



# Society for Text & Discourse 2009

Program

19<sup>th</sup> Annual Meeting
Erasmus University, The Netherlands
July 26-28, 2009



### **Contents**

Welcome	2
Organizers and Acknowledgments	3
Recipient of the Distinguished Scientific Contribution Award	4
Recipient of the Young Investigator Award	5
Student Award Winners	6
Fellows of the Society for Text and Discourse	7
Conference Venue	8
Relevant Locations in Rotterdam	9
Pre-conference Workshop on Readability	11
Program Overview	12
Program	13
Poster Session Index	19
Paper Abstracts ST&D 2009	26
Poster Abstracts ST&D 2009	43
Poster Abstracts ESLP 2009	57
Author Index	69
Author Names and Affiliations	72

### Welcome

Welcome to the nineteenth annual conference of the Society for Text & Discourse! This year, the Society holds its meeting in Rotterdam, the Netherlands: Europe's largest and the world's third-largest seaport and home of the humanist Erasmus. The conference venue is the Golden Tulip Hotel, overlooking the Maas river. Keynote speakers are Peter Hagoort (Max Planck Institute for Psycholinguistics and Donders Institute for Brain, Cognition, and Behaviour), Arthur Glenberg (Arizona State University), and Herbert Clark (Stanford University). Herbert Clark will be this year's recipient of the Society's Distinguished Scientific Contribution Award. In addition to symposia on brain imaging and discourse and developmental processes in language comprehension, the conference will feature a large number of paper and poster presentations on discourse processes, embodied cognition, multimedia, learning technologies, and reading comprehension, to name just a few topics.

We would like to acknowledge the generous support from the Erasmus University Trustfund, the Department of Psychology, and Taylor & Francis. We are very grateful to them for making this conference possible. We would also like to acknowledge the help and support of many people, including the conference authors, conference participants, reviewers, staff, and student helpers. Specifically, we would like to thank Nathan van der Stoep, Ilona Boutestein, Mark Adriaanse, Katinka Beker, Lisa vandeberg, Noortje Coppens, Esther Eijlers, Mario de Jonge, Karen Schuil, and Sophie Kapiteyn for their help. We welcome you to Rotterdam!

The organizing committee, Anique de Bruin, Katinka Dijkstra, Diane Pecher, Huib Tabbers and Rolf Zwaan.

### **Organizers and Acknowledgements**

### Local organizing committee

Anique de Bruin, Katinka Dijkstra, Diane Pecher, Huib Tabbers, Rolf Zwaan (chair)

### **Workshop Organizer**

Ted Sanders (Utrecht University, The Netherlands)

### Symposia organizers

Jeff Zacks (Washington University, USA), Kate Cain (University of Lancaster, UK)

#### **2009 Student Award Committee**

Heather Bortfield, Joe Magliano, Brooke Lea (Chair)

#### **Scientific Awards Committee**

Art Glenberg, Debra Long, Ted Sanders, Tony Sanford, Murray Singer (chair)

### **Fellows Committee**

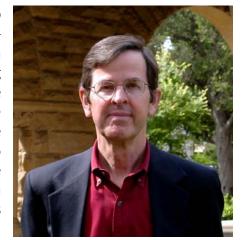
Susan Goldman, Joe Magliano, Leo Noordman, Jennifer Wiley, Ed O'Brien (chair)

#### **Reviewers**

Adrian Bangerter, Nathalie Blanc, Anne Britt, Paul van den Broek, Anique de Bruin, Berry Claus, Katinka Dijkstra, Andrew Elfenbein, Stefan Frank, Michael Kaschak, Roger Kreuz, Christopher Kurby, William Levine, Jordan Lippman, Max Louwerse, Jana Lüdtke, Carol Madden, Joe Magliano, Keith Millis, Mante Nieuwland, Leo Noordman, David Rapp, Tobias Richter, José Sanders, Ted Sanders, Gerard Steen, Huib Tabbers, Larry Taylor, and Mija Van Der Wege

# Recipient of the Distinguished Scientific Contribution Award

Herb Clark's empirical and theoretical contributions to the psychology of language and discourse are wideranging, important, and enduring. His early work on sentence comprehension and memory, bridging inferences, and linguistic processes in deductive reasoning is seminal. His 1977 textbook with Eve Clark, *Psychology of Language*, remained a definitive overview of the field for decades. Likewise, his 1996 monograph *Using Language* is a classic, as are numerous handbook chapters. More recent work on politeness, speech acts, and referring has led to his well-known collaborative theory of language,



Herb Clark

challenging much traditional work in psycholinguistics. Herb Clark is an inspiring mentor. Many of his students

and postdoctoral researchers have made substantial contributions to the field of text and discourse. Perhaps most remarkable about Herb Clark's work is its reception in many fields of inquiry beyond psycholinguistics, promoting progress in human-computer interaction, social psychology, communication, and linguistics. Herb Clark's work demonstrates an unparalleled appreciation of both the cognitive and social dimensions in language.

### **Recipient of the Young Investigator Award**

The Young Investigator Award recognizes outstanding research in the study of text and discourse by a scholar who has received an advanced degree within the past 10 years. This year's recipient is Dr. Michael Kaschak. Dr. Kaschak received his Ph.D. from Arizona State University in 2003 and is now an Assistant Professor at Florida State University. He is an emerging leader in the study of language. His research goals are to understand the relation between language comprehension and motor planning, to explain the acquisition of novel syntactic structures in adults, and to examine how patterns of experience affect language Production. His research has appeared in prominent journals in



Michael Kaschak

cognitive science, including Journal of Experimental Psychology: General, Cognition, Cognitive Science, and the Journal of Memory and Language. He shows superior promise as a leader in the study of text and discourse.

### **Student Award Winners**

The 2009 Student Prize Committee – Brooke Lea (chair), Heather Bortfield, and Joe Magliano – independently reviewed all papers eligible for the Jason Albrecht Outstanding Young Scientist Award or the Outstanding Student Paper Award.

The committee stated that the submissions were very competitive this year with many worthy papers.

### **Jason Albrecht Outstanding Young Scientist Award**

We would like to congratulate the winner of the Jason Albrecht Outstanding Young Scientist Award, Michelle Levine for her paper "Copresence in collaborative music-making (Michelle Levine & Michael Schober), which will be presented Tuesday, July 28<sup>th</sup>, during the 9AM plenary session. The Jason Albrecht Outstanding Young Scientist Award (JAOYSA) honors the memory of Jason Albrecht, a promising young text and discourse researcher who passed away in 1996. The award recognizes an outstanding paper based on a doctoral dissertation.

### **Outstanding Student Paper Award**

We would also like to congratulate the winner of the Outstanding Student Paper Award, Michael Mensink, for his paper "Evil geniuses: Inferences from mismatches between trait descriptions and reader preferences" (Michael Mensink & David Rapp), which will be presented Monday, July 27<sup>th</sup>, during the 13:10 parallel paper session. The Outstanding Student Paper Award (OPSA) recognizes quality in work that is predominantly that of a graduate student.

### Fellows of the Society for Text & Discourse

Fellow status is awarded to Society for Text & Discourse members who have made sustained outstanding contributions to the science of their field in the areas of research, teaching, service, and/or application. Fellow status may also be awarded for exceptional contributions to the field through the development of research opportunities and settings. Fellows' contributions have enriched or advanced an area encompassed by the Society for Text & Discourse on a scale well beyond that of being a good researcher, practitioner, teacher, or supervisor. Their contributions and/or performance have had a significant impact that is recognized broadly in the U.S. and/or internationally.

#### List of Elected Fellows in 2009

Richard C. Anderson (University of Illinois)

Herbert H. Clark (Stanford University)

Morton A. Gernsbacher (University of Wisconsin - Madison)

Richard J. Gerrig (University of New York at Stony Brook)

Arthur M. Glenberg (Arizona State University)

Susan R. Goldman (University of Illinois - Chicago)

Arthur C. Graesser (University of Memphis)

Walter Kintsch (University of Colorado)

Debra L. Long (University of California - Davis)

Gail McKoon (Ohio State University)

Jerome L. Myers (University of Massachusetts)

Leo G. M. Noordman (Tilburg University)

Jane V. Oakhill (University of Sussix)

Edward J. O'Brien (University of New Hampshire)

Herre van Oostendorp (University of Utrecht)

Anthony J. Sanford (University of Glasgow)

Michael F. Schober (New School for Social Research)

Murray Singer (University of Manitoba)

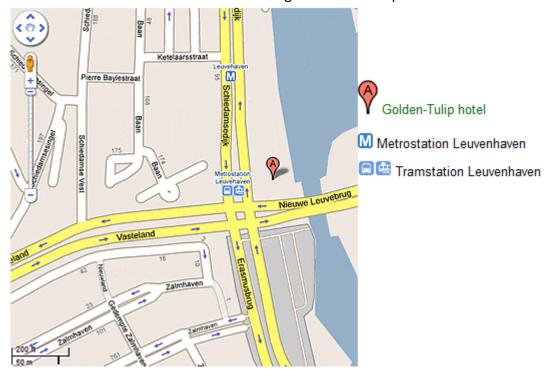
Paul van den Broek (Leiden University)

Teun A. van Dijk (Universitat Pompeu Fabra)

James F. Voss (University of Pittsburgh)

### **Conference Venue**

The conference venue is the Golden Tulip Hotel located at Leuvehaven 80, Rotterdam. The Golden Tulip Rotterdam-Centre is uniquely located at the bank of the Maas and at the foot of the Erasmus bridge. Golden Tulip Rotterdam-Centre offers a magnificent view over the Maas and the Rotterdam skyline. The hotel is near the metro station Leuvenhaven. Cars can be parked opposite the hotel in the parking garage "Erasmusbridge". To get to the Golden-Tulip hotel from Rotterdam Central station by subway, you can take the blue Erasmuslijn from Central station heading for Spijkenisse. (you will need a *OV-chipkaart* that can be purchased for €7,50 at Rotterdam Central Stations). Your stop is Leuvehaven. You can also go by tram. Take tram 25 to Barendrecht or tram 8 to Spangen. Your stop is Leuvehaven. For more information on the OV-chipkaart visit: <a href="http://www.ov-chipkaart.nl/?taal=en">http://www.ov-chipkaart.nl/?taal=en</a>. The conference will take place on the 16<sup>th</sup> floor of the Golden Tulip Hotel, to be reached via the 15<sup>th</sup> floor.



### **Relevant Locations in Rotterdam**

#### Musea

Cultural life is vibrant in Rotterdam. There is a broad selection of museums in Rotterdam. From modern art to historical treasures, from architecture to photography, from historical ships to exotic animals - just about anything you can imagine is displayed in a museum in the city. Prominent museums include the Museum Boijmans van Beuningen, the Netherlands Architecture Institute, the Kunsthal, and the World Arts Museum. Also, the Maritime Museum, nearby the Golden Tulip Hotel, the Netherlands Photo museum, and the Historical Museum of Rotterdam are worth a visit. In addition, there are many interesting galleries and provocative expositions at locations such as the Las Palmas warehouse.

#### Restaurants

Rotterdam is a city of many flavors like the Dutch, French, Chinese, Moroccan, and Turkish cuisine. There are many reasonably prized restaurants but also luxurious dinner venues for an exclusive business lunch or meetings and incentives. From a simple pub, or a trendy place like the Westelijk Handelsterrein, to one of the best restaurants of Holland: Parkheuvel. A restaurant as 'Wijn of Water' stands apart by its experimental setting; eating and drinking from a sea container in a beautiful harbor environment. Closer to the conference avenue, the Witte de Withstraat, near the Golden Tulip Hotel, is a good place to go to try one of the many tasteful restaurants. The many cultural influences create a unique ambiance and paint an accurate picture of Rotterdam's versatile lifestyle.

You can find architecture, hotels, attractions, museums, restaurants, theatres and shops at: <a href="http://www.rotterdam.info/uk/">http://www.rotterdam.info/uk/</a>. A map from downtown Rotterdam will be included in the welcome package.

### **Dinner Cruise**

On Monday, July 27th, a dinner cruise on the China Boat is planned through the expansive Rotterdam Port and the City. The price is €50 which includes the cruise, dinner buffet, and drinks to be paid during the conference. While on board, we will enjoy drinks and an elaborate Chinese-Indonesian Rice Table with a large variety of appetizers, entrees, and side dishes (meat, seafood, vegetarian). The dinner cruise is on Monday, July 27 from 7 pm until 10 pm.

### **Reception and Lunch**

The reception on Sunday and the lunch on Monday will be held in restaurant "Prachtig". The address is:

Willemsplein 77 3016 DR Rotterdam The Netherlands Tel: 010-2130640

Transport: Willemsplein is a one-minute walk away from the Golden Tulip hotel. To go by tram: Take tram 7, exit Willemsplein or subway to Slinge or Spijkenisse, exit station Leuvehaven.

### **Pre-conference Workshop on Readability**

Readability, text comprehension and usability: Cognitive and computational aspects. Ever since the 1970's, readability formulas have had a bad name among researchers, and rightly so. Still, the topic of readability remains a huge challenge to the research community. This workshop starts from the assumption that more fruitful readability work should be possible by now. First, a vast amount of empirical knowledge has been gathered in discourse psychology about reading processes and the way in which they are influenced by text characteristics. Second, developments in language technology over the last two decades have provided new possibilities for insightful ways of (semi-) automatic text analysis, which have a recently proven to be very useful in the context of readability. Finally, readability research has taken a new shape in the area of document design, with fruitful research on the usability of 'functional' text genres such as forms, web sites, instructional texts, and patient information leaflets. This international workshop brings together researchers from discourse psychology, (text and computational) linguistics, and document design, to discuss and further develop cognitive and computational approaches of readability.

A preliminary list of speakers and topics is the following:

- Danielle McNamara (University of Memphis): readability research involving Coh-Metrix.
- Tim vor der Brueck (Fernuniversität Hagen): readability checking in German with DeLite.
- Rogier Kraf and Henk Pander Maat (Utrecht University): readability prediction in Dutch with T-Scan.
- Ted Sanders (Utrecht University): experimental work on the comprehension of educational texts.
- Leo Lentz (Utrecht University): improving the usability patient information leaflets.
- Regina Jucks (Goethe-Universität Frankfurt): specialist terms in expert-lay interaction and collaborative learning dyads.

### **Program Overview**

### Sunday, July 26 09:00–13:00 Pre-Conference Workshop on Readability - Chair: Ted Sanders 13:00–14:30 **Registration** 13:00–14:00 Governing Board meeting 14:10–14:40 Opening (Rolf Zwaan) and fellows and awards announcements (Art Graesser) 14:40–16:20 Symposium: New findings in the neuroscience of discourse 16:30–17:30 Keynote Address Peter Hagoort 18:00–19:30 Reception at restaurant "Prachtig" **Monday, July 27** (Four parallel sessions will be held on Monday) 08:30–10:10 Comprehension Processes I (East Room) Conversation and Collaborative Performance (West Room) 10:30–12:10 Comprehension Processes II (East Room) Learning from Text (West Room) 12:10–13.10 Lunch at restaurant "Prachtig" 13:10–14:50 Affecting the reader (East Room) Pragmatics and corpus analysis (West Room) 15:10–16:50 Comprehension and thought processes (East Room) Symposium - Developmental aspects of (West Room) reading comprehension 17:00–18:00 Keynote Address Herb Clark **Tuesday, July 28** (Together with ESLP) 08:00–08:45 ST&D business meeting 09:00–10:40 Plenary session: Embodied cognition (combined with ESLP conference)

### **End of Conference**

10:40–12:00 Poster session

12:00–13:00 Keynote Address Art Glenberg

### **Program**

### Sunday, July 26

09:00-13:00	Workshop (Panorama Room) Chair: Ted Sanders
13:00-14:30	Registration
13:00-14:00	Board Meeting (Panorama Room)
14:10-14:40	<b>Opening</b> (Rolf Zwaan) <b>and fellows and awards announcements</b> (Art Graesser) (Panorama Room)
14:40-16:20	<b>Symposium</b> - New findings in the neuroscience of discourse (Panorama Room)
	Symposium Danorama Poom
New Findi	Symposium - Panorama Room  ngs in the Neuroscience of Discourse  Zacks
14:40-15:00	The neuroanatomy of discourse comprehension: Where are we now? Evelyn C. Ferstl (ST01)
15:05-15:25	Neuroimaging investigations of continuous reading.  Jeffrey Zacks (ST02)
15:30-15:55	Neurocognitive traces of anticipation in text and discourse.  Jos Van Berkum (ST03)
16:00-16:20	What can ERPs and fMRI tell us about language comprehension? Streams of processing in the brain.  Gina Kuperberg (ST04)
16:30-17:30	Keynote Address Peter Hagoort (Panorama Room)
18:00-19:30	Reception in Restaurant "Prachtig"

### Monday, July 27

8:30-10:10 Comprehension Processes I (East Room)
Conversation and collaborative performance (West Room)

### Parallel Session I

	East Room	,	West Room
Comprehension Processes I		Conversation and	
Chair: Pascal Gygax		Collaborative Performance	
		Chair: Adriar	n Bangerter
08:30 - 08:45	Focusing on the competition: The discourse status of focus- induced alternatives. Elsi Kaiser (ST05)	08:30-08:45	Mimicry in action: When people imitate in face-to-face conversation.  Max Louwerse, Rick Dale, Patrick Jeuniaux, Nick Benesh, Shinobu Watanabe,
08:50-09:05	Gender representation in language and grammatical		Ellen Gurman Bard (ST10)
	cues: When beauticians, musicians and mechanics remain men. Pascal Gygax, Ute Gabriel, Oriane Sarrasin, Jane Oakhill, Alan Garnham (ST06)	08:50-09:05	Default heuristics for inferring speakers' communicative intentions in referential communication.  Edmundo Kronmuller, Dale Barr (ST11)
09:10-09:25	Interpretation of gender stereotyped terms. Alan Garnham, Jane Oakhill, Stephen Hamilton, Emily Kennard,	09:10-09:25	At the crossroads of speaking and writing. Jean Fox Tree, Sarah Mayer, Teresa Betts (ST12)
	Anna-Marie Armstrong (ST07)	09:30-09:45	Pragmatic expectations in children and adults
09:30-09:45	The German army: is it organized in a Prussian way or do they set a high value on loyalty to the emperor?  Judith Schweppe, Ralf		overhearers: The case of contrastive Inferences. Edmundo Kronmuller, Tiffany Morisseau, Ira Noveck (ST13)
09:50-10:05	Rummer (ST08)  Familiarity of narrative settings and misinformed belief change.  Mija Van Der Wege, David Rapp (ST09)	09:50-10:05	Reinstating an interrupted collaborative task with and without visible cues.  Eric Chevalley, Adrian Bangerter (ST14)

