

What makes musicians infer teaching intentions?

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Togetherness in teaching?





teachers also **change their teaching according to the student and the age and how developed the student is.**



It's just **very personal**. It's very personal. [...] If you teach somebody face to face, especially to teach music, you can't be distant.

Martin
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There was a specific way to play in the Russian school [...] This is a specific way of touching keys, you know. **Because of the specific way of seeing music and representing it, the hands are only the outside of that.**

Interview about teaching expressive performance

Behavioural modulations for teaching

- Infant-directed speech and action (e.g., Saint-Georges et al., 2013, Brand et al., 2002)
- Similarly towards adult learners (Uther et al., 2007; McEllin et al., 2017)
- Pedagogical cues are supposed to **attract novices' attention** (e.g., Csibra & Gergely, 2009)



Music performance for teaching?

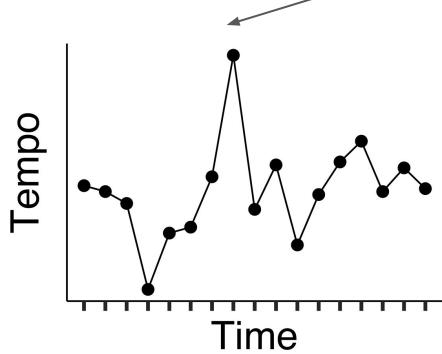
Perform the piece
for teaching (do
best as a teacher)



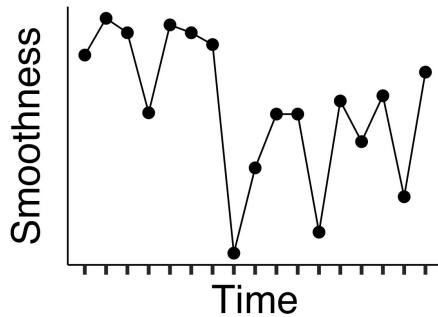
Perform the piece
for an audience (do
best as a performer)



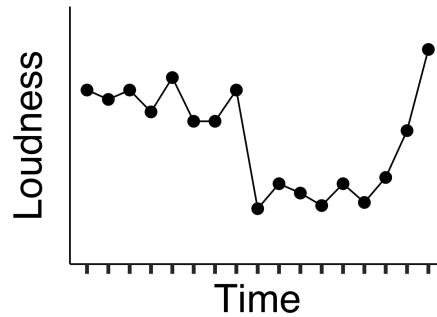
MIDI performance



IOIs: Interonset intervals



KOT: Key Overlap Time



**KV: Key Velocity,
KV difference**

Which is teaching performance?

Teach notated dynamics



(A)



(B)

Tominaga et al., in revision

Which is teaching performance?

Teach notated dynamics



teaching!



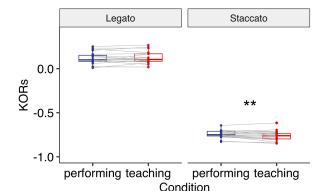
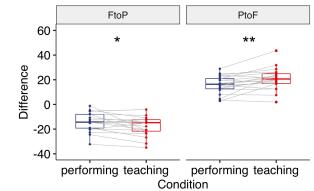
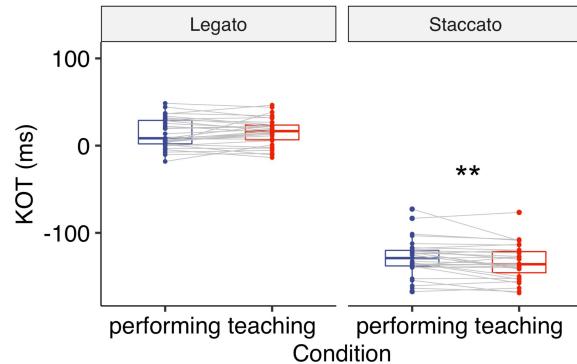
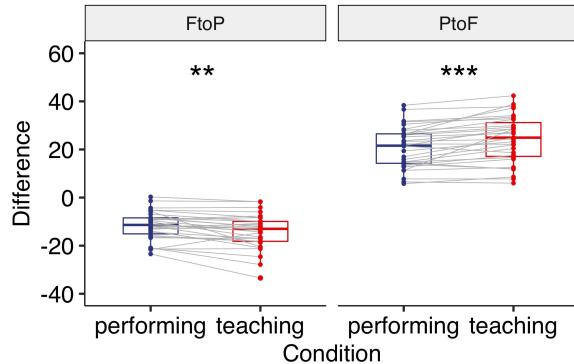
(A)



