

# **Antecedent preferences of Personal Pronouns and Anaphoric Demonstratives in German in Comprehension**

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# Demonstrative Pronouns

- Demonstrative pronouns can be used anaphorically
- German: personal pronouns – er, sie, es  
demonstrative pronouns - der, die, das

(1) **Der** **Kellner**<sub>i</sub> erkennt **den** **Detektiv**<sub>k</sub> als das  
The waiter recognizes the detective as the

Bier umgekippt wird. **Er**<sub>i</sub> /**Der**<sub>k</sub> ist offensichtlich sehr  
beer tipped over is. He is apparently very

fleißig.  
hard-working.

# Antecedent preferences of demonstratives

- Diessel (1999): Demonstratives signal a topic shift.
- Grammatical Role: pron - subject,  
dem – object
- Topichood: pron – topic,  
dem – non-topic
- Information Structure: pron – old,  
dem – new

# Previous work

- Focussed on three languages:
  - Dutch
  - Finnish
  - German

# Dutch

- Kaiser and Trueswell (2003)
- Topic based approach
  
- Pronoun – hij
- Demonstrative - die
  
- Used SVO antecedent sentences only
- Sentence completion and visual-world

- SVO – dem – Object/Non-topic preference
- SVO – pron – Subject/Topic preference
- Can't separate Grammatical Role and Topic based accounts

# Finnish

- Kaiser and Trueswell (2004)
- Grammatical role
- Information structure
  
- Pronoun – hän
- Demonstrative – tämä
  
- SVO and OVS antecedent sentences
- Sentence completion and visual world

- SVO – dem – Object/Non-topic
- SVO – pron – Subject/Topic
  
- OVS – dem – No clear preference
- OVS – pron – Subject/Non-topic
  
- Pronouns – sensitive to grammatical role
- Demonstratives – both grammatical role and topichood

# Finnish Information Structure

- SVO sentences have relatively neutral info structure.
- OVS sentences postverbal S refers to NEW information
- In SVO contexts (both dem and pron) early anticipatory effects to NP1, as likely continuation.
- In OVS contexts – for pron there was a sudden shift to NP2 (S), no pref for dem.

# German

- Bosch, Rozario and Zhao (2003)
- Grammatical role
- Corpus study found that Demonstratives preferred antecedents with accusative case, and pronouns, nominative antecedents.

- Bosch, Katz and Umbach

(2a) Im Krankenhaus  
In hospital.

(2b) Der Oberarzt untersucht den Notfallpatienten.  
The senior doctor examines the emergency patient.

(2c) **Der/Er** ist gerade erst gekommen.  
Dem/He has only just arrived.

(2d) Der \_\_\_\_\_ ist gerade erst gekommen.

(b) – SVO or OVS

Reading times, completion, memory questionnaire

# Experiment 1

- Judgement task – rated on a 7 point scale the probability that the two capitalized phrases referred to the same person

(3) DER MANN sieht den Jungen.  
ER ist sehr müde.

Antecedent Sentence

Anaphoric Sentence

Judgement on which NP?

