

# 语言·认知·神经科学国际会议

Language • Cognition • Neuroscience

## 会议手册

2018年7月2日-4日

中国 大连

# 会议主题

## 语言·认知·神经科学国际会议

Language • Cognition • Neuroscience

主要议题：

1. 语言加工与情绪加工之间的关系；
2. 隐喻加工、具身模拟与语义效应；
3. 二语习得的神经科学研究；
4. 字谜和幽默的认知加工；
5. EEG 的功能连接及其在语言学习中的作用；
6. 认知神经科学在双语教学中的作用；
7. 话语理解的认知科学解释等。

# 2018 语言·认知·神经科学国际会议组委会

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李林夕、闫小莉、孙雅琳、刘美玲、赵韞晗

# 会议日程 Program

<b>2018年7月2日（星期一） July 2<sup>nd</sup> Monday</b>		
15:00-8:00	注册 registration	地点：大连理工大学西门德翔快捷酒店

<b>2018年7月3日（星期二） July 3<sup>rd</sup> Tuesday</b>		
8:00-8:20 开幕式 Opening Ceremony Chair: 王慧莉 Wang Huili	学校领导发言 Speech by the university representative 开幕致辞 Welcome Speech 大连理工大学外语学院院长陈宏俊教授 Chen Hongjun (Dean of School of Foreign Languages, Dalian University of Technology)	八角楼 A302 报告厅
8:20-8:30	集体合影	
8:30-9:10 特邀报告 Invited Talk 1 Chair: 陈宏俊	Herbert Colston (阿尔伯塔大学) Rethinking Meaning: Metaphorical Processing & Pragmatic Effects	
9:10-9:50 特邀报告 Invited Talk 2 Chair: 王慧莉 Wang Huili	Manuel De Vega Rodriguez (西班牙拉拉古纳大学) Inhibition in language: the case of sentential negation	
9:50-10:30 特邀报告 Invited Talk 3 Chair: 王小潞 Wang Xiaolu	张辉 Zhang Huili (南京师范大学) Strategies of Processing English Verbs' Argument Structures: ERP Evidence from Advanced Chinese	
10:30-10:50	茶歇 Tea Break	
10:50-11:30 特邀报告 Invited Talk 4 Chair: 张辉 Zhang Hui	王小潞 (Wang Xiaolu) (浙江大学) 汉语字谜的认知加工过程	
11:30-12:10 特邀报告	Paavo Leppanen (芬兰于韦斯屈莱大学) Neurocognitive signatures of Internet reading	

Invited Talk 5 Chair: 陈宏俊 Chen Hongjun	and challenges in new digital learning environments	
12:20-14:00	午餐 Lunch(自助餐)	中心食堂四楼餐厅
14:30-15:10 特邀报告 Invited Talk 6 Chair: 王慧莉 Wang Huili	Mar á Jos éRodrigo (西班牙拉拉古纳大学) Altered grey matter volume underlies a poor interactive mother-child bonding in neglectful mothers	八角楼 A302 报告厅
15:10-15:50 特邀报告 Invited Talk 7 Chair: 陈宏俊 Chen Hongjun	丛丰裕 Cong Fengyu (大连理工大学) Multiple-Subject Consensus Clustering for Determination of Time-Window of Mismatch Negativity Component	
15:50-16:10	Break	
16:10-16:30 特邀报告 Invited Talk 8 Chair: Mar á Jos é Rodrigo	Ernesto Pereda (西班牙拉拉古纳大学) EEG functional connectivity and its role in language learning	
16:30-17:10 特邀报告 Invited Talk 9 Chair: Thomas Alrik Sørensen	Berit Brogaard (迈阿密大学) Seeing and Hearing Meanings. A Non-Inferential Approach to Utterance	
17:10-17:50 特邀报告 Invited Talk 10 Chair: Berit Brogaard	Thomas Alrik Sørensen (奥尔堡大学) What can we learn by investigating individual components of attention?	
18:00-19:00	晚餐 Lunch(自助餐)	沁园二楼餐厅

2018年7月4日(星期三) July 4 <sup>th</sup> Wednesday		
8:30-9:10 特邀报告 Invited Talk 11 Chair: 陈宏俊 Chen Hongjun	Guillaume Thierry Neuropoetry: Riding the waves of the reading brain	八角楼 A302 报告厅
9:10-9:40 特邀报告 Invited Talk 12 Chair: 周榕 Zhou Rong	陈宏俊 Chen Hongjun (大连理工大学) The Role of Motor System in Bilinguals' Comprehension of Action-based Metaphorical Language: An fMRI study	
9:40-10:10 特邀报告 Invited Talk 13 Chair: 薛锦 Xue Jin	李德高 Li Degao (曲阜师范大学) 现代汉语双字词中成分汉字序位信息加工的ERP研究	
10:10-10:30 Invited Talk 14 Chair: 李德高 Li Degao	王慧莉 Wang Huili (大连理工大学) Embodiment Effect on the Comprehension of Mandarin Manual Action Language: An ERP Study	
10:30-10:50	茶歇 Tea Break	文科楼 408
10:50-12:05	分组报告 1 Regular Presentations 1	
<b>Session 1</b>	<b>隐喻 Metaphor</b> <b>Chair:李爱华</b>	
10:50-11:05	李爱华 Research on the Application of Conceptual Metaphor to the Comprehension and Retention of English Idioms	
11:05-11:20	张超 Embodied Metaphor in Patients' Narratives about their Experiences	
11:20-11:35	朱希楚 ERP Evidence for Hemispheric Advantage during Chinese-English Bilingual Metaphor Processing	
11:35-11:50	季皓洁	

	Animacy Effect in Metaphor Processing: an ERP Study	
11:50-12:05	孙雅琳 汉英双语隐喻加工顺序的 ERP 研究	
<b>Session 2</b>	<b>语言认知 Language Cognition</b> <b>Chair:李雪艳</b>	
10:50-11:05	李雪艳 The Processing Mechanism of Chinese Verbal Jokes-Evidence from Neural Oscillations	
11:05-11:20	杨波 反语认知加工的事件相关电位研究——以较熟悉的汉语反语为例 The Cognitive Processing of Verbal Irony: An ERP Case Study on Comparatively Familiar Chinese Verbal Irony	文科楼 607
11:20-11:35	陈小丽 The Role of Context Strengths in Online Processing of Verbal Irony by L2 Learners	
11:35-11:50	刘璃蓓 认知语言与情绪加工之间的关系 The relationship between cognitive language and emotional processing	
11:50-12:05	邓燕 A Study on the Relevance of Cognitive Context in Utterance Understanding	
<b>Session 3</b>	<b>具身语言 Embodied Language</b> <b>Chair: 郭涵宁</b>	
10:50-11:05	冯茵&周榕 The Effects of Embodied Cognition on L2 Verbs Processing in the Spatial Cueing Paradigm	
11:05-11:20	李林夕 A Study of Interfering Embodiment Effect on Chinese “Transfer Verbs”	
11:20-11:35	王慧莉, 闫小莉, 郭涵宁 Emerging Trends and New Developments in Embodied Language Cognition: A Scientometrics Analysis in Citespace	文科楼 218
11:35-11:50	刘美玲 中国 ESL 学习者英文手部动作语言理解的具身效应研究: 来自 ERP 的证据 Embodiment Effect on the Comprehension of English Manual Action Language by Chinese ESL	