(B)

Tominaga et al., in revision

Pianists exaggerated their performance



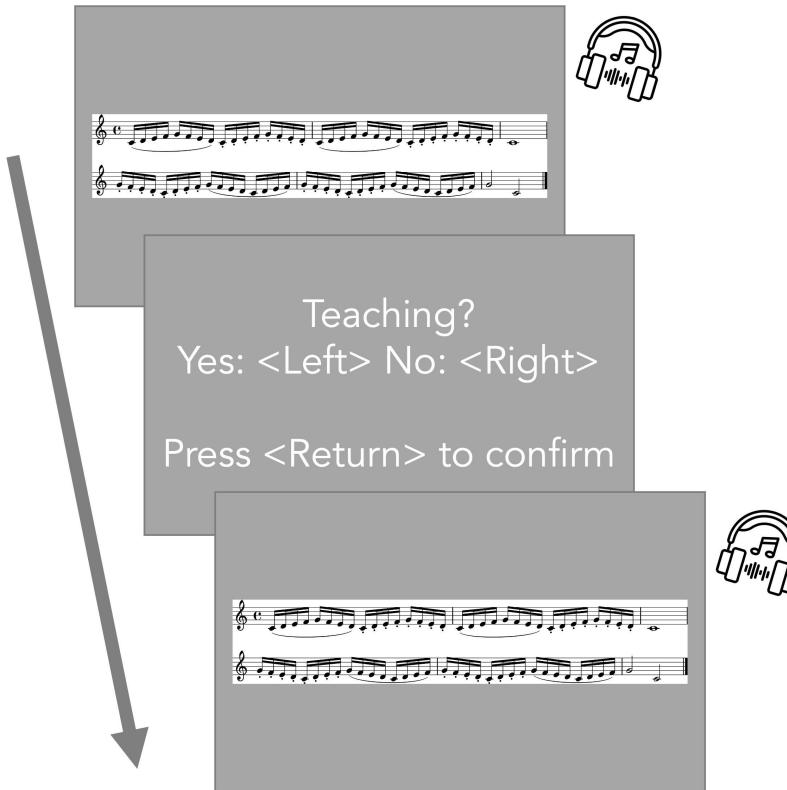
FtoP: Forte to Piano
PtoF: Piano to Forte

What makes musicians infer teaching intentions?

