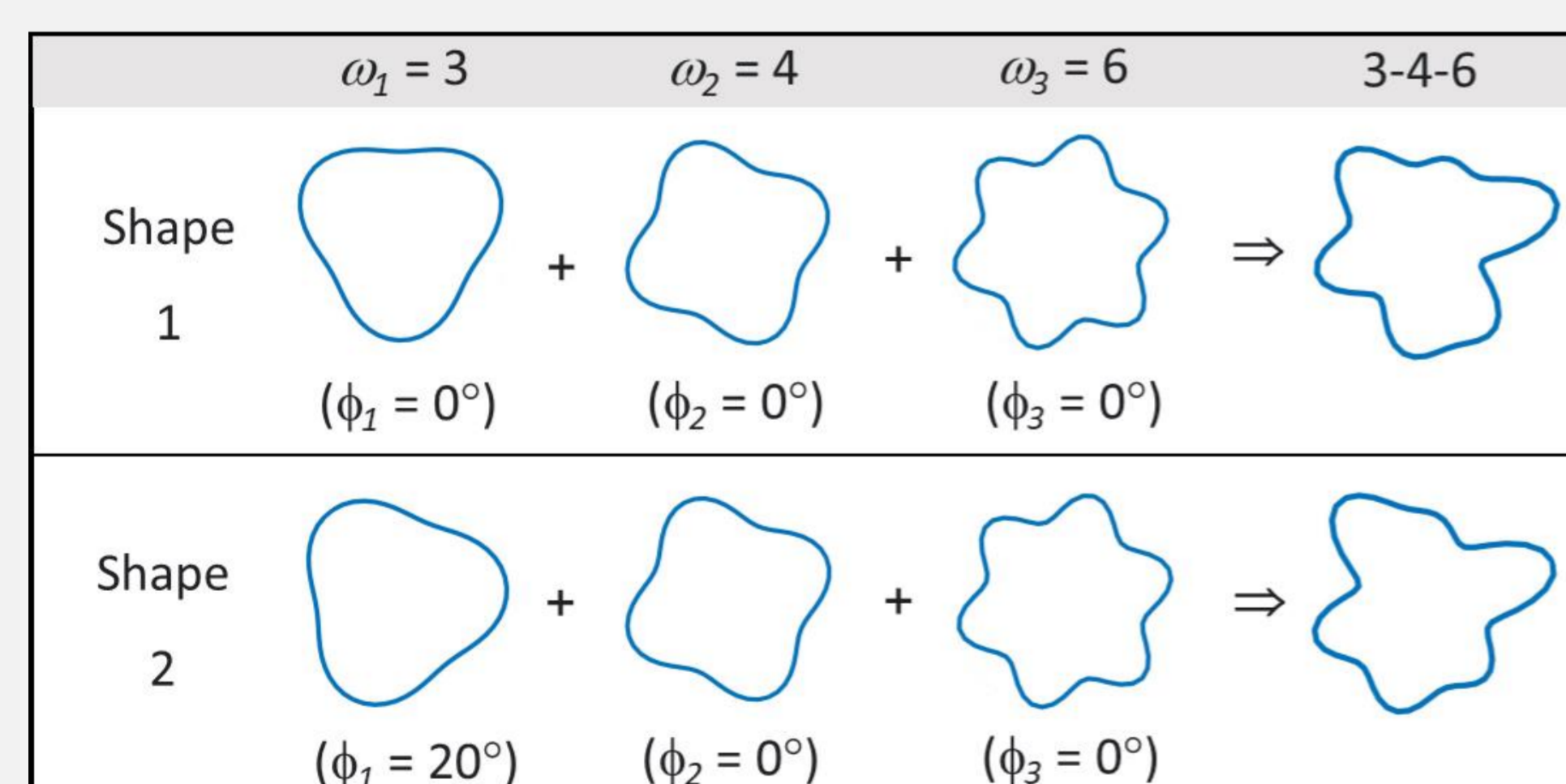
Stimuli

- Visual displays of a moving dot replaying recorded kinematics, produced earlier by the same ('Self') or by another ('Other') participant.