	Learners: An ERP Study	
11:50-12:05	具身认知视角下的语言理解观 Language Comprehension under the Umbrella of Embodied Cognition	
<b>Session 4</b>	<b>语音学、音系学 Phonetics, Phonology</b> <b>Chair: 董岩</b>	
10:50-11:05	董岩 An acceptability judgment study of length preference in Chinese verb-object phrases	
11:05-11:20	常嘉宝&吴建设 An ERP investigation of masked priming with homographic characters in Chinese disyllabic compounds	
11:20-11:35	王梦醒 The contribution of phonology or orthography in the lexical boost in priming	文科楼 304
11:35-11:50	王梦如 汉语声调加工的 ERP 研究 ERP study on pre-attentive processing of Chinese tones in adults and young children	
11:50-12:05	张晨曦 An Exploration of Translation Technology from the Cognitive Perspective 翻译技术认知探究	
<b>Session 5</b>	<b>句法 Syntax</b> <b>Chair: 薛锦</b>	
10:50-11:05	薛锦&冯天砾 Chinese EFL learners' syntactic processing of lexically-based and rule-based sentence: An ERP study	
11:05-11:20	纪丽燕 Respectfulness Processing Revisited: An ERP study of Chinese sentence reading	文科楼 104
11:20-11:35	娄开阳&徐晓东 基于自定步速阅读方法的汉语把字句研究	
11:35-11:50	杜雅楠 The interplay between gender stereotypes and phrase structures in Chinese sentence reading: An event-related potential study	

11:50-12:05	柳鑫淼 The Effect of Mood on L2 Morphosyntactic Learning	
12:20-14:00	午餐 Lunch(自助餐)	中心食堂四楼餐厅
<b>14:00-15:15</b>	<b>分组报告 2 Regular Presentations 2</b>	
<b>Session 1</b>	<b>隐喻 Metaphor</b> <b>Chair: 潘震</b>	
14:00-14:15	潘震 Identification of Gendered Emotion Metaphors in Modern Chinese Poetry	
14:15-14:30	饶诗雨&高原 An empirical study of time movement in spatiotemporal metaphors	
14:30-14:45	刘晓 从《红楼梦》“根”隐喻英译看英汉空间认知异同 Differences in English and Chinese Space Cognition Reflected by the “Root” Metaphor Translation in Dream of the Red Mansion	文科楼 408
14:45-15:00	董革非 A Comparative Study on Metaphorical Extensions and Cognitive Basis of OUT in English and WAI in Chinese	
15:00-15:15	魏三军 A Cognitive Analysis of Chinese and English Metaphors	
<b>Session 2</b>	<b>语言认知 Language Cognition</b> <b>Chair: 翁金</b>	
14:00-14:15	翁金 Cognitive Grammar, Schema, and Reflexive Marking	
14:15-14:30	肖诚 Use of noun on language expression and cognition in children with ASD	文科楼 607
14:30-14:45	陈豪 Discussion on the Visual Perception of Chinese Characters Based on Cognitive Neurolinguistics	
14:45-15:00	鲁志杰	

	感官感知动词“V 到”与“V 见”的认知研究	
15:00-15:15	郭聃 Image Schema Study in Embodied Cognition	
<b>Session 3</b>	<b>具身语言 Embodied Language</b> <b>Chair: 张菅</b>	
14:00-14:15	胡佳颖 抽象概念派生具身认知模式 Derived Embodiment Cognitive Pattern in Abstract Concepts	
14:15-14:30	张菅 Implications of Embodied Cognition on FLT 周倩	
14:30-14:45	奚梦澜&林立红 Chinese EFL Learners' Embodied Semantic Processing of Value Words	文科楼 218
14:45-15:00	闫小莉 A Study of Embodied Meaning in Comprehending Mandarin Counterfactual Sentences	
15:00-15:15	徐爽 神经语言学视阈下二语习得性别差异研究 ——基于不同性别学生学习风格的实证调查	
<b>Session 4</b>	<b>语音、词汇 Phonetics, Morphology</b> <b>Chair: 郑晓曦</b>	
14:00-14:15	郑晓曦 Study on the Influence of Listening Input Modes of Listening Comprehension	
14:15-14:30	徐方 工作记忆与二语听力句子理解中的生命性和世界知识的 ERP 研究	
14:30-14:45	刘雪丽 二语语音和语义对一语产出的影响: 来自中国英语学习者的证据	文科楼 304
14:45-15:00	颜维卫 The Time Course of the Memory Retention of the Novel Word	
15:00-15:15	王海红 Using a Fast Mapping Approach to Investigate Children's Video Word-Learning	
<b>Session 5</b>	<b>语义、句法、语用</b> <b>Semantics, Syntax, Pragmatics</b> <b>Chair: 顾介鑫</b>	文科楼 104

14:00-14:15	顾介鑫 Semantics and morphological structure co-modulate early visual word recognition: Evidence from Event Related Potentials of Chinese compound words	
14:15-14:30	江婷婷 中国英语学习者名词语义加工与身物交互关系 实证研究 An Empirical Study on the Interaction Between BOI and Noun Semantic Processing for L2 Learners	
14:30-14:45	蔡笑 Semantic inhibition effect in proficient and non-proficient bilinguals: electrophysiological evidence for swinging lexical network model	
14:45-15:00	施惠芳 伊万卡·特朗普助选演讲的批判话语分析	
15:00-15:15	Nian Liu (& Louise Kuehster) The Effect of Language on Conceptualizing Event Sequences	
15:15-15:30	Break	
<b>15:30-16:30</b>	<b>分组报告 3 Regular Presentations 3</b>	
<b>Session 1</b>	<b>隐喻 Metaphor</b> <b>Chair:周榕</b>	
15:30-15:45	周榕&成颖 A Study on Children's Development of Comprehension and Production Abilities of Metaphorical Categorization	文科楼 408
15:45-16:00	唐晓东 The Effect of Social Status Factors on Metaphor Cognition	
16:00-16:15	莫咏仪 隐喻能力与新闻阅读素养关系初探	
<b>Session 2</b>	<b>语言认知 Language Cognition</b> <b>Chair: 殷红梅</b>	
15:30-15:45	马娜 The Improvement of the Interpretation Internalized by the Written Translation Practice from the Perspective of Cognitive Schema	文科楼 607
15:45-16:00	聂思成 Intentionality and the Two-Phase Mental Process	