SVO

Demonstrative

Pronoun

SVO

SVO

SVO

SVO

OVS

Demonstrative

Pronoun

OVS

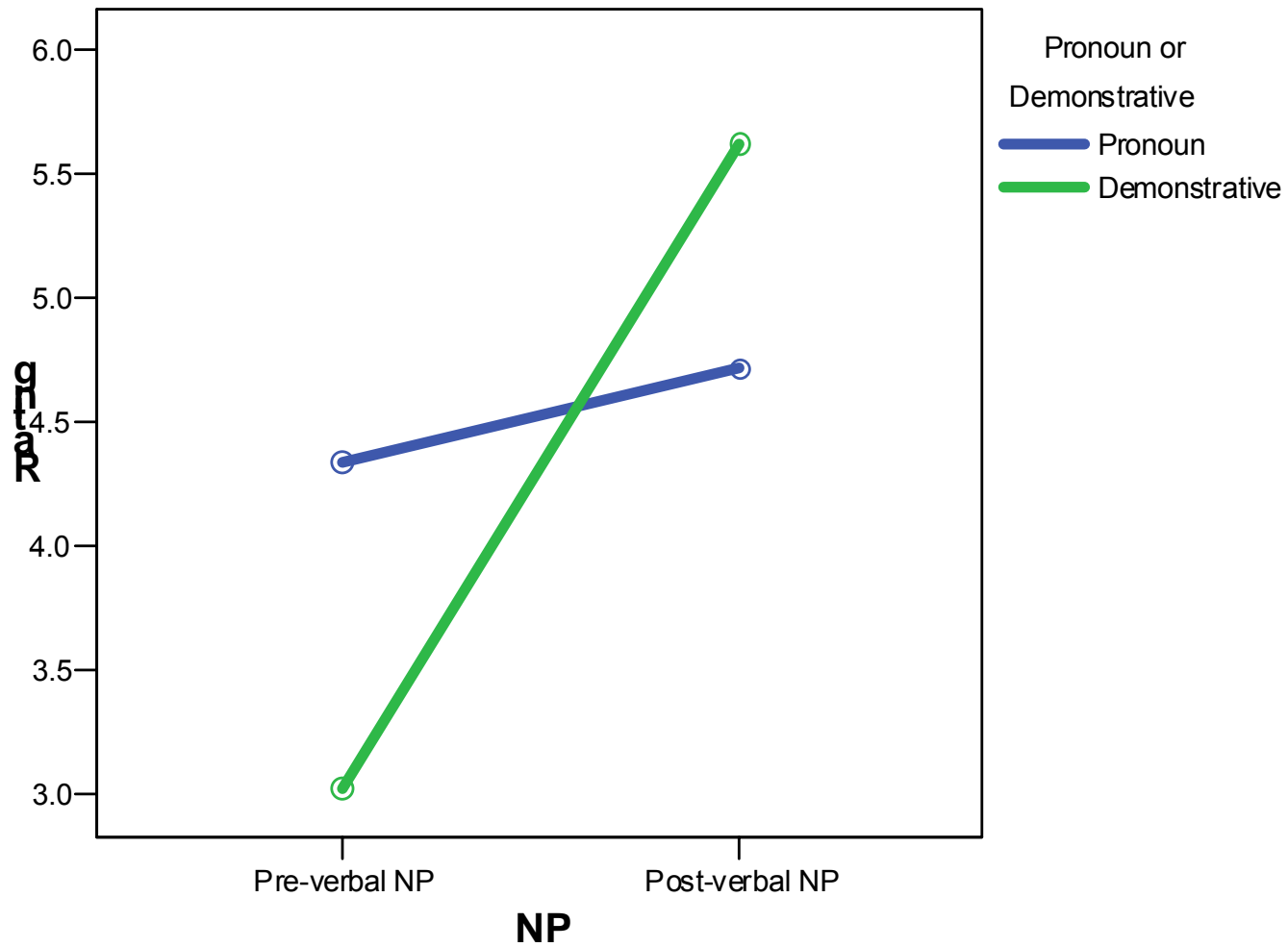
