AG4

Sentence complexity at the boundary of grammatical theory and processing: A special challenge for language acquisition

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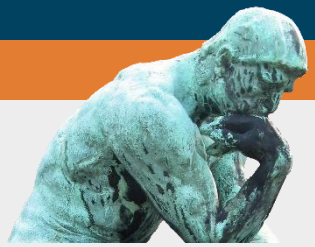
dgfs Deutsche Gesellschaft für Sprachwissenschaft

Konstanz,
24 March 2016

Sentence Complexity



Basic

- Active
  The cow is chasing the dog
- Subject Question
  Who is chasing the dog?
- Subject Relative
  Look at the cow that is chasing the dog
- Object Focus
  The cow is chasing only the dog

among many others:

Friederici, Steinhauer, Mecklinger & Meyer, 1998

Just & Carpenter, 1993

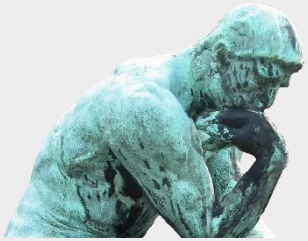
Complex

- Passive
  The dog is chased by the cow
- Object Question
  Whom does the cow chase?
- Object Relative
  Look at the cow that the dog is chasing
- Ambiguous Focus
  The cow is only chasing the dog

Hanne, Burchert & Vasishth, 2015

Dickey, Choy & Thompson, 2007

Workshop Aims



SENTENCE COMPLEXITY

Grammar knowledge

Executive functions

Memory capacity

Task requirements

i.a. Tomasello, 2000; Kidd, 2013; Hamburger & Crain,1984; Rizzi, 2005; Trueswell & Gleitman, 2007

How did we get here?

- Children's understanding of complex sentences is influenced by:
  - Morpho-syntactic properties
    - Number: Stegenwallner-Schütz & Adani (under review)
    - Case: Özge, Marinis & Zeyrek, 2015, *Language Cognition and Neuroscience*
  - Memory capacities
    - Haendler, Kliegl & Adani, 2015, *Frontiers in Psychology*
  - Executive functions
    - Höhle, Fritzsche & Müller, 2016, *PLoS One*
  - Task/response requirements
    - Adani & Fritzsche, 2015, *Proceedings of BUCLD*
    - Marinis & Saddy, 2013, *Language Acquisition*

