

Quantifying observed motor synchrony: Movement predictability and interindividual traits predict accuracy

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BACKGROUND

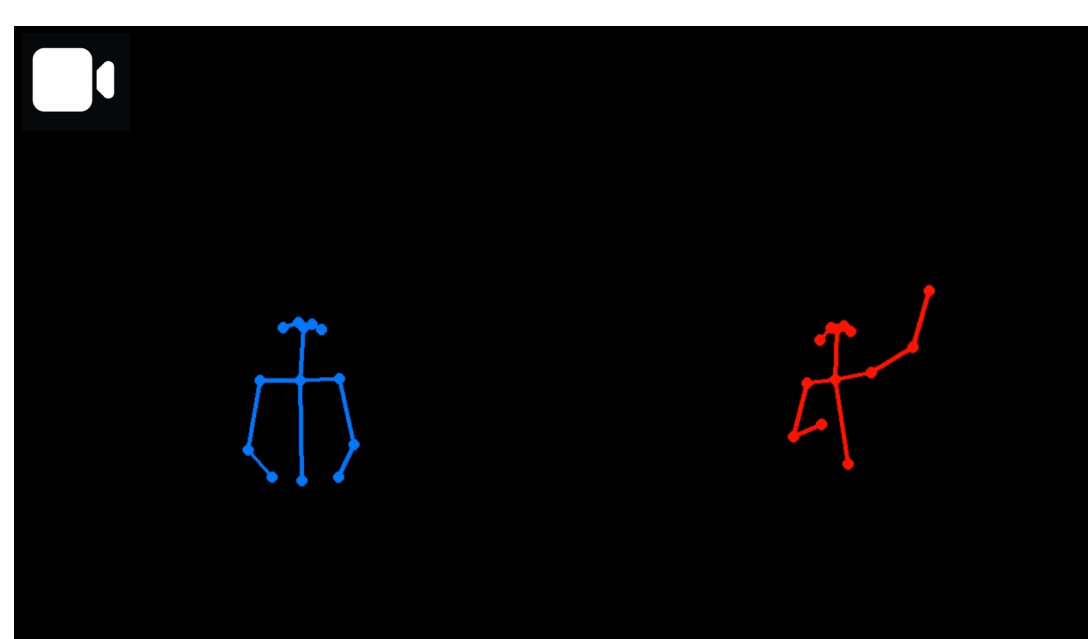
Observers struggle to quantify motor synchrony in multi-person scenes, but the presence of synchrony may predict their enjoyment (Vicary et al., 2017). We examine the influence of interindividual and kinematic factors on perception of synchrony:

- H1:** People quantify synchrony with **poor accuracy**
- H2:** More **predictable movements** may yield better accuracy
- H3:** Specific **interindividual traits** may influence accuracy
- H4:** **Enjoyment** and movement **reproducibility** may influence accuracy
- H5:** Specific **interindividual traits** may influence **enjoyment**

METHOD

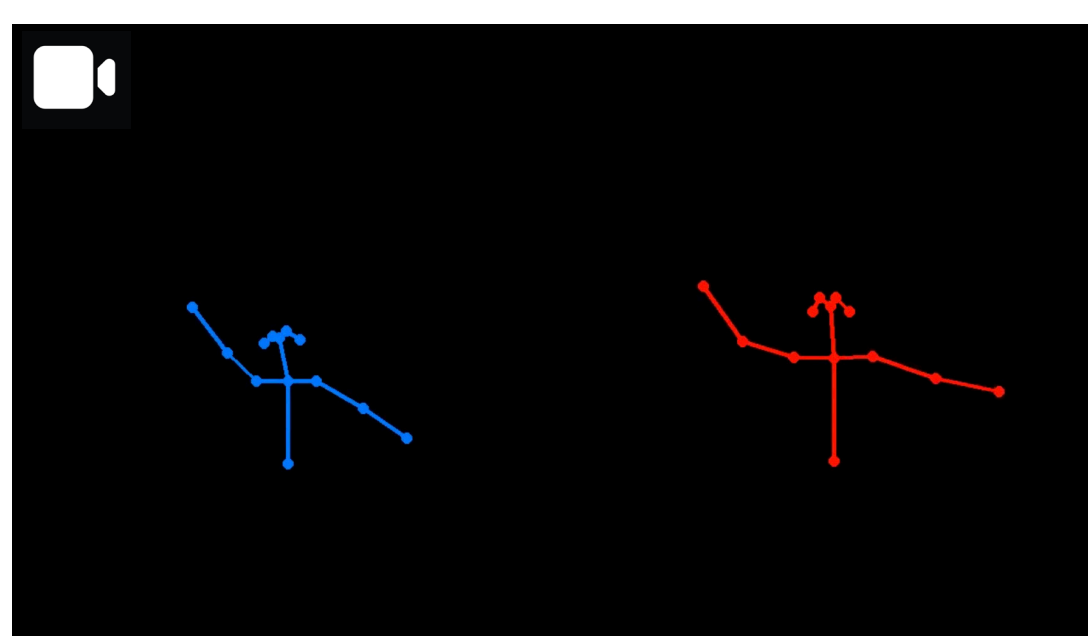
1. Online, 161 participants completed measures of:

- Extraversion + self-esteem
- Empathy + autism traits
- Body awareness + body competence



2. Watched videos of stick figures playing the mirror game (high + low synchrony)

- Videos generated from real mirror-game session
- Each participant watched 50 from pool of 198



3. Answered 3 questions per video using a sliding scale (0-100)

- How IN SYNCH were the people in this video?
- How much did you ENJOY watching the movements in this video?
- How identically you could REPRODUCE these movements with your body?