# 10:30-12:10 Comprehension Processes II (East Room) Learning from Text (West Room)

### **Parallel Session II**

	East Room	,	West Room
Comprehension Processes II Chair: Ted Sanders		Learning from Text Chair: Anique de Bruin	
10:30-10:45	Discourse prominence and pronoun resolution: Evidence from French. Sarah Schimke, Saveria Colonna, Barbara Hemforth (ST15)	10:30-10:45	The role of deep-level questions, "self" explanations, and domain knowledge in vicarious learning.  Barry Gholson, Scotty Craig, Joshua Brittingham, Mae-Lynn Germany, Karl Fike (ST20)
10:50-11:05	Are subjective causal relations more complex than objective causal relations? New evidence from eye-tracking.  Anneloes Canestrelli, Pim Mak, Ted Sanders (ST16)	10:50-11: 50	The Effects of Post-Reading, Verbal and Graphical Recall Strategies on Text Retention and Text Comprehension. Liesbeth Kester (ST21)
11:10-11:25	Preferences in collective and distributive interpretations of verbal predicates. Mahayana Godoy, Edson Françozo (ST17)	11:10-11:25	Detecting contradictions between scientific texts: Is there an effect of reading instruction? Marc Stadtler, Rainer Bromme, Timo Skodzik (ST22)
11:30-11:45	Language independence in bilinguals during sentence comprehension. Lisa Vandeberg, Rolf Zwaan (ST18)	11:30-11:45	Students' expectations of partial credit affect judgments and regulation of learning from text.  Anique de Bruin, Gino Camp, Rolf Zwaan(ST23)
11:50-12:05	Language specific preferences in anaphor resolution. Barbara Hemforth, Christoph Scheepers, Lars Konieczny, Joël Pynte, Savéria Colonna (ST19)	11:50-12:05	Recognition memory for text: Strength-based criterion shifts. Murray Singer (ST24)

12:10-13:10 Lunch in Restaurant "Prachtig"

# 13:10-14:50 Affecting the Reader (East Room) Pragmatics and Corpus Analysis (West Room)

### **Parallel Session III**

	East Room	V	West Room
Affecting the Reader		Pragmatic	s and Corpus
Chair: Huib To	abbers	Analysis	
		Chair: Max Lo	ouwerse
13:10-13:25	How mood influences the mode of text processing: An ERP study. Dieuwke de Goede, Petra van Alphen, Emma Mulder, Jose Kerstholt, Jos van Berkum (ST25)	13:10-13:25	Cohesion and classification of speech acts in arabic discourse Art Graesser, Louis Han, Moongee Jeon, John Myers, John Kaltner et al. (ST30)
13:30-13:45	Individual differences in the comprehension of counterfactual stories. An ERP study.  Mabel Urrutia, Hipólito Marrero, M. Dolores Castillo, Juan A. Hernández, Manuel De Vega (ST26)	13:30-13:45	Is a flexible instrument like a moveable tool? Examining the conceptual bases of metaphorically used words with two discourse-analytical methods  Julia Berenike Herrmann  (ST31)
13:50-14: 05	Evil geniuses: Inferences from mismatches between trait descriptions and reader preferences.  Michael Mensink, David Rapp (ST27)	13:50-14:05	Creating Illusory Irony Gina Caucci, Roger Kreuz (ST32)
14:10-14:25	If you prick us, do we not bleed? Effects of fictional narratives on assumptions about similarity between ingroup and outgroups.  Frank Hakemulder (ST28)	14:10-14:25	Lexical entrainment without conceptual pacts Eric Mayor, Adrian Bangerter, Myriam Aribot (ST33)
14:30-14:45	Constructed response versus multiple choice: What can we learn about student's text comprehension from each and both combined.  John Sabatini, Kelly Bruce (ST29)	14:30-14:45	What's in a map? Linguistic and non-linguistic factors in geographical knowledge Max Louwerse, Nick Benesh (ST34)

### **15:10-16:50** Comprehension and Thought Processes (East Room)

**Developmental Aspects of Reading Comprehension - Invited Symposium (West** 

Room)

### **Parallel Session IV**

	East Room ension and Thought Richter	<b>Invit</b> Developm	West Room  Eed Symposium  The nental Aspects of the comprehension  The pain
15:10-15:25	The refutational effect in conceptual change processes during text reading: An eye movement analysis  Nicola Ariasi, Lucia Mason (ST35)	15:10-15:30	Development of reading comprehension: going beyond the simple view Panayiota Kendeou, Mary Jane White, Paul van den Broek (ST40)
15:30-15:45	The online comprehension of non-basic indicative conditionals: An Investigation into reasoning as we read Matthew Haigh, Andrew Stewart (ST36)	15:35-15:55	Preschoolers understanding of implicit and explicit information in a text Maria Chiara Levorato, Elena Florit (ST41)
15:50-16:05	Readers' reliance on source credibility in service of comprehension Jesse R. Sparks, David N. Rapp (ST37)	16.00-16:20	The relation between speed of semantic access, semantic knowledge, and aspects of reading ability  Jane Oakhill, Diana McCarthy, Kate Cain (ST42)
16:10-16:25	Monitoring events in the service of comprehension Catherine M. Bohn-Gettler, David N. Rapp, Panayiota Kendeou, Mary Jane White, Paul van den Broek (ST38)	16:25-16:45	Making links: Can young readers make use of interclausal connectives to guide their text comprehension?
16:30-16:45	The epistemic stroop effect: evidence for routine epistemic validation processes in language comprehension  Maj-Britt Isberner, Tobias Richter (ST39)		Kate Cain, Hannah Nash, Nicola Pooley (ST43)

### 17:00-18:00 Keynote Address Herb Clark (Panorama Room)

### Tuesday, July 28

### **9:00-10:40 Embodied Cognition** (Panorama Room)

	Panorama Room
Embodied Chair: Katinka	
09.00-9:15	Simulation in narrative comprehension: The effect of similarities and dissimilarities on personalities between readers and protagonists Hidetsugu Komeda, Kohei Tsunemi, Keisuke Inohara, Takashi Kusumi (ST44)
09:20-09:35	Language affects effector-specific response force Lawrence Taylor, Rolf Zwaan (ST45)
09:40-09:55	Eye movements to white space while reading highly visualizable text Brent Strickland, Rihana Williams (ST46)
10:00-10:15	Copresence in collaborative music-making Michelle F. Levine, Michael F. Schober (ST47)
10:20-10:35	Implied shape and orientation: Is the match/mismatch effect word- or sentence-based?  Barbara Kaup, Jana Lüdtke (ST48)

10:40-12:00 Poster Session (next page)

**12:00-13:00** Keynote Address Art Glenberg (Panorama Room)

### **Poster Session Index**

Tuesday, July 28 - 10:40-12:00

**S** for ST&D posters (S1-S46) **E** for ESLP Posters (E47-E78)

**S1: Indexing Situation Dimensions At Event Boundaries** *Christopher Kurby, Jeffrey Zacks* 

**S2:** Error Production And Task Instruction In Online Narrative Comprehension Andrew Elfenbein, Steve Yussen, Amy Landers, Kate Bohn

# S3: Grammatical And Lexical Aspect Constraints On The Availability Of Discourse Concepts

Raymond Becker, Carol Madden, Todd Ferretti

S4: Automatic And Strategic Cognitive Processes While Reading In A Task Close To Information Search Task

Alexandra Ciaccia, Daniel Martins, Aline Chevalier

S5: The Incorporation Of Setting Information In The Construction Of Global Coherence Virginia Clinton, Mary Jane White, Paul van den Broek

# S6: Readers Monitor Character's Time Schedule During Narrative Comprehension: Interaction Between Goal And Time Dimensions

Keisuke Inohara, Kohei Tsunemi, Takashi Kusumi

### **S7: Three Information Functions Of Headings**

Robert F. Lorch, Julie Lemarié

# S8: Time Course Of Activation For Backward And Forward Causal Inferences: An Fmri Investigation

Jose A. Leon, Inmaculada Escudero, Chantall Pratt, Robert Mason, Marcel A. Just

# S9: Effects Of Targeted Questions And Reading Perspectives On Standards Of Coherence And Importance Judgments

Mark Lewis, Michael Mensink

### S10: Overcoming Reader Preferences Through Focus On Realism

Daniel Slaten, Elise Krause, David Rapp

# **S11: Human Event-Related Brain Response To Connectives In Good And Poor Comprehenders**

Jose Diaz, Elena Gamez, Inmaculada Leon, Morera Yurena, Manuel de Vega

# **S12: Dominance Of Grammatical Cues On The Mental Representation Of Gender** *Oriane Sarrasin, Pascal Gygax, Ute Gabriel, Jane Oakhill, Alan Garnham*

# **S13: Can The Landscape Model Of Activation Predict Individual Differences?** *Danielle Mull, Keith Millis*

### S14: Classification Of Personality In Large Blog Data

Francisco Iacobelli, Alastair Gill, Scott Nowson, Jon Oberlander

# S15: Which Type Of Cognitive Load Underlies The Interaction Of Prior Knowledge And Instructional Format In Multimedia Learning?

Gabriele Cierniak, Katharina Scheiter, Peter Gerjets

### S16: Cognitive Processes In Answering Contrastive Survey Questions: The Use Of Eye-Tracking And Reaction Times

Naomi Kamoen, Bregje Holleman, Huub van den Bergh

### S17: The Temporal Fall Of The Resonance Process: Effects Of Age And Situational Dimensions

Sarah-Lise Farhat, Isabelle Tapiero

### **S18: Influence Of Aging On Inhibition And Suppression Of Irrelevant Spatial Information**

Céline Renau Op't'hoog, Isabelle Tapiero

# **S19: Anaphoric Resolution Processes By L2 Learners Of English During Text Comprehension**

Yasunori Morishima, Sayaka Sato

# **S20:** Characteristics Of Collocations In English Writing By Chinese Students *Ying shen*

### S21: The Influence Of Bilingualism On Story Comprehension

Frederique Fornier, Daniel Martins

# S22: Understanding Words: How The Lexical Encoding Of Technical Concepts Impacts On Their Perceived Comprehension

Elisabeth Paus, Regina Jucks

# **S23: Disentangling Emotional Valence And Arousal Effects During Word Processing** *Francesca Citron, Brendan Weekes, Evelyn Ferstl*

### **S24: Comprehension Of Quantifiers In Minimal Context** *William Levine*

# S25: Force Dynamics In The Comprehension Of Causal And Adversative Sentences: Different Effects Depending On The Locus Of Visual-Animation Task Yurena Morera, Manuel de Vega

# **S26: Quantity In Different Sentence Contexts: The Role Of Verticality** *Inge Boot, Diane Pecher*

### S27: Building A Coherent Representation During Reading: Understanding Inferences Generated By Early Grade School Struggling And Non-Struggling Comprehenders Sarah Carlson, Paul van den Broek, Kristen McMaster, Mary Jane White, Catherine Bohn-Gettler

# S28: Investigating The Difference Eye Movement Pattern During Chinese Fourth Graders Read Informational Passage

Minglei Chen, Yu-Jen Chang, Hwawei Ko

### S29: The Effects Of Causal Structure For Young Children's Memory Of Chinese Narrative Texts

Chiung-Hsien Tsai, Yuhtsuen Tzeng

# **S30: Children's Understanding Of Tales: The Representation Of Emotional Events** *Nathalie Blanc, Arielle Syssau*

#### S31: Reading Strategies In Pisa-Like Tasks

Ladislao Salmerón, Amelia Mañá, Eduardo Vidal-Abarca, Tomás Martínez, Laura Gil

# S32: Gender-Cue Is More Important Than Order-Of-Mention For Pronoun Resolution Of Young Chinese-Speaking Children

Chiu Hua Huang, Yuhtsuen Tzeng, Wei Ming Luh

# S33: Selection And Evaluation Of Information Strategies When Answering Questions From Documents

Raquel Cerdán, Ramiro Gilabert, Eduardo Vidal-Abarca

# **S34:** The Perceived Importance Of Explanations In Narrative And Procedural Texts *Eyal Sagi*

### S35: Entangled Voices. Journalists' Representation Modes Of Source Information In Journalistic Subgenres

José Sanders

### S36: Discourse Models As Applied To Musical Structure

Richard Ashley, Benjamin Anderson

# **S37:** The Interactional And Multimodal Reference Construction In Children And Adults Sergio Di Sano

# S38: Books With Computer Games: How Interaction With Still Images And Audio Feedback Affects Readers' Spatial Situation Models Glenn Smith

### S39: Role Of Intonation For Modeling Dialog Acts From The Transcription Of Utterances

Mohammad Sorower, Mohammed Yeasin

# **S40: Sense Visualization Of Polysemy Words With Latent Semantic Analysis** *Guillermo Jorge-Botana, Jose A Leon, Ricardo Olmos*

### S41: New Algorithms For Evaluation Summaries With Lsa

Ricardo Olmos, José Antonio León, Guillermo Jorge-Botana, Inmaculada Escudero

### S42: Using LIWC To Distinguish Irony From Literal Language

Monica A. Riordan, Roger J. Kreuz

### S43: Exploring The Efficiency Of Auto-Tutor On Learning

Kris Kopp, Keith Millis, Anne Britt

# S44: How Are Overhearers To Monologues And Dialogues In Computer-Mediated Communication Affected By Task Difficulty And Cultural Differences? Roxanne Raine

**S45: Automatic Detection Of The Origin Of English-Written News Articles** *Vasile Rus, Moongee Jeon, Arthur Graesser* 

### S46: Verifying Manual Linguistic And Conceptual Metaphor Analysis By The Semantic Annotation Tool Wmatrix

Tina Krennmayr

### E47: Visualizing Polysemy Structures Using Lsa And Predication Algorithm

G. Jorge-Batana, J.A. Léon, R. Olmos

# E48: The Effect Of Early Activation Of Pertinent Perceptual Symbols In Language Comprehension

K. Pepera, I. Tapiero

### E49: Gaze Grounds Meaning In Situated Human-Robot Interaction

M. Staudte, M.W. Crocker

### E50: The Representation Of The Temporality Of Events As A Dynamic Process: The Effect Of Mental Simulation

E. Peyroux, I. Tapiero

### **E51: Language About Force Modulates Response Force**

L. Taylor, R. Zwaan

### E52: Language Independence In Bilinguals During Sentence Comprehension

L. Vandeberg, R. Zwaan

### E53: Embodiment Processes In Abstract Concept Learning

M.L. Lorusso, M. Burigo, A. Milani, L. Pigazzini

### E54: "Iconic" Memory: The Effect Of Spatial Iconicity And Word-Order Frequency On Relatedness Judgments And Recognition Memory

C.A. Kurby, C. Tse, F. Du

### E55: Object-Size And Case-Marking Effects In The Appropriateness Of Sentences Describing Scenes

E. Miyamoto, S. Tanigawa, T. Iizuka

#### **E56: Situated Language Learning**

J. Koehne, M. Crocker

### E57: Attributing Causality In Multimodal Language-Graphics Comprehension

C. Acarturk, C. Habel

### E58: Quantity In Different Sentence Contexts: The Role Of Verticality

I. Boot, D. Pecher

# E59: Integration Of The Temporal Dimension Into A Spatial Situation Model Depending On The Verb Used In A Spatial Instruction

C. Vorwerg, P. Weiß

### E60: Modal-Specific Load Incurs Processing Costs: Explaining Interference In The Stroop-Task

J. Weijers, D. Lakens, H. IJzerman, P. Cool

# E61: How Do Experience And Language Contribute To The Representation Of Abstract Concepts?

P. Della Rosa, E. Catricalà, G. Vigliocco, S.F. Cappa

### E62: Semantic Domain-Specific Functional Integration For Action-Related vs. Abstract Concepts

M. Ghio, M. Tettamanti

### E63: Representations Of Events Are Situated Where The Experienced Changes Of Related States Are Retained

T. Welke, K. Nowack, G. Schaadt, E. van der Meer

### **E64: Simulating In Progress And Completed Events**

C.J. Madden, M. Hoen, P. Ford Dominey

# E65: Insights Into The Dynamics Of The Interaction Of Language Semantics, Attention And Perception

S. Lindsay, L. Meteyard

### E66: Hands-On Experience: Gestures As Embodied Activities

U. Sassenberg, E. van der Meer

# E67: does reading about a protagonist who is pressed for time speed up reading and response times?

B. Kaup, J. Lüdtke

# E68: Manipulation And Function Similarity Predict Degree Of Neural Overlap For Objects: Evidence From Fmri-Adaptation

E. Yee, D.M. Drucker, S.L. Thompson-Schill

### **E69: Sensory Contributions To Simulations**

R. Becker, M. Gonzalez

# E70: Irony And Embodiment: Evidence From The Movement-Compatibility Effect R. Filik, C.M. Hunter, H. Leuthold

# **E71: Look But Don't Touch: Haptic Disadvantage In Conceptual Processing** *L. Connell, D. Lynott*

# **E72: Effects Of Linguistic And Visuo-Spatial Semantic Relations On Pronoun Interpretation**

E. Kaiser

# E73: Flexing Versus Extending: Approach-Avoidance Actions Affect The Processing Of Desiderative-Mood Sentences

B. Claus, R. Bader

### **E74: Visual Working Memory In Situated Language Comprehension**

E. Ellsiepen, M. Crocker

# E75: Unmovable Phsysique Makes Unshakable Beliefs? The Role Of Attention In Processing Abstract Thought

M. Bos, H. IJzerman (shared 1<sup>st</sup> authorship)

### E76: Does How You Feel Matter To How You Read? The Effect Of Mood On Language Comprehension

D. de Goede, P. van Alphen, E. Mulder, J. Kerstholt, J. van Berkum

# E77: What Does It Mean To Work? Examining The Functional Neuroanatomical Correlates Of Verbally Implied Action

M. Nieuwland, T. Ditman, G. Kuperberg

### **E78: Understanding Number Names Affects Visual Processing**

A. Myachykov, M. Fischer

### 12.00 End of Poster Session

**12:00-13:00** Keynote Address Art Glenberg (Panorama Room)

### Paper Abstracts ST&D 2009

Sunday, July 26 - 14:40-16:20

### Invited Symposium: New findings in the neuroscience of discourse

Chair: Jeffrey Zacks

ST01: The Neuroanatomy Of Discourse Comprehension: Where Are We Now?