	of language 意向性与语言心智加工两阶段	
16:00-16:15	陶家玉 于善志 Body-Object Interaction Effects in the Semantic Processing of English Ergative Verbs	
<b>Session 3</b>	<b>具身认知 Embodied Cognition</b> <b>Chair: 崔中良</b>	
15:30-15:45	崔中良 The Body Base of Connectivity : Merleau-Ponty's Thought on Synaesthesia	
15:45-16:00	李雪娇 Research Trends and Current Status of Studies on Intersubjectivity: Cornerstone and Prospects	文科楼 218
16:00-16:15	张雪娇 A Study of Embodied Cognition from the Perspective of Vygotsky's Socio-cultural Theory	
<b>Session 4</b>	<b>心理语言学、神经语言学</b> <b>Psycholinguistics, Neurolinguistics</b> <b>Chair: 曹硕</b>	
15:30-15:45	曹硕 The N1- N2- LPC Pattern in Processing Advertising Visual Metaphors: An ERP Study	文科楼 304
15:45-16:00	杨艳琴 The role of salience in pronoun resolution of second language acquisition	
16:00-16:15	王云 情绪调节对双语转换成本的脑机制	
<b>Session 5</b>	<b>心理语言学、神经语言学</b> <b>Psycholinguistics, Neurolinguistics</b> <b>Chair: 岳金星</b>	
15:30-15:45	岳金星 Processing A-not-A interrogative structure in Chinese during sentence comprehension: An event-related potential study	
15:45-16:00	李艳平 认知视角下的转喻语言研究 The Study of Metonymy Language from Cognitive Perspective	文科楼 104
16:00-16:15	张淑雅 Study on the Influence of Emotion on Language Processing -- A Case Study of Ivanka Trump's My Father Is a Fighter	

<b>2018年7月4日（星期三）July 4<sup>th</sup>Wednesday</b>		
<b>闭幕式 Closing Ceremony Chair: 王慧莉 Wang Huili</b>		
16:30-16:50	专家代表发言 Manuel De Vega Rodriguez, 王小潞 Wang Xiaolu &张辉 Zhang Hui	文科楼 304
16:50-17:00	闭幕致辞 Closing Speech 大连理工大学外语学院院长陈宏俊教授 Chen Hongjun (Dean of School of Foreign Languages, Dalian University of Technology)	文科楼 304

# 参会专家介绍及会议论文摘要

(按照姓氏首字母顺序排列 / In the sequence of the first letter of the surname)

## **Seeing and Hearing Meanings. A Non-Inferential Approach to Utterance Comprehension**

University of Miami Berit Brogaard

In this paper I provide empirical and theoretical considerations in favor of a non-inferential view of utterance comprehension. On the view defended, we typically comprehend utterances in a perceptual way rather than by means of inferences. Along the way I define what I mean by ‘inference’ and provide an account of what it means to say that we perceive apparently conveyed meanings.

**Berit “Brit” Brogaard** is Professor at University of Miami and the Director of the Brogaard Lab for Multisensory Research. Her areas of research include perception, synesthesia, theories of emotion, language perception, deaf hearing and vision for action. She is the author of the books *Transient Truths* (Oxford University Press, 2012), *On Romantic Love* (Oxford University Press, 2015), *The Superhuman Mind* (Penguin, 2015), and *Seeing & Saying* (Oxford University Press, 2018). She is also the author of the blogs *Psychology Today The Superhuman Mind* and *Psychology Today The Mysteries of Love*.

## **The Role of Motor System in Bilinguals’ Comprehension of**

### **Action-based Metaphorical Language: an fMRI study**

Dalian University of Technology Hongjun Chen

University of Jyväskylä Lili Tian

Metaphors are part and parcel of everyday language and thought(Kovecses

2015). Metaphors are regarded as special linguistic phenomenon since it deals with cross-domain mappings, with concrete domains being recruited for the conceptualization of abstract ones. Recently, findings from cognitive neuroscience have offered an embodied view to the research of M-language by asserting that concepts are grounded in sensory-motor systems. Considering in light of embodied cognition, researchers began to investigate whether or not sensory-motor system was ever recruited in M-language comprehension, however, leaving the question unresolved: *to what extent* sensory-motor system involved in M-language comprehension?

By adopting an interdisciplinary perspective, the current study aims to explore the spatial activation pattern of motor and language system in bilinguals' comprehension of metaphorical action in L1 (first language) and L2 (second language). Twenty-eight Chinese-English bilinguals participated in the experiments. Materials in **Experiment 1** include 36 triples of sentence in Chinese (L1) of three conditions (30 concrete, 30 metaphorical and 30 abstract sentences). Similarly, **Experiment 2** consists of 30 triples of sentence in English (L2) of three conditions (30 concrete, 30 metaphorical and 30 abstract sentences). Participants are instructed to read verb-phrase in each condition. After scanning, they are asked to perform a action-relatedness judgment task. SMP software and PPI (psychophysiological interactions) analysis method are employed to reveal potential differences in spatial activation pattern across conditions.

By focusing on the spatial dynamics of action-based metaphorical language processing, the current research attempts to provide insights into the embodied nature of metaphorical language representation in bilinguals' brain.

**Key words:** metaphorical language, motor, fMRI, bilingual

**Dr. CHEN Hongjun**, Professor of cognitive and neurolinguistics and Dean of School of Foreign Languages, Dalian University of Technology. Meanwhile, he is the board member of China Cognitive and Neurolinguistics Association, the standing member of China Rhetoric Association. In 2010, he went to the CARLA at University of

Minnesota as visiting scholar and in 2013 he was invited as guest lecturer at University of Potsdam, Germany delivering the course of Neural Mechanism of Bilingualism. His research fields include cognitive linguistics, neurolinguistics, SLA and cross-cultural communication. Research interests include the neural mechanism of metaphor comprehension both in L1 and L2, the neural mechanism of L2 processing, and bilingualism, TEFL methodology. He has published more than 30 research articles including SSCI, CSSCI, EI indexed and published one academic book and compiled more than 10 textbooks. He is the PI of 1 National Social Science Foundation Grant, 1 MOE Humanities and Social Science Grant and more than 6 other projects.

## **Rethinking Meaning: Metaphorical Processing & Pragmatic Effects**

University of Alberta      Herbert L. Colston

Traditional accounts of cognition in general and language processing specifically have relied heavily on the tripart notions of representation, activation and inference. According to this approach, we hold abstract representations in our minds of the world and its contents. Language triggers these representations so that they become active for a period of time. Comprehension is then comprised of a sequence of these activations occurring across time, such that meaning can arise from their combination. Interpretation then follows as a computation of additional meaning arising from this comprehension, taking place amid other activated background information (i.e., context), all in the form of inferences.

Recent research from two different literatures has raised questions about this traditional approach, arguing that the sources of meaning, and indeed, some meaning itself, is at least in part not an activation of abstract representations. Computed additional meaning has also been argued to not arise purely and simply from inferencing processes.

The talk will present evidence from these literatures—involving embodied simulations and pragmatic effects, discussed in the comprehension of metaphor, to illustrate this emerging new approach. A call will be made for a much more nuanced understanding of language processing and cognition that doesn't necessarily discard the traditional approach, but that makes room for a more complex notion of language,

meaning and thought.