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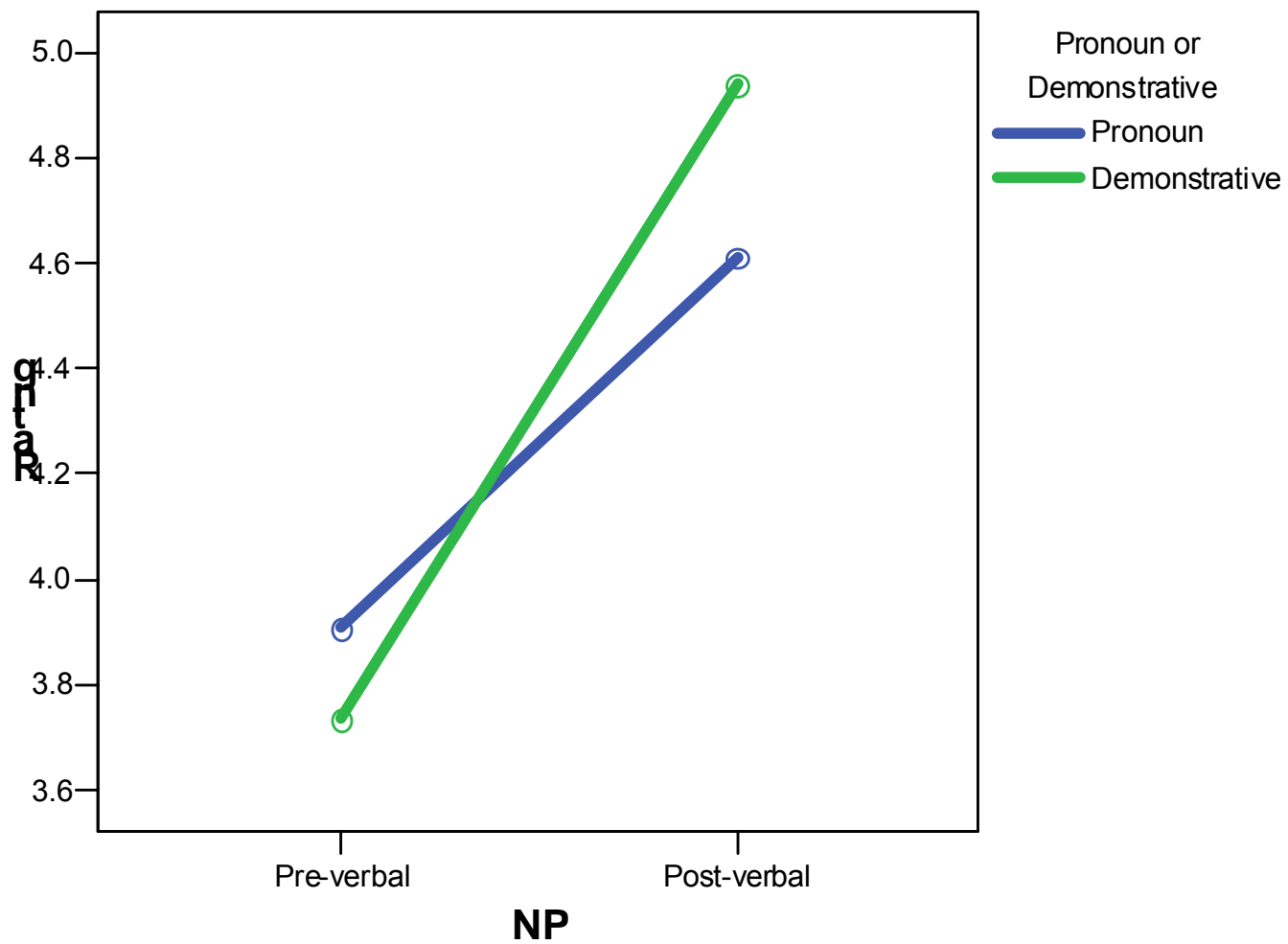
OVS