### Evelyn C. Ferstl

University of Sussex United Kingdom

#### **Abstract:**

Neuroimaging studies of discourse comprehension can shed light on the component processes of language comprehension in context. Reviews and meta-analyses of studies on inferencing, situation model building and non-literal interpretations have provided evidence for an Extended Language Network, including regions in the medial prefrontal cortex and anterior temporal lobes. In this paper, I will review recent neuroimaging studies published since 2005 and revisit the question of how neuroimaging can inform psycholinguistic theory.

#### ST02: Neuroimaging Investigations Of Continuous Reading

#### Jeffrey Zacks

Washington University United States

#### Abstract:

Some theories of discourse comprehension propose that reader construct mental representations of the situation described by a text, and then segment the ongoing situation. One possibility is that segmentation results from attempting to predict future inputs, monitoring for failures of prediction, and updating when prediction failures occur. Rapid event-related and self-paced event-related functional MRI data support both of these proposals. The methods can be used to ask a wide array of questions about naturalistic reading.

#### ST03: Neurocognitive Traces Of Anticipation In Text And Discourse

#### Jos Van Berkum

Max Planck Institute for Psycholinguistics the Netherlands

#### Abstract:

In this talk, I review our ERP evidence for anticipation in text and discourse comprehension. The evidence suggests that language users are continuously anticipating lots of things, using whatever language-internal and -external cues they have at their disposal. This diversity in causes and effects testifies to the flexibility of the comprehension system, but it also makes clear that we need a more precise analysis of what discourse-based anticipation really is.

### ST04: What Can Erps And Fmri Tell Us About Language Comprehension? Streams Of Processing In The Brain

#### **Gina Kuperberg**

Tufts University and Mass General Hospital United States

#### Abstract:

Traditional models of sentence comprehension have generally focused on the syntactic mechanisms by which words are integrated to construct higher order meaning. I will present ERP and fMRI data suggesting that word-by-word syntactic-based combination operates in parallel with semantic memory-based prediction. This gives rise to a highly dynamic system, ensuring that comprehension is fast and efficient, making maximal use of our prior experience, but also accurate and flexible in the face of novel input.

### Monday, July 27 - 8:30-10:10

# Parallel session I: Comprehension processes I (East Room)

Chair: Pascal Gygax

ST05: Focusing On The Competition: The Discourse Status Of Focus-Induced Alternatives

#### Elsi Kaiser

University of Southern California United States

#### Abstract:

Two experiments investigated the discourse-status of focus-induced alternatives (e.g. entities evoked by 'only', 'even'). We tested whether the salience of the competitors/alternatives depends on (i) the salience of the focused entity and/or (ii) whether we are adding another alternative (additive focus) or rejecting earlier alternative(s) (corrective focus). The results suggest the salience of the focused entity does indeed matter ('inherited salience'), and that additive and contrastive focus pattern differently.

### ST06: Gender Representation In Language And Grammatical Cues: When Beauticians, Musicians And Mechanics Remain Men

Pascal Gygax	Oriane Sarrasin	Alan Garnham
University of Fribourg	University of Lausanne	University of Sussex
Switzerland	Switzerland	United Kingdom

Ute GabrielJane OakhillNorwegian University ofUniversity of SussexScience and TechnologyUnited KingdomNorway

#### Abstract:

Based on research by Gygax et al. (2008), we examined the influence of pronouns on the mental representation of gender when encountering role names. By adding grammatical cues (i.e., pronouns), we significantly altered the role name's grammatical influence in German, where the pronoun (sie=feminine)

carried mismatching grammatical cues to the role name (masculine), but not in French, where the pronoun (ils=masculine) matched the role name's grammatical cues (masculine).

#### ST07: Interpretation Of Gender Stereotyped Terms

Alan Garnham	Stephen Hamilton	Anna-Marie Armstrong
University of Sussex	University of Sussex	University of Sussex
United Kingdom	United Kingdom	United Kingdom

Jane OakhillEmily KennardUniversity of SussexUniversity of SussexUnited KingdomUnited Kingdom

#### **Abstract:**

Attempting to refer to the referent of a gender stereotyped term with a pronoun that does not match the stereotype (e.g. nurse...she) is known to cause processing difficulties. Two sets of experiments are reported. One investigates whether clashes with different types of pronouns (reflexives and ordinary definites) produce different ERP signatures (corresponding to syntactic and semantic anomalies). The second looks at the effects of reinforcing or overturning the stereotype using gender-biased adjectival information (e.g. nurse...talkative/fierce.....he).

### ST08: The German Army: Is It Organized In A Prussian Way Or Do They Set A High Value On Loyalty To The Emperor?

Judith SchweppeRalf RummerUniversity of ErfurtUniversity of Erfurt

Germany Germany

#### Abstract:

Two experiments have tested the assumption that the influence of notional relative to grammatical number is a function of the distance between antecedent and anaphoric pronoun. For the production and comprehension of pronouns referring to collective nouns, grammatical number agreement was preferred when the pronoun was in the following sentence, while notional number was preferred with a longer distance. The results are interpreted as reflecting the availability of grammatical and conceptual information in short-term memory.

#### ST09: Familiarity Of Narrative Settings And Misinformed Belief Change

Mija Van Der Wege David Rapp

Carleton College Northwestern University

United States United States

#### Abstract:

Readers learn from fiction, even when the information is inaccurate, but may be less vulnerable to false information when the narrative is presented in a familiar story setting. The current study tests how different types of degrees of familiarity with story settings affects reader's real world beliefs. Specifically, readers' familiarity with story settings correlates with belief change based on misinformation presented in narratives. The results are attributed to cognitive resource allocation during reading activities.

### Monday, July 27 - 8:30-10:10

# Parallel Session I: Conversation and Collaborative Performance (West Room)

Chair: Adrian Bangerter

#### ST10: Mimicry In Action: When People Imitate In Face-To-Face Conversation

Max Louwerse	Patrick Jeuniaux	Shinobu Watanabe
University of Memphis	University of Memphis	University of Memphis
United States	United States	United States

Rick Dale	Nick Benesh	Ellen Gurman Bard
University of Memphis	University of memphis	University of Edinburgh
United States	United States	United Kingdom

#### Abstract:

People naturally and unintentionally imitate one-another's behavior. We apply cross-recurrence analysis to a multimodal communication experiment, to reveal imitation of face and hand gestures, and speech. Imitation increases as a function of task complexity and number of conversations. These results are placed in light of cognitive and social accounts of imitation.

### ST11: Default Heuristics For Inferring Speakers' Communicative Intentions In Referential Communication

Edmundo Kronmuller	Dale Barr
Laboratoire sur la Langage, le	University of California,
Cerveau et la Cognition –	Riverside
CNRS	United States
France	

#### Abstract:

Two experiments were conducted to address how listeners infer speakers' referential communicative intentions. It was found that listeners deploy fast-acting default heuristics that are sensitive to general patterns of communicative behavior, but not sensitive to specifics of the current conversational context, specifically speaker's perspective or speaker's characteristics. If these fast-acting default heuristics lead to systematic misunderstandings, listeners compensate by integrating further contextual information.

#### ST12: At The Crossroads Of Speaking And Writing

Jean Fox Tree	Sarah Mayer	Teresa Betts
University of California Santa	University of California Santa	University of California Santa
Cruz	Cruz	Cruz
United States	United States	United States

#### Abstract

Because it shares elements with both written and spoken communication, instant messaging (IM) presents a unique setting in which to explore the predictions of the collaborative theory of language use. The presence and absence of different grounding constraints should cause people to interact differently across different communicative settings. The process of adaptation should be observable and measurable.

In the present study we document how IM changes as users increase in expertise with this communicative medium.

### ST13: Pragmatic Expectations In Children And Adults Overhearers: The Case Of Contrastive Inferences

Edmundo Kronmuller	Tiffany Morisseau	Ira Noveck
Laboratoire sur la Langage, le	Laboratoire sur la Langage, le	Laboratoire sur la Langage, le
Cerveau et la Cognition –	Cerveau et la Cognition –	Cerveau et la Cognition –
CNRS	CNRS	CNRS
France	France	France

#### Abstract:

We present an experiment designed to explore the difference between children and adults in making a Contrastive Inference upon hearing an adjectival modified noun. Previous research has shown that adults make the inference online and without extra effort. Research in developmental pragmatics, in the other hand, has shown that children have troubles making inferences based on pragmatic expectations. Results show that children overhearers do not reliably make Contrastive Inferences.

#### ST14: Reinstating An Interrupted Collaborative Task With And Without Visible Cues

Eric Chevalley Adrian Bangerter
Stanford University University of Neuchatel
United States Switzerland

#### Abstract:

How do two people manage to resume a collaborative task after they have been interrupted? In our study, instructors and their partners were interrupted while they were reproducing maps. They took longer and more effort to reinstate their task when the partners' workspace was invisible to instructors, and when the interruptions were long, or were mid-task. Shared visual evidence in the workspace was critical for them to reconstruct their common ground and continue.

### Monday, July 27 - 10:30-12:10

# Parallel Session II: Comprehension Processes II (East Room)

Chair: Ted Sanders

#### St15: Discourse Prominence And Pronoun Resolution: Evidence From French

Sarah Schimke	Saveria Colonna	<b>Barbara Hemforth</b>
MPI for Psycholinguistics	University of Paris 8	CNRS, Université René
The Netherlands	France	Descartes, Paris
		France

#### Abstract:

This study uses an eye-tracking paradigm to investigate the resolution of ambiguous pronouns in French, manipulating information status (topic/focus) and grammatical role (subject/object) of the potential antecedents. It was found that topics are more accessible than foci, and objects more accessible than subjects. These results help to better understand the role of discourse prominence for pronoun resolution, and extend previous findings in showing that the subject-preference observed for other languages does not hold in French.

### ST16: Are Subjective Causal Relations More Complex Than Objective Causal Relations? New Evidence From Eye-Tracking

Anneloes Canestrelli	Pim Mak	Ted Sanders
Utrecht University	Utrecht University	<b>Utrecht University</b>
The Netherlands	The Netherlands	The Netherlands

#### Abstract:

Linguists have argued in favor of a categorization of subjective versus objective causal relations. Experimental evidence from discourse processing (Traxler et al,. 1997ab) suggests this categorization is indeed cognitively relevant. Subjective relations should be considered more complex, since they require more processing time. However, in a new eye tracking experiment, we found that natural subjective causals are not necessarily more difficult than objective relations. Implications for a cognitive theory of causality in discourse are discussed.

#### ST17: Preferences In Collective And Distributive Interpretations Of Verbal Predicates

Mahayana Godoy Edson Françozo

State University of Campinas State University of Campinas

Brazil Brazil

#### Abstract:

Expectations generated by singular expressions denoting single (groups) or multiple entities, as well as singular collective expressions denoting collections of entities, play a role in how subjects provide continuations for passive sentences. We investigated this through a task in which subjects were asked to complete a passive sentence with an agent. The results indicate that readings inducing group interpretation reliably elicited plural agents. In contrast, readings that induced distributed readings elicited plural agents.

#### ST18: Language Independence In Bilinguals During Sentence Comprehension

Lisa Vandeberg Rolf Zwaan

Erasmus University Erasmus University

Rotterdam
The Netherlands
The Netherlands

#### Abstract:

We set out to test whether parallel processing of languages could be demonstrated during language comprehension in spoken sentence processing. In Experiment 1 a new measure to select auditive stimulus materials was introduced. Experiment 2 was an eye tracking study using the Visual World Paradigm. The results support the language independent view of lexical access, since bilinguals show co-activation of both languages during sentence comprehension in their second language.

#### ST19: Language Specific Preferences In Anaphor Resolution

Barbara HemforthLars KoniecznySavéria ColonnaUniversité Paris Descartes,University of FreiburgUniversité Paris 8, CNRS

CNRS Germany France

France

Joël Pynte

**Christoph Scheepers** Université Paris Descartes,

University of Glasgow CNRS
United Kingdom France

#### Abstract:

We will present eyetracking experiments on pronoun resolution in English, French, and German, using the visual world paradigm. We established a preference for objects as antecedents for within-sentence pronoun resolution in French, whereas a subject preference for highly matched constructions was found for German and Englsh. We will discuss these data in the light of Gricean, accessibility-based, and frequency based approaches.

Monday, July 27 - 10:30-12:10

# Parallel Session II: Learning from Text (West Room)

Chair: Anique de Bruin

### T20: The Role Of Deep-Level Questions, "Self" Explanations, And Domain Knowledge In Vicarious Learning

Barry Gholson Joshua Brittingham Karl Fike

University of Memphis University of Memphis University of Memphis

United States United States United States

Scotty Craig Mae-Lynn Germany Kyle R. Cheney

University of Memphis University of Memphis University of Memphis

United States United States United States

#### Abstract:

In a 4 X 2 factorial study, four levels of dialogue (a monologue providing basic information, a question condition that gave a question before content, an explanation condition that gave explanations after the content, and a question + explanation condition that combined both features) were contrasted between high and low domain knowledge participants. A two-way interaction was observed where question + explanation improved learning for low domain learners, but hindered high domain learners.

### ST21: The Effects Of Post-Reading, Verbal And Graphical Recall Strategies On Text Retention And Text Comprehension

#### Liesbeth Kester

Open University of the Netherlands The Netherlands

#### Abstract:

This study investigated the effects of a post-reading, verbal (i.e., self-explanation) and a graphical (i.e., concept mapping) recall strategy on text retention and text comprehension. Both strategies were contrasted to a control strategy, namely, restudying. Results show that restudying and self-explaining a text yield higher retention test performance than drawing a concept map of a text both on the short- and long-term. Furthermore, participants performed better on the short-term, retention and comprehension test.

#### ST22: Detecting Contradictions Between Scientific Texts: Is There An Effect Of Reading Instruction?

Marc Stadtler	Rainer Bromme	Timo Skodzik
University of Münster	University of Münster	University of Münster
Germany	Germany	Germany

#### Abstract:

Identifying conflicts between texts is a common, yet underresearched issue of online reading. The present study examined the influence of two different reading goals on readers' memory for conflicting information and knowledge acquisition. 86 undergraduates read six online documents either to write a summary or to write an argumentative essay. Results show that those who read in order to write an argumentative essay were better able to indicate intertextual conflicts and acquired more factual knowledge.

#### ST23: Students' Expectations Of Partial Credit Affect Judgments And Regulation Of Learning From Text

Anique de Bruin	Gino Camp	Rolf Zwaan
Erasmus University	Erasmus University	<b>Erasmus University</b>
Rotterdam	Rotterdam	Rotterdam
The Netherlands	The Netherlands	The Netherlands

#### Abstract:

In two experiments, we examined how expectation of partial credit affected students' monitoring and regulation of learning from texts. The results revealed that students often erroneously judged their responses as correct when the partial credit option was absent. When students were forced to judge whether their response was indeed correct, self-monitoring improved, and study times increased. Poor metacognitive skills are in part due to expectation of partial credit, which is omnipresent in everyday testing.

#### ST24: Recognition Memory For Text: Strength-Based Criterion Shifts

#### **Murray Singer**

University of Manitoba Canada

#### Abstract:

This study scrutinized criterion shifts in recognition memory for probes derived from repeated (strong) or unrepeated texts. Ten stories were each read either once or twice consecutively. Recognition testing of

pairs comprising a weak and a strong story yielded higher false alarms for the former. The criterion shift was corroborated by signal detection analysis. Relevant evidence suggests that semantic encoding of stimuli supports criterion shifts and that similar memory mechanisms contribute to recognition for discourse and simpler materials.

### Monday, July 27 - 13:10-14:50

### Parallel Session III: Affecting the Reader (East)

Chair: Huib Tabbers

#### ST25: How Mood Influences The Mode Of Text Processing: An Erp Study

Dieuwke de Goede	Emma Mulder	Jos van Berkum
Max Planck Institute for	University of Amsterdam	Max Planck Institute for
Psycholinguistics	The Netherlands	Psycholinguistics; Donders
The Netherlands		Institute, Centre for
	Jose Kerstholt	Cognitive Neuroimaging
Petra van Alphen	TNO Human Factors	The Netherlands
Max Planck Institute for	The Netherlands	
Psycholinguistics		
The Netherlands		

#### Abstract:

In a two-session EEG experiment, we used short film clips to manipulate the mood of participants before they read mini-texts in which gender-marked pronouns confirmed or disconfirmed verb-based heuristic expectancies. In line with our predictions, unexpected pronouns elicited a P600 effect when readers were in a happy mood, and did not do so when the same readers were in a sad mood. This supports the idea that a happy mood increases the use of heuristics.

#### ST26: Individual Differences In The Comprehension Of Counterfactual Stories. An Erp Study

Spain

Mabel Urrutia University of La Laguna Spain	M. Dolores Castillo University of La Laguna Spain	Manuel De Vega University of La Laguna Spain
<b>Hipólito Marrero</b> University of La Laguna	Juan A. Hernández University of La Laguna	

#### Abstract:

Spain

Participants read stories describing counterfactual or factual events. To explore individual differences, the ERPs methodology was used in three groups of participants differing on their discourse and lexical skills. Results showed significant Context x Group interactions in three loci of the stories, associated to the N-400 and P600 components of the ERP. Good readers detected dual meaning from counterfactual context in early stage of reading while poor readers failed detecting differences between factual and counterfactual context.

#### ST27: Evil Geniuses: Inferences From Mismatches Between Trait Descriptions And Reader Preferences

Michael Mensink David Rapp

University of Minnesota Northwestern University

United States United States

#### **Abstract:**

Readers spontaneously infer character traits during narrative comprehension. In four experiments, we investigated how competition between readers' preferences for characters and the valence of implied traits influenced inference construction. 192 University of Minnesota students read 18 short adapted narratives (Rapp, Gerrig, and Prentice, 2001), and rated the degree to which characters possessed specific traits. Participants were more likely to judge characters as having traits that matched preferences and implied trait valences; mismatches reduced those likelihoods.