**Dr. Herbert Colston**, Professor of Linguistics and Chair of the Department of Linguistics.

## **Multiple-Subject Consensus Clustering for Determination of Time-Window of Mismatch Negativity Component**

Dalian University of Technology    FengyuCong

Peak measurements of Mismatch Negativity (MMN) component play fundamental roles in cognitive neuroscience research. The peak measurement of MMN in existing conventional methods is primarily obtained in two ways: mean of amplitude power over a specific time window (TW) and the peak amplitude. Although these approaches are commonly used, they can result in bias outcomes due to the subjective determination of the TW. This study demonstrates an objective method to solve the problem. The assumption is that the multiple time samples in the selected TW share the same topography indicating the multiple time samples in the TW comes from the same brain activity. Then, in practice, how to find the multiple time samples from multiple subjects and multiple stimuli share the similar topography is the problem to solve in this study. We proposed a novel approach based on multi-subject consensus clustering to recognize the TWs with a dynamic TW detection method. We performed the proposed approach on a MMN study of children showing its effectiveness in terms of reliable outcomes for cognitive neuroscience studies. Using the proposed method, we found both of the two deviant sounds /Da/ and /Ga/ elicited significant MMN of Children in contrast to the standard sound /Ba/. However, the conventional method failed to find the significant MMN evoked by the deviant sound /Da/.

**Fengyu Cong** (丛丰裕) received the B.S. degree in Power and Thermal Dynamic

Engineering and the Ph.D. degree in Mechanical Design and Theory from the Shanghai Jiao Tong University, China, in 2002 and 2007, and the Ph.D. degree in Mathematical Information Technology from the University of Jyväskylä Finland, in 2010.

Since March 2007, he has been with the Department of Mathematical Information Technology in the University of Jyväskylä From March 2007 to August 2008, he was a postdoctoral researcher, from September 2008 to June 2011, he was junior lecturer (faculty position), and from July 2011 to June 2015, he has been holding a tenure-track faculty position. In May 2012, he was conferred the title of Docent (Adjunct Associate Professor) in Signal Processing at the Department of Mathematical Information Technology, University of Jyväskylä From December 2013, he has taken the professor position in the Department of Biomedical Engineering in the Dalian University of Technology at Dalian in China.

He is the visiting scientist of RIKEN Brain Science Institute, Japan (2013.04-2018.03). He was the visiting doctoral student of Dalian Scientific Test & Control Technology Institute (2003.07-08, 2004.07-08) and the visiting doctoral student of Hangzhou Applied Acoustics Research Institute (2005.09-2007.03). He is a senior member of IEEE (2013.06-), the editorial board member of Journal of Neuroscience Methods (2013.07-), and technical program committee members of LVA/ICA2012&2015, IEEE MLSP2013-2015.

His research interests include brain signal processing for cognitive neuroscience, blind source separation/independent component analysis, tensor decomposition, higher-order partial least squares, sequential Monte Carlo, and anomaly detection in machine learning.

He has authored or co-authored over 50 publications in international journals, book chapters and conference proceedings. As the first author, he will publish one monograph book titled by ‘Advanced Signal Processing on Brain Event-related Potentials (ERPs): Filtering ERPs in Time, Frequency and Space Domains Sequentially and Simultaneously’ in World Scientific in 2015 (web:<http://www.worldscientific.com/worldscibooks/10.1142/9306>).

## **Inhibition in language: the case of sentential negation**

University of La Laguna

Manuel de Vega

Embodiment theories claim that language meaning involves sensory–motor simulations in the brain. A challenge for these theories, however, is to explain how abstract words, such as negations, are processed. In some cases, negation seems to suppress or inhibit the representation of the negated entity. For instance, reading the sentence “you don’t cut the bread” refers to the absence of an action and, consequently, the motor simulation of the action “cut” seems unnecessary or irrelevant to understanding it. We propose that understanding sentential negation partially reuses the neural mechanisms of response inhibition. EEG was recorded while participants read affirmative or negative sentences embedded in motor inhibition tasks. We observe that negative sentences modulated both the fronto-central theta rhythms and the early N1 component of the ERPs, which are neurophysiological markers of inhibition. We concluded that action-related negative sentences consume neural resources of response inhibition. This is reinforced by the estimation of the N1 neural sources, which revealed activations in the right inferior frontal gyrus, a typical inhibition-related area.

Manuel de Vega is Professor of Basic Psychology at the University of La Laguna since 1982, where he maintains an uninterrupted teaching and scientific activity in the field of cognitive and neural processes in language. He is the founder and current director of the University Institute of Neuroscience (IUNE), where he and his collaborators develop studies with techniques of cerebral electrophysiology, non-invasive brain stimulation and functional neuroimaging. His main lines of research are directed to the neurophysiology and neuroanatomy of linguistic meaning. Specifically, how the brain reuses neural networks of action, inhibition, visual-spatial perception and emotion for the understanding of language.

He has been visiting professor and has developed scientific exchanges with several research centers in the United States (Harvard, Illinois, Oregon, Wisconsin and Memphis), Italy (Bologna, Padua and Rome), Germany (Saarbrücken, Dresden and Freiburg), France (Paris and CNRS), the United Kingdom (Sussex and York), the Netherlands (Max Planck Institute of Psycholinguistics), Cuba (Center of Neurosciences of Cuba), Chile (Concepción), Argentina (Institute of Cognitive Neurology) and China (Dalian). He has been the principal researcher of more than a dozen of competitive projects; published about 80 articles, mostly in international journals, and has written or edited 6 books in the fields of Cognitive Psychology, Psycholinguistics and Cognitive Neuroscience. He has also directed 16 doctoral theses and has received 6 award years of research, the maximum possible number. He has been president of the Spanish Society of Experimental Psychology, is Fellow of the Society for Text and Discourse, and received 6 research rewards from the Spanish Government, in recognition to his continued scientific productivity.

# **Neurocognitive signatures of Internet reading and challenges in new digital learning environments**

University of Jyväskylä Paavo H.T. Leppänen

The digital media and Internet have changed literacy practices in many ways requiring new reading skills and strategies, such as locating and evaluating relevant information. However, very little is known how school-age children, especially those with learning difficulties, meet additional challenges in this learning environment. In our eSeek-project we have studied 11-13 year-old school-aged children at the sixth grade in multidisciplinary interconnected studies in order to increase our understanding of Internet reading and search skills and the interconnections between Internet reading, cognitive strategies and skills, and brain processes. For this purpose, we have carried out a large scale Internet skill assessment with ca. 400 sixth-graders, including children with dyslexia. Our results show, for example, that dyslexic readers meet extra challenges in Internet reading compared to their peers, especially when evaluating commercial web-sites. Our eye-tracking study in the laboratory setting for a sub-group of ca. 150 students also show that children with dyslexia have difficulties with strategies in selecting Internet search results. We have also measured brain activation related to attentional and semantic processing as well as to speech perception to understand neurocognitive processes related to efficient or inefficient Internet reading. Overall, our multidisciplinary approach will increase scientific knowledge on digital reading, which helps to develop assessment tools and guidelines for instruction and teaching of internet reading.

**Paavo H.T. Leppänen**, PhD, is Professor of psychology and dyslexia research at the Department of Psychology at University of Jyväskylä (JYU). He is currently the research Vice-Dean of the Faculty and Education (JYU), the head of the EEG and behavioral cognitive psychology laboratories of Department of Psychology (JYU), and acts as the chair of the executive team of Research Forum of Learning Difficulties (ForLearning, JYU). Leppänen has long experience in the research of learning

disorders, especially reading and reading difficulties and related cognitive risk factors using both brain event-related potential (ERP) and behavioral research methods with infant, child and adult populations. He currently conducts and directs research in the field of developmental cognitive neuroscience. His research themes include e- and online reading (with web-based, behavioral, eye-tracking and MEG/EEG brain response measures), dyslexia, language difficulties, and problems in foreign/ second language learning, their risk factors and neurocognitive processes of reading.