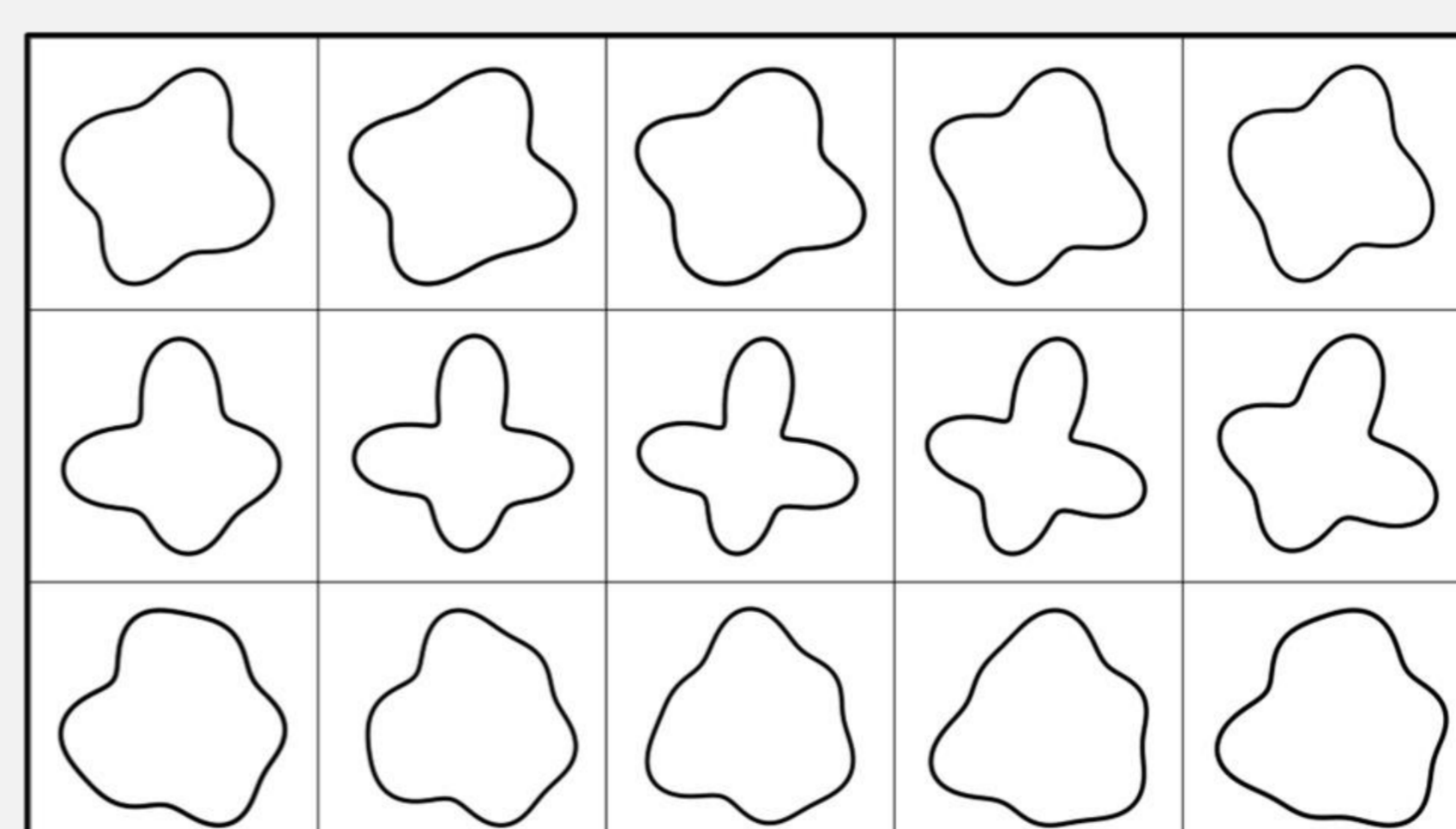
Task

- Identify the shape being traced.
- 3 alternative forced choice between the shape used as template for the replayed trace and two foil shapes.
- Participants were naïve to the source of observed tracing movements.