### ST28: If You Prick Us, Do We Not Bleed? Effects Of Fictional Narratives On Assumptions About Similarity Between Ingroup And Outgroups

#### Frank Hakemulder

Utrecht University
The Netherlands

#### Abstract:

This paper focuses on the effects of reading narratives on outgroup perception. It was examined what processes may be responsible, focusing on the transportation hypothesis (Green et al. 2002). Furthermore, it was tested whether perception of outgroups close to home is just as susceptible to change as outgroups further removed. Finally, it was examined whether correspondence between character beliefs and those of the readers augment readers' presumption that outgroup members are actually much like them.

### ST29: Constructed Response Versus Multiple Choice: What Can We Learn About Student's Text Comprehension From Each And Both Combined

John Sabatini Kelly Bruce

Educational Testing Service Educational Testing Service

United States United States

#### Abstract:

We compared performance of students in 164 6-9th grade on question stem equivalent multiple choice (MC) and constructed response (CR) text comprehension items. The 4-passage test was computer administered as part of a larger battery of component measures of reading. The goal was to better understand sources of text comprehension difficulties in basic understanding of expository texts. Results show how individual differences in student test taking behavior and text features combine to determine score patterns.

### Monday, July 27 - 13:10-14:50

# Parallel Session III: Pragmatics and Corpus Analysis (West Room)

Chair: Max Louwerse

#### ST30: Cohesion And Classification Of Speech Acts In Arabic Discourse

Art Graesser	John Kaltner	Max Louwerse	Jeff Hancock
University of	Rhodes College	University of	Cornell University
Memphis	United States	Memphis,	United States
United States		United States	
	Zhiqiang Cai		Cindy Chung
Louis Han	University of	Xiangen Hu	University of Texas
University of	Memphis	University of	at Austin
Memphis	United States	Memphis,	<b>United States</b>
United States		United States	
	Phil McCarthy		James W.
Moongee Jeon	University of	Vasile Rus	Pennebaker
Konkuk University	Memphis	University of	University of Texas
Korea, Republic Of	United States	Memphis	at Austin
		United States	<b>United States</b>
John Myers	Lubna Shala		
University of	University of	Danielle	
Memphis	Memphis	McNamara	
United States	United States	University of	
		Memphis	
		United States	

#### Abstract:

The Language Across Cultures (LAC) research group is exploring the extent to which language and discourse characteristics can predict social states of individuals and groups, such as leadership, deception, familiarity, and group coherence. The long-term goal is to have automated analyzes for multiple languages, including English, Arabic, Chinese, and Korean. This presentation presents analyses of Arabic discourse to illustrate cohesion across languages, cohesion as a predictor of social status, and speech act classification.

ST31: Is A Flexible Instrument Like A Moveable Tool? Examining The Conceptual Bases Of Metaphorically Used Words With Two Discourse-Analytical Methods

#### Julia Berenike Herrmann

VU University Amsterdam
The Netherlands

#### Abstract:

This paper applies a manual procedure for conceptual metaphor analysis to data from the academic register. It tests this procedure by comparing it to a computational tool. The overall goal is to present corpus-based metaphor analysis with new methodology appropriate for scrutinizing conceptual structures underlying natural linguistic data. Secondly, findings are discussed as being / not being representative of academic discourse.

#### ST32: Creating Illusory Irony

Gina Caucci Roger Kreuz

University of Memphis University of Memphis

United States United States

#### Abstract:

The present study contrasted the contributions of lexical factors with contextual factors in the perception of verbal irony. Participants read sarcastic and literal excerpts from published works. Based on results from previous research, sarcastic targets were stripped of important lexical factors (e.g., interjections) thought to influence sarcastic perception, while literal targets were modified to include these factors. Results show that participants rated literal statements as being sarcastic even though the context endorsed a literal interpretation.

#### **ST33: Lexical Entrainment Without Conceptual Pacts**

Eric MayorAdrian BangerterMyriam AribotUniversité de NeuchâtelUniversité de NeuchâtelUniversité de Neuchâtel

Switzerland Switzerland Switzerland

#### Abstract:

We contrasted two conditions of a tangram matching task: a classical condition where cards remained the same over trials, and a new cards condition where cards changed on each trial. Pairs in the new cards condition, unable to develop conceptual pacts, nevertheless used less and less words. They also exhibited lexical entrainment. Some lexical entrainment in the new cards condition is due to the re-use of the terms to describe card features.

#### ST34: What's In A Map? Linguistic And Non-Linguistic Factors In Geographical Knowledge

Max Louwerse Nick Benesh

University of Memphis University of Memphis

United States United States

#### Abstract:

Computational linguistic analyses have demonstrated language encodes geographical information. Longitude and latitude of cities can be predicted using their co-occurrences in texts. We investigated whether the geographical location of fictional cities can be estimated, and to what extent they compare to human estimates that are strictly based on visual maps. Results again show that computational linguistic techniques can reliably predict geographical coordinates and that these coordinates are on par with human estimates.

### Monday, July 27 - 15:10-16:50

# Parallel Session IV: Comprehension and Thought Processes (East Room)

Chair: Tobias Richter

# ST35: The Refutational Effect In Conceptual Change Processes During Text Reading: An Eye Movement Analysis

Nicola Ariasi Lucia Mason

University of Padova University of Padova

Italy Italy

#### Abstract:

Research documented that a particular text structure, the refutational, is better than traditional structures in enhancing knowledge restructuring during scientific concepts learning. It documented that eye-tracking is viable in studying global text processing, a complex kind of processing implied in conceptual change. We investigated the refutational effect to see whether different offline learning outcomes are linked to different online cognitive processes in knowledge restructuring. Evidence from eye movements indicates the crucial connection between the two.

# ST36: The Online Comprehension Of Non-Basic Indicative Conditionals: An Investigation Into Reasoning As We Read

Matthew Haigh Andrew Stewart

University of Manchester University of Manchester

United Kingdom United Kingdom

### Abstract:

In this paper we investigate how readers process and represent conditional information of the form if....then during online comprehension. Using self-paced reading we found that readers were sensitive to conditional probability (i.e., the plausibility of a consequent given an antecedent) at the earliest opportunity. We discuss our results in light of other recent psycholinguistic investigations of the processing of conditional information, and in terms of situation model construction and updating.

#### ST37: Readers' Reliance On Source Credibility In Service Of Comprehension

Jesse R. Sparks David N. Rapp

Northwestern University Northwestern University

United States United States

#### Abstract:

Three experiments investigated the influence of source credibility on readers' text inferences. Results suggest that beliefs about credibility can inform inferences during an explicit judgment task; in contrast, credibility exerts less of an influence on tasks that do not require explicit judgments, even when participants are encouraged to carefully evaluate text sources as they read. These findings have implications for models of inference construction and for the design of interventions focused on critical reading skills.

#### ST38: Monitoring Events In The Service Of Comprehension

Catherine M. Bohn-GettlerPanayiota KendeouPaul van den BroekWichita State UniversityMcGill UniversityLeiden UniversityUnited StatesCanadaThe Netherlands

David N. Rapp Mary Jane White

Northwestern University University of Memphis

United States United States

#### Abstract:

When reading narratives, adults monitor changes in time, space, characters, goals, and causality. The developmental literature has similarly studied such issues, but has focused on the development of children's knowledge of each dimension rather than their applications of such knowledge. The current study revealed that, like adults, middle school children's post-reading memory is organized around similar dimensions. However, children do not spontaneously monitor the same dimensions during moment-bymoment reading.

# ST39: The Epistemic Stroop Effect: Evidence For Routine Epistemic Validation Processes In Language Comprehension

Maj-Britt IsbernerTobias RichterUniversity of CologneUniversity of Cologne

Germany Germany

#### Abstract:

We assume comprehenders to routinely use their world knowledge for validating incoming information whenever they construct a situation model during comprehension. Accordingly, comprehenders should be able to reject invalid information efficiently and non-strategically. In an experiment testing this assumption, participants judged the orthographical correctness of words embedded in sentences rendered true or false by the linguistic context. Orthographical judgments were prolonged when affirmative responses were required for words in invalid assertions (epistemic Stroop effect).

### Monday, July 27 - 15:10-16:50

### **Symposium: Developmental Aspects of Reading Comprehension**

Chair: Kate Cain

#### ST40: Development Of Reading Comprehension: Going Beyond The Simple View

Panayiota KendeouMary Jane WhitePaul van den BroekMcGill UniversityUniversity of MemphisLeiden UniversityCanadaUnited StatesThe Netherlands

#### Abstract:

We examined the development of oral language and decoding skills from preschool to elementary school and their relation to reading comprehension. Four- and six-year old children were tested on oral language and decoding skills, and were retested two years later. Structural Equation Modeling was used to test a series of theoretically-driven developmental models and showed that both sets of skills follow unique developmental trajectories, each predicting and being predicted by each other at different ages.

#### ST41: Preschoolers Understanding Of Implicit And Explicit Information In A Text

Maria Chiara Levorato Elena Florit

University of Padova University of Padova

Italy Italy

#### Abstract:

The study analyzed the role played by verbal skills, memory resources and inferential processes in preschoolers understanding of explicit and implicit information in oral texts. Listening comprehension of explicit and implicit information, verbal skills, verbal memory and inferential processes were assessed in 133 and 88 children aged 4- and 5-years. The component skills played a different role in the comprehension of explicit and implicit information.

# ST42: The Relation Between Speed Of Semantic Access, Semantic Knowledge, And Aspects Of Reading Ability

Jane Oakhill	Diana McCarthy	Kate Cain
University of Sussex	University of Sussex	Lancaster University

United Kingdom United Kingdom United Kingdom

#### Abstract:

This paper explores the relation between aspects of children's reading (word recognition and comprehension), aspects of vocabulary knowledge (breadth and depth) and ability to make links in text to make inferences and derive the theme of a text or word list.

# ST43: Making Links: Can Young Readers Make Use Of Interclausal Connectives To Guide Their Text Comprehension?

Kate Cain	Hannah Nash	Nicola Pooley
Lancaster University	University of York	Lancaster University
United Kingdom	United Kingdom	United Kingdom

#### Abstract:

We report two reading-time experiments to investigate whether different types of connective (temporal, causal, adversative) influence 7-8 and 9-10 year-olds' processing and comprehension of texts. For both age groups, the presence of an appropriate connective facilitated reading and the presence of an inappropriate connective disrupted reading. Additionally, the presence of an inappropriate connective resulted in lower sense judgements. The data show that young readers' processing and comprehension of texts is influenced by these cohesive devices.

### Tuesday, July 28 – 09:00-10:40

### **Embodied Cognition**

Chair: Katinka Dijkstra

ST44: Simulation In Narrative Comprehension: The Effect Of Similarities And Dissimilarities On Personalities Between Readers And Protagonists

Hidetsugu Komeda Keisuke Inohara
University of Wisconsin- Kyoto University

Madison Japan

**United States** 

Takashi Kusumi

Kohei Tsunemi Kyoto University

Kyoto University Japan

Japan

#### Abstract:

We examined whether similarities and dissimilarities of personalities on personalities (extraversion/neuroticism) between readers and protagonists influenced narrative comprehension. We performed a 2 x 2 factorial design on each personality; Participants' personalities were between subjects. The story protagonist was within subjects. Results suggest that readers took time to judge protagonist's emotion more slowly when reading stories about dissimilar protagonists to themselves than when reading those about control protagonists. This finding is consistent with simulation theory.

#### ST45: Language Affects Effector-Specific Response Force

Lawrence Taylor Rolf Zwaan

Erasmus Universiteit Erasmus Universiteit

Rotterdam Rotterdam
The Netherlands The Netherlands

#### Abstract:

Comprehension of language about action is associated with motor activation. One experiment addresses two novel aspects of this phenomenon and introduce the concept of motor parameterization from the action planning literature. First, response force is found to be affected by sentences that imply a high or low degree of biomechanical force. Second, the data indicate that different action parameters (effector and force) are activated by a sentence. The results are discussed in terms of action parameterization and language comprehension and in light of previous evidence.

#### ST46: Eye Movements To White Space While Reading Highly Visualizable Text

Brent Strickland Rihana Williams

Yale University Georgia State University

United States United States

#### Abstract:

In an eye movement study, we demonstrated that readers gaze into the white space of the screen more often when the meaning of a text is highly visualizable compared to when it is abstract. This supports the embodied cognition perspective that readers construct situation models during comprehension by reactivating perceptual resources (Zwaan, 2005; Barsalou, 1999), and that eye movements function to

reduce interference between visually based comprehension processes and the visual processing of actual text.

### ST47: Copresence In Collaborative Music-Making

Michelle F. Levine Michael F. Schober
The New School for Social The New School for Social

Research Research United States United States

#### Abstract:

How do remote communication media affect the success of collaborative music-making? How is it similar or different to conversational discourse? We compared performances of 30 jazz piano and saxophone duos when they played in the same physical space, in separate spaces with video mediation, and in separate spaces with only audio mediation. Precise measurement of their coordination accuracy, compared to feelings of copresence, highlight the different demands of particular moments of coordination.

ST48: Implied Shape And Orientation: Is The Match/Mismatch Effect Word- Or Sentence-Based?

Barbara Kaup Jana Lüdtke

Technical University of Berlin Free University of Berlin

Germany Germany

#### Abstract:

Participants read sentences that implied a certain shape or orientation for a mentioned target entity. The two versions of each sentence differed with respect to the implied shape or orientation but not with respect to content words (e.g., "Mary finds the paint brush in the water mug next to the paint box" vs, "Mary finds the paint brush in the the paint box next to the water mug"). Participants were subsequently presented with a picture that either matched or mismatched the implied shape or orientation. No match effect was observed. However, a significant match effect was observed in conditions in which only the relevant critical word was mentioned (e.g., "Mary finds the paint brush in the water mug / paint box").

### Poster Abstracts ST&D 2009

#### **S1: Indexing Situation Dimensions At Event Boundaries**

Christopher Kurby Jeffrey Zacks

Washington University Washington University

United States United States

#### Abstract:

Readers spontaneously segment narratives into a series of discrete events by monitoring for changes in the situation (e.g., goals). This experiment examined the extent to which readers index information along these dimensions at the boundaries between events. Readers first provided think aloud protocols for each clause in an extended narrative, and then segmented the narrative into events. Readers mentioned situation features, such as characters, time, goals, and causes, more at event boundaries than event middles.

#### S2: Error Production And Task Instruction In Online Narrative Comprehension

Andrew Elfenbein Amy Landers

University of Minnesota University of Minnesota

United States United States

Steve Yussen Kate Bohn

University of Minnesota Wichita State University

United States United States

#### Abstract:

The aim of the present study was to investigate the effects of reader goals on the on-line production of errors during narrative comprehension. Task instructions (interpret, remember, entertain) affected the production of meaning errors but not inference or tracking errors in subjects' on-line processing of narrative texts.

#### S3: Grammatical And Lexical Aspect Constraints On The Availability Of Discourse Concepts

Raymond Becker Carol Madden Todd Ferretti

Wilfrid Laurier University Erasmus University Wilfrid Laurier University Wilfrid Laurier University

Canada Rotterdam Canada

The Netherlands

#### Abstract:

Our understanding of how temporal information constrains situation models is far from complete. In this study we present short stories, manipulating the grammatical and lexical verb aspect of target events, in conjunction with long and short duration events. We use ERP methodology to investigate how the brain responds to these temporal constraints. Our results suggest that all of these variables have an influence on the availability of discourse concepts in situation models.

#### S4: Automatic And Strategic Cognitive Processes While Reading In A Task Close To Information Search Task

Alexandra Ciaccia **Daniel Martins Aline Chevalier** Université Paris Ouest Université Paris Ouest Université Paris Ouest Nanterre La Défense Nanterre La Défense Nanterre La Défense France

France France

#### Abstract:

Two models of reading comprehension – search after meaning view and resonance model – were tested in a task close to an information search task. Type of the text situation model and number of repetitions of specific textual information were manipulated. Target sentences reading times suggested that participants took situation model into account only when specific textual information was mentioned one time. With four repetitions, reading times increased, which corroborated the resonance model.

#### S5: The Incorporation Of Setting Information In The Construction Of Global Coherence

**Virginia Clinton Mary Jane White** Paul van den Broek University of Minnesota University of Memphis Leiden University United States **United States** Netherlands

#### Abstract:

This study's purpose is to examine whether readers incorporate setting information to construct a globally coherent mental representation of a text. The results of an experiment with forty undergraduates revealed reading times were longer when reading events that were inconsistent with the setting than when reading events that were consistent with the setting. These findings indicate that setting is incorporated in the construction of global coherence, illuminating the importance of setting as a narrative element.

### S6: Readers Monitor Character's Time Schedule During Narrative Comprehension: Interaction Between **Goal And Time Dimensions**

Kohei Tsunemi Takashi Kusumi Keisuke Inohara **Kyoto University Kyoto University Kyoto University** Japan Japan Japan

#### Abstract:

This study examined whether readers monitor the relationship between goal structure and time dimension in narrative comprehension. Two factors were examined: (1) goal conflict, which varied according to whether the timeframes of a character's goals conflicted; and (2) the importance of the primary goal, which varied between moderate and high importance. Assessments of reading time and latency of responses to questions in two experiments suggested that readers monitor goal conflict and varies processes during reading.

#### **S7: Three Information Functions Of Headings**

Robert F. Lorch Julie Lemarié

University of Kentucky, Université de Toulouse,

Lexington **Toulouse** United States France

#### Abstract:

SARA is a comprehensive theory of text signaling devices. Three experiments tested a central claim of

SARA that signals communicate distinguishable types of information about text structure and content. Experiments 1 and 2 demonstrated that the search for information in a text is facilitated by topicidentifying information and labeling information. Experiment 3 demonstrated that readers use demarcating information provided by signals. Together, the experiments support distinctions among three types of information communicated by signals.