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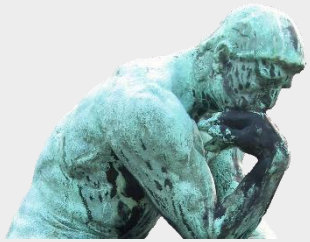
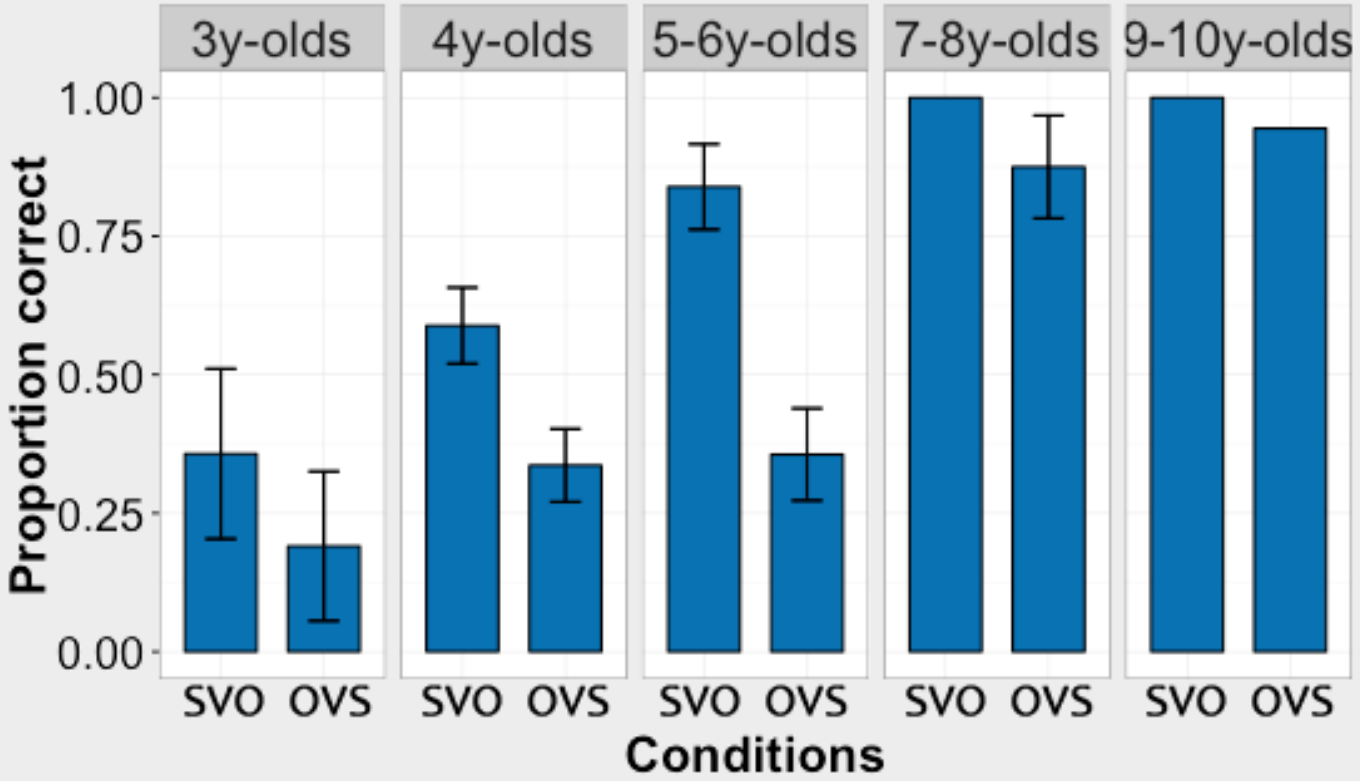


SENTENCE COMPLEXITY

Grammar knowledge: Morpho-syntax

Acquisition of SVO/OVS in German

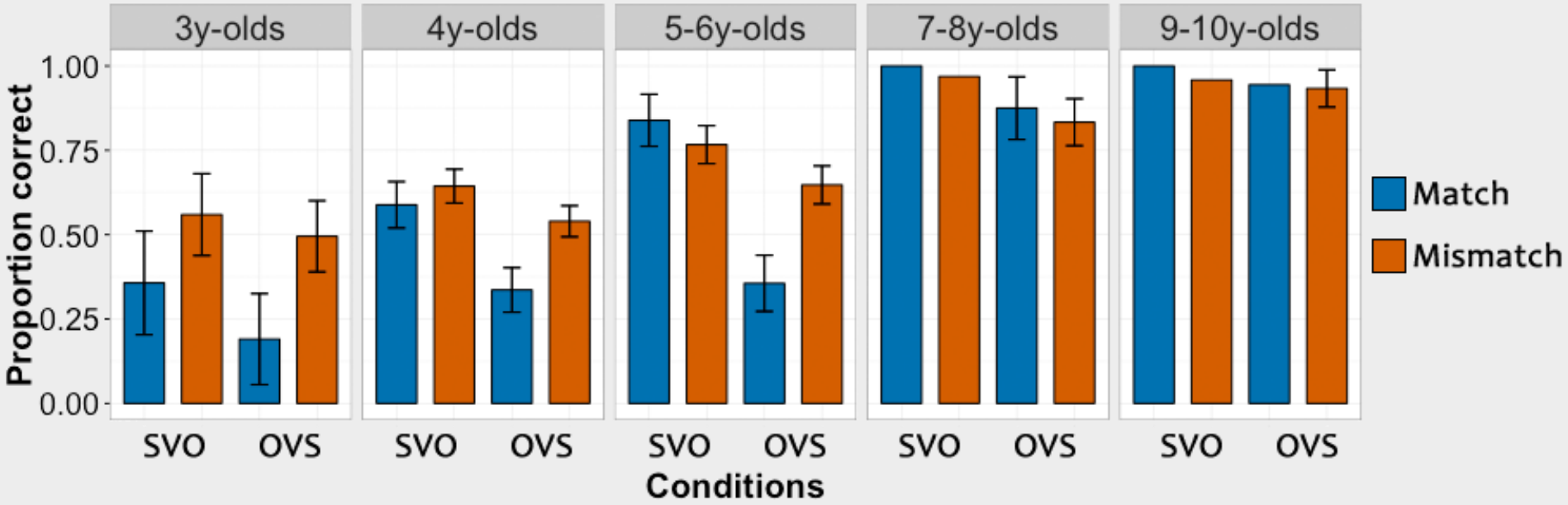
	SVO	OVS
Number Match	Der Löwe jagt den Hasen The$_{NOM}$ lion chases the$_{ACC}$ bunny	Den Hasen jagt der Löwe The$_{ACC}$ bunny chases the$_{NOM}$ lion



