

# Eye-tracking during reading

What can we learn from the measures?

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```
# Create references.json file based on the citations in this script
# make sure you have 'bibliography: references.json' in the YAML
rbbt::bibt_update_bib("et_reading.qmd")
```

Wrote 1 reference to './references/references.json'

## 1 Eye-tracking

- in (psycho)linguistics
  - during reading
  - visual world paradigm

- in psychology
  - pupillometry
  - visual search
- but also
  - market research
  - diagnostic tool

## 1.1 History

- this history of eye-tracking

## 1.2 Eye movements

- fixations
- saccades
- parafoveal preview
- link to cognition

## 1.3 Data collection

- eye-tracking
- screen
- calibration
- chin/head rest
- desk or head mounted, screen

## 2 Reading

- reading span
- fixate
- skip words
- regress
- frequency/length effects

### 3 Visual World Paradigm

- auditory stimuli
- visual stimuli
- anticipatory eye movements
- inferences
- time course of anticipation or inferences
  - L1-development, L2-acquisition, neurodivergence, diagnostic tool

### 4 Eye-tracking reading measures

#### 4.1 Region of interest (ROI)

- can be anything
  - sentence-level
  - word/region-level
  - a certain part of the screen

#### 4.2 Measures (dependent variables)

- what we measure = *dependent* variables<sup>1</sup>
  - their value *depends* on some *predictor* (e.g., word frequency)
- measures of duration (time spent on a region)
  - first fixation
  - first-pass reading time
  - regression path duration
  - total reading time
- measures of revisits
  - number of fixations
  - number of regressions in/out
  - regression in/out (yes or no)
  - probability of regressions in/out (0:1)

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<sup>1</sup>usually...

### 4.3 What do these measures tell us?

- lots (Vasishth, von der Malsburg, and Engelmann 2013)

### References

Vasishth, Shravan, Titus von der Malsburg, and Felix Engelmann. 2013. “What Eye Movements Can Tell Us about Sentence Comprehension.” *Wiley Interdisciplinary Reviews: Cognitive Science* 4 (2): 125–34. <https://doi.org/10.1002/wcs.1209>.