#### S8: Time Course Of Activation For Backward And Forward Causal Inferences: An Fmri Investigation

**Chantall Pratt** Marcel A. Just Jose A. Leon Autonoma University of CCBI Carnegie Mellon **CCBI Carnegie Mellon** Madrid University University Spain **United States United States** 

Inmaculada Escudero **Robert Mason** Nebrija University of Madrid **CCBI Carnegie Mellon** Spain University

**United States** 

#### Abstract:

The aim of this study was to determine the neural underpinnings of forward and backward causal inferences. We used event-related fMRI to determine the localization and time course of activation. 16 participants read 46 short, 3-sentence passages in one of three conditions: Explicit, Forward, and Backward. Activation was analyzed in two time windows (inference and resolution). Results revealed that backward inferences were drawn during the inference window, whereas forward inferences were not drawn consistently.

### S9: Effects Of Targeted Questions And Reading Perspectives On Standards Of Coherence And **Importance Judgments**

Mark Lewis **Michael Mensink** University of Minnesota University of Minnesota United States **United States** 

#### Abstract:

Pre-reading instructions can greatly influence readers' cognitive processes and products during comprehension (McCrudden & Schraw, 2007). Fifty-five University of Minnesota students received either a perspective or control pre-reading instruction before reading either a congruent or incongruent informational text. Participants then completed a 24 item reading inventory structured around Standards of Coherence and rated sentences for importance. Results indicated that perspective instructions may 1) subtly influence perceptions of importance and 2) induce a reframing reading strategy.

#### S10: Overcoming Reader Preferences Through Focus On Realism

**Daniel Slaten** Elise Krause David Rapp Northwestern University Northwestern University Northwestern University United States **United States United States** 

#### Abstract:

Readers' inferences can be guided by wishes and desires for particular story events. The current study examined whether readers can overcome the biases that their preferences establish. In one experiment, readers were provided with explicit instructions about how authors use emotional content to influence readers and to "focus on what might realistically happen next." The results indicate that while preferences exert an important influence on inferential judgments, instructions can reduce their influence on narrative experiences.

#### S11: Human Event-Related Brain Response To Connectives In Good And Poor Comprehenders

Jose Diaz	Inmaculada Leon	Manuel de Vega
University of La Laguna	University of La Laguna	University of La Laguna
Spain	Spain	Spain

Elena GamezMorera YurenaUniversity of La LagunaUniversity of La LagunaSpainSpain

#### Abstract:

In order to know the role that connectives play in reading, the EEGs of three groups of subjects differing in two criteria (lexical ability and reading comprehension) were registered. The presence or absence of connectives in the experimental texts was associated with differences in the ERP: although the differences emerge around the 400 ms window, they seem to be more related to individual levels of reading proficiency that to (more simple or automatic) lexical processing.

#### S12: Dominance Of Grammatical Cues On The Mental Representation Of Gender

Oriane Sarrasin	Ute Gabriel	Jane Oakhill
University of Lausanne	Norwegian University of	University of Sussex
Switzerland	Science and Technology	United Kingdom
	Norway	
Pascal Gygax		Alan Garnham
University of Fribourg		University of Sussex
Switzerland		United Kingdom

#### Abstract:

Gygax, Gabriel, Sarrasin, Oakhill & Garnham (2008) showed that when encountering role names, readers form a mental representation of gender based on grammatical cues in French and German. We tested the dominance of these grammatical cues by focusing on three variables that might challenge it: enhanced stereotypical information, valence and personal attitudes. Whereas the two first variables had not the expected effects, the mental representation of gender was showed to vary as a function of personal attitudes.

#### S13: Can The Landscape Model Of Activation Predict Individual Differences?

Danielle Mull	Keith Millis
Northern Illinois University	Northern Illinios University
United States	United States

#### Abstract:

The landscape model was used to simulate the memory for skilled and less skilled readers. Participants' recalls of text were compared to a number of landscape models. Results found few differences between readers, indicating the generalizability of the model. However, readers of varying WM capacity did not differ when WM parameters were altered, and the exclusion of causality in the model did not affect model fit.

#### S14: Classification Of Personality In Large Blog Data

Francisco Iacobelli Scott Nowson

Northwestern University Macquarie University

United States Australia

Alastair Gill Jon Oberlander

Northwestern University University of Edinburgh

United States United Kingdom

#### Abstract:

For this paper we trained and tested naïve Bayes classifiers for the big five personality traits in a large blog dataset. Bloggers filled a personality questionnaire. We trained our classifier using n-grams, and obtained accuracies that are, in many cases, comparable or higher than those reported in previous research. We describe interactions among personality traits and feature selection of the classifiers and compare our results with previously reported ones.

# S15: Which Type Of Cognitive Load Underlies The Interaction Of Prior Knowledge And Instructional Format In Multimedia Learning?

Gabriele Cierniak Katharina Scheiter Peter Gerjets

Knowledge Media Research University of Tuebingen Knowledge Media Research Center, Tuebingen Germany Center, Tuebingen

Germany Germany

#### Abstract:

The phenomenon that more knowledgeable learners do not benefit or even suffer from instructional formats that work successfully with less knowledgeable learners was examined. Using a 2x2 design we compared different assumptions about the mechanism underlying this effect made in cognitive load theory (CLT), multimedia, and text-processing research. Subjective ratings of load types and learners' viewing behavior could not support the CLT assumption, but might be interpreted in favor of the multimedia and text-comprehension assumptions.

### S16: Cognitive Processes In Answering Contrastive Survey Questions: The Use Of Eye-Tracking And Reaction Times

Naomi KamoenBregje HollemanHuub van den BerghUtrecht UniversityUtrecht UniversityUtrecht UniversityThe NetherlandsThe NetherlandsThe Netherlands

#### Abstract:

An assumption in the construction of survey questions is that the choice for a positive or a negative wording is irrelevant. However, research shows that people express their opinions more positively when the question is phrased negatively. In an experiment we related these wording effects to the cognitive processes underlying question answering using both reaction times and eye-tracking. We will reflect on these methods, and also on differences in processing positively and negatively worded questions.

#### S17: The Temporal Fall Of The Resonance Process: Effects Of Age And Situational Dimensions

Sarah-Lise FarhatIsabelle TapieroUniversity Lyon 2University Lyon 2

France France

#### Abstract:

In two experiments, we investigated how young and elderly people reactivate information while reading emotional and spatial texts. We assumed that the reactivation process, called the resonance process has two main components: an automatic component (Myers & O'Brien, 1998) and a strategic component (Sanford & Garrod, 1998). Results showed that these two components intervened alternatively according to a temporal fall for emotional text, but not for spatial texts for both young and older adults.

#### S18: Influence Of Aging On Inhibition And Suppression Of Irrelevant Spatial Information

Céline Renau Op't'hoogIsabelle TapieroUniversity Lyon 2University Lyon 2

France France

#### Abstract:

The goal of our study was to investigate how readers update their situation model, by specifically testing the distinction between inhibition and suppression of irrelevant text information. We assumed that inhibition of irrelevant information occurs before suppression takes place. Younger and older participants were instructed to read texts that contained relevant and irrelevant spatial information. Our main results confirmed our hypothesis and showed the influence of aging on the inhibition and suppression processes.

#### S19: Anaphoric Resolution Processes By L2 Learners Of English During Text Comprehension

Yasunori Morishima Sayaka Sato

International Christian International Christian

University University Japan Japan

#### Abstract:

Our reading time data suggest that in second language reading, when an anaphora is encountered soon after the occurrence of the antecedent, readers engage in anaphoric resolution. However, when there is a substantial distance between the antecedent and anaphora, L2 readers do not recognize the anaphora as such and engage in anaphoric resolution on-line. We argue that in such a case, the antecedent is no longer activated and the attention has shifted from the antecedent.

#### S20: Characteristics Of Collocations In English Writing By Chinese Students

#### Ying shen

Tohoku University Japan

#### Abstract:

This study attempts to identify the characteristics of collocations. The result is as follows: (1) Chinese students commit more lexical collocational mistakes than grammatical ones either in the total number or the total type of collocations. (2) No evident relationship between the use of correct collocations and coherence exists in writings by Chinese students. (3) English majors have a tendency to make verb-related collocational mistakes, whereas non-English majors are likely to commit preposition-related ones.

#### S21: The Influence Of Bilingualism On Story Comprehension

Frederique Fornier Daniel Martins

Université de Paris Ouest
Nanterre La Defense
Université de Paris Ouest
Nanterre La Defense

France France

#### Abstract:

This research examines how Portuguese-French bilingual individuals understand texts written in two languages. The reading times indicate that bilingual as well as French monolingual participants detect the incoherent target sentences presented in these texts. This result suggests that situation model representation is free from the language in which texts are written.

# S22: Understanding Words: How The Lexical Encoding Of Technical Concepts Impacts On Their Perceived Comprehension

Elisabeth Paus Regina Jucks

Goethe University Frankfurt Goethe University Frankfurt

Germany Germany

#### Abstract:

Deep going text comprehension is particularly influenced by readers' understanding of specialist terms. Specialist concepts can be encoded either with words of Greek or Latin origin (GLTT) or in everyday language terms (ELTT). This study investigates whether the origin of technical terms influences their mental representation as well as subjective feelings of knowing. As expected, ELTT were perceived to be more easily defined, more familiar, more easily accessible and estimated to be better understood. Implementations for the usage of technical terms in learning contexts are discussed.

#### S23: Disentangling Emotional Valence And Arousal Effects During Word Processing

Francesca CitronBrendan WeekesEvelyn FerstlUniversity of SussexUniversity of SussexUniversity of SussexUnited KingdomUnited KingdomUnited Kingdom

#### Abstract:

Emotional content affects early processing of words (Kissler et al., 2007). This study aimed to disentangle the effects of valence and arousal by manipulating both of them in a lexical decision task. 28 English native speakers were presented with 150 words manipulated for both dimensions. Reaction times and ERP responses were recorded. Both effect of valence and arousal were found, as well as an interaction between these two dimensions, suggesting a complex relationship between them.

#### **S24: Comprehension Of Quantifiers In Minimal Context**

#### William Levine

University of Arkansas United States

#### Abstract:

Subjects were presented with quantifiers paired with displays of circles, a variable number of which were filled in. Subjects decided whether the quantifier was a good description of the percentage of circles filled. On critical trials, the quantifier was "few" or "a few". These trials were preceded by trials in which a variable percentage of circles were filled. Responses to "few" were faster when there were more circles filled in the prior trial.

# S25: Force Dynamics In The Comprehension Of Causal And Adversative Sentences: Different Effects Depending On The Locus Of Visual-Animation Task

Yurena Morera Manuel de Vega
University of La Laguna University of La Laguna

Spain Spain

#### Abstract:

Participants listened to causal or adversative two-clause sentences while watching a visual animation that matched or mismatched the sentence force dynamic. They performed two speeded tasks: A perceptual judgment on the animation, and a word choice that best completed the sentence. When the animation was introduced at the end of the sentence, participants' word choice depended on the animation force dynamic. When the animation was introduced in the middle of the sentence participant's choices were faster in the sentence-animation force dynamics matching than the mismatching condition.

#### S26: Quantity In Different Sentence Contexts: The Role Of Verticality

Inge BootDiane PecherErasmus UniversityErasmus UniversityRotterdamRotterdamThe NetherlandsThe Netherlands

#### Abstract:

We examined the metaphor QUANTITY-IS-VERTICALITY beyond the context of metaphorical language. Participants read sentences in which the quantity was a little or a lot in the context of that sentence and made a decision over the location a letter p or q was presented at the top or bottom of the screen. Letters were identified better at the top of the screen when they read a sentence in which the quantity was a lot compared to a little, whereas performance was better on letter at the bottom of the screen when they had read a sentence in which the quantity was a little. This suggests that the image schema (VERTICALITY) got active during comprehension of non-metaphorical sentences about quantity.

# S27: Building A Coherent Representation During Reading: Understanding Inferences Generated By Early Grade School Struggling And Non-Struggling Comprehenders

Sarah Carlson	Mary Jane White	Panayiota Kendeou
University of Minnesota,	University of Memphis	McGill University
Twin Cities	United States	Canada
United States		
	Catherine Bohn-Gettler	David Rapp
Paul van den Broek	Wichita State University	Northwestern University
Leiden University	United States	United States

#### Kristen McMaster

Netherlands

University of Minnesota, Twin Cities United States

#### Abstract:

This study examines inferences generated during reading and how comprehension can be improved with appropriate texts and instruction. Fourth grade struggling (n= 28) and non-struggling comprehenders (n= 21) participated in an embedded causal questioning reading task. Students were given two opportunities to answer each question. A statistical difference between comprehender type and the non-target

inferences was found; however, no statistical difference between comprehender type and the target inferences and amount of prompting was found.

# S28: Investigating The Difference Eye Movement Pattern During Chinese Fourth Graders Read Informational Passage

Minglei Chen	Yu-Jen Chang	Hwawei Ko
--------------	--------------	-----------

National Central University

National Central University

National Central University

Taiwan, Province Of China

Taiwan, Province Of China

Taiwan, Province Of China

#### Abstract:

The present study was to investigate the difference eye movement pattern between high and low Chinese character scores students. 4<sup>th</sup>-graders were instructed to read an informational passage and had a comprehension test. After test, readers reread the passage and revise their answer. The findings showed that students with higher characters performance better than lower students, not only since they recognize character quicker, but also since they can adjust their reading time as they rereading passage.

#### S29: The Effects Of Causal Structure For Young Children's Memory Of Chinese Narrative Texts

**Chiung-Hsien Tsai**National Chung Cheng

National Chung Cheng

University University

Taiwan, Province Of China Taiwan, Province Of China

#### Abstract:

Pre-literate children's developing ability to comprehend narrative texts with different causal structures was our focus. Twenty-five 5-year-old and 23 6-year-old native speakers of Chinese in Taiwan listened and viewed story pictures on computers. Four narratives were used, which included two hierarchical and two sequential versions. The results revealed that young children generated better memory for hierarchical than for sequential version. Moreover, 6-year-old children were better than 5-year-old in text free recall.

### S30: Children's Understanding Of Tales: The Representation Of Emotional Events

Nathalie Blanc Arielle Syssau

University Montpellier 3 University Montpellier 3

France France

#### Abstract:

This study investigates the way children represent three types of emotional events from stories: Events associated with emotional label, events associated with emotional behavior, events having emotional implications. The representation 5 to 7-year-old children built from three tales was assessed though a statements judgment task. Results revealed that children's age and gender determine their representation of emotional events, but also their monitoring of four other situational dimensions (i.e., Space, Time, Causality, Protagonist).

#### S31: Reading Strategies In Pisa-Like Tasks

Ladislao Salmerón Eduardo Vidal-Abarca Laura Gil

University of Valencia University of Valencia University of Valencia

Spain Spain Spain

Amelia Mañá Tomás Martínez
University of Valencia University of Valencia

Spain Spain

#### Abstract:

We explored the reading strategies used by 256 children while performing a PISA-like task, in which students a) read the texts and accessed the questions in a flexible way and b) read several continuous and non-continuous (e.g. diagrams) texts. We used a combination of methods relying on on-line measures of sequences and reading times, which revealed the existence of consistent strategies across continuous and non-continuous texts that are linked to different performance levels.

### S32: Gender-Cue Is More Important Than Order-Of-Mention For Pronoun Resolution Of Young Chinese-Speaking Children

Chiu Hua HuangYuhtsuen TzengWei Ming LuhNational Cheng KungNational Cheng ChengNational Cheng Kung

University University University

Taiwan, Province Of China Taiwan, Province Of China Taiwan, Province Of China

#### Abstract:

We investigated pronoun resolution processes for 84 8-year-old Chinese-speaking children for short texts. When the names of the subject and object in the first sentence belong to the same gender, children show a higher tendency to consider the pronoun in the second sentence refers to the first-mentioned subject. However, the order-of-mention effect disappears when the two names belong to different genders and they choose the correct gender better than chance but still far from perfect.

### S33: Selection And Evaluation Of Information Strategies When Answering Questions From Documents

Raquel CerdánRamiro GilabertEduardo Vidal-AbarcaUniversity of ValenciaUniversity of ValenciaUniversity of ValenciaSpainSpainSpain

#### Abstract:

Some strategies to answer questions are not always helpful to find the right answer. 79 secondary school students were measured on comprehension level and performed a question-answering task on the computer. They were given two texts and were presented with six questions per text, three of which were manipulated to falsely induce matching question-text, especially for poor comprehenders. Good comprehenders scored higher than poor comprehenders, who contrarily copied information more times based on superficial cues.

#### S34: The Perceived Importance Of Explanations In Narrative And Procedural Texts

#### Eyal Sagi

Northwestern University United States

#### Abstract:

Geiger and Millis (2004) suggest that differences in readers' comprehension of expository and procedural texts are a result of differences in local coherence. In this paper I present evidence for an interaction between text type (narrative vs. procedural) and structure (the position of an explanation) in the representation constructed by readers. This interaction suggests differences in the way readers use explanations in the two types of texts.

# S35: Entangled Voices. Journalists' Representation Modes Of Source Information In Journalistic Subgenres

#### José Sanders

VU Universiteit Amsterdam / Radboud Universiteit Nijmegen The Netherlands

#### Abstract:

Corpus analysis of texts from three journalistic subgenres reveals that in news texts, clearly recognizable representations of source information are abundant, such as direct quotation and indirect speech/thought. It is analysed why representation modes that blend the source's and journalist's voices, such as implicit viewpoint and free indirect speech/thought – a technique from literary fiction - are rare in hard news, but permitted and even frequent in subjective journalistic genres such as background and opinion articles.

#### S36: Discourse Models As Applied To Musical Structure

**Richard Ashley**Benjamin Anderson
Northwestern University
Northwestern University

United States United States

#### Abstract:

We explore ways in which linguistic discourse models can be used to represent musical structure and in comparing such network models to hierarchic tree structures. Our first project is corpus-based, studying local vs. global processing dealing with small piano pieces; the second, experimental, project looks at the effect of global context, namely the genre of the twelve-bar blues on harmonic syntax violations. In both cases we find discourse-level aspects highly significant.