See also: Dittmar et al., 2008; Schipke et al., 2012. a.o.

Number effects in SVO/OVS

	SVO	OVS
Number Match	Der Löwe jagt den Hasen The$_{NOM}$ lion chases the$_{ACC}$ bunny	Den Hasen jagt der Löwe The$_{ACC}$ bunny chases the$_{NOM}$ lion
Number Mismatch	Der Löwe jagt die Hasen The$_{NOM}$ lion chases the bunnies	Die Hasen jagt der Löwe The bunnies chases the lion$_{NOM}$



In line with: Adani et al., 2010; 2014; Contemori & Marinis, 2014

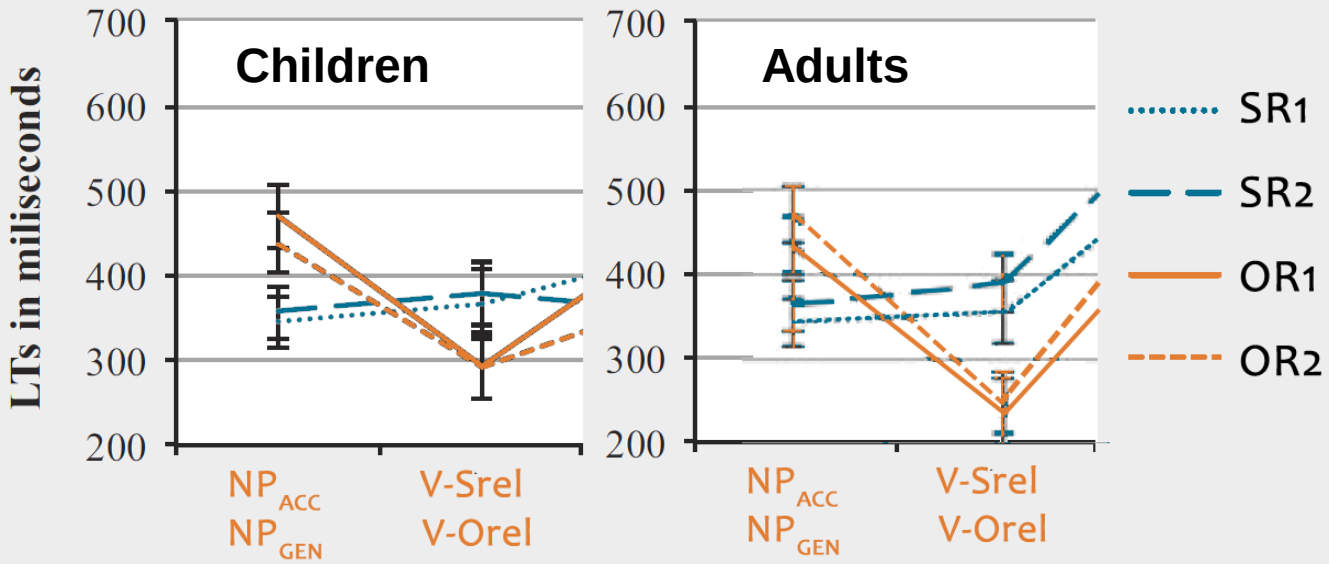
Case effects in Turkish (pre-nominal RC)

