Agenda

Today

- Discussing Demberg & Sayeed (2016)
- Revising the course experiment

Next Week

- **Monday**: Getting started with ExperimentBuilder
  - *Homework*: hand in proposals for new course experiment
  - *Homework*: : https://www.youtube.com/watch?v=RTRpIpUAuO8
- **Wednesday**: Discussing your proposals, decide on design

Week After

- **More ExperimentBuilder, Stimuli for new experiment**

Demberg & Sayeed (2016)

1. What was the motivation?
2. What was the specific research question?

3. What was the IV?
4. What were the DVs?

5. What were the tasks?
6. Were they within- or between-subjects studies?

7. What confounds were taken care of?
8. Which confounds may remain?

9. What was found?
10. What was concluded?

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Motivation and research question

Motivation

Find a measure that is sensitive wrt cognitive load and is suitable for the visual world paradigm

Research Questions

- Is ICA sensitive to linguistically induced cognitive load?

- Is ICA robust wrt eye-movements?

- Can ICA reflect cognitive load from multiple sources?

IV and DV

Manipulations

Ex1-3

- Grammatical gender (mis-)match
- Semantic anomaly vs plausible sentences
- Subject vs object relative clause

Ex4-6

- Additionally: Driving difficulty (easy vs difficult)

DV

Ex1-3

- Reading Time
- ICA events in region 750-1250ms after critical word onset
- Questions on grammaticality/comprehension

Ex4-6

- ICA events in region 750-1250ms after critical word onset
- Grammaticality/comprehension questions
- Driving performance

IV and DV

Manipulations

Ex7

- Concessive vs causal discourse connector

DV

Ex7

- ICA events in region 750-1250ms after critical word onset

- Questions on grammaticality/comprehension

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Tasks (+ procedure + design)

- Within-subjects, by latin square

- Half of all trials regular, half anomalous/difficult

    - Word-by-word central presentation
    - Synthesized auditory presentation
    - Auditory presentation of native speech
- Comprehension questions (Occasional in Ex7)

- Driving task

Confounds / issues

Differences in material presented in critical time windownin SPR

- E.g. 1500ms after critical stimulus onset: still on same word in ORC while already processing subsequent words in SRC

Not always same time regions for effect (but also different phenomena and even modalities)

- Some synthesized items were removed when critical region became too long

Small correlations of large eye-movements and small changes in ICA

Results

Higher ICA values/reading times on difficult variants of critical words (region 750-1250ms)