#### S37: The Interactional And Multimodal Reference Construction In Children And Adults

#### Sergio Di Sano

G. d'Annunzio University Italy

#### Abstract:

The research explores how speakers and addresses cooperate during conversation in real-time: the speakers monitoring the addressees and the addressees displaying their understanding. The experimental paradigm devised by Clark and Krych (2004) has been adapted to elementary school children and adults. The results showed an increase of performance with age but also the presence of the same types of gestures and synchronization mechanisms in third-grade children and adults.

# S38: Books With Computer Games: How Interaction With Still Images And Audio Feedback Affects Readers' Spatial Situation Models

#### Glenn Smith

University of South Florida United States

#### Abstract:

This study investigated how books with computer games via PenTop computers (interaction with still images on microdot paper, with audio feedback) affect reading readers' spatial situation models. Fifth graders read two equivalent short stories: one with computer games; the other in traditional book format. Dependent measures included multiple-choice posttest of spatial questions, and a one week delayed posttest of multiple-choice general questions. Students who read books with computer games scored significantly higher on both measures.

#### S39: Role Of Intonation For Modeling Dialog Acts From The Transcription Of Utterances

# Mohammad SorowerMohammed YeasinThe University of MemphisThe University of MemphisUnited StatesUnited States

### Abstract:

This paper investigates robust modelling of dialog acts (DAs) using language model. Three different representations, namely, (i) bag of words, (ii) syntactical structure and (iii) intonation pattern using Tone and Break Indices (ToBI), were used to represent the data. A number of classifiers and their fusion based on diversity were used to model the DAs. HCRC Map Task dataset was used for empirical analyses and performance evaluation of DAs. From the empirical analyses it was found that language models yields accuracies up to 69% on 13 categories of DAs, and up to 86.95% on subset of DAs, respectively.

#### S40: Sense Visualization Of Polysemy Words With Latent Semantic Analysis

Guillermo Jorge-Botana	José Antonio León	Ricardo Olmos
Autonoma University of	Autonoma University of	Autonoma University of
Madrid	Madrid	Madrid
Spain	Spain	Spain

#### Abstract:

The aim of this study is to analyze the disambiguation of a polysemy word in a retrieval context and to visualize its semantic network using a Spanish corpus and LSA. We calculated this disambiguation extracting the 30 first neighbours under three conditions a), word "hoja" isolated; b), two word-context pairs ("hoja-rosal" and "hoja-tinta"); and c), adjusting the cosine and vector length with Kintsch's algorithm. Results suggest some advantages in the disambiguation of a polysemy word.

#### S41: New Algorithms For Evaluation Summaries With LSA

**Ricardo Olmos**Universidad Autónoma de

Guillermo Jorge-Botana
Universidad Autónoma de

Madrid Madrid Spain Spain

José Antonio LeónInmaculada EscuderoUniversidad Autónoma deUniversidad Nebrija

Madrid Spain

Spain

#### Abstract:

In this study we propose two new algorithms to improve the reliability of LSA assessing short summaries. The fist algorithm is an adaptation of predication algorithm from Kintsch (2001) and the second is based in a mathematical extension of the semantic space of LSA proposed by Hu et al. (2007). The results show an improvement in LSA's evaluations when it is compared with four human expert graders.

#### S42: Using LIWC To Distinguish Irony From Literal Language

Monica A. Riordan Roger J. Kreuz

University of Memphis University of Memphis

United States United States

#### Abstract:

Lexical factors have been proposed to play a role in identification of written irony. Using two corpora of literal and ironic statements from two different regions, the presence of negative emotion words, anger words, swear words, sadness words, anxiety words, certainty words, interjections, adverbs, exclamation points, and question marks are examined using the LIWC2007 computer program. Results suggest that irony is not an entirely pragmatic phenomenon and may be recognized at the lexical level.

### S43: Exploring The Efficiency Of Auto-Tutor On Learning

Kris Kopp Keith Millis Anne Britt

Northern Illinois University Northern Illinois University Northern Illinois University

United States United States United States

#### Abstract:

We examined different formats of Auto-Tutor on learning research methods. The formats differed on the extent to which the participant engaged in a dialog with an animated agent. We found larger learning gains for increased dialog, as compared to a no dialog control. However, the effect was partially confounded with time on task. We discuss the issue of efficiency of learning within this context.

# S44: How Are Overhearers To Monologues And Dialogues In Computer-Mediated Communication Affected By Task Difficulty And Cultural Differences?

#### **Roxanne Raine**

University of Twente Netherlands

#### Abstract:

The degree to which presence of feedback and interaction affect overhearers is examined in a number of novel ways. First, my studies are computer-mediated, which may reduce overhearer and dialogue

superiority effects due to publicness of computer-mediated speech. Additionally, I constrained speakers by manipulating their experiences and their beliefs about their partners. Dialogue superiority effects and overhearer effects are not as clearly defined as once thought. Different constraints yield different results.

### S45: Automatic Detection Of The Origin Of English-Written News Articles

Vasile Rus	Moongee Jeon	Arthur Graesser
The University of Memphis	The University of Memphis	The University of Memphis
United States	United States	United States

#### Abstract:

This paper presents a study on automatic detection of the source of English-written news articles. That is, given a news article the task is to automatically identify its source from a set of possible sources. We compare two methods in combination with two machine learning algorithms (naive Bayes and decision trees) to automatically induce classifiers able to identify news articles' source/origin. We found that a content-based method that uses word-weighting outperforms a cohesion-based method which relies on cohesion indices.

### S46: Verifying Manual Linguistic And Conceptual Metaphor Analysis By The Semantic Annotation Tool WMATRIX

### Tina Krennmayr

VU University Amsterdam The Netherlands

#### Abstract:

We have identified metaphorical expressions in newspaper texts (50,000 words) taken from the BNC-Baby corpus using MIP, a reliable metaphor identification procedure (Pragglejaz Group 2007). By employing the 5-step method (Steen 1999), we derived conceptual structures for a sample of those linguistic metaphors that have been identified. This paper demonstrates the convergence of two methods for metaphor analysis in natural language – the 5-step method and the semantic annotation tool Wmatrix (Rayson 2008).

### Poster Abstracts ESLP 2009

#### E47: Visualizing Polysemy Structures Using Lsa And Predication Algorithm

G. Jorge-Batana J. A. Léon

R. Olmos

#### Abstract:

Context is a determinant factor in language and plays a decisive role in polysemy words. Some psycholinguistic based algorithms has been proposed to emulate the management of the context that humans do in the assumption that the value of a word is evanescent and take sense when interact with other structures (e.g., Kintsch, 2001, uses a vector representation of the words that produce LSA for dynamically simulating the comprehension of predications). The objective of this study was predict unwanted effects that could be present in the vector-space models when extracting different senses to a polysemy word (Predominant content flood, Accurate-less and Low-level definition) using a Spanish corpus). The results support the idea that this human-based computational algorithm as Predication can take into account features that ensures more accurate representations of the structures we want to extract.

# E48: The Effect Of Early Activation Of Pertinent Perceptual Symbols In Language Comprehension

K. Pepera

I. Tapiero

#### Abstract:

We studied the early activation of the most pertinent perceptual symbol depending on the type of contextual background within which objects were located. We compared the activation of the shape of objects situated in concrete-typical contexts to that of abstract-neutral contexts. Pictures of the objects were presented at the end of sentences replacing their names. Their action implied all possible shapes of the objects depending on the type of situated contexts. Results showed that immediately after subjects read the contextual actions, they initiated a perceptual simulation of the most likely implied shape. We observed a match-mismatch effect depending on the type of contextual background. When the action was situated in an abstract-neutral context, subjects were much slower in simulating the objects within a specific experiential background. The results were interpreted within the theoretical assumptions of perceptual symbol systems.

### E49: Gaze Grounds Meaning In Situated Human-Robot Interaction

M. StaudteM.W. CrockerSaarland UniversitySaarland University

Germany Germany

#### Abstract:

Gaze during situated language production and comprehension is tightly coupled with the unfolding speech in a manner that provides relevant on-line information about intended referents. In a series of eye-tracking experiments exploiting several tasks, we investigate whether people similarly exploit such gaze when listening to a robot make statements about the shared visual environment. Our findings suggests that (a) that people's visual attention is influenced on-line by both the robot's gaze and speech, (b) that temporally aligned and congruent (to mentioned objects) gaze facilitates comprehension, and (c)

that robot gaze does indeed influence what listeners think the robot intended to say. This supports the view that spoken interaction with robots benefits when those agents exhibit real-time gaze behaviour that is aligned with their speech, and highlights the importance of such real-time non-verbal cues for grounding situated communication.

# E50: The Representation Of The Temporality Of Events As A Dynamic Process: The Effect Of Mental Simulation

### E. Peyroux

I. Tapiero

#### Abstract:

According to the theory of Grounded Cognition, simulation is the core form of computation in the brain. In line with this theory, the goal of our study was to investigate the effects of the temporality of events in narrative texts on the construction of mental models. Forty participants read 8 narrative texts that described the temporality of a specific event. The temporal information could be either explicit or implicit and the event could be described with a long duration or a short duration. At the end of the reading of each story, a picture depicting an event presented (or not) in the text was displayed. Subjects' task was to answer if the picture corresponded to a "stage" of the specific event. Our main results showed that the temporality of an event is "coded" in the reader's mental model and confirmed the relevance of the mental simulation to characterize temporal representations.

#### E51: Language About Force Modulates Response Force

L. Taylor R. Zwaan

Erasmus Universiteit Erasmus Universiteit

Rotterdam Rotterdam
The Netherlands The Netherlands

#### Abstract:

Comprehension of language about action is associated with motor activation. Two experiments address two novel aspects of this phenomenon and incorporate the concept of motor parameterization from the action planning literature into the study of embodied sentence processing. The experiments address whether response force can be affected by the understanding sentences that imply a high or low degree of biomechanical force. Finding affirmative evidence for this hypothesis, the results are discussed in terms of action parameterization and language comprehension and in light of the extant literature.

#### E52: Language Independence In Bilinguals During Sentence Comprehension

L. Vandeberg R. Zwaan

Erasmus Universiteit Erasmus Universiteit

Rotterdam Rotterdam
The Netherlands The Netherlands

#### Abstract:

We set out to test whether parallel processing of languages could be demonstrated during language comprehension in spoken sentence processing. In an experiment using the Visual World Paradigm we tracked the eye movements in bilinguals who were presented with English sentences that included interlingual homophones. In a pilot experiment, we assessed phonological overlap among interlingual homophones. Preliminary results of the eye tracking study show that while making a decision to the English target picture in the homophone condition (e.g., mice), bilinguals were distracted by Dutch nontarget pictures (e.g., corn, Dutch form MAIS) more often than by unrelated filler pictures.

The findings support the language independent view of lexical access, since bilinguals show co-activation of both languages during sentence comprehension in their second language.

#### **E53: Embodiment Processes In Abstract Concept Learning**

M.L. Lorusso M. Burigo A. Milani L. Pigazzini

#### Abstract:

Embodiment processes have been indicated as a critical cognitive mechanism for the establishment of conceptual representations; in fact, there is evidence that concepts are largely determined by the form of the human body and shaped by its interaction (physical and perceptual) with the environment. The present study aimed to test the role of embodiment processes in the acquisition of novel abstract concepts by children of different ages. The novel concepts were presented by series of positive and negative examples, comparing two modalities: embodied (visual) or non-embodied (verbal) presentation. Each series was repeated twice. Children's descriptions of the novel concepts were collected after each series, and quantitative as well as qualitative analysis were carried out. Results show that verbal descriptions overall lead to better learning as compared to visual scenes. This suggests that the role of linguistic abstraction in concept acquisition is predominant over embodied experience.

# E54: "Iconic" Memory: The Effect Of Spatial Iconicity And Word-Order Frequency On Relatedness Judgments And Recognition Memory

C.A. Kurby C. Tse F. Du

Washington University Washington University Washington University United States United States United States

#### Abstract:

Perceptual simulation of the relative spatial relations between two words, termed spatial iconicity, has been shown to influence judgments for their semantic relatedness. Recent evidence suggests that linguistic variables, such as word-order frequency, show equal ability to predict semantic relatedness judgments between those same word pairs. We examined whether spatial iconicity, a perceptual simulation of the typical location of objects (e.g., sky at the top and ground at the bottom), has long-lasting effects on episodic memory of orientation, and to what extent the word-order frequency accounts for those effects. The current experiment shows that word-order frequency, but not spatial iconicity, predicted semantic relatedness judgments, but that spatial iconicity, but not word-order frequency, predicted memory performance. This suggests that linguistic and perceptual representations influence cognition at different time scales. Linguistic representations influence cognition in a more immediate fashion than perceptual simulations do.

#### E55: Object-Size And Case-Marking Effects In The Appropriateness Of Sentences Describing Scenes

- E. Miyamoto
- S. Tanigawa
- T. lizuka

#### Abstract:

Judgments on whether a statement appropriately describes a scene are commonly fed into models to guide robot-like agents. We report two experiments in Japanese indicating that subtle differences (relative size of the objects depicted; case markings) require more careful consideration. First, an object (e.g., a red ball) was judged to be closer if it was larger than the reference (the blue ball in "from the point

of view of the blue ball, the red ball is near"; Ps<.05). This is expected if distance perception is affected by how large the object looms ahead viewed from the reference. Second, nominative-marked subjects in Japanese can carry an exhaustive reading ("it's the red ball, and no other, that's big") and their felicitousness degrade when a more appropriate object (a larger ball) is present. This was indeed the case compared to topic-marked subjects, that do not have an exhaustive reading (Ps<.01).

#### E56: Situated Language Learning

J. Koehne M. Crocker

#### Abstract:

Words are often embedded in both linguistic and visual contexts. For language learners who try to understand the meanings of the single sentence parts and the language's structure, it is a challenge that both are intertwined. However, it is also a chance - various kinds of bootstrapping effects help the learner analyse. The visual context is necessary but confusing: While providing a direct way to establish worldword mappings it is very noisy. Our study reflects an integrative account of word and grammar learning assuming cross-situational word learning (CSWL). Like in other CSWL studies, the visual noisiness is mimicked. However, additionally, we present words embedded in a natural way, in sentences. Preliminary results indicate that words are learned. Moreover, an interesting bootstrapping effect due to verb restriction seems to takes place. World-word-mapping pairs are presented in varying combinations and learned over trials by analysing the co-occurrences of words and referents.

#### E57: Attributing Causality In Multimodal Language-Graphics Comprehension

C. Acarturk

C. Habel

#### Abstract:

In understanding language-graphics documents the 'visual world' perceived during comprehension is an 'abstract world', e.g. of line graphs in time and value domain depicting states, events and processes. Building up a coherent model of the document's content is mediated by multimodal conceptual representations accessible both from graphical and from linguistic entities that provide temporal-spatial characteristics of both modalities. In an eye tracking experiment we explored the role of annotation position and shape of graph lines on causal attributions concerning the relation between annotation events (i.e. events presented by the annotation text) and the processes and states represented by process-lines (increases / decreases) or state-lines (no-change). Different positions of linguistic annotations on graph lines resulted in systematically different patterns in judgments for causal attributions. The findings support the view that differences in the perceptual world results in different comprehension characteristics.

#### E58: Quantity In Different Sentence Contexts: The Role Of Verticality

I. Boot D. Pecher

Erasmus University Erasmus University

Rotterdam Rotterdam
The Netherlands The Netherlands

#### Abstract:

We examined the metaphor QUANTITY-IS-VERTICALITY in the context of metaphorical language. Participants read sentences in which the quantity was a little or a lot in the context of that sentence and made a decision over the location a letter p or q was presented at the top or bottom of the screen. Letters were identified better at the top of the screen when they read a sentence in which the quantity was a lot

compared to a little, whereas performance was better on letter at the bottom of the screen when they had read a sentence in which the quantity was a little. This suggests that the image schema (VERTICALITY) got active during comprehension of non-metaphorical sentences about quantity.

# E59: Integration Of The Temporal Dimension Into A Spatial Situation Model Depending On The Verb Used In A Spatial Instruction

C. Vorwerg P. Weiß

Bielefeld University University of Karlsruhe

Germany Germany

#### Abstract:

Previous research has shown that the interpretation of spatial prepositions, such as in front of or behind, in the dynamic context of a moving car can be influenced by the verb used in a spatial placement instruction. To address the question of what components of the contextually activated verb meaning give rise to this variation, we conducted experiments with additional verbs and compared the results obtained for six different verbs used in the placement instruction. The findings indicate that the semantic aspect of motion interruption associated with some verbs leads to a higher proportion of deictic interpretations, resulting in an inconsistent interpretation of the prepositions. This verb effect can be explained by an activation of the temporal dimension through stop-implying verbs, which is integrated into the spatial situation model of the perceived dynamic scene, making the deictic frame of reference more compatible.

### E60: Modal-Specific Load Incurs Processing Costs: Explaining Interference In The Stroop-Task

J. WeijersH. IJzermanUtrecht UniversityUtrecht UniversityThe NetherlandsThe Netherlands

D. Lakens P. Cool

Utrecht University
The Netherlands
The Netherlands

#### Abstract:

An array of research demonstrates that cognitive representations are grounded in sensorimotor, modal-specific systems. Perceptual Symbols System (PSS, Barsalou, 2008) calls for a re-examination of classical paradigms on the basis of these theories. We examined the classical Stroop-paradigm to investigate the underlying process explaining these effects. We found that increased interference on a Stroop-task is more strongly associated with a modal-specific (visual) load than with a non-modal-specific (verbal) load in incongruent conditions. The visual load consisted of three tertiary colors. The verbal load consisted of two nonsense words. The Stroop-trials were congruent (e.g. "blue" written in blue), incongruent (e.g. "blue" written in red) or neutral ("XXXX" written in either color). Additionally, we found that a verbal load reduces Stroop-interference, contradicting other social cognitive theories on processing goals. These results also support theories that words describing colors are processed using visual working memory.