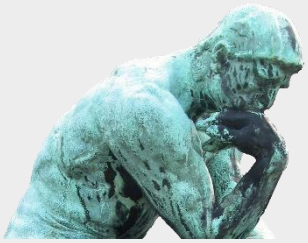
	[*GAP*$_i$	NP$_{Acc}$	V$_{Srel}$]	NP$_i$ Nom	NP$_{Acc}$	V$_{Past.3Sg}$
SR		gorilla	push	lion	elephant	kiss

The lion [that pushed the gorilla] kissed the elephant.

	[NP$_{Gen}$	*GAP*$_i$	V$_{ORel-Poss-Agr}$]	NP$_i$ Nom	NP$_{Acc}$	V$_{Past.3Sg}$
OR	gorilla		push	lion	elephant	kiss

The lion [that the gorilla pushed] kissed the elephant.



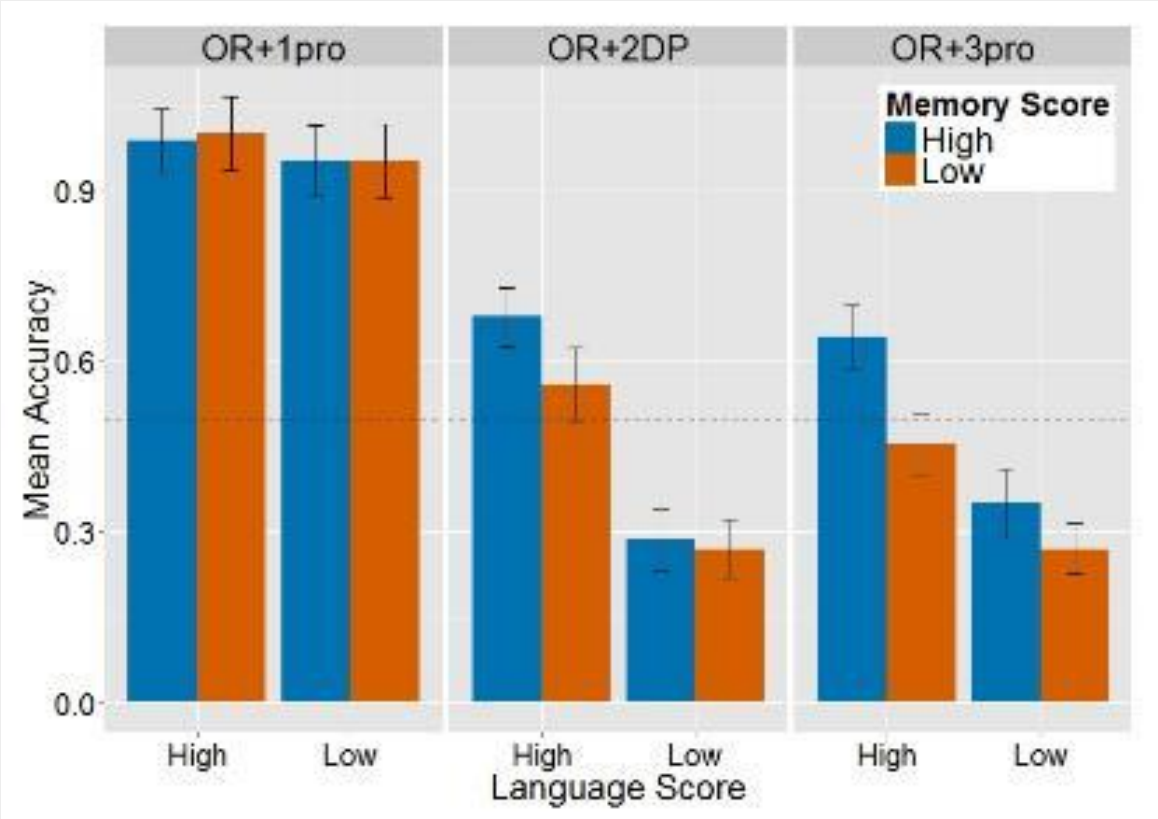


SENTENCE COMPLEXITY

Memory capacity

Memory effects in German relative clauses

OR+2DP	… the bunny that **the horse** is chasing	English translation
OR+3pro	… the bunny that **she** is chasing	
OR+1pro	… the bunny that **I** am chasing	