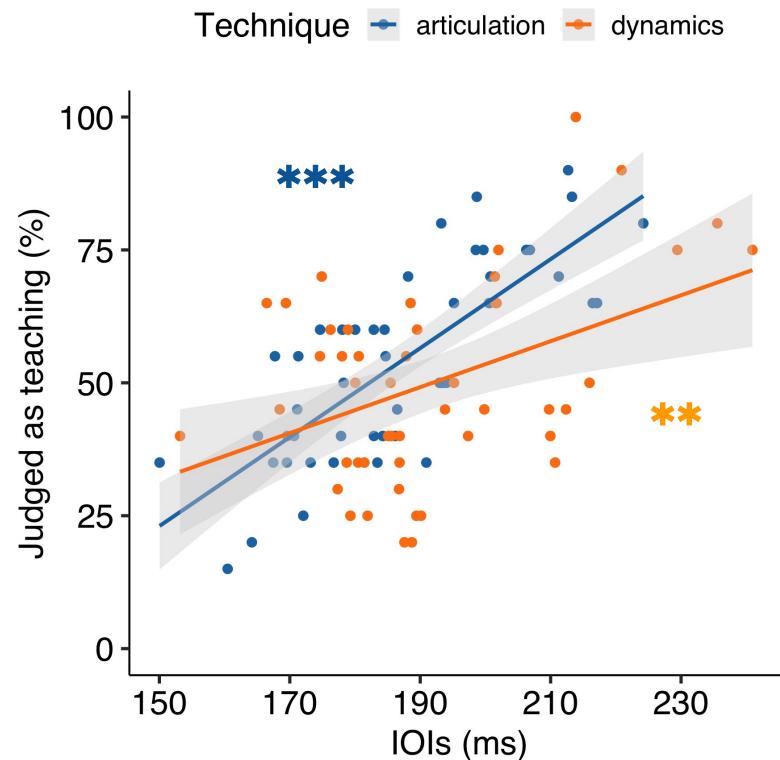
- Which features of piano performance make listeners (**potential learners**) infer teaching intentions?
 - Tempo? Articulation? Dynamics?
Dynamics contrast?
- 20 musicians (13 female)
 - average training years: 11.84 (SD = 5.62)

Task: Teaching notated articulation/dynamics or not?

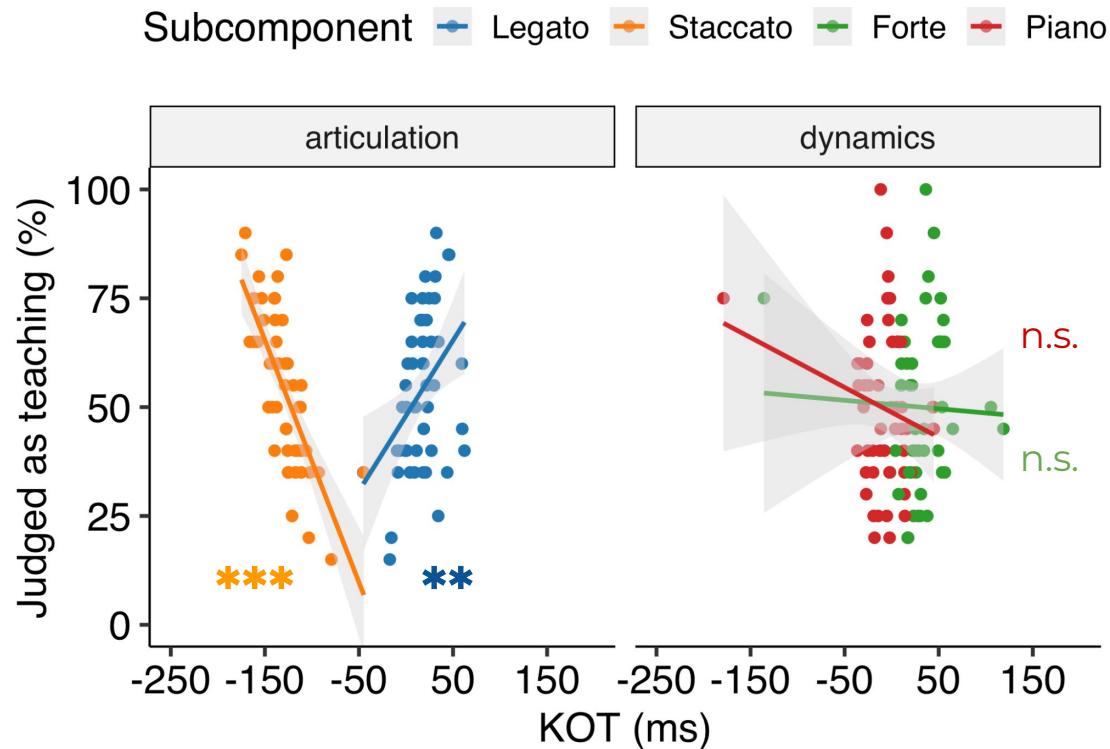
- 2 blocks (articulation or dynamics)
- each block: 48 trials