#### E61: How Do Experience And Language Contribute To The Representation Of Abstract Concepts?

- P. Della Rosa
- E. Catricalà
- G. Vigliocco
- S.F. Cappa

#### Abstract:

Reference to physical entities is considered as the main factor distinguishing concrete concepts from abstract ones. We attempt to revise this oversimplistic view through the introduction of a new construct, mode of acquisition (MoA). MoA refers to the way in which concepts are acquired: through experience, through language or through both. We asked 250 participants to rate 420 words on 7 dimensions: age of acquisition, concreteness, familiarity, context availability (CA), imageability, and two new dimensions: MoA and abstractness. We found that abstract words (as defined on the concreteness dimension) are mostly rated as learnt through language, whilst concrete ones are learnt through experience. However only CA and MoA explain the variation of perceived abstractness for abstract concepts. Finally, 104 concepts were selected from 3 abstract domains: the only factor explaining this classification is MoA. In conclusion, MoA appears to play an important role in the conceptual representation of abstract words.

#### E62: Semantic Domain-Specific Functional Integration For Action-Related vs. Abstract concepts

M. GhioM. TettamantiVita-Salute San RaffaeleScientific Institute SanUniversityRaffaele

University Raffaele Italy Italy

#### Abstract:

Reference to physical entities is considered as the main factor distinguishing concrete concepts from abstract ones. We attempt to revise this oversimplistic view through the introduction of a new construct, mode of acquisition (MoA). MoA refers to the way in which concepts are acquired: through experience, through language or through both. We asked 250 participants to rate 420 words on 7 dimensions: age of acquisition, concreteness, familiarity, context availability (CA), imageability, and two new dimensions: MoA and abstractness. We found that abstract words (as defined on the concreteness dimension) are mostly rated as learnt through language, whilst concrete ones are learnt through experience. However only CA and MoA explain the variation of perceived abstractness for abstract concepts. Finally, 104 concepts were selected from 3 abstract domains: the only factor explaining this classification is MoA. In conclusion, MoA appears to play an important role in the conceptual representation of abstract words.

# E63: Representations Of Events Are Situated Where The Experienced Changes Of Related States Are Retained

- T. Welke
- K. Nowack
- G. Schaadt
- E. van der Meer

#### Abstract:

If event representations are situated, the inherent experienced temporal order should affect conceptual processing. To test this hypothesis we presented a context event (e.g., to cook) and subsequently two adjectives denoting the beginning and the end states related with the event (cold – hot). Participants decided whether the two adjectives belonged together or not (cold – white). We varied (1) whether the antonyms were semantically related or unrelated with the event (e.g., cook: black – white) and (2) whether the presented order of the event-related antonyms corresponded to the chronological order of

the states or not (cook: cold – hot vs. hot – cold). Although participants were instructed not to incorporate the context event into their decision, reaction times were shortest when antonymous adjectives were related to the context and when the order corresponded to the chronological order. We conclude that representations of events are situated where the experienced changes of related states are retained.

#### **E64: Simulating In Progress And Completed Events**

C.J. Madden		M. Hoen	P. Ford Dominey
Erasmus	University	Stem Cell and Brain Research	Stem Cell and Brain Research
Rotterdam		Institute	Institute
The Netherlands		France	France

#### Abstract:

Embodied theories predict that descriptions of events activate dynamic simulations, and that pictures of instruments in use (burning match) better match readers' simulations than instruments not in use (burnt match). Previous research (Madden & Therriault, in press) confirmed this prediction, showing stronger effects for ongoing events (imperfective aspect) rather than completed events (perfect aspect). In the current study, we test not only the acting instrument, but also the resulting recipient of the action. Participants read imperfective (was playing) and perfect (had played) event descriptions with the critical instrument word replaced by a picture of that instrument in use or not in use, and the critical patient word replaced by a completed or uncompleted picture of that object (cigarette lit or unlit). ERP recordings suggest that both aspects activate a simulation of the event, but that the imperfective focuses on the ongoing action, whereas the perfect focuses on the completed result.

E65: Insights Into The Dynamics Of The Interaction Of Language Semantics, Attention And Perception

#### S. Lindsay

#### L. Meteyard

#### Abstract:

Studies in embodied cognition have shown that the semantics of single nouns and sentences can interfere with the discrimination of targets in the upper or lower visual field. One explanation is that language semantics influences the deployment of attention, and leads to the activation of a perceptual simulation which then disrupts perception. We investigated the influence of language on the orientating of attention more directly using a lower level attentional task of visual detection. Participants saw English verbs that are associated with upwards (e.g. rise) downwards motion (e.g. descend), along with non-directionally associated controls. We expected that the directional verbs would orient attention but not lead to perceptual interference, as single verbs devoid of a linguistic context would not cause a detailed perceptual simulation to be run. To examine the time course of influences on attention and possible simulation, targets appeared at varying SOAs from visual word onset (100ms, 200ms, 400ms and 800ms). Our results provide insights into the dynamics of the interaction of language semantics, attention and perception.

E66: Hands-On Experience: Gestures As Embodied Activities

### U. Sassenberg E. van der Meer

#### Abstract:

People gesture when they talk. These gestures have been recently proposed to arise from simulated actions (Hostetter & Alibali, 2008). To test if gestures are embodied representations of actions, we asked 30 participants to describe four everyday activities: two activities – when performed – involve more hand

manipulation (making coffee, changing batteries in an alarm clock), and two involve less hand manipulation (ordering pizza, travelling by bus). As expected, participants accompanied their descriptions with more gestures when describing the activities that involve more hand manipulation compared to the other activities. In particular, they made pantomimes with their dominant hand that expressed the manipulation. Conversely, when describing activities with less manipulation participants made more rhythmic gestures that are similar to filler words. We combined quantitative and qualitative analyses to specify how gestures might be a product of simulated actions and to integrate the findings in the embodied cognition framework.

# E67: Does Reading About A Protagonist Who Is Pressed For Time Speed Up Reading And Response Times?

B. Kaup J. Lüdtke

Technical University of Berlin Free University Berlin

Germany Germany

#### Abstract:

In this research we were interested in whether a reader can be put into a hurried tune by reading about a protagonist who is severely pressed for time, and accordingly carries out certain tasks in a speedily manner. If so, we might observe faster reading and response times during and/or after reading such a story as compared to a condition in which the same protagonist is not pressed for time and slowly carries out these tasks. In four experiments we measured reading times for sentences that were the same in both versions, as well as response times in subsequent tasks. We did not find evidence for a general speed-up of reading and response times. Rather, reading times in the hurried version were only faster for sentences that anaphorically referred back to the fast/slow events. Similarly, response times in the hurried version were only faster for tasks that require taking into account the story just read (e.g., probe-recognition task).

# E68: Manipulation And Function Similarity Predict Degree Of Neural Overlap For Objects: Evidence From Fmri-Adaptation

E. Yee

D.M. Drucker

S.L. Thompson-Schill

#### Abstract:

We used fMRI adaptation to test sensorimotor-based theories of semantic memory, measuring brain activation as participants read pairs of words related via sensorimotor (manipulation, shape) and abstract (function) features. We found that the degree of manipulation similarity was correlated with the degree of adaptation in left premotor cortex and in left intraparietal sulcus – regions involved in performing or guiding actions. We also found three regions in which function (but not manipulation) similarity was correlated with the degree of adaptation: two in the left temporal lobe (left medial temporal lobe, left middle temporal gyrus) which has been hypothesized to play a role in multimodal integration, and one in the left superior frontal gyrus. Unexpectedly, objects similar in shape showed increased activation (rather than adaptation) in left premotor cortex and left intraparietal sulcus. Overall, results suggest that objects that share semantic features (sensorimotor or abstract) have overlapping representations.

#### **E69: Sensory Contributions To Simulations**

R. Becker
 Wilfried Laurier University
 Canada
 M. Gonzalez-Marquez
 Cornell University
 United States

#### Abstract:

One tenet of embodiment theory is that knowledge is grounded in perception and action. Research has shown that areas of the brain active when perceiving an event are also active when remembering or simulating it. Little is known however, about the contribution of a given sense to a simulation. For example, it is possible to hear a nail being nailed to a wall as well as to see it. How do vision and audition help build the simulation for 'nailing a nail to a wall'? In this study we begin to address this issue by asking whether there might be processing differences stemming from simulating sentences about different sensory experiences. Preliminary findings indicate that this may well be the case. This talk will discuss these findings and their implications for embodiment theory.

#### E70: Irony And Embodiment: Evidence From The Movement-Compatibility Effect

R. Filik C.M. Hunter H. Leuthold

The University of Glasgow The University of Glasgow The University of Glasgow United Kingdom United Kingdom

#### Abstract:

We investigated the influence of irony on readers' mental simulation of a piece of text using a cognitive-embodied approach. We hypothesised that if people immediately construct a mental model consistent with an ironic interpretation, the movement-compatibility effect, which relates to faster pushing movements with negative than positive words and pulling movements with positive than negative words, would be reversed. Participants read statements appearing in contexts which made it apparent that the target sentence should be either interpreted literally, or ironically. The target sentence was presented word-by-word. The intended interpretation became apparent on the final word, which changed to one of two colours after 250 ms. Participants had to indicate, by pushing or pulling a lever, which colour the final word had changed to. As hypothesised, movements were faster when the required action was compatible with the ironic intention of the comment (positive-push, negative-pull), suggesting that non-literal language is also 'embodied'.

#### E71: Look But Don't Touch: Haptic Disadvantage In Conceptual Processing

L. Connell D. Lynott

University of Manchester University of Manchester

United Kingdom United Kingdom

#### Abstract:

Recent neuroimaging research has shown that perceptual and conceptual processing share a common, modality-specific neural substrate, while work on modality switching costs shows that they appear to share the same attentional mechanisms. In three experiments, we employed a modality identification task that displayed modality-specific object properties (e.g., unimodal shrill, warm, crimson or bimodal jagged, fluffy) for extremely short display times and asked participants to judge whether each property corresponded to a particular target modality (auditory, gustatory, haptic, olfactory, or visual). Results show that perceptual and conceptual processing share a haptic disadvantage: people need more time to identify expected information regarding the sense of touch than any other modality. These findings support embodied assertions that the conceptual system uses the perceptual system for the purposes of

representation and suggest that the haptic disadvantage emerges for linguistic stimuli due to the evolutionary adaptation of endogenous attention to incoming sensory stimuli.

#### E72: Effects Of Linguistic And Visuo-Spatial Semantic Relations On Pronoun Interpretation

#### E. Kaiser

University of Southern California United States

#### Abstract:

This research investigates (i) the representations underlying pronoun resolution and (ii) the cognitive representations of causality and similarity, in particular their domainspecificity/-generality. We used a novel paradigm (visual-world eye-tracking+priming) to investigate the causality and similarity representations triggered by linguistic primes and visuo-spatial/nonlinguistic primes. We tested whether semantic relations in primes (causality//similarity) influence interpretation of ambiguous pronouns in targets. Pronouns allow us to test for activation of causality and similarity representations; they are sensitive to this distinction (Wolf etal'04, Kehler etal'08). Eye-movements showed ambiguous pronoun interpretation was influenced by the causality//similarity manipulation. Crucially, this was significant with linguistic and visuospatial primes. Representations triggered by primes influenced target processing, suggesting: (i) effects of semantic relations on pronouns result from non-pronoun-specific representations; (ii) the causality/similarity representations influencing language comprehension are represented/encoded in a domain-general way. We connect these findings to other studies we conducted, and discuss broader implications for anaphors and semantic representations.

### E73: Flexing Versus Extending: Approach-Avoidance Actions Affect The Processing Of Desiderative-Mood Sentences

B. Claus R. Bader

Saarland University Saarland University

Germany Germany

#### Abstract:

This study is concerned with the comprehension of sentences describing desired situations. It is an extension of previous work that suggests that processing such desiderative-mood sentences facilitates approach actions compared with avoidance actions. The present experiment addressed the reversed effect, i.e., an effect of action on comprehension. Participants had to maintain either an approach-related arm posture (flexing) or an avoidance-related arm posture (extending) and simultaneously had to judge the sensibility of auditorily presented sentences (by pressing a key with their "free" hand). Response times for factual-mood control sentences (e.g., Lisa has rested in a hammock) did not differ between the two arm-posture conditions. In contrast, responses to desiderative-mood sentences (e.g., Lisa wants to rest in a hammock) were significantly faster in the approach condition compared with the avoidance condition. This result provides further support for the assumption that comprehending sentences in desiderative mood involves an activation of the approach system.

#### E74: Visual Working Memory In Situated Language Comprehension

E. Ellsiepen M. Crocker

Saarland University Saarland University

Germany Germany

#### Abstract:

Spoken language and visual attention have been shown to rapidly influence each other: While language guides referential and anticipatory gaze in a scene, the acquired information from the scene may

conversely help in resolving ambiguities in the utterance. Scenes used in influential studies (e.g. Tanenhaus et al. 95, Altmann&Kamide 04, Knoeferle et al. 05), however, usually include only four to five co-present scene entities. We investigate the extent to which richer visual contexts are used in language comprehension, and the influence of visual working memory. Participants saw seven entities in sequence, and the display was then made blank prior to sentence onset. We observed that anticipation of referents still occurred in restrictive verb contexts, and also that the order in which those entities were presented influenced gaze behavior. These results can be used to integrate the notion of working memory in models of situated language processing.

# E75: Unmovable Phsysique Makes Unshakable Beliefs? The Role Of Attention In Processing Abstract Thought

M. BosH. IJzermanRadboud UniversityUtrecht UniversityNijmegenThe Netherlands

The Netherlands

#### Abstract:

Research shows that abstract phenomena are grounded in experiential domains. Recent criticism however has focused on the role of attention in grounding abstract thought. For example, people who (literally) carry more weight are regarded to be less moveable – physically, but also in their attitudes. We argue here that this is only occurs under a specific set of circumstances on the basis of the specific, adaptive needs of the perceiver. In the current set of studies, we demonstrate that (1) participants view heavier people to be less moveable physically; this effect is carried over to attitudes only for (2) heavier females, who (3) agree with the perceiver's opinion.

#### E76: Does How You Feel Matter To How You Read? The Effect Of Mood On Language Comprehension

D. de Goede E. Mulder J. van Berkum Max Planck Institute for University of Amsterdam Max Planck Institute for **Psycholinguistics** Netherlands **Psycholinguistics** Netherlands **Donders Institute** Netherlands J. Kerstholt P. van Alphen **TNO Human Factors** Max Planck Institute for Netherlands

Psycholinguistics Netherlands

#### **Abstract:**

Many aspects of cognition, such as memory retrieval, decision-making, and the use of stereotypes, have been found to be sensitive to mood, the diffuse, objectless affective state the person is in. Although the exact mechanisms are hotly debated, the evidence suggests that people in a happy mood are more inclined to rely on heuristic processing strategies than people in a sad mood. Here we use ERPs to investigate whether mood also affects the use of heuristics (or 'educated guesses') to anticipate upcoming language as a sentence unfolds. Our findings show that mood can indeed modulate language comprehension, and can selectively make a heuristics-dependent P600 effect come and go. Such findings testify to the importance of studying the language-affect interface in psycholinguistics: it is not just that language, once understood, can change one's feelings and emotions -- the latter can alter the mechanisms by which we come to understand language in the first place.

# E77: What Does It Mean To Work? Examining The Functional Neuroanatomical Correlates Of Verbally Implied Action

M. Nieuwland

T. Ditman

**G.** Kuperberg

#### Abstract:

In this ongoing fMRI study we test the embodied view of language comprehension by examining whether modulations of activity in motor-strip regions are also observed when people comprehend sentences wherein certain actions are only implied. Based on stimulus ratings, occupation nouns were selected that are strongly and specifically associated with arms/hands or face/mouth or not strongly associated with specific body movements at all. Using a 3 by 2 factorial design, we will compare BOLD responses to sentences that imply movement of arms/hands, face/mouth or no specific body parts as part of these occupations (e.g., "The lumberjack/newscaster/home inspector is working...") with responses to sentences without implied movement ("The lumberjack/newscaster/home inspector is waiting..."). In order to constrain the analysis of the functional data, we will obtain a localizer scan to identify the relevant motor-strip regions on an individual subject basis. Data from approximately 15 subjects will be presented.

#### E78: Understanding Number Names Affects Visual Processing

A. Myachykov M. Fischer

University of Dundee
United Kingdom
United Kingdom

#### Abstract:

Seeing smaller digits (1, 2) improves visual target detection in the left visual field while seeing larger digits (8, 9) provides similar facilitation in the right visual field (Fischer et al. 2003; 2004). This and similar findings support the existence of perceptually grounded number representations. Two new experiments investigated how understanding number names affects spatial biases. In Experiment 1, participants listened to number names while fixating a central cross. Eye position drifts reflected spontaneous magnitude processing with consistent shifts to the left after hearing a small number and to the right – after hearing all larger number. In Experiment 2, participants saccaded to lateral visual targets that appeared at variable delays after auditorily presented number names. A similar facilitation pattern was observed with leftward saccades initiated faster after hearing smaller numbers but only after longer (1200 ms) delays. Together, these results support the existence of largely embodied number representations and clarify the role of covert and overt attention in number processing.