## 现代汉语双字词中成分汉字序位信息加工的 ERP 研究

曲阜师范大学 李德高

双字词如果调换其两个成分汉字的相对位置顺序，那么，绝大多数情况下会产生一个逆序非词。但是，在启动语义归类任务中，具体含义双字词和相应的逆序非词，它们作为启动刺激能够对目标刺激的语义归类任务产生同样大小的语义启动效应。考虑到双字词中成分汉字在语义上的组合性，语义归类任务可能不利于考察被试在孤立双字词识别中对其成分汉字相对位置顺序信息的认知加工机制。

采用迫选知觉识别任务，控制词的 12 项属性，操纵词的意象性和词中成分汉字的相对位置顺序，对被试进行 ERP 测量发现，和启动刺激是双字词的情况相比，如果启动刺激是相应的逆序非词，那么，一方面，被试对启动刺激的知觉识别能诱发 P300；另一方面，被试在目标刺激知觉识别过程中不仅反应时较长，而且，产生明显的 N400。被试在这些方面的差异还受到启动刺激相应双字词意象性分数高低的调节。因此，孤立双字词的识别是一个亦词亦字的过程，对其成分汉字相对位置顺序的认知加工体现词的语义整体性。

李德高，男，曲阜师范大学翻译学院，教授，中国语言文学方向博士生导师

## EEG functional connectivity and its role in language learning

University of La Laguna Ernesto Pereda

In this talk, we will review some of the recent advances in the use of EEG functional connectivity to study the process of language learning in adults. We will pay particular attention to the role of phase synchronization in the high-frequency bands and how to analyze it properly from scalp EEG to deal with the problem of volume conduction. Finally, we will show a recent example of this methodology to understand the changes in EEG during the learning of an artificial grammar in high- and low-proficiency subjects.

**Professor Pereda** holds a degree in Applied Physics (1997) and a PhD on Neuroscience (electrophysiology, 2001) from the University of La Laguna, where I am currently associated professor of Electrical Engineering since 2009 and lead the research group of Electrical Engineering and Bioengineering.

<http://www.ull.es/view/gruposinvestigacion/ingelec/Inicio/en>

He has carried out research stays in the Max Planck Institute for the Physics of Complex Systems (Dresden, Germany), the Austrian Academy of Sciences (Vienna, Austria); Goldsmith College at the University of London and the Department of Data Analysis in Ghent University, among other research centres. My current research interests include the study of functional connectivity from neuroimaging data, graph network theory and machine learning applied to functional connectivity patterns as biomarkers of neurological diseases. For details on my publications check <https://goo.gl/yf4QIS>

## **Altered grey matter volume underlies a poor interactive mother-child bonding in neglectful mothers**

Universidad de La Laguna      Mar á Jos éRodrigo

Maternal neglect of an infant's cognitive, emotional, educational and physical protection needs is the most prevalent type of child maltreatment. This study examined the existence of alterations in grey matter volume in neglectful mothers as compared to matched controls. We also tested to what extent these alterations underlie

the emotional availability, as a proxy to the quality of mother-child bonding, observed during cooperative play at home. High-resolution 3.0 T volumetric scans (General Electric scanner) were obtained on 48 mothers (24 neglectful mothers and 24 control mothers), recruited through the Primary Health Centers in Tenerife, Spain. Potential confounding effects of age, anxiety and total GMV were modeled using whole-brain, voxel based morphometry (FreeSurfer). Results showed GMV significant reductions in right IFG-insula, right anterior cingulate in neglectful mothers as compared to control mothers, in areas typical of empathy and sensitive parenting. A reversed pattern was observed in the fusiform and cerebellum. Mediation analyses showed that the impact of GMV alterations on the poorer quality of mother-child emotional availability depended on the empathic skills of the mothers that were reduced in the neglectful group as averaged. Taken together, the evidence provided confirms the role of cognitive and emotional abilities in the mother-child affective synchrony and reveals that volumetric alterations in neglectful mothers underlie these processes.

Dr. María José Rodrigo, Facultad de Psicología; Instituto Universitario de Neurociencia (IUNE), Universidad de La Laguna, Tenerife, Spain.

## **What can we learn by investigating individual components of attention?**

Aalborg University    Thomas Alrik Sørensen

Attention is a diverse cognitive function and a central function in processing the surrounding environment. A number of experimental tasks have been employed to investigate attention, but often conclusions are drawn on broad attentional tasks which tap into a number of different attentional components (e.g. Stroop, 1935). A paradigm that has been especially apt at segregating attention into specific functional constituents is the Theory of Visual Attention (TVA; Bundesen, 1990), which allow for a more detailed account of what attentional parameters are modulated when an

observer processes visual information. Previously, several studies have suggested central limitations in information processing (e.g. Miller, 1956; Sperling, 1960; Cowen, 2001), but despite the appeal of these studies experiments reveal a more dynamic structure of attention and short-term memory. The latter has been suggested limited to 3-4 items, nevertheless, what constitutes an item is modulated by the specific expertise of an observer (e.g. Sørensen & Kyllingsbæk, 2012), similarly observer expectancy seemingly drive rate of processing (Vangkilde, Coull, & Bundesen, 2012; Sørensen, Vangkilde, & Bundesen, 2015).

**Associate professor Thomas Alrik Sørensen** is the head of the Centre for Cognitive Neuroscience at Aalborg University. In addition, he is heading the neuropsychology programme as well as the laboratory of experimental psychology at the department. He is also an associated researcher at the Center for Functional Integrative Neuroscience, Aarhus University, as well as, lecturer at the Sino-Danish Center for Education and Research, Beijing. He finished his ph.d. at University of Copenhagen in 2012 focusing in visual attention and short-term memory, since his interest have broadened to the dynamics between perception and memory, where his group currently investigates a number of avenues like expertise, synaesthesia, multi-sensory perception, as well as food-psychology.

**Language out of control: From direct experiential evidence to  
cognitive neurobilingualism**

Bangor University   Guillaume Thierry

In this talk, after providing direct evidence that our brain is externally controlled by environmental factors, I will show how Chinese-English bilingual adults spontaneously access native translations of English words unconsciously and unknowingly stop accessing these representations when such foreign words are unpleasant. Moreover, I will show that bilinguals also unconsciously access the sound

of words in their native language while speaking in their second. More surprising, I will provide evidence that cross-language effects extend to the domain of syntax: Welsh-English bilinguals spontaneously transfer to English a morpho-phonological transformation rule of Welsh that is entirely alien to their native language! And perhaps worryingly, Chinese-English bilinguals engaging in a gambling task for money take more risk when receiving verbal feedback in their native as compared to their second language. Finally, I will show that Chinese-English bilinguals more readily accept British cultural trends when information is presented to them through the medium of English. Taken together these findings reveal unsuspected levels of automaticity and cognitive diversity linked to language variations within and between individuals. This realization calls for a reconsideration of the way in which we conceptualise free will and operations classically regarded as volitional.