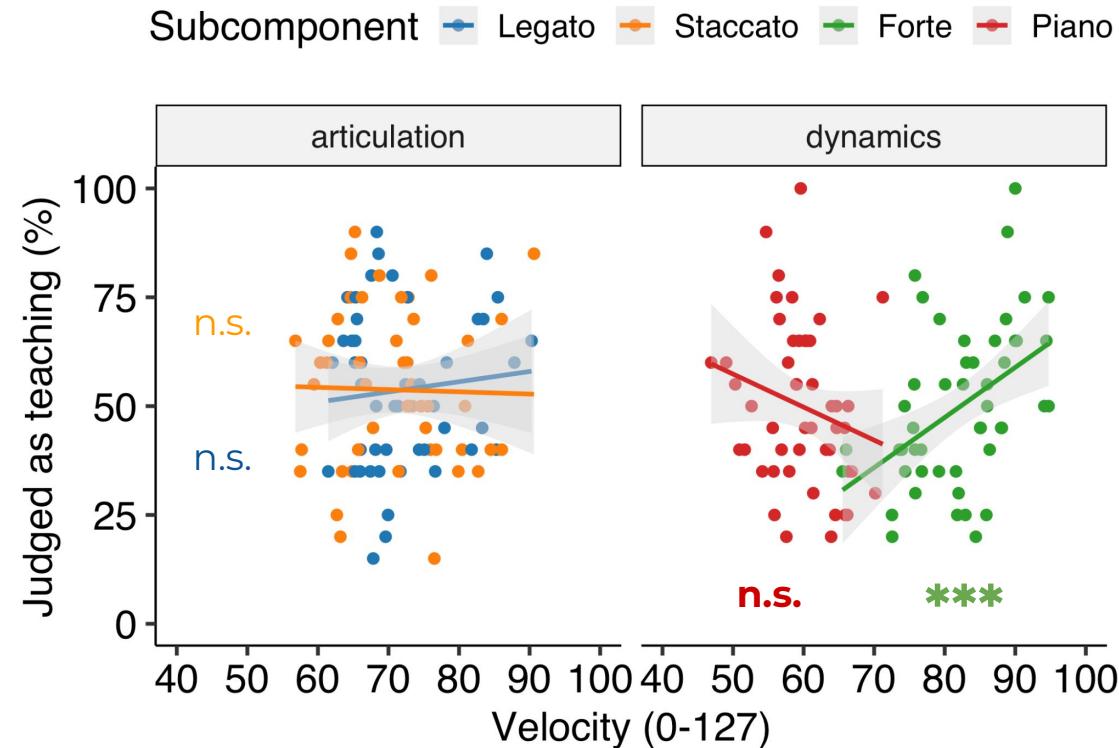
Tempo (Interonset intervals)