4. We calculated movement similarity and entropy per video

5. Analysis employed bayesian multilevel models – preregistered on OSF

RESULTS

H1: Observers underestimate

Low synch: 43.0 [41.3, 44.6]
High synch: 13.6 [12.3, 15.0]

H2: Accuracy ~ movement predictability

Low synch: ⊖ underestimation ~ predictability
High synch: ⬇ underestimation ~ ⬆ predictability

H3: Accuracy ~ interindividual traits

Low synch:
⬆ underestimation ~ ⬆ extraversion
⬇ underestimation ~ ⬆ body confidence
⊖ underestimation ~ self esteem, empathy, autism traits, body awareness

High synch: ⊖ underestimation ~ any measures

H4: Accuracy ~ enjoyment/reproducibility

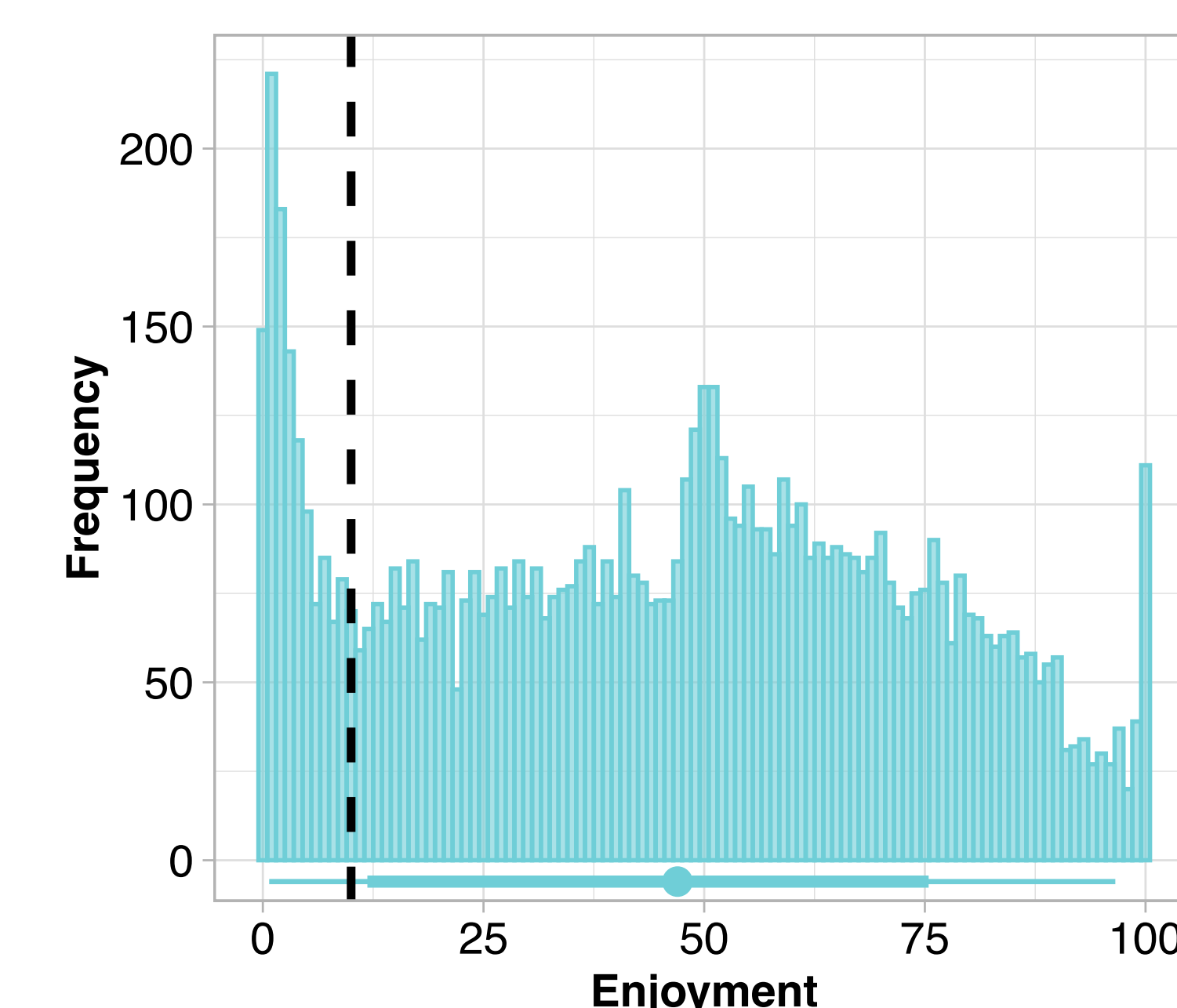
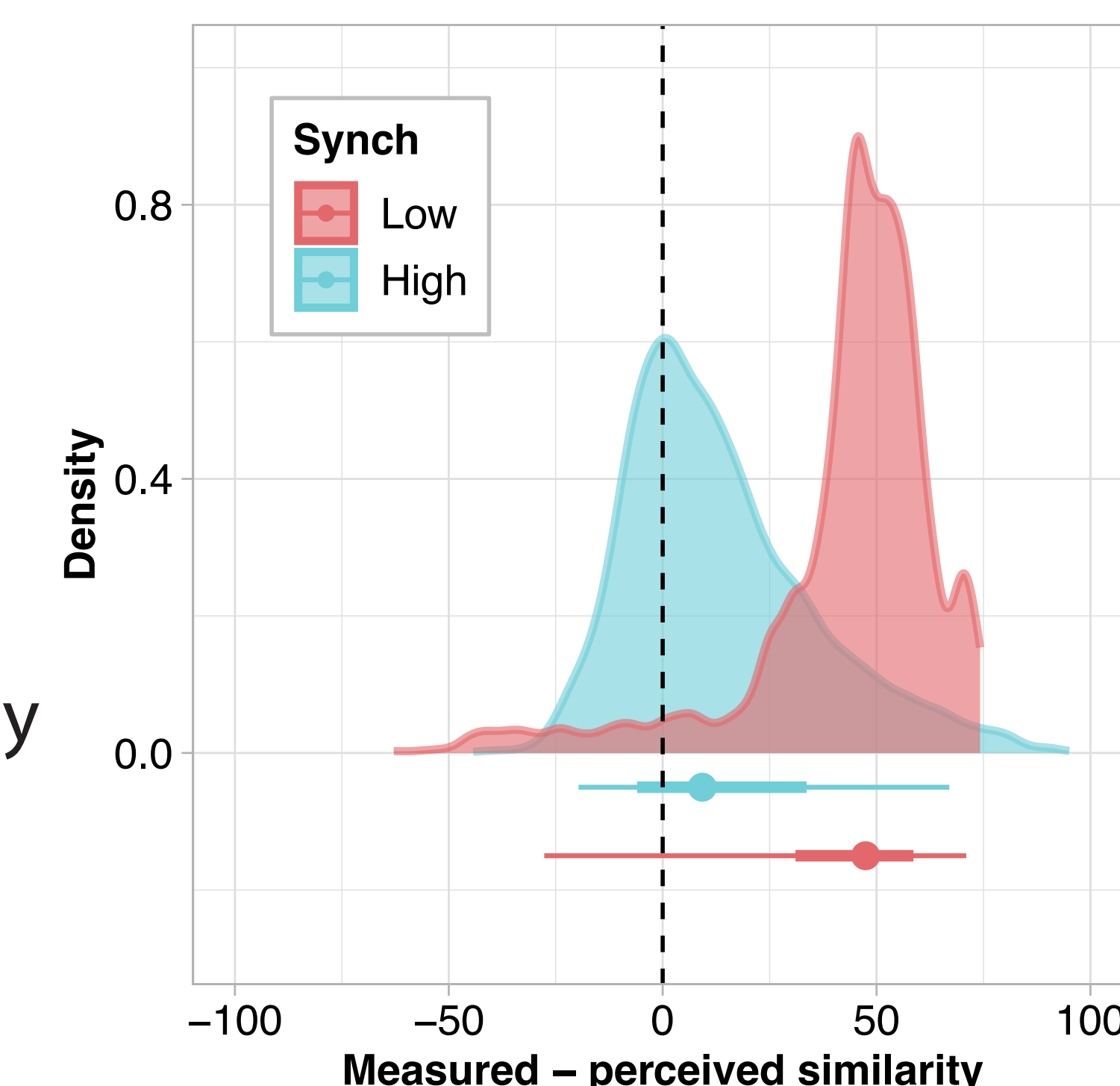
Low synch: ⬆ underestimation ~ ⬆ enjoyment, reproducibility
High synch: ⬇ underestimation ~ ⬆ enjoyment, reproducibility

H5: Enjoyment (11-100/100) ~ interindividual traits

⬆ enjoyment ~ ⬆ extraversion, empathy
⬇ enjoyment ~ ⬆ autism traits

Very low enjoyment (0-10/100) ~ interindividual traits

⬆ ~ ⬆ body perception, body confidence
⬇ ~ ⬆ extraversion, empathy



DISCUSSION

1. Accuracy is contingent on the **measured synchrony and predictability** of movements, as well as **observer's enjoyment and reproducibility ratings**.

2. Interindividual traits show **more promise for explaining differences in enjoyment than in accuracy**.

CONTACT INFO

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