## **Embodiment Effect on the Comprehension of Mandarin Manual**

### **Action Language: An ERP Study**

Dalian University of Technology      Huili Wang

Embodiment theories argue that language comprehension involves activating specific sensory-motor systems in the brain, because people tend to simulate the actions and events as part of language meaning. An example, sentences describing two manual actions performed simultaneously by an agent (motor incompatibility) in comparison with sentences referring to the same actions performed sequentially (motor compatibility) increase the Event-Related Potentials (ERPs) component N400. However, most researchers have focused on alphabetic languages. The present ERP research aims to further investigate brain response to motor compatibility processes in native Mandarin speakers. The Chinese stimuli include experimental sentences describing two manual actions either in incongruent condition marked by the Chinese parallel structure “yibian...yibian...” or congruent condition marked by the sequential structure “xian...ranhou...”. The last action clause elicited larger fronto-central N400

in the incompatible than in the compatible condition, allowing to conclude that body knowledge was involved in the comprehension of Mandarin manual action language.

**Dr. Huili Wang** is the professor at the School of Foreign Languages at Dalian University of Technology, China, and has been teaching English as a foreign language since 1989. She has published over 20 textbooks, three monographs and over 89 papers in journals. She is a professor and an MA adviser in applied linguistics. After earning a BA from Shanghai International Studies University and then an MEd from Dalian University of Technology. She got her PhD in Neurolinguistics in December, 2008. She is the senior standing member of China Association of Cognitive Neurolinguistics and China Association of Educational Linguistics. Her research interests include psycholinguistics, cognitive linguistics and neurolinguistics

## **Cognitive Process of Chinese Logogriphs**

Xiaolu Wang, Wan Ren

Zhejiang University

Chinese riddle can date back to ancient times, and later the development of lantern riddle contributed to the prevalence and popularity of this language phenomenon. Chinese riddle can be regarded as the representation of human wisdom for its variety and complexity. Chinese logogriph, a type of Chinese riddle whose answers are Chinese characters, with its special twists and turns, is interesting to solve and enjoys unique artistic and cultural values. Therefore, it is meaningful to explore the cognitive mechanism of Chinese logogriph processing. This study compared the cognitive mechanisms and the associated prototype elicitation effects of Chinese graphic logogriph and semantic logogriph, and employed a set of four testing papers to examine the accuracy of logogriph solving. 102 Chinese native speakers who are undergraduates or graduates participated in this research, and were divided into 4 groups (prototypical logogriph elicitation, non-prototypical logogriph elicitation, conventional meaning elicitation and non-elicitation) in accordance with 4 different

elicitation conditions. The research selected 48 Chinese logographs as experimental materials, including 24 graphic logographs and 24 semantic logographs, and adopted the learning-testing paradigm. The experimental results indicate that graphic logographs enjoyed higher accuracy than semantic logographs under the 4 elicitation conditions, which implies that the cognitive process of semantic logographs might be more complex than graphic logographs. Moreover, the overall accuracy of the prototypical logograph elicitation group was significantly higher than the other three groups, suggesting that prototype elicitation might facilitate the solving of both graphic logographs and semantic logographs.

**Key words:** Chinese graphic logograph; Chinese semantic logograph; cognitive mechanism; prototype elicitation effects

**WANG Xiaolu**, Female, Dr. & Prof & Doctoral Supervisor of School of International Studies of Zhejiang University, and Center for the Study on Language and Cognition of Zhejiang University; Dean of School of Foreign Language Studies, Institute of Technology, Zhejiang University; Adjunct Professor of School of Humanities and Communication Arts, Western Sydney University (WSU); Boarding Member & Reviewer of *Chinese as a Second Language Research (CASLAR)*; Reviewer for the prestigious journals like *Intercultural Pragmatics*, *Bilingualism*, *Digital Scholarship in the Humanities*, *Acta Psychologica Sinica* and so on. A vice president of China Association for Translation, Interpreting and Cognition (CATIC), a standing board member of China Association for Cognitive Neurolinguistics, a vice president of Zhejiang Provincial Business English Association, a standing board member of Zhejiang Association of Foreign Languages & Literatures (ZAFLL), a standing board member of Translators Association of Zhejiang (TAZ), The chief expert of the China National Social Science Foundation's major project, "Study on the Neuropsychological Mechanism of Chinese Non-literal Language Cognition". She has long been teaching and doing research in the fields of cognitive linguistics, psycholinguistics and neurolinguistics. Her research interests lie in mechanism of metaphorical cognition, language and thinking, psychological and neural processing

of language, second language acquisition, teaching Chinese to speakers of other languages, and mutual translation for Chinese and foreign cultures. In recent years, she has accomplished a general project of the National Social Science Fund, a key project of Humanities and Social Sciences of China Ministry of Education, a key project of Zhejiang Social Science Planning, etc. Her book *Chinese Metaphorical Cognition and its ERP Imaging* was awarded the third prize of the sixth Outstanding Achievements of Scientific Research by the Ministry of Education, and more than 50 of her academic papers have been published at home and abroad.

**Strategies of Processing English Verbs' Argument Structures: ERP  
Evidence from Advanced Chinese English Learners**

Hui Zhang Ningning Wang

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As the interface between syntax and semantics, argument structure has long been regarded as one of the hottest issues under discussion for decades in theoretical and empirical researches. The transformational generative grammar represented by Chomsky and Pinker deems that verbs containing all the semantic and syntactic information required for sentence-building, are the essential constituent part of sentences, whereas, Goldberg's construction grammar holds the assumption that it is the construction instead of the verb that plays the pivotal role in assigning thematic roles to each argument and specifying number of arguments in a syntactic structure. On the other hand, in the field of empirical researches, emphasis is mainly placed on the acquisition of verb argument structure as well as native speakers' processing mechanism on verb argument structure. However, little is known about the second language learners' processing model of verb argument structure. Therefore,

employing event-related potentials (ERPs), the present study attempts to investigate the processing of argument structure with different violation types both for English native speakers (L1) and advanced Chinese English learners (advanced L2) so as to figure out the different processing strategies adopted by L1 and advanced L2.

Double-object construction was chosen as the study object which is represented as the common structure “subject+verb+indirect object+direct object”. Here is an example, “Tom baked his son a cake”. Using the correct sentences as the control group, two types of violation were created, among which one was semantic violation realized by filling a semantically inappropriate word in the position of indirect object. Thus, the example here was transformed as “Tom baked his son a photo”. The semantic features of “photo” mismatched the thematic requirements of “bake” and a violation of semantics was formed. The other type was number-of-argument violation which was realized by reversing the indirect object and direct object. For example, “Tom baked a cake his son”, in this condition, the reversed phrase “his son” became an unnecessary argument, leading to number-of-argument violation. The ERP results showed that for native speakers, semantic violation elicited N400 and a biphasic pattern P3a-P600 was evoked by number-of-arguments violation, while for second language learners, the picture was strikingly different: semantic violation and number-of-arguments violation both elicited a sustained negativity in 400-800ms time window and to be specific, the sustained negativity elicited by the latter type of violation displays larger amplitude. Both Sustained Negativity and N400 are correlated with semantic processing, the difference is that the former component reflects more complex semantic operations. In addition, P3a is an indication of participants’ sensitivity to novel stimuli and the following P600 effect demonstrates the difficulty of integration and reanalysis of the sentences after detecting the syntactic anomaly.