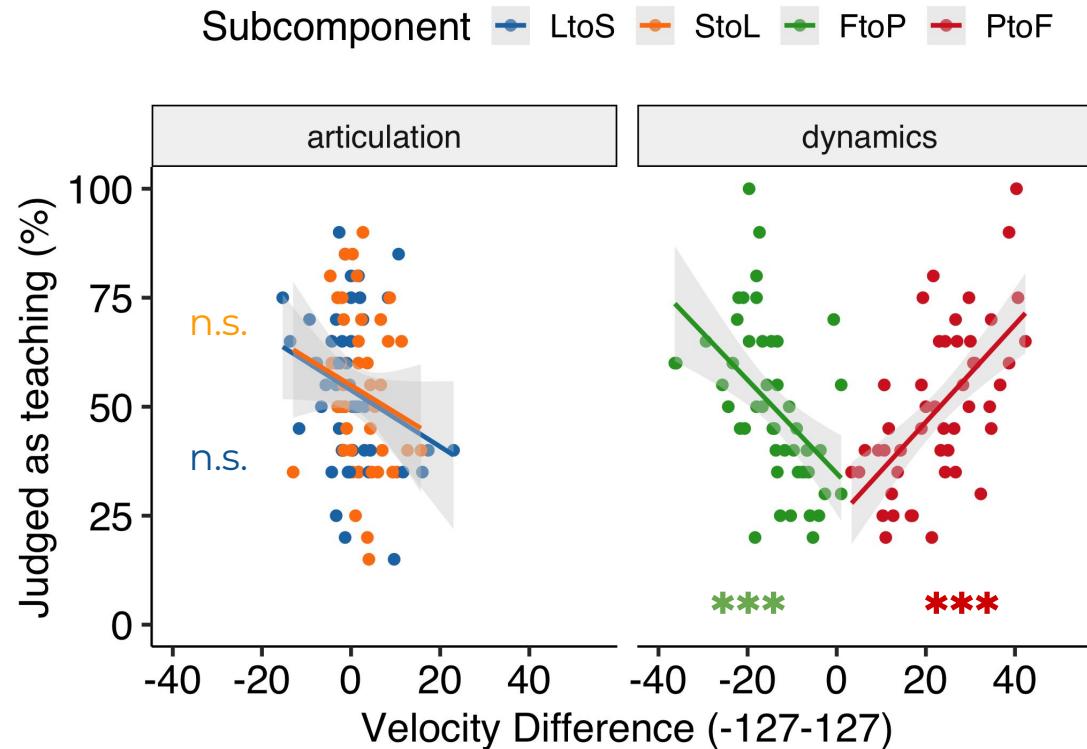
Articulation (Key Overlap Time)



Dynamics (Key Velocity)



Dynamics contrast (KV difference)



Experiment 2

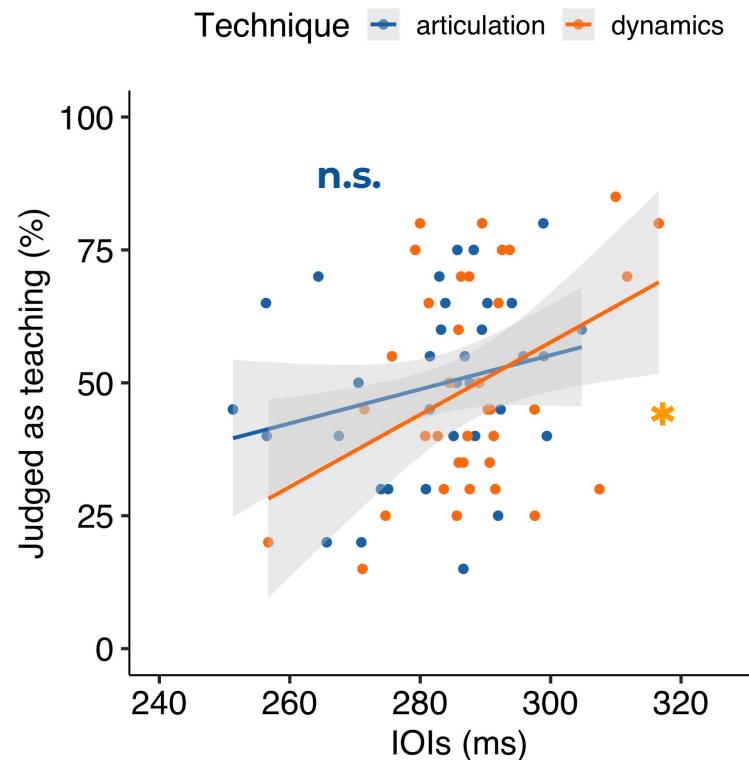


- Clementi's Sonatina Op.36 (No.3) / C major
- Musically complex, less systematic (e.g., fewer repetitions)
- 20 musicians (10 female), average training years: 12.65 (SD = 5.40)
- 2 blocks / 36 trials per block