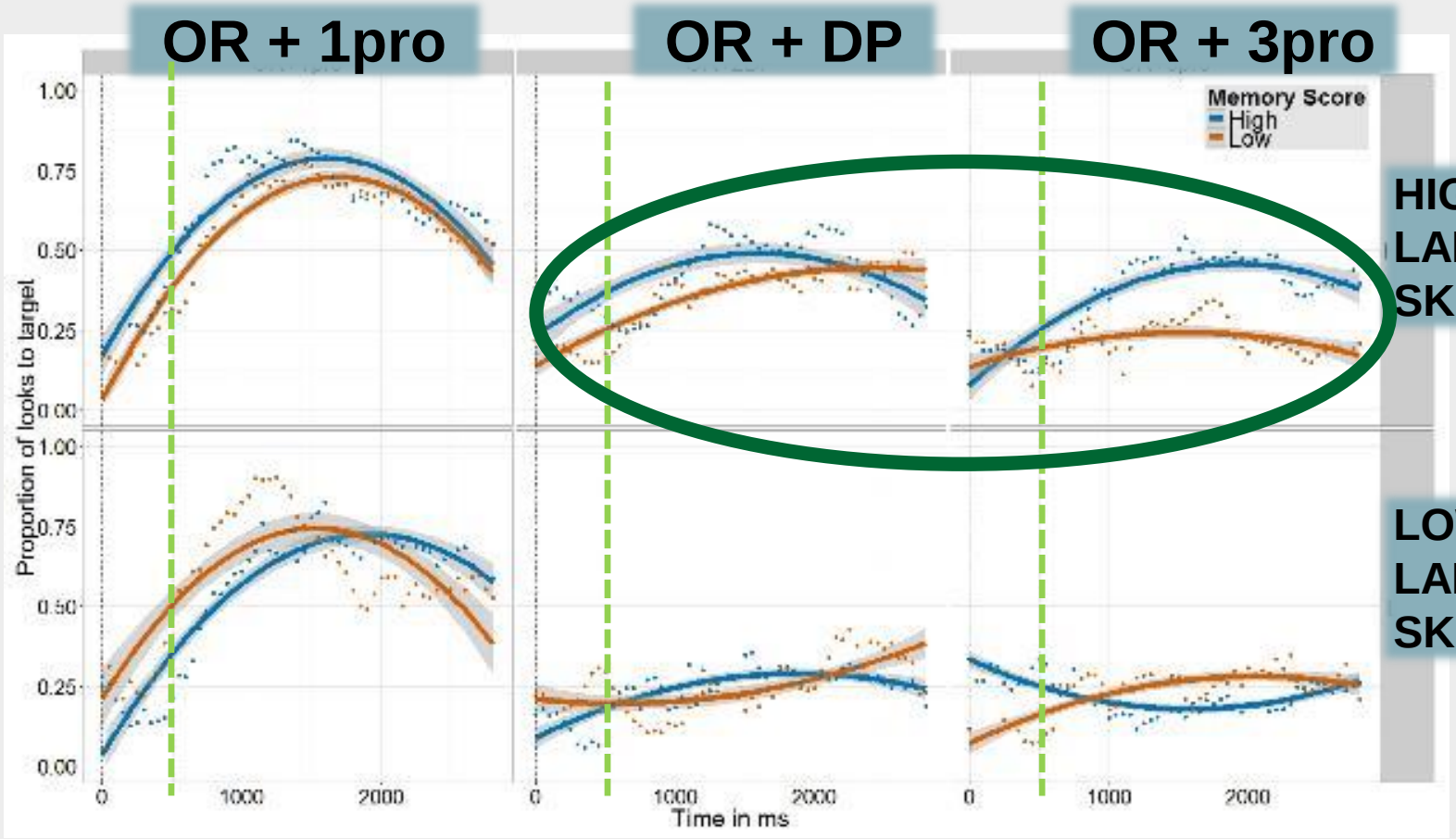
Low memory
High memory

Language measure: standardized grammar score (TSVK)