Through analysis of the above findings, the study found that when approaching verb argument structures, Chinese English learners emphasized much on semantic information and employed the strategy which views the verb as the centre of processing while English native speakers rely on syntactic structure and adopted a

construction-centered approach. Therefore, the implication of the study for pedagogy is that collocations between verbs and their typical constructions should become the core of classroom teaching. In addition, we should increase the frequency of inputs of different kinds of constructions in order to keep them entrenched in learners' minds.

Keywords: argument structure; L2 processing; construction; ERPs

**张辉**，南京师范大学特聘教授，博士生导师。国家社科基金学科会议评审专家，中国认知语言学会秘书长兼副会长，江苏省外国语言学学会副会长，中国心理语言学会副会长，中国话语研究会副会长。主持国家社科基金一般项目“汉语熟语理解的神经机制研究”、国家社科基金重点项目“中国英语学习者句法加工的神经认知机制研究”，承担国家自然科学基金“基于事件相关电位的汉语惯用语结构的认知研究”，主持国家社科基金重大项目的子项目“神经词汇学研究”专。出版《熟语及其理解的认知语义学研究》、《认知转喻》、《认知语义学研究》和《熟语表征和加工的神经认知研究》等学术著作和教材 10 余部；在 *Journal of Neurolinguistics* (SCI 和 SSCI 检索期刊)、*Journal of Language and Politics* (SSCI 和 AH&CI 检索期刊)、*Second Language Research*、《外语教学与研究》和《外国语》等国内外重要学术期刊发表论文 80 余篇。主要从事认知语言学、神经语言学和二语习得的研究。

## 小组报告 摘要

### **"Semantic inhibition effect in proficient and non-proficient bilinguals: electrophysiological evidence for swinging lexical network model**

蔡笑 中国人民大学心理学系

The present study investigates both the cognitive mechanism as well as functional loci of semantic effects in the second language and how proficiency matters in its representation patterns. We manipulated the semantic relations and the level of L2 proficiency. We tested Chinese-English bilinguals (20 proficient bilinguals and 18 non-proficient bilinguals) in a picture-word interference task in which they had to name the target picture while ignoring the distractor. Results showed that semantic interference effect was significant, and was also moderated by L2 proficiency at both behavioral and electrophysiological levels. The proficient speakers were more sensitive to the semantic manipulation than non-proficient speakers in RTs. ERP results revealed that the semantic effects were observed among proficient bilinguals in the time windows of 100-200ms and 300-400ms, reflecting conceptual facilitation and lexical competition, respectively. Furthermore, the semantic effect was observed among non-proficient bilinguals only in the time window corresponding to lexical competition. The general results find evidence for competition accounts which attribute semantic interference to fierce lexical competition, specifically swinging lexical network model and lexical selection by competition. Taken together, the present study should qualify as solid evidence of a quantitative difference between skilled and unskilled second language users in light of semantic interference.

## **The N1- N2- LPC Pattern in Processing Advertising Visual Metaphors: An ERP Study**

曹硕 大连理工大学

We investigated whether there were enhanced N1, N2 and LPC for the processing of advertising visual metaphors. After presenting “a word of product” and “its advertising pictures”, the experiment instructed participants to make a follow-up true-false judgement considering what the picture intends to suggest. A 2 (picture type: metaphor, non- metaphor) X 2 (judgement condition: congruent, incongruent) X 3 (electrode site: Fz, Cz, Pz) ANOVAs for repeated measures was conducted on three components, N1(100ms~150ms), N2(200-300ms) and LPC (400-600ms and 600-1000ms).The results show that metaphor pictures elicited a frontally biased larger amplitude in N1,N2 and LPC, reflecting a process of an initial attention, an early semantic integration and an prolonged reanalysis process. We believe, different than verbal metaphors, this separable and faster processing occurred due to the involvement of visual pathway. The study extends the metaphor study by identifying three ERP components less frequently reported for the comprehension of visual stimuli.

## **An ERP investigation of masked priming with homographic characters in Chinese disyllabic compounds**

常嘉宝/吴建设 北京第二外国语学院

The present study used event-related potentials to examine how a homographic morpheme in Chinese disyllabic compounds was processed using a masked priming paradigm. Participants (N=18) were instructed to press a key if a person’s name had been presented, while no response was needed for five experimental conditions 【heterophonic homograph condition (“作坊”-workshop), homophonic homograph

condition (“作息”-schedule), repetition condition (“作诗”-poem-writing), pseudo-homograph condition (“作智”-work-wise) and Unrelated/Control condition (“呼吸-breath”)】. Except for control condition, the initial character in these primes shared the same morpheme as that of the target compound (“作画”) and only different in other conditions.

Behavioral data demonstrated that the four conditions had a priming advantage over control condition and were significantly faster in response time. Moreover, homophonic homograph condition was significantly slower than repetition condition, but only slower than heterophonic homograph condition with marginal effect. In ERP data, compared with control condition, heterophonic homograph condition recruited the process at frontal regions for the time window of the P200 component, which was consistent with Meng et al.’s (2008) and Zhang et al.’s (2017) findings. Repetition priming effect were observed at Early N400 time window (250-400ms) at the frontal-central regions for all four conditions relative to control condition, quite similar to the results of Barber et al. (2002), Dominguez et al. (2004) and Lavric et al. (2007). In addition, at 440-540ms time window, a Late N400 component was found at the centro-parietal regions in which homophonic homograph condition diverged from the other three conditions, in line with Hirschfeld et al.’s (2011) finding.

These priming effects provide further evidence in favor of a dissociation between phonology, orthography and semantics, and support a bi-phase processing stage for N400 component. In general, P200 at the frontal regions are related to the extraction of phonological information, early N400 component at frontal-central areas is more related to orthographic processing, while late N400 component is indicative of semantic processing.

## Discussion on the Visual Perception of Chinese Characters Based on Cognitive Neurolinguistics

陈豪 复旦大学

As pictograms and ideograms, the origin of Chinese characters is inseparable from and based on the cognitive capacities of our ancestors. Analyzing the origin of Chinese characters, we discovered that our ancestral wisdom has already made a very good interpretation of the nature of cognition inside the Chinese characters' creation: to describe the near thing using the body, to describe the far things using the objects. This depiction can be understood in ways that extend to the most of the cognitive domain: first know the near things, and then, the farther ones. The learning of Chinese characters has always been an important part of Chinese language learning, and it is also an urgent problem to be solved in Chinese language learning because of its difficulty. Therefore, in Chinese language learning, especially in international Chinese language teaching, Chinese and foreign scholars have drawn attention recently to the study of Chinese characters, focusing particularly on the study of components, which are known as *bujian*, 部件. This article will explore the cognitive nature of Chinese characters and the neural basis of the visual perception of Chinese characters in Chinese learning through the dismantling of Chinese character components by means of the "relational network theory" (RNT) proposed by the Sydney Lamb and his neurocognitive linguistics. We will also discuss the neural basis of the so called *zigan*, 字感, an abstract concept generated in the Chinese character learning, and some of the concepts propounded in Ausubel' meaningful learning theory, to define a promising way of the Chinese characters teaching & learning in the international Chinese language learning.