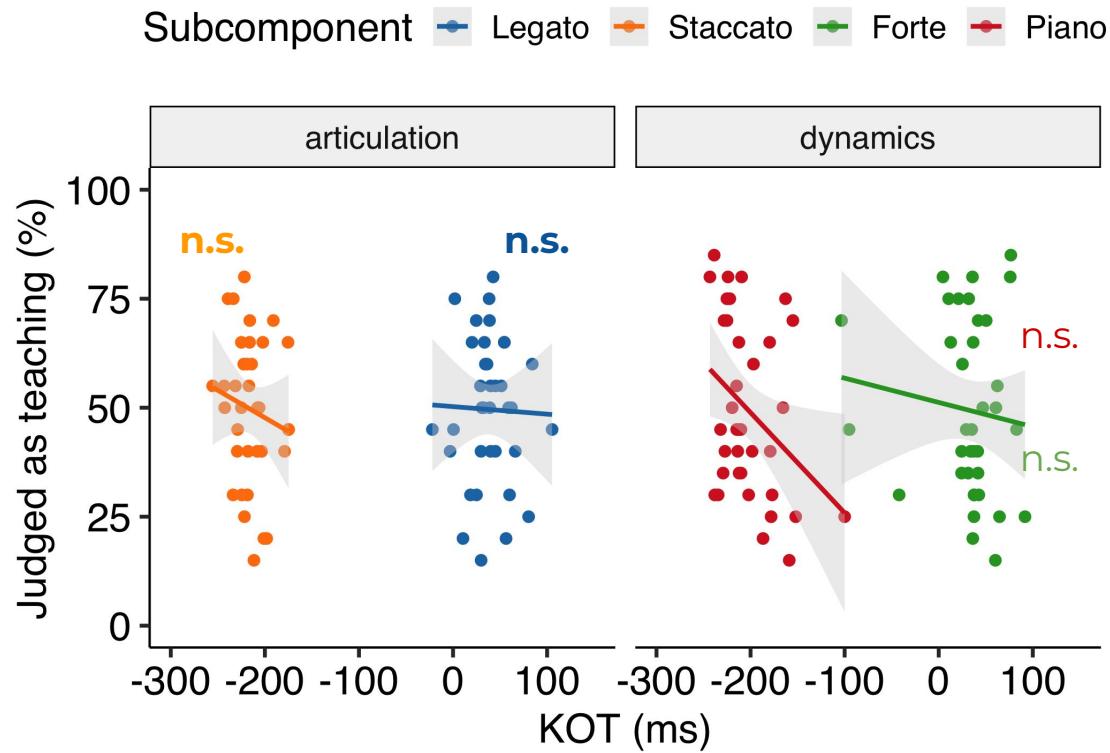
Teaching?



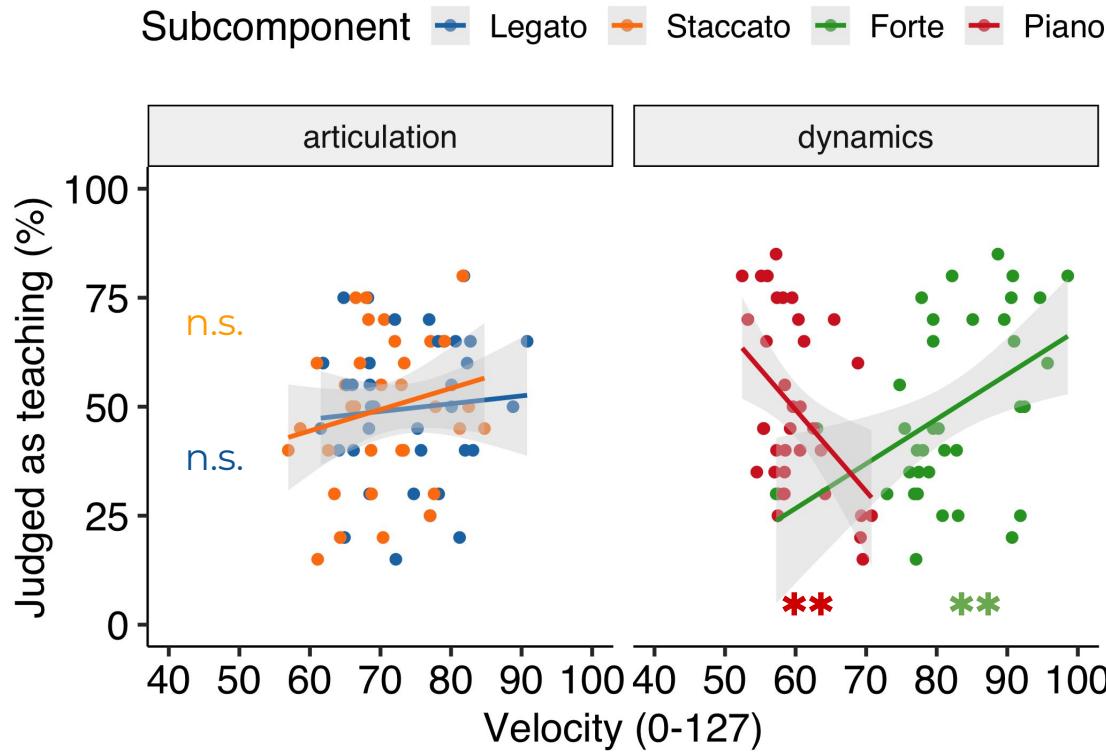
Tempo (Interonset intervals)