Memory measure: Forward and backward digit span

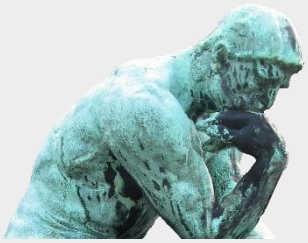
Results: Eye-tracking data

Low memory
High memory



HIGH LANGUAGE SKILLS

LOW LANGUAGE SKILLS



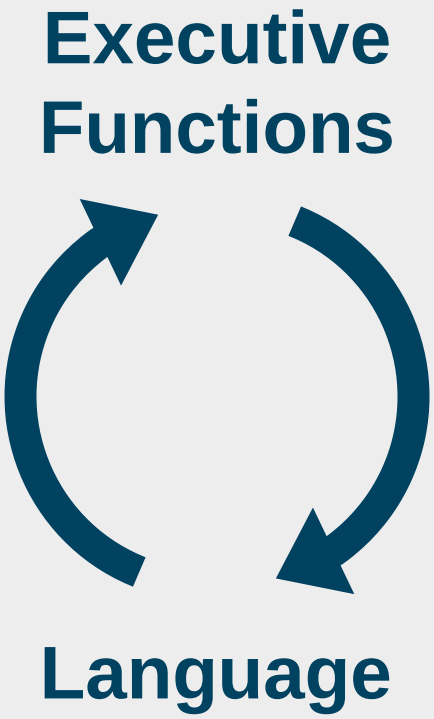
SENTENCE COMPLEXITY

Executive functions

Executive functions & language processing

Bilingualism

- Children
  Bialystok, 2011
- Adults
  Costa et al., 2008, 2009



Lesion studies

Novick et al., 2009

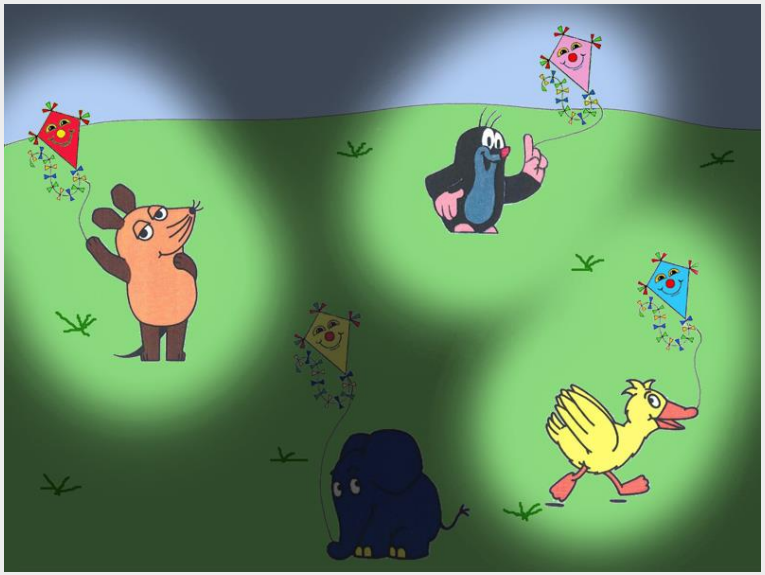
Training studies

Hussey & Novick, 2012

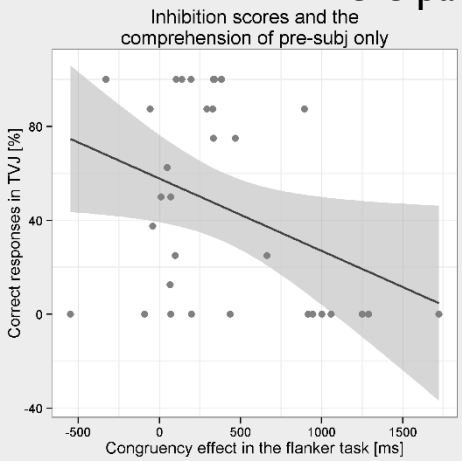
Focus particle comprehension

Only the elephant has a kite.