### **Author Index**

Author	Pages		
Acarturk, C.	63	Citron, F.	51
Anderson, B.	55	Claus, B.	70
Ariasi, N.	39	Clinton, V.	45
Aribot, M.	38	Colonna, S.	31
Armstrong, A.	28	Connell, L.	69
Ashley, R.	55	Cool, P.	65
Bader, R.	70	Craig, S.	33
Bangerter, A.	30, 38	Crocker, M. W.	60, 63, 71
Bard, E. G.	29	Dale, R.	29
Barr, D.	29	De Bruin, A.	34
Becker, R.	44, 69	De Goede, D.	34, 71
Benesh, N.	29, 38	De Vega, M.	35, 47, 51
Betts, T.	30	Della Rosa, P.	65
Blanc, N.	53	Di Sano, S.	56
Bohn, K.	44	Diaz, J.	47
Bohn-Gettler, C. M.	40,52	Ditman, T.	72
Boot, I.	52, 64	Dolores Castillo, M.	35
Bos, M.	71	Dominey, P.F.	67
Britt, A.	58	Drucker, J. M.	68
Brittingham, J.	33	Du, F.	62
Bromme, R.	33	Elfenbein, A.	44
Bruce, K.	36	Ellsiepen, E.	71
Burigo, M.	62	Escudero, I.	46, 57
Cai, Z.	37	Farhat, S.	49
Cain, K.	41	Ferretti, T.	44
Camp, G.	34	Ferstl, E. C.	26, 51
Canestrelli, A.	31	Fike, K.	33
Cappa, S. F.	65	Filik, R.	69
Carlson, S.	52	Fischer, M.	72
Catricalà, E.	65	Florit, E.	41
Caucci, G.	37	Fornier, F.	50
Cerdán, R.	54	Fox Tree, J.	30
Chang, Y.	52	Françozo, E.	31
Chen, M.	52	Gabriel, U.	27, 47, 48
Cheney, K. R.	33	Gamez, E.	47
Chevalier, A.	45	Garnham, A.	27, 28, 47
Chevalley, E.	30	Gerjets, P.	48
Chung, C.	37	Germany, M.	33
Ciaccia, A.	45	Ghio, M.	66
Cierniak, G.	48	Gholson, B.	33

Gil, L.	54	Kronmuller, E.	29, 30
Gilabert, R.	54	Kuperberg, G.	29, 30
Gill, A.	48	Kurby, C.	
			44, 62
Godoy, M.	31	Kusumi, T.	42, 45
Gonzalez-Marquez, M.	69	Lakens, D.	65
Graesser, A.	36, 58	Landers, A.	44
Gygax, P.	27, 47	Lemarié, J.	46
Habel, C.	63	Leon, I.	47
Haigh, M.	39	Leon, J. A.	46
Hakemulder, F.	36	León, J. A.	56, 57, 60
Hamilton, S.	28	Leuthold, H.	69
Han, L.	36	Levine, M. F.	43
Hancock, J.	37	Levine, W.	51
Hemforth, B.	31, 32	Levorato, M. C.	41
Hernández, J. A.	35	Lewis, M.	46
Herrmann, J. B.	37	Lindsay, S.	67
Hoen, M.	67	Lorch, R. F.	46
Holleman, B.	49	Lorusso, M. L.	62
Hu, X.	37	Louwerse, M.	29, 37, 38
Huang, C. H.	54	Lüdtke, J.	43, 68
Hunter, C. M.	69	Luh, W. M.	54
Iacobelli, F.	48	Lynott, D.	69
Iizuka, T.	63	Madden, C. J.	44, 67
IJzerman, H.	65, 71	Mak, P.	31
Inohara, K.	42, 45	Mañá, A.	54
Isberner, M.	40	Marrero, H.	35
Jeon, M.	37, 58	Martínez, T.	54
Jeuniaux, P.	29	Martins, D.	45, 50
Jorge-Botana, G.	56, 57, 60	Mason, L.	39
Jucks, R.	50	Mason, R.	46
Just, M. A.	46	Mayer, S.	30
Kaiser, E.	27, 70	Mayor, E.	38
Kaltner, J.	37	McCarthy, D.	41
Kamoen, N.	49	McCarthy, P.	37
Kaup, B.	43, 68	McMaster, K.	52
Kendeou, P.	40, 40, 52	McNamara, D.	37
Kennard, E.	28	Mensink, M.	35, 46
Kerstholt, J.	34, 72	Meteyard, L.	67
Kester, L.	33	Milani, A.	62
Ko, H.	52	Millis, K.	48, 58
Koehne, J.	63	Miyamoto, E.	63
Komeda, H.	42	Morishima, Y.	50
	32	Morisseau, T.	30
Konieczny, L.		•	
Kopp, K.	58	Mull D	34, 71
Krannmaur T	47	Mull, D.	48
Krennmayr, T.	58	Myachykov, A.	72
Kreuz, R. J.	37	Myers, J.	37

Nash, H.	41	Staudte, M.	60
Nieuwland, M.	72	Stewart, A.	39
Noveck, I.	30	Strickland, B.	43
Nowack, K.	66	Syssau, A.	53
Nowson, S.	48	Tanigawa, S.	63
Oakhill, J.	27, 28, 41, 47	Tapiero, I.	49, 49, 60, 61
Oberlander, J.	48	Taylor, L.	42, 61
Olmos, R.	56, 57, 60	Tettamanti, M.	66
Paus, E.	50	Thompson-Schill, S. L.	68
Pecher, D.	52, 64	Tsai, C.	53
Pennebaker, J. W.	37	Tse, C.	62
Pepera, K.	60	Tsunemi, K.	42, 45
Peyroux, E.	61	Tzeng, Y.	53, 54
Pigazzini, L.	62	Urrutia, M.	35
Pooley, N.	41	Van Alphen, P.	34, 71
Pratt, C.	46	Van Berkum, J.	26, 35, 72,
Pynte, J.	32	Van Den Bergh, H.	49
Raine, R.	58	Van Den Broek, P.	40, 40, 45, 52
Rapp, D. R.	28, 35, 39, 40, 47, 52	Van Der Meer, E.	66, 67
Renau Op 't Hoog, C.	49	Van Der Wege, M.	28
Richter, T.	40	Vandeberg, L.	32, 61
Riordan, M. A.	57	Vidal-Abarca, E.	54, 54
Rummer, R.	28	Vigliocco, G.	65
Rus, V.	37, 58	Vorwerg, C.	64
Sabatini, J.	36	Watanabe, S.	29
Sagi, E.	55	Weekes, B.	51
Salmerón, L.	54	Weijers, J.	65
Sanders, J.	55	Weiß, P.	64
Sanders, T.	31	Welke, T.	66
Sarrasin, O.	27, 47	White, M. J.	40, 40, 45, 52
Sassenberg, U.	67	Williams, R.	43
Sato, S.	50	Yeasin, M.	56
Schaadt, G.	66	Yee, E.	68
Scheepers, C.	32	Yurena, M.	47, 51
Scheiter, K.	48	Yussen, S.	44
Schimke, S.	31	Zacks, J.	26, 44
Schober, M. F.	43	Zwaan, R.	32, 34, 42, 61, 61
Schweppe, J.	28		
Shala, L.	37		
Shen, Y.	50		
Singer, M.	34		
Skodzik, T.	33		
Slaten, D.	47		
Smith, G.	56		
	56 56		
Smith, G.			

## **Author Names and Affiliations**

C. Acarturk	Benjamin Anderson Northwestern University United States
Nicola Ariasi University of Padova Italy	Myriam Aribot University of Neuchatel Switzerland
Anna-Marie Armstrong University of Sussex United Kingdom	Richard Ashley  Northwestern University  United States
R. Bader Saarland University Germany	Adrian Bangerter University of Neuchatel Switzerland
Ellen Gurman Bard University of Edinburgh United Kingdom	Dale Barr University of California, Riverside United States

Raymond Becker Wilfrid Laurier University Canada	Nick Benesh University of Memphis United States
Julia Berenike Herrmann VU University Amsterdam The Netherlands	Teresa Betts University of California Santa Cruz United States
Nathalie Blanc University Montpellier 3 France	Kate Bohn Wichita State University United States
Catherine M. Bohn-Gettler Wichita State University United States	Inge Boot Erasmus University Rotterdam The Netherlands
M. Bos Radboud University Nijmegen The Netherlands	Anne Britt Northern Illinois University United States

Joshua Brittingham University of Memphis United States	Rainer Bromme University of Münster Germany
Kelly Bruce Educational Testing Service United States	M. Burigo

Zhiqiang Cai University of Memphis United States	Kate Cain  Lancaster University  United Kingdom
Gino Camp Erasmus University Rotterdam The Netherlands	Anneloes Canestrelli Utrecht University The Netherlands
S.F. Cappa	Sarah Carlson University of Minnesota, Twin Cities United States

E. Catricalà	Gina Caucci University of Memphis United States
Raquel Cerdán University of Valencia Spain	Yu-Jen Chang National Central University Taiwan, Province Of China
Minglei Chen National Central University Taiwan, Province Of China	Kyle R. Cheney University of Memphis United States
Aline Chevalier Université Paris Ouest Nanterre La Défense France	Eric Chevalley Stanford University United States
Cindy Chung University of Texas at Austin United States	Alexandra Ciaccia Université Paris Ouest Nanterre La Défense France

Gabriele Cierniak Knowledge Media Research Center, Tuebingen Germany	Francesca Citron University of Sussex United Kingdom
B. Claus Saarland University Germany	Virginia Clinton University of Minnesota United States
Savéria Colonna University of Paris 8, CNRS France	L. Connell University of Manchester United Kingdom
P. Cool Utrecht University The Netherlands	Scotty Craig University of Memphis United States
M.W. Crocker Saarland University Germany	Rick Dale University of Memphis United States

Anique de Bruin Erasmus University Rotterdam The Netherlands	Dieuwke de Goede Max Planck Institute for Psycholinguistics The Netherlands
Manuel De Vega University of La Laguna Spain	P. Della Rosa
Sergio Di Sano G. d'Annunzio University Italy	Jose Diaz University of La Laguna Spain
T. Ditman	M. Dolores Castillo University of La Laguna Spain
P. Ford Dominey Stem Cell and Brain Research Institute France	D.M. Drucker

F. Du	Andrew Elfenbein
Washington University	University of Minnesota
United States	United States
E. Ellsiepen	Inmaculada Escudero
Saarland University	Nebrija University of Madrid
Germany	Spain
Sarah-Lise Farhat	Todd Ferretti
University Lyon 2	Wilfrid Laurier University
France	Canada
Evelyn C. Ferstl	Karl Fike
University of Sussex	University of Memphis
United Kingdom	United States
R. Filik	M. Fischer
The University of Glasgow	University of Dundee
United Kingdom	United Kingdom
	_

Elena Florit University of Padova Italy	Frederique Fornier Université de Paris Ouest Nanterre La Defense France
Jean Fox Tree University of California Santa Cruz United States	Edson Françozo State University of Campinas Brazil
Ute Gabriel  Norwegian University of  Science and Technology  Norway	Elena Gamez University of La Laguna Spain
Alan Garnham University of Sussex United Kingdom	Peter Gerjets Knowledge Media Research Center, Tuebingen Germany
Mae-Lynn Germany University of Memphis United States	M. Ghio Vita-Salute San Raffaele University Italy
Barry Gholson University of Memphis United States	Laura Gil University of Valencia Spain

Ramiro Gilabert University of Valencia Spain	Alastair Gill Northwestern University United States
Mahayana Godoy State University of Campinas Brazil	M. Gonzalez-Marquez  Cornell University  United States
Art Graesser University of Memphis United States	Pascal Gygax University of Fribourg Switzerland
C. Habel	Matthew Haigh University of Manchester United Kingdom
Frank Hakemulder Utrecht University The Netherlands	Stephen Hamilton University of Sussex United Kingdom
Louis Han University of Memphis United States	Jeff Hancock Cornell University United States

Barbara Hemforth CNRS, Université René Descartes, Paris France	Juan A. Hernández University of La Laguna Spain
M. Hoen Stem Cell and Brain Research Institute France	Bregje Holleman Utrecht University The Netherlands
Xiangen Hu University of Memphis United States	Chiu Hua Huang National Cheng Kung University Taiwan, Province Of China
C.M. Hunter The University of Glasgow United Kingdom	Francisco Iacobelli Northwestern University United States
T. lizuka	Keisuke Inohara Kyoto University Japan
Maj-Britt Isberner University of Cologne Germany	Moongee Jeon The University of Memphis United States

Т	
Patrick Jeuniaux University of Memphis United States	Guillermo Jorge-Botana Autonoma University of Madrid Spain
Regina Jucks	Marcel A. Just
Goethe University Frankfurt Germany	CCBI Carnegie Mellon University United States
Elsi Kaiser University of Southern California United States	John Kaltner Rhodes College United States
Naomi Kamoen Utrecht University The Netherlands	Barbara Kaup Technical University of Berlin Germany
Panayiota Kendeou McGill University Canada	Emily Kennard University of Sussex United Kingdom
Jose Kerstholt TNO Human Factors The Netherlands	Liesbeth Kester Open University of the Netherlands The Netherlands

Hwawei Ko National Central University Taiwan, Province Of China	J. Koehne
Hidetsugu Komeda University of Wisconsin - Madison United States	Lars Konieczny University of Freiburg Germany
Kris Kopp Northern Illinois University United States	Elise Krause Northwestern University United States
Tina Krennmayr  VU University Amsterdam  The Netherlands	Roger J. Kreuz University of Memphis United States
Edmundo Kronmuller  Laboratoire sur la Langage,  Le Cerveau et la Cognition - CNRS  France	Gina Kuperberg Tufts University and Mass General Hospital United States
Christopher A. Kurby Washington University United States	Takashi Kusumi Kyoto University Japan

D. Lakens Utrecht University The Netherlands	Amy Landers University of Minnesota United States
Julie Lemarié Université de Toulouse France	Inmaculada Leon University of La Laguna Spain
José Antonio León Autonoma University of Madrid Spain	H. Leuthold The University of Glasgow United Kingdom
Michelle F. Levine The New School for Social Research United States	William Levine University of Arkansas United States
Maria Chiara Levorato University of Padova Italy	Mark Lewis University of Minnesota United States
S. Lindsay	Robert F. Lorch University of Kentucky, Lexington United States

	1
M.L. Lorusso	Max Louwerse University of Memphis United States
Jana Lüdtke Free University of Berlin Germany	Wei Ming Luh  National Cheng Kung University  Taiwan, Province Of China
D. Lynott University of Manchester United Kingdom	Carol J. Madden Erasmus University Rotterdam The Netherlands
Pim Mak Utrecht University The Netherlands	Amelia Mañá University of Valencia Spain
Hipólito Marrero University of La Laguna Spain	Tomás Martínez University of Valencia Spain
Daniel Martins Université Paris Ouest Nanterre La Défense France	Lucia Mason University of Padova Italy

Sarah Mayer University of California Santa Cruz United States
Diana McCarthy University of Sussex United Kingdom
Kristen McMaster University of Minnesota, Twin Cities United States
Michael Mensink University of Minnesota United States
A. Milani
E. Miyamoto

Yasunori Morishima International Christian University Japan	Tiffany Morisseau Laboratoire sur la Langage, Le Cerveau et la Cognition - CNRS France
Emma Mulder University of Amsterdam The Netherlands	Danielle Mull Northern Illinois University United States
A. Myachykov University of Dundee United Kingdom	John Myers University of Memphis United States
Hannah Nash University of York United Kingdom	M. Nieuwland
Ira Noveck Laboratoire sur la Langage, Le Cerveau et la Cognition - CNRS France	K. Nowack
Scott Nowson  Macquarie University  Australia	Jane Oakhill University of Sussex United Kingdom

Jon Oberlander University of Edinburgh United Kingdom	Ricardo Olmos Autonoma University of Madrid Spain
Elisabeth Paus Goethe University Frankfurt Germany	Diane Pecher Erasmus University Rotterdam The Netherlands
James W. Pennebaker University of Texas at Austin United States	K. Pepera
E. Peyroux	L. Pigazzini
Nicola Pooley Lancaster University United Kingdom	Chantall Pratt CCBI Carnegie Mellon University United States
Joël Pynte Université Paris Descartes, CNRS France	Roxanne Raine University of Twente Netherlands

	T
David N. Rapp  Northwestern University  United States	Céline Renau Op't'hoog University Lyon 2 France
Tobias Richter University of Cologne Germany	Monica A. Riordan University of Memphis United States
Ralf Rummer University of Erfurt Germany	Vasile Rus University of Memphis United States
John Sabatini Educational Testing Service United States	Eyal Sagi Northwestern University United States
Ladislao Salmerón University of Valencia Spain	José Sanders  VU Universiteit Amsterdam /  Radboud Universiteit Nijmegen  The Netherlands
Ted Sanders Utrecht University The Netherlands	Oriane Sarrasin University of Lausanne Switzerland

U. Sassenberg	Sayaka Sato International Christian University Japan
G. Schaadt	Christoph Scheepers University of Glasgow United Kingdom
Katharina Scheiter University of Tuebingen Germany	Sarah Schimke MPI for Psycholinguistics The Netherlands
Michael F. Schober  The New School for Social Research  United States	Judith Schweppe University of Erfurt Germany
Lubna Shala University of Memphis United States	Ying shen Tohoku University Japan
Murray Singer University of Manitoba Canada	Timo Skodzik University of Münster Germany

Daniel Slaten  Northwestern University  United States	Glenn Smith University of South Florida United States
Mohammad Sorower  The University of Memphis  United States	Jesse R. Sparks  Northwestern University  United States
Marc Stadtler University of Münster Germany	M. Staudte Saarland University Germany
Andrew Stewart University of Manchester United Kingdom	Brent Strickland  Yale University  United States
Arielle Syssau University Montpellier 3 France	S. Tanigawa
Isabelle Tapiero University Lyon 2 France	Lawrence Taylor Erasmus Universiteit Rotterdam The Netherlands

M. Tettamanti Scientific Institute San Raffaele Italy	S.L. Thompson-Schill
Chiung-Hsien Tsai	C. Tse
National Chung Cheng University	Washington University
Taiwan, Province Of China	United States
Kohei Tsunemi	Yuhtsuen Tzeng
Kyoto University	National Chung Cheng University
Japan	Taiwan, Province Of China
Mabel Urrutia	Petra van Alphen
University of La Laguna	Max Planck Institute for Psycholinguistics
Spain	Netherlands
Jos van Berkum  Max Planck Institute for Psycholinguistics;  Donders Institute, Centre for  Cognitive Neuroimaging  The Netherlands	Huub van den Bergh Utrecht University The Netherlands

Paul van den Broek Leiden University Netherlands	E. van der Meer
Mija Van Der Wege Carleton College United States	Lisa Vandeberg Erasmus University Rotterdam The Netherlands
Eduardo Vidal-Abarca University of Valencia Spain	G. Vigliocco
C. Vorwerg Bielefeld University Germany	Shinobu Watanabe University of Memphis United States
Brendan Weekes University of Sussex United Kingdom	J. Weijers Utrecht University The Netherlands
P. Weiß University of Karlsruhe Germany	T. Welke

Г	
Mary Jane White University of Memphis United States	Rihana Williams Georgia State University United States
Mohammed Yeasin The University of Memphis United States	E. Yee
Morera Yurena University of La Laguna Spain	Steve Yussen University of Minnesota United States
H. IJzerman Utrecht University The Netherlands	Jeffrey Zacks Washington University United States
Rolf Zwaan Erasmus University Rotterdam The Netherlands	Huib Tabbers Erasmus University Rotterdam The Netherlands
Katinka Dijkstra Erasmus University Rotterdam The Netherlands	