Highe

Highe

Little

manip

Con

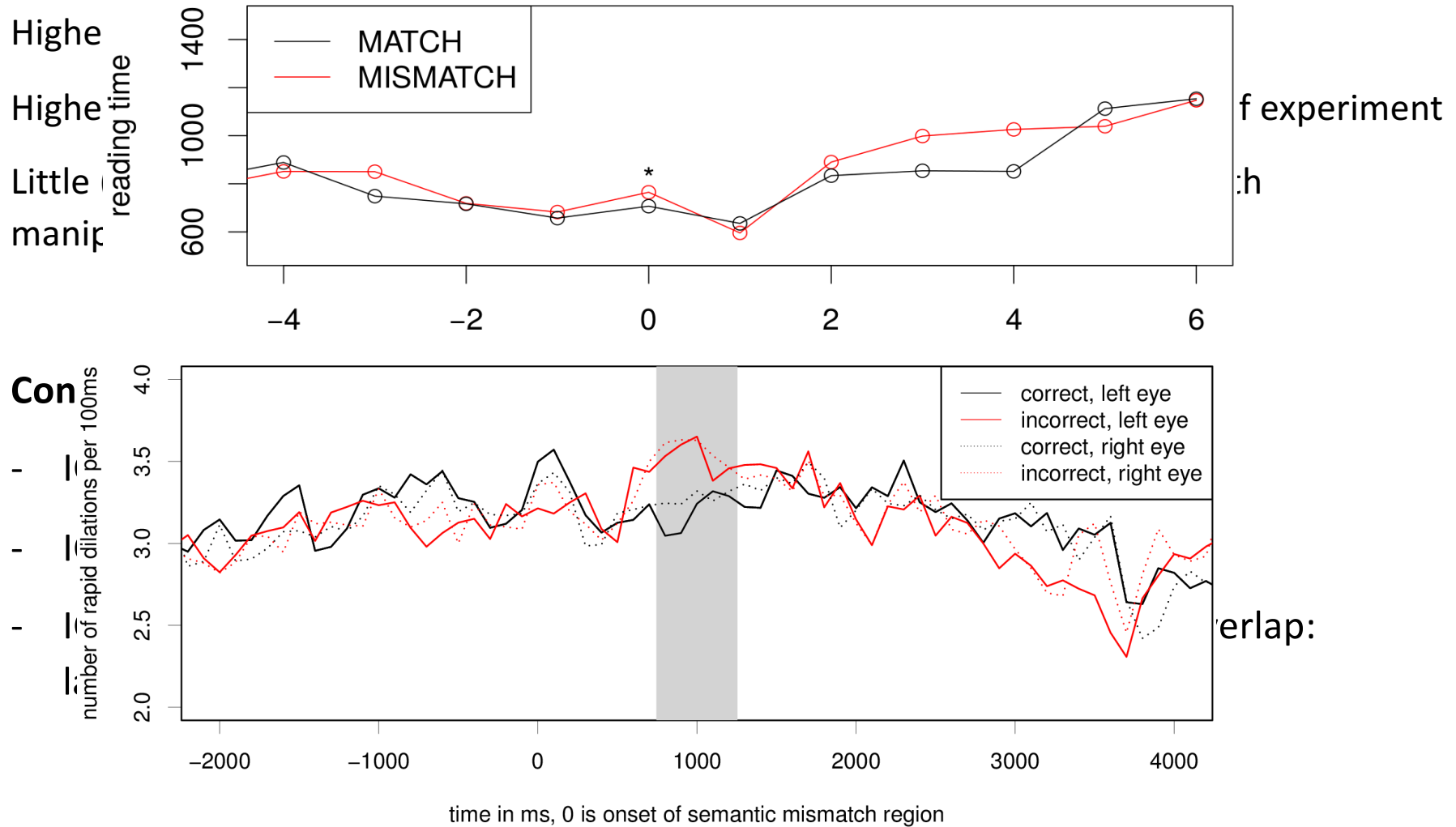- l

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f experiment

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Fig 5. Raw ICA for the semantic fit experiment. Critical region onset for the experiment is located at word number 0; the grey bar marks the region of 500ms, peaking at 1s. The difference between conditions is significant at $p < 0.001$ for the left eye and $p < 0.01$ for the right eye, see also Table 2.

Course Experiment

Research Questions

1. Test whether the Van Berkum et al. (2008) speaker-inconsistency effect extends to reading times in a self-paced reading paradigm
2. Investigate whether addressee knowledge interacts with (i.e., exerts an influence on) the speaker-inconsistency effect

Introduction

- IVs, DVs, Task   **Design**
- Example stimuli (experimental, fillers) **Materials**
- What would you control for?   **Pre-tests and controls**
- Describe what a trial would look like   **Procedure**
- What results would you predict?   **Predictions**

Analysis

Results

Discussion

Conclusion

Design

2 x 2 within-subjects design

- Stereotype Consistency (+stereotypical, –stereotypical)
- Speaker-specific Knowledge Consistency (+knowledge, –knowledge)

4 conditions:

+s +k

+s –k

–s +k

–s –k

→ This design allows us to study the effect of each factor on the DV, as well as the effect of any interaction between factors on the DV

Stimulus Template

Context

+ stereotypical / –stereotypical

Albert is a **28 year old truck driver / 59 year old member of the House of Lords**.

+ knowledge

In his free time, he likes to **go drinking with his friends, playing poker, and riding his Harley Davidson** in the country side.

–knowledge

In his free time, he likes to **go to the theatre with his colleagues, playing golf, and riding his thoroughbred horse** in the country side.

Target sentence

"I would really like to get a large <u>tattoo</u> on my back."

Procedure

Instructions

During this study you will be reading brief profiles about a wide variety of people. Each profile will provide some background information about the individual and a short statement from them about their habits, goals, or plans for the near future.

The background information will remain on screen until you press the space bar. Take your time and read the information carefully.

When you press the space bar, you will see the individual's statement as a series of dashes. These dashes indicate where the words will appear. With every press of the the space bar, a new word will appear and the previous word will become dashes again. Use the space bar to read the statement at a comfortable, natural pace, and make sure that you understand what you read.

When you finish reading the last word, press the space bar again. The dashes will disappear and you will see a question about the profile you just read. To answer the question, press the "F" key for YES or the "J" key for NO.

Example

Albert is a 28 year old truck driver. In his free time, he likes to go to the theatre with his colleagues, playing golf, and riding his thoroughbred horse in the country side.

Statement:

```
I would really like to get a large tattoo on my back.
```

According to the profile, does Albert like to play poker?
    F = Yes, J = No

Correct!

Issues

1. Introduction (cover story)
2. Spill-over region
3. Perspective change?
4. Presentation style…
5. Balancing of fillers
6. Comprehension questions
7. Measure

Implementation

Self-Paced Reading

Choices for presentation

- Central presentation
- One word at a time, in phrases
- Whole text in word-by-word presentation? Context sentence in full?
- Critical region?
- Comprehension Questions?
- Presentation / cover story

Predictions

- RT by region and manipulation

Implementation

ICA

Choices for analysis

- Critical region?

Predictions

- ICA events by manipulation

Agenda

Next Week

- **Monday**: Getting started with ExperimentBuilder

    - *Homework*: hand in short template of new course experiment: list research questions, IVs, DVs, task and measures, procedure. Very briefly explain your design decisions!

    - *Homework*: : https://www.youtube.com/watch?v=RTRpIpUAuO8

- **Wednesday**: Discussion of your proposals, decision on design

Week After

- **More ExperimentBuilder, Stimuli for new experiment**