- Gaze patterns
  - Children (4-year olds) = adults
  - Looks to the contrast set
- Verbal responses (correct: No):
  - Children ≠ adults
  - Adults: 88%
  - Children: 35%
    - Individual performance depends on EF abilities:



Where participants predominantly look



Two (different?) complexity notions

GRAMMAR

Today

SENTENCE COMPLEXITY

MEMORY

Thu

How could current syntactic theory and memory retrieval mechanisms be used to explain how sentence complexity is acquired and processed?

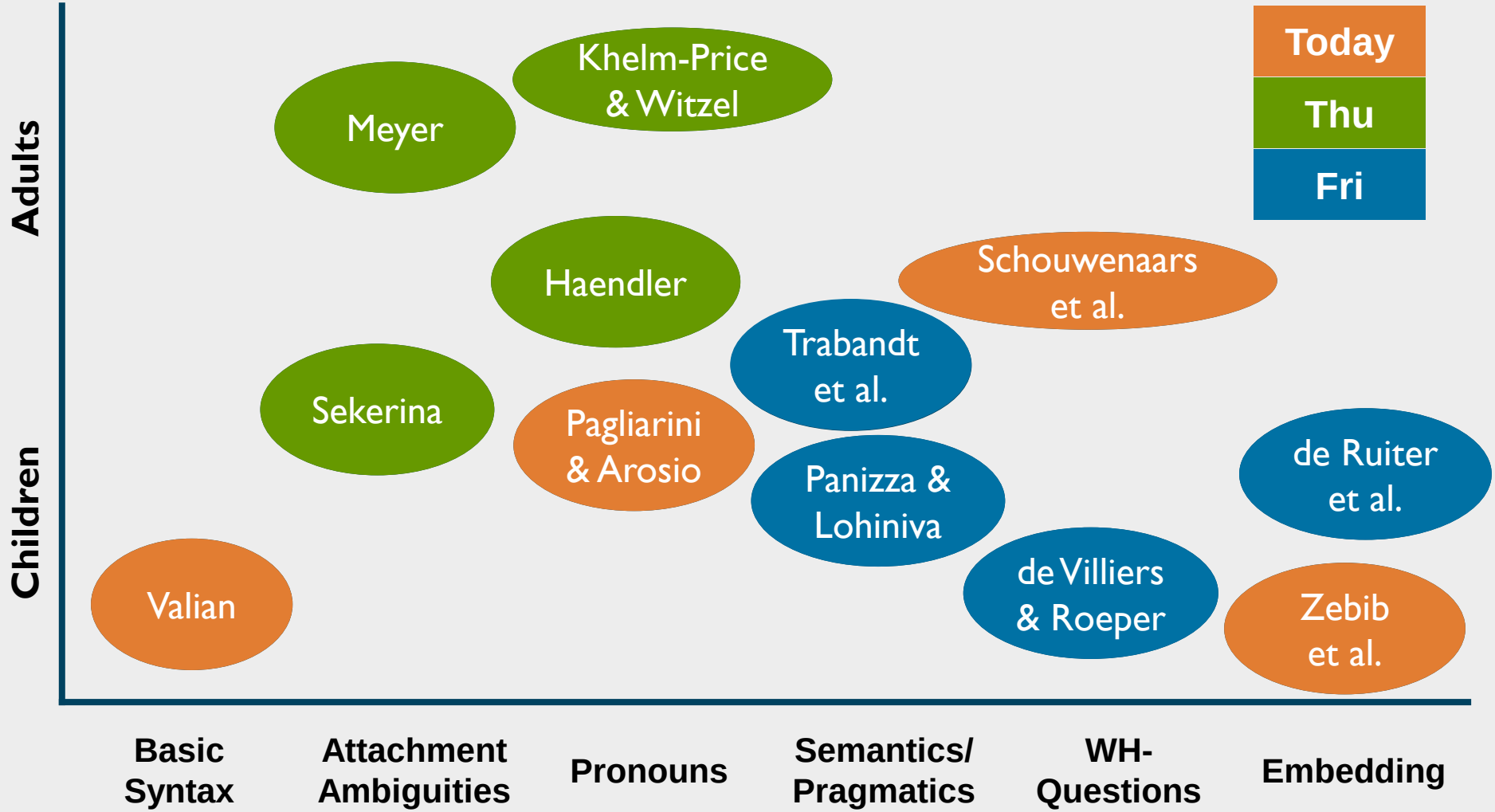
What are the fundamental divergences and/or points of convergence between the two approaches?