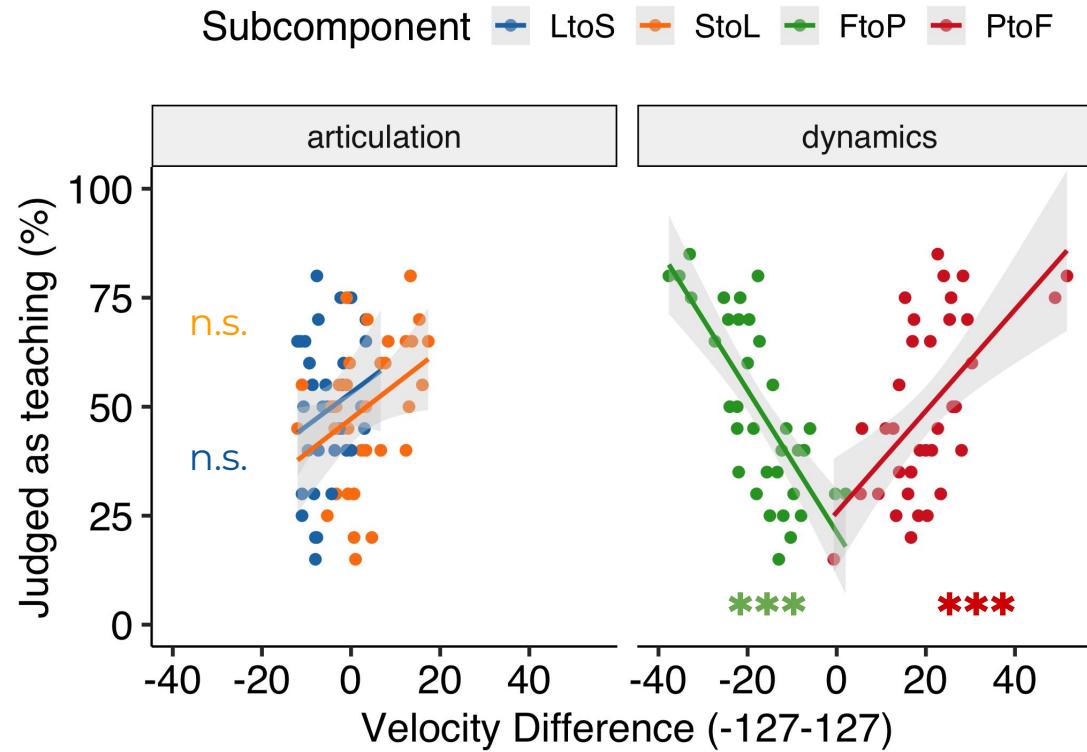
Articulation (Key Overlap Time)



Dynamics (Key Velocity)



Dynamics contrast (KV difference)



Taken together

- Expert pianists systematically modulate their performance for teaching (e.g., shorter staccato, larger contrast between forte and piano)
- Musician listeners can infer teaching intentions by relying on specific performance aspects
 - Dynamics is reliable or consistently used regardless of the complexity of pieces
 - Tempo and articulation are considered when the piece is structurally simple
- How about non-musicians?

Togetherness in teaching

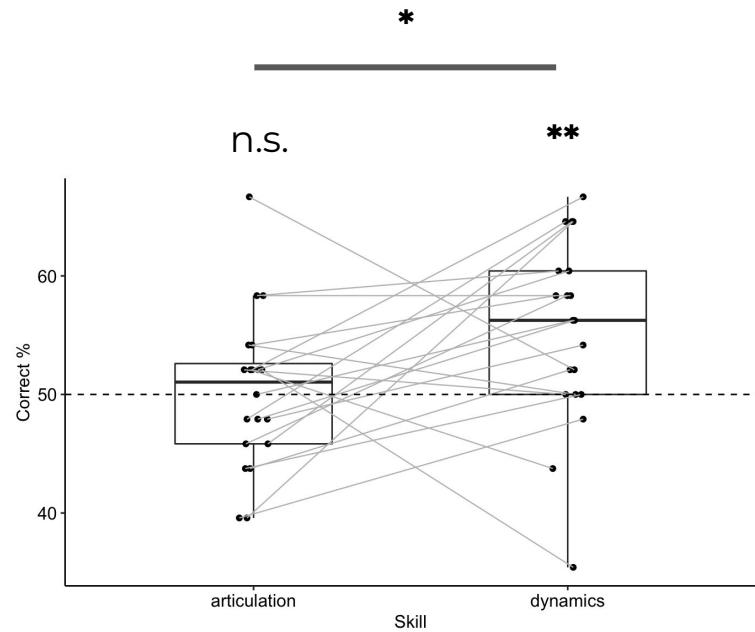
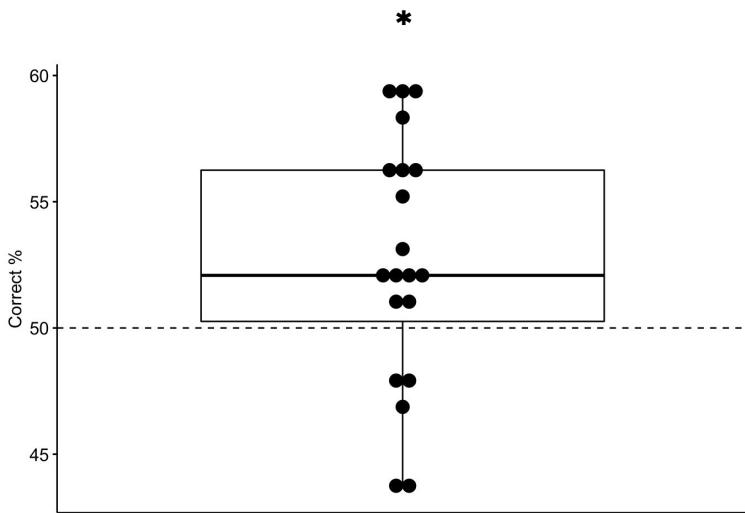
- Exaggeration is one of the ways to convey intentions
- Production
- Adaptation
 - *Teachers also change their teaching according to the student and the age and how developed the student is.*
- Interactiveness (e.g., turn-taking, playing together)
- Exploring together
 - *It's just very personal. It's very personal.*
- Developing common ground and performance together
 - *Because of the specific way of seeing music and representing it, the hands are only the outside of that.*

Thank you!

Somby lab
Dávid Csűrös
Fanni Takátsy
Natalie Sebanz
Günther Knoblich
Martin Clayton



Accuracy (Experiment 1)



Accuracy (Experiment 2)