- Participants: Native speakers of German living in Edinburgh
- Sentences displayed using WebExp software

**Figure 1: Graph to show antecedent preferences for SVO antecedent sentences**



**Figure 2: Graph to show antecedent preferences with OVS antecedent sentence**



- Demonstratives preferred post-verbal antecedents, regardless of grammatical role.
- Personal pronouns preferred Subject antecedents in OVS condition, but had no preference in SVO condition.

# Results

- Similar to Kaiser & Trueswell's (in press) results for Finnish
- Different anaphors access different levels of representation
- In German Personal pronouns access both syntax and discourse
- But Demonstratives access mainly discourse

# Potential Problems

- Attrition - all participants were native German speakers living in Edinburgh
- Experiment 1 was offline
- Results may have been affected by presentation of coreference judgement – capitalization may have had an effect.

# Experiment 2 (with Matt Crocker)

- Visual world experiment
- Participants resident in Saarbrücken
- Materials are intended for use with L2 learners, so “easy” lexical items used.
- Subordinate clause introduced between antecedent and anaphor sentence to distract eye-movements from post-verbal NP

Antecedent Sentence

Anaphoric Sentence

SVO

Demonstrative

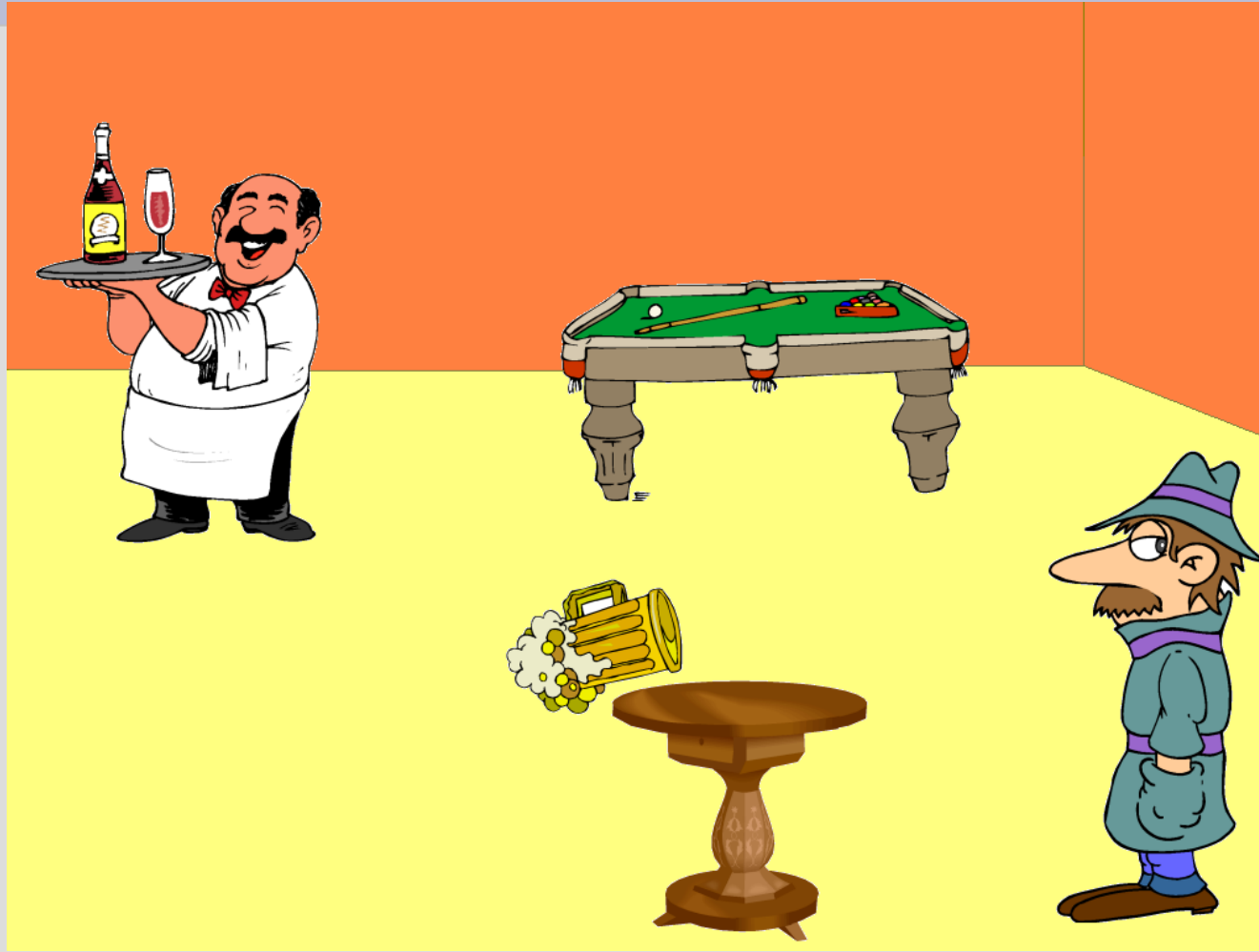
Pronoun

OVS

Demonstrative

Pronoun

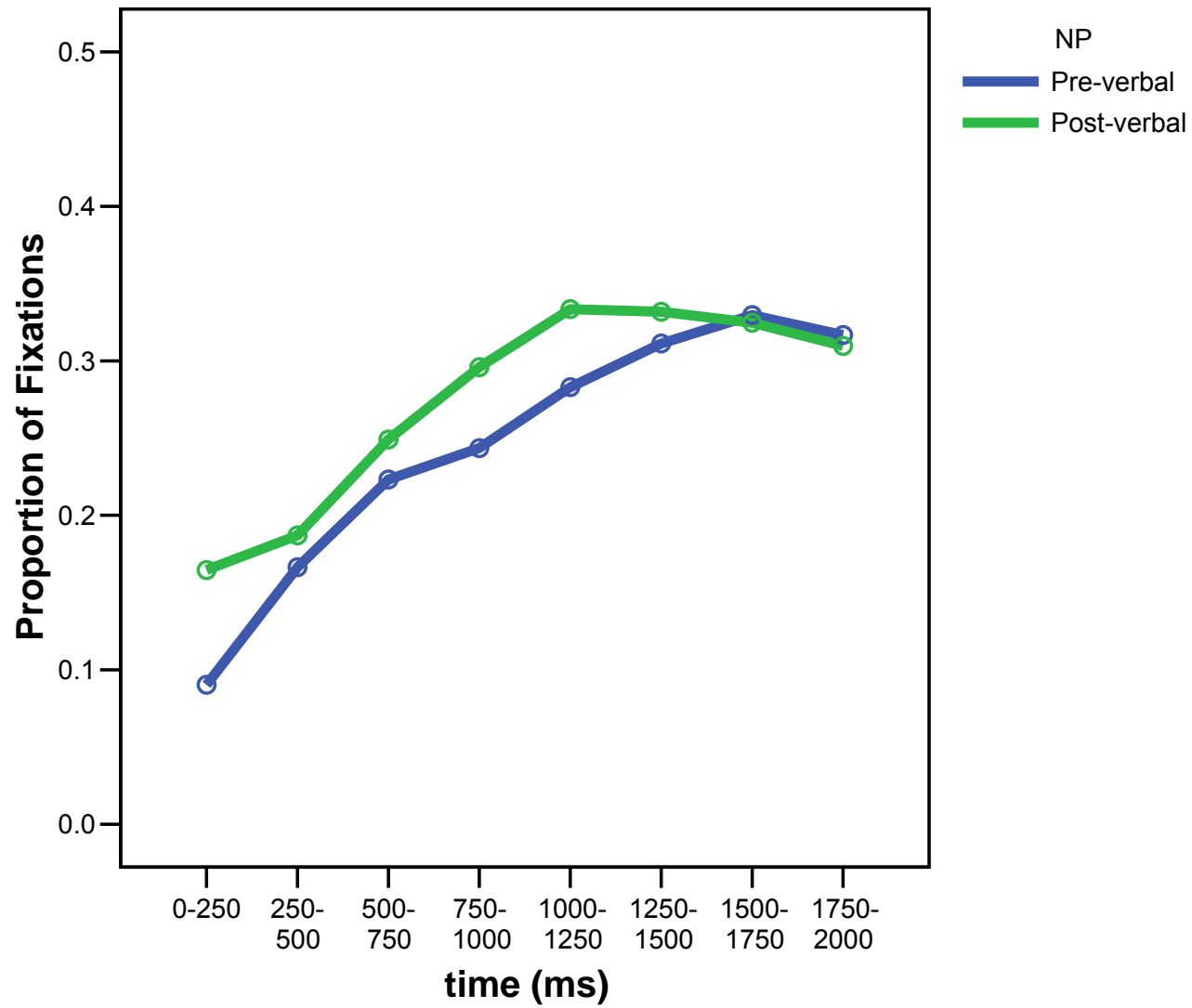
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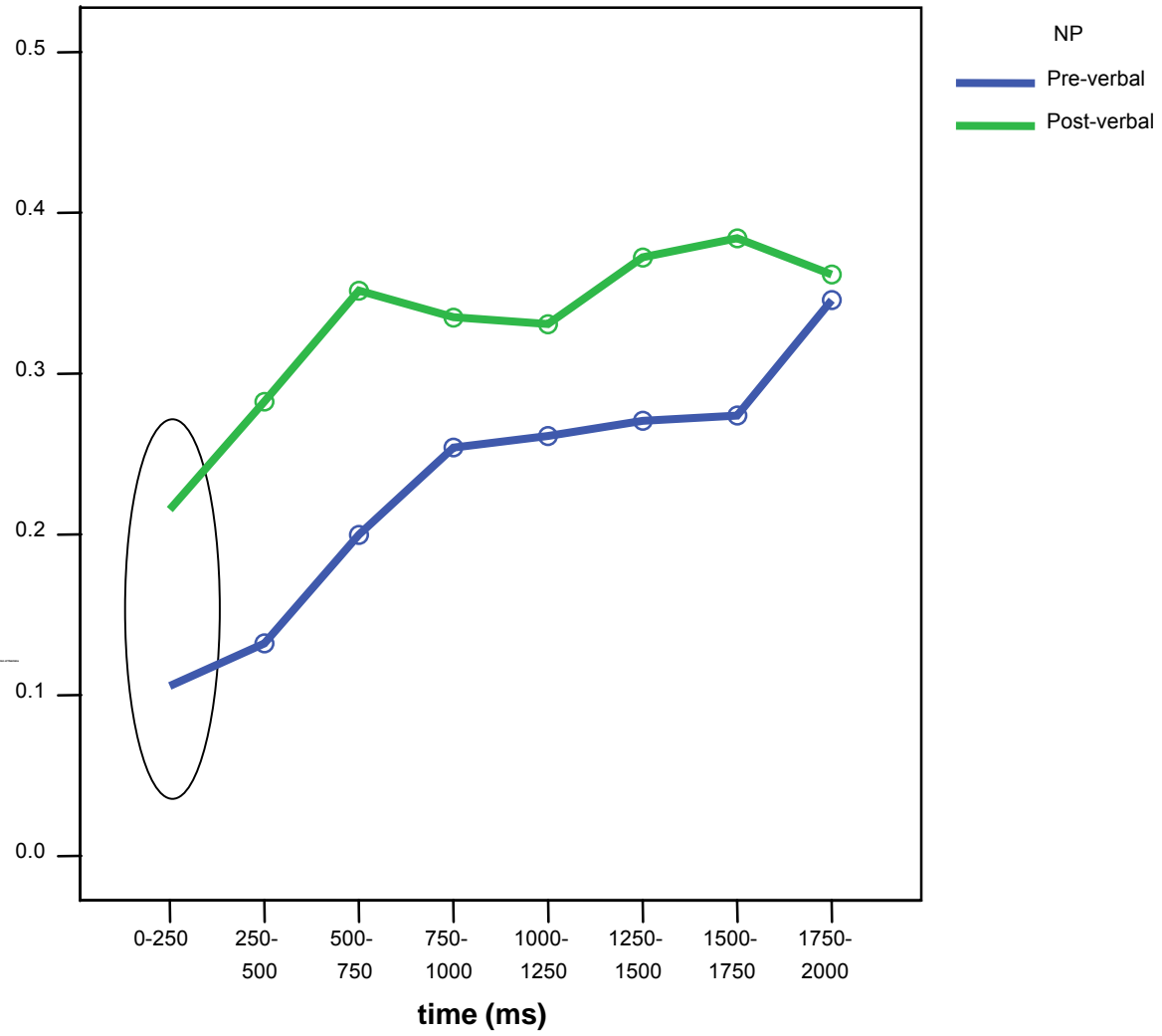
# Results