Is there a relation to complexity issues from other linguistic domains, such as the lexicon, semantics, pragmatics and/or phonology?

Another question for all of us

- *Which cognitive (e.g., working memory, executive functions) and linguistic (i.e., syntactic, semantic, pragmatic) changes allow the transition between the developing (child) parser and the adult parser?*

Contributions



Organizational

- Workshop time slots:
  - Wed 14:00-16:00 & 16:30-18:30
  - Thu 9:00-11:00 & 11:30-13:00
  - Fri 11:30-14:00
- Regular time slot for presentation is
  - 20 min + 10 min for discussion
- Keynote speakers: 1-hour-slots
- The 3 top-rated abstracts also have 1-hour-slot

Schouwenaars et al.

Haendler

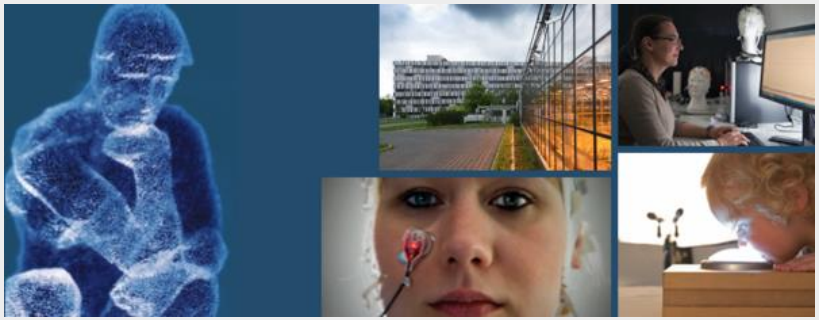
Trabandt et al.

General

- Wi-Fi
  - *User name*: JahrestagungDGFS
  - *Password*: dgfs2016
- Social events
  - ***Reception***, Wed 19:00 @City Hall
    - Entry only with name tag
    - Address: Kanzleistr. 13/15
  - ***Conference Dinner***, Thu 19:00 @Konzil Konstanz
    - Entry only with name tag, Pre-registration necessary (38€)
    - Address: Hafenstr. 2

Acknowledgements

- This workshop organization was supported by the Unit *Cognitive Science* of the Human Sciences Faculty at the University of Potsdam



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