## **The Role of Context Strengths in Online Processing of Verbal Irony by L2 Learners**

陈小丽 浙江大学

Although verbal irony is pervasive in daily life, its underlying cognitive mechanisms continues to puzzle in native language environment, let alone in second language situation.

The present study examines the interpretation of ironic utterances in natural conversational contexts by different proficiency levels of L2 learners of Chinese compared to their native counterparts. By conducting a self-paced task, the study examines the differences of perceiving irony in L1 and L2 groups by manipulated the strength of contexts. Results found that L2 advanced group spent less time to read the target word in literal utterances than in ironic statements; while for L2 elementary level there was an adverse effect. L2 advanced subjects took less time to read the target word in strong contexts than in weak contexts. The ceiling effect in L1 subjects and the floor effect in L2 less proficient learners were found with no effects of utterance type and context strength.

The results supports irony theories of modular accounts for advanced L2 learners; it also supports the claim that as language proficiency increases, their ability to perceive irony also improves; finally, additional prosodic clues facilitate irony processing for advanced L2 learners and it does not support the spill-over effect in irony processing.

## **The Body Base of Connectivity : Merleau-Ponty's Thought on Synaesthesia**

崔中良 大连理工大学

Merleau-Ponty takes the body as the subject of perception which directly and originally contacts the world by a means of pre-reflecting. The living body (Leibkörper) goes beyond the traditional dualism, denies empiricism gaining unified experience by the association of atomic sensation, and is also against rationalism for the transcendental subject gains the perceptual experience in judgment. Merleau-Ponty argues that the living body is the perceptual subject. In the specific operations of getting the perceptual experience, synaesthesia as the original mode of body awareness interconnect and communicate with the world and others in a holistic, integrated practical way to return to reality and get access to the essence of consciousness, therefore, synaesthesia is revealed as the way of bodily perception. Merleau-Ponty discusses synaesthesia in most of his works, such as, physical perception in *Phenomenology of Perception*, syncretic sociability in *Childhood Psychology and Pedagogy: The Sorbonne Lecture 1949-1952*, *Chiasm in Visible and Invisible*. Merleau-Ponty's study on synesthesia mainly focuses on three topics: body, world and the other. According to Merleau-Ponty, synaesthesia is a presentation of body schema, a state of bodily perception, a means of interconnection between the body and the world, and the basis for interconnection between bodies, which realizes the interconnection between the body, the world and the other. Merleau-Ponty uses synaesthesia to emphasize that the body, the world, and the other are at the same level, and that only mutual activation of this same level can produce perception--a kind of primary perception. Merleau-Ponty emphasizes a primitive state that, if placed in the temporal dimension of human development, is the stage of syncretic sociability, that is, at the most basic level of perception is synaesthesia. The reason why the body, the world, and the other can be combined is that human beings have the ability of synesthesia.

## **A Study on the Relevance of Cognitive Context in Utterance Understanding**

邓燕 中国石油大学文学院

Cognitive science plays an important role in human's utterance understanding. Understanding is a cognitive process or mental operation involving some recognition, insight, knowledge or discovery. At the same time, the concept of understanding shows its social and interactional nature when it comes to the abilities. Therefore, utterance understanding is a two-way activity which includes the generation and reception of information. And communication and understanding suffer from the cognitive refinement of their own prerequisites. In this process, cognitive context effects utterance understanding.

The Theory of Cognitive Context is the important part of the Relevance Theory, which demonstrates that utterance understanding is a process of psychological construct that relies on the inferential process of cognitive presumptions. Cognitive context which signifies the psychological basis of semantic reference is dynamic and integral. Cognitive context influences utterance understanding from several aspects: Firstly, cognitive context restricts utterance expression and understanding, and it regulate communicators' speech act. Secondly, cognitive context interpret utterance understanding. Communicators tend to select the optimal relevance assumption in the cognitive context and acquire the truth utterance meaning. Then, the implication of context is inferred and utterance meaning is acquired. Thirdly, cognitive context has the function of filtration and addition in utterance understanding. This could avoid the utterance redundancy and adds assumption information among communicator. Cognitive context can enhance the contextual effects.

# **A Comparative Study on Metaphorical Extensions and Cognitive Basis of OUT in English and WAI in Chinese**

董革非 东北大学

Metaphor studies originate from Aristotle, who takes metaphor as a rhetorical device. This perspective has dominated metaphor study for centuries until the publication of *Metaphors We Live By*, which proposes a new theory on metaphor study, i.e. conceptual metaphor theory, and this book marks the cognitive turn in metaphor study. Based on this theory and image schema theory, this study adopts a corpus approach to the study of metaphorical extensions of OUT in English and WAI (外) in Chinese based on corpora evidence of real language use. The corpus of this study is retrieved from Chinese Web 2011 and English Web 2013, two sub-corpora from Sketch Engine. 500 samples of out and wai are randomly selected. Through the quantitative and qualitative analysis, this study finds out that the metaphorical meanings of both OUT and WAI are used predominantly over their literal meanings. There are both similarities and differences in their metaphorical extensions. For example, OUT in English metaphorically extends to six target domains to map the “container schema”, including STATE, TIME, ENTITY, DEGREE, RANGE, and LOGICAL RELATIONSHIP; while WAI (外) extends to five target domains, namely, TIME, ENTITY, DEGREE, RANGE, and SOCIAL RELATIONSHIP. There are four domains shared by OUT and WAI. Differences of OUT and WAI consist in four areas: 1) STATE as a target domain of OUT; 2) LOGICAL RELATIONSHIP as a target domain of OUT; 3) SOCIAL RELATIONSHIP as a target domain of WAI; and 4) RANGE as a target domain of both OUT and WAI, but there are some differences in distribution. The reasons for the similarities and differences of OUT and WAI might be rooted in differences in physical experiences, historical diplomacy, value of social culture, and the typical word class each one is commonly used as.

## An acceptability judgment study of length preference in Chinese verb-object phrases

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San Duanmu, University of Michigan

It is well known that many Chinese words can be either monosyllabic or disyllabic, with little difference in meaning, such as *mei* and *mei-tan*, *ji* and *ji-shu*. We follow Guo (1938) and consider such words to have “elastic length” (i.e., elastic words). The availability of elastic words in Chinese creates options of different length combinations. For example, two words of elastic length can yield four length combinations, 2+2, 2+1, 1+2, and 1+1, where 1 is monosyllabic and 2 is disyllabic. However, not all length combinations are equally good. A typical example is length preference in [VO] (verb-object) phrases, where 2+2, 1+2 and 1+1 are preferred and 2+1 is usually ill-formed. This is exemplified in (1).

(1) Length preference in Chinese [VO] phrase: 2+1 is generally bad

Length	Pinyin		Character	Gloss
2+2	zhