EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Analyzing gaze data

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VWP example

Click on the...

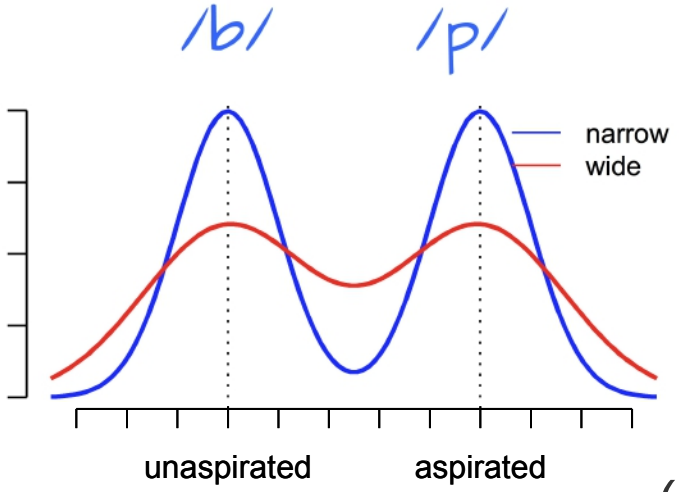
Participants:
Non-native speakers of Cantonese
(Nixon, van Rij, Mok, & Chen, in prep.)

VWP example

Click on the...

寶 bou²
(treasure)

譜 pou²
(score, music sheet)



VOT distribution

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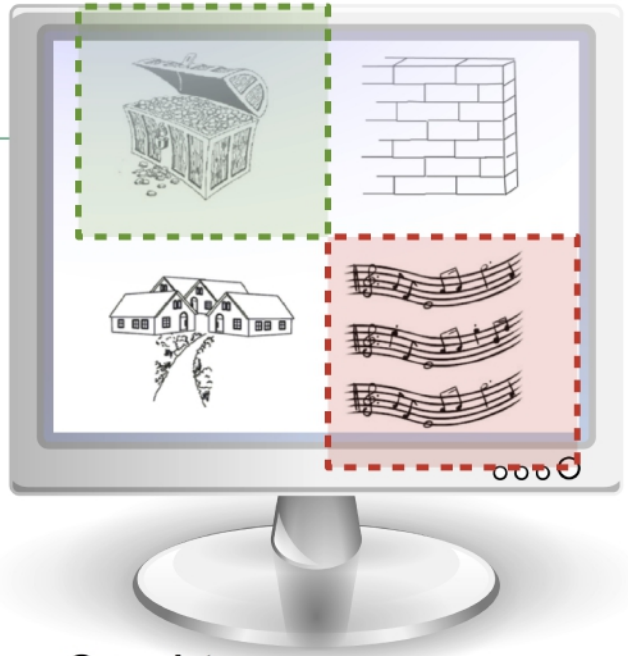
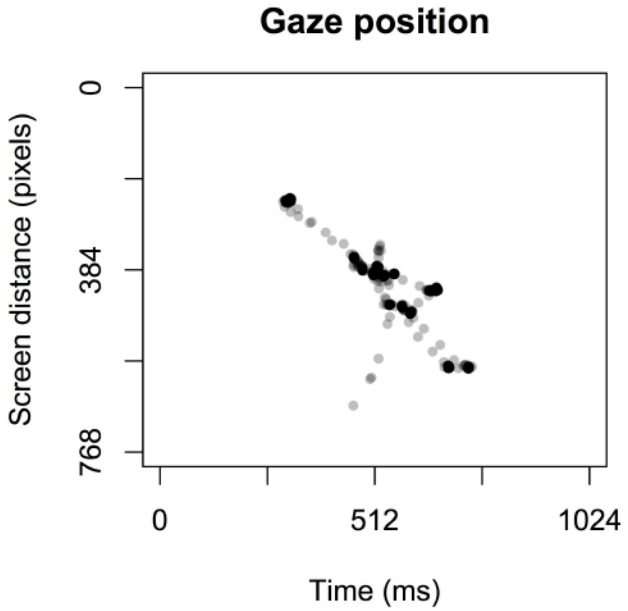
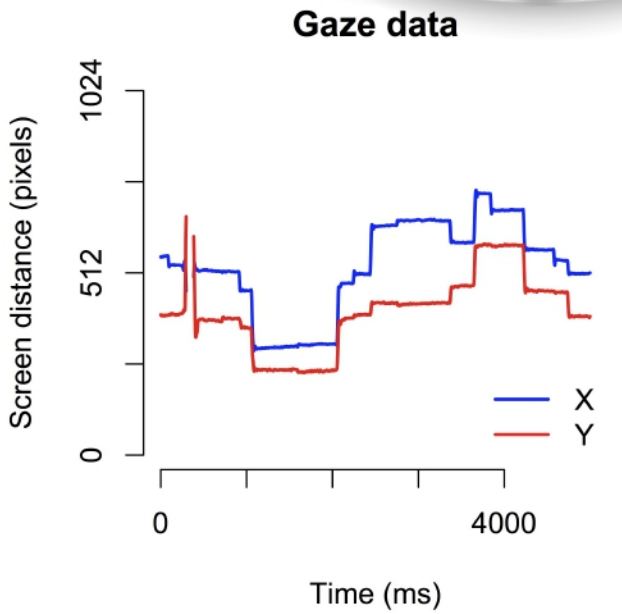
Gaze data

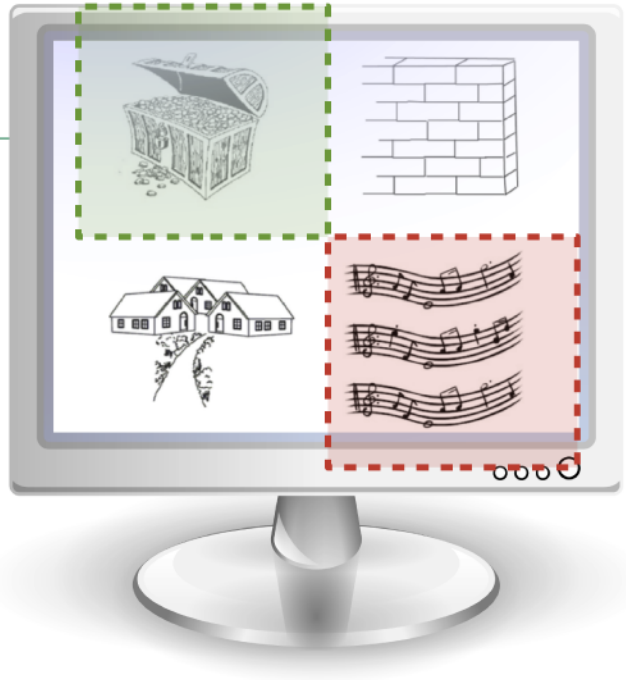


- Raw gaze position data





Gaze data



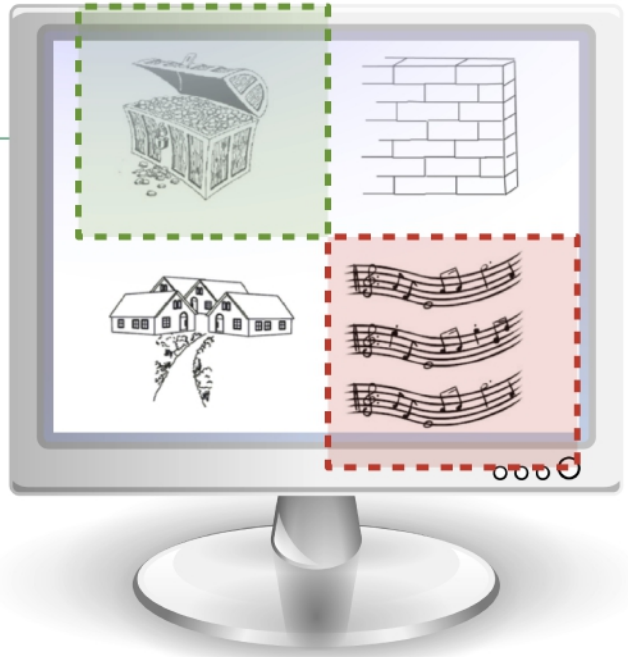
- Areas of Interest
  - Categorical data:
    Target, Competitor, Distractor, …