Stimuli Synthesis

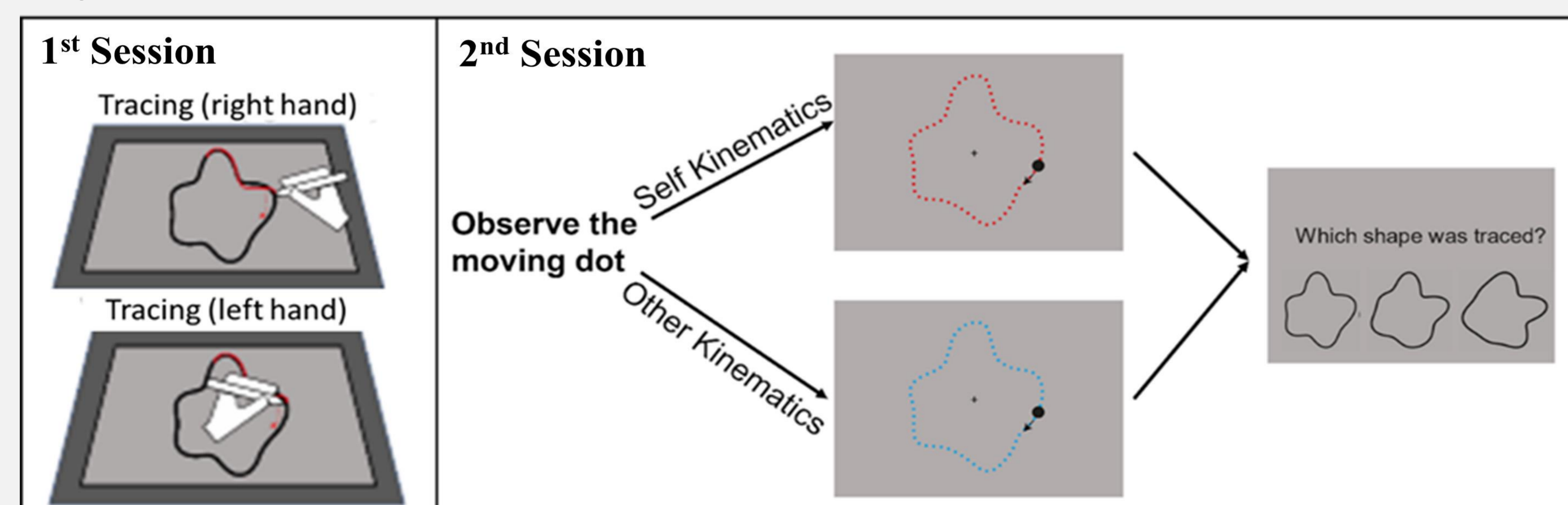


Stimuli Set



- Traces had been produced both by participants' right dominant hand ('Skilled') and by their left non-dominant hand ('Unskilled').

Experimental Procedure



Results

Preliminary results (n=13 right-handed participants).