- Similar to judgement task
- SVO – dem - Object/Non-topic pref
- SVO – pro – No preference
- OVS – dem – Object/Non-topic pref
- OVS – pro – Object/Non-topic pref
- Dem – discourse factors
- Pron – discourse factors and grammatical role

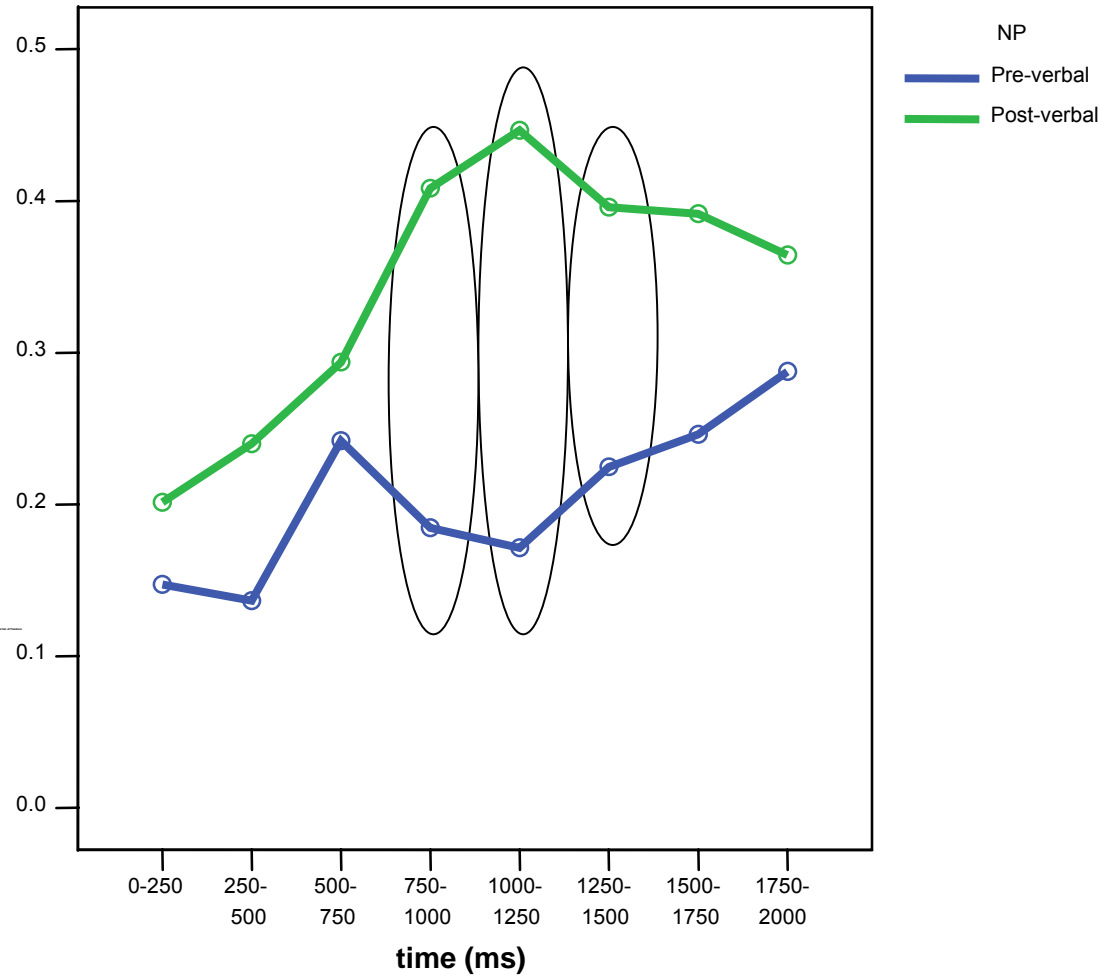
## SVO pro



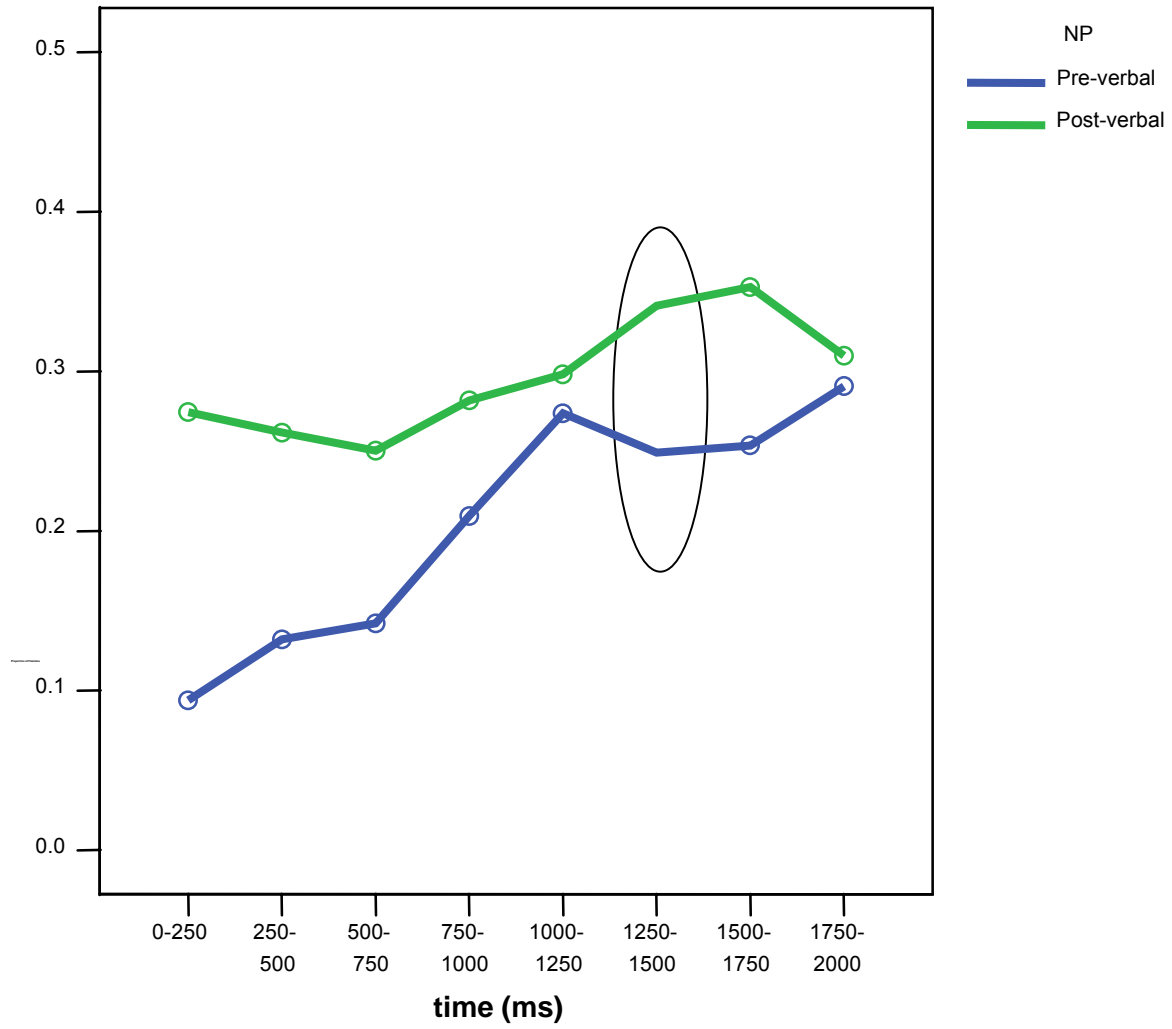
### OVS pron



### SVO dem



### OVS dem



# Time course

- Pronouns: OVS – early effect
- Demonstratives: reach significance late.
  
- Possibly due to faster processing of syntactic information than discourse information

# Time course of effects

- 3 explanations:
  - Demonstratives are ambiguous with definite determiners, delay is due to ambiguity resolution
  - Late effects are due to the adjective triggering saccades to the referent
  - Difference between processing speed for discourse and syntactic information

- SVO is earlier than OVS for dem
- Due to the Information Structure of SVO
  - SVO Post-verbal NP is more likely to be new info than in OVS
- Possibly anticipation of a change in topic
- Faster processing of demonstrative in SVO

# Conclusions

- Different levels of representation are accessed for different types of anaphor
- Clear evidence of cross-linguistic differences
- Problematic for theories of anaphor resolution which do not take this into account, e.g Informational Load Hypothesis

# Selected References

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