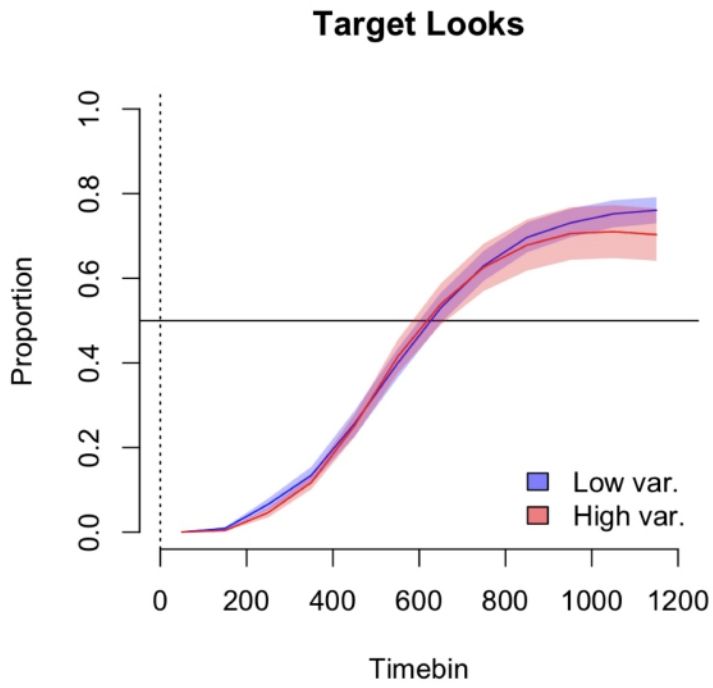
- Visualization: proportions of looks to target
  - Time bins of 100-200 ms in VWP studies

$$proportion_{Target} = \frac{n_{Target}}{(n_{Target} + n_{Competitor} + n_{Distractor})}$$

Gaze data

Target
Competitor

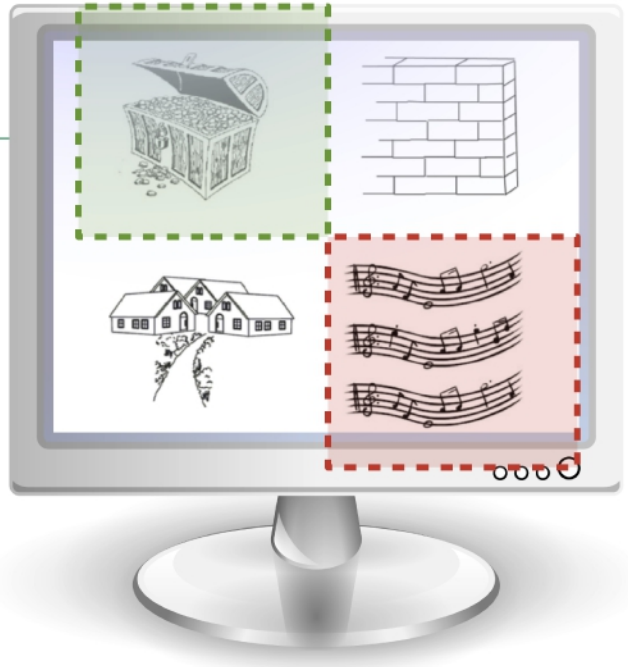


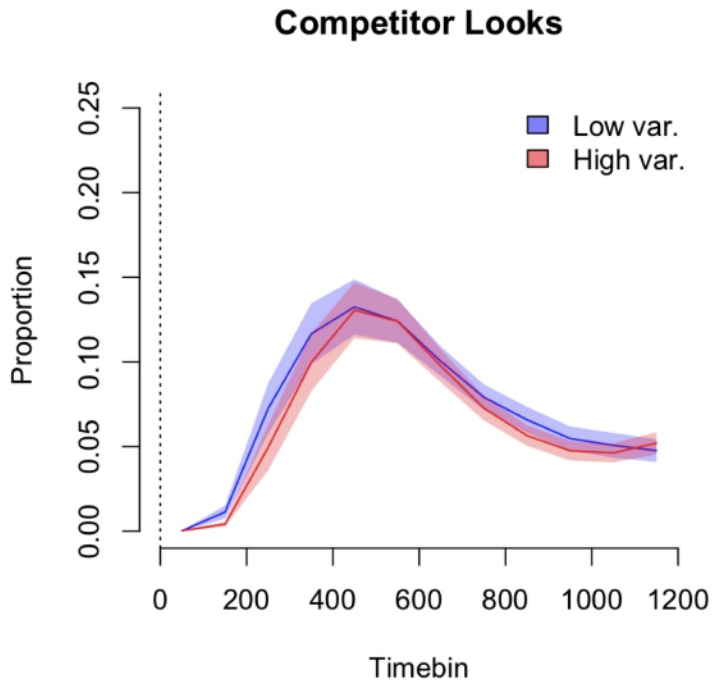


$$proportion_{Target} = \frac{n_{Target}}{\left(n_{Target} + n_{Competitor} + n_{Distractor}\right)}$$