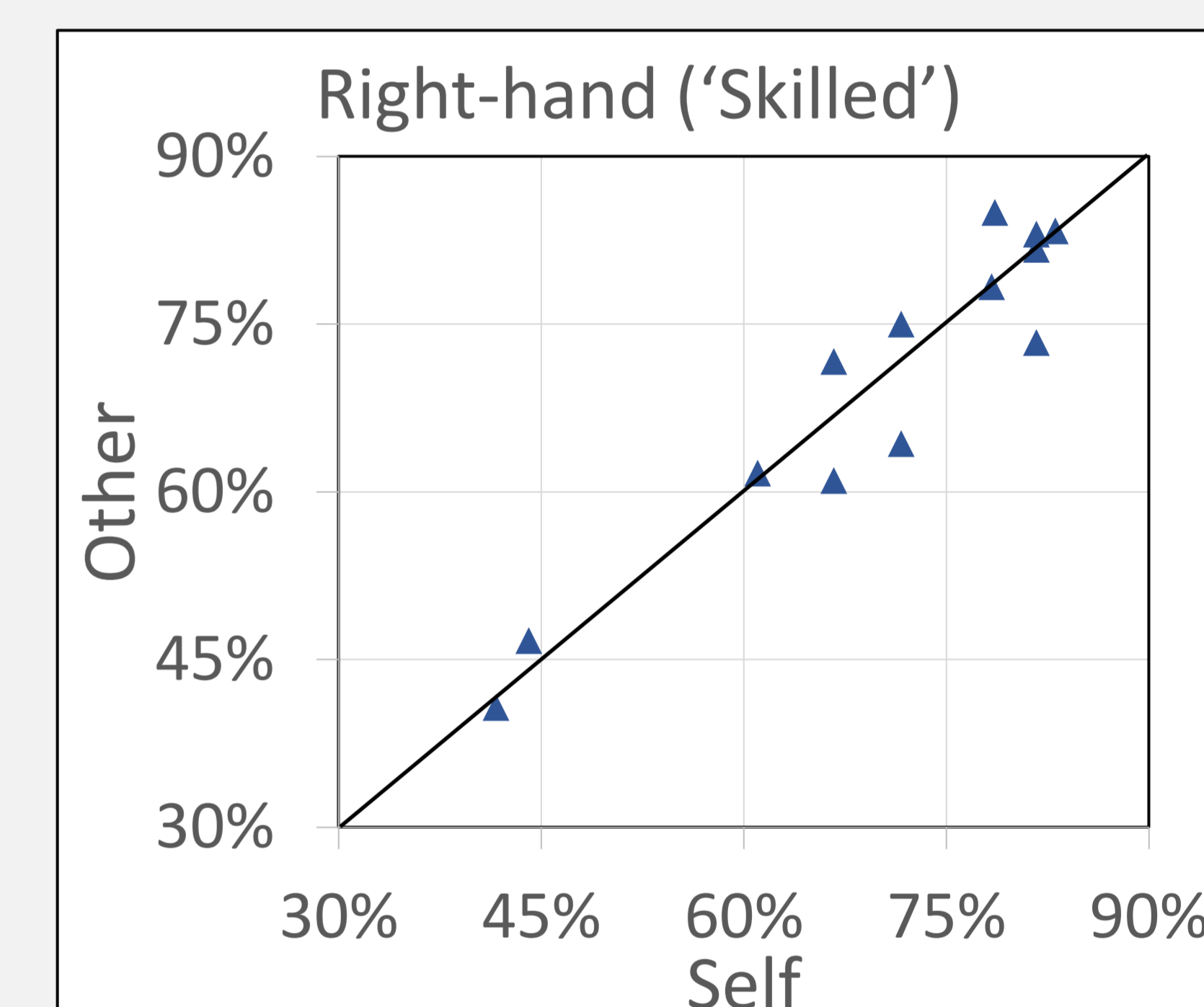
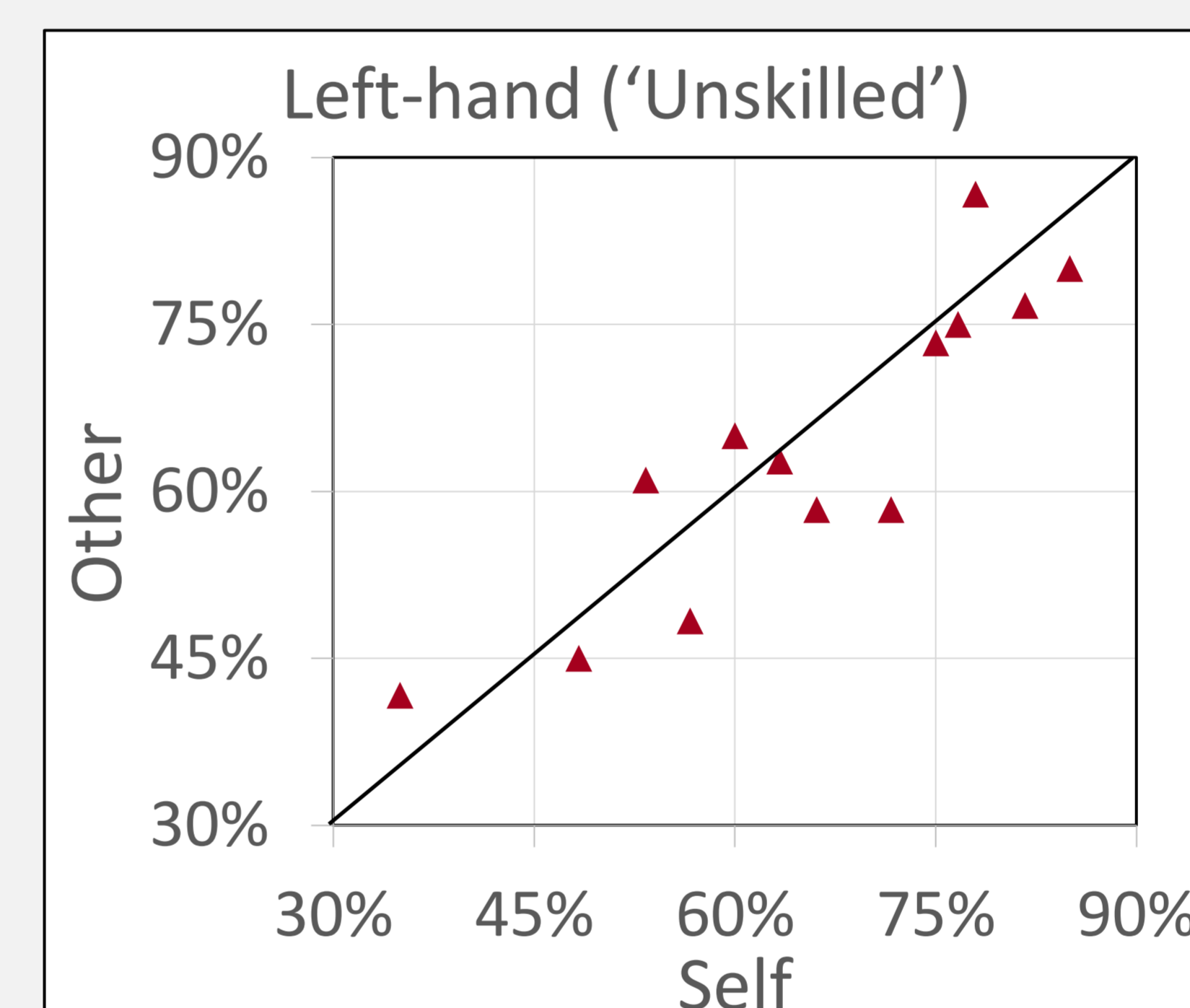
Tracing Skill Level

- An advantage in shape identification when observing traces performed with the right (vs. the left) hand.

Agent-Specific Kinematics

- When observing left-hand tracings, the majority of participants (9 of 13) showed an advantage of self-kinematics in identifying traced shapes.
- When observing right-hand tracings, participants were equally distributed between advantage of self- / other-kinematics / no advantage of either.

Recognition of shape being traced (percent correct) as a function of agent-specific kinematics (self / other)



Conclusions

- This is an ongoing project. We intend to complete data collection from 40 participants. We will examine the correspondence of shape identification with spatial accuracy and with kinematic features shared between participants.
- These results suggest a better capacity for spatiotemporal integration of self-generated trajectories relative to other-generated when observing unskilled movements.

References

- Recognizing people from their movement (Loula, Prasad, Harber & Shiffrar, 2005).
 Recognition of self-generated actions from kinematic displays of drawings (Knoblich & Prinz, 2001).
 Distinguishing self and other in joint action: Evidence from a musical paradigm (Novembre, Ticini, Schütz-Bosbach & Keller, 2012).
<https://www.psychbench.org>