Gaze data

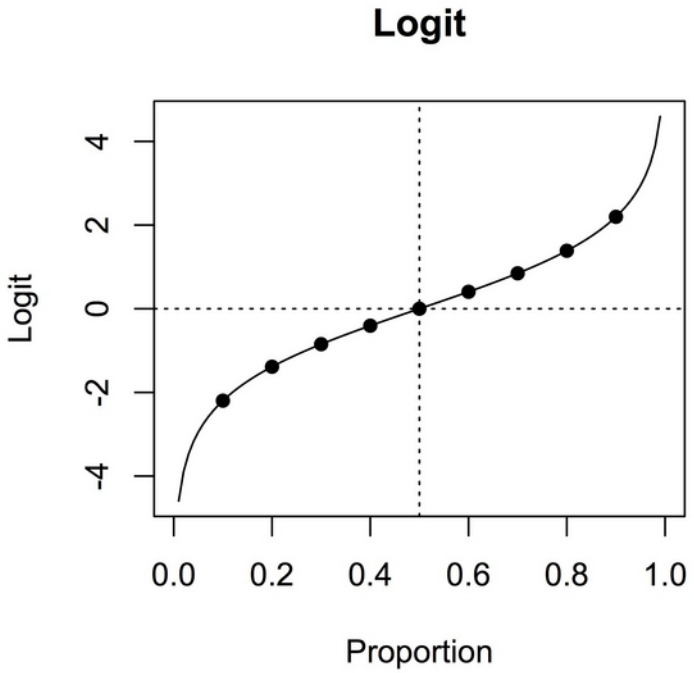
Target
Competitor





$$proportion_{Target} = \frac{n_{Target}}{\left(n_{Target} + n_{Competitor} + n_{Distractor}\right)}$$

Gaze data



- Proportions of looks to target
  - Time bins of 100-200 ms

$$proportion_{Target} = \frac{n_{Target}}{(n_{Target} + n_{Competitor} + n_{Distractor})}$$

- Binomial data: Looks to Target versus looks to … nontarget?
  - Time bins of 100-200 ms in VWP data

$$logit = \log\left(\frac{n_{Success}}{n_{Failure}}\right)$$

VWP example

Click on the...

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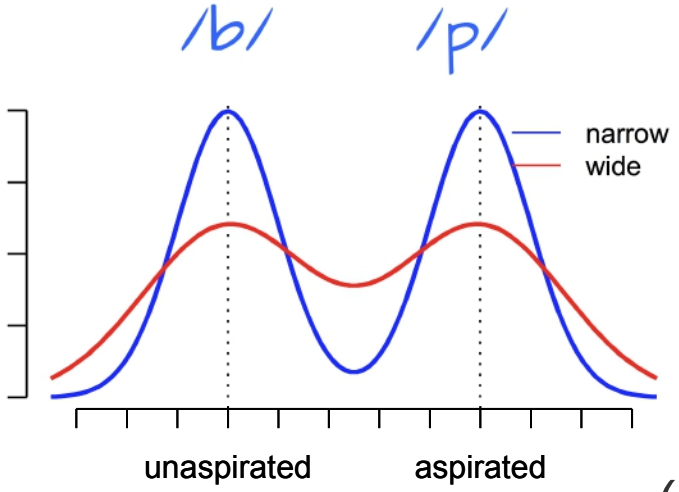

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Nonlinear interactions

Nonlinear interactions

```
te(A, B) # A, B continuous
G + te(A, B, by=G) # G is categorial

# in linear regression:
A + B + A:B
# equals:
A * B

# in GAMs:
te(A, B)
# could be decomposed in:
s(A) + s(B) + ti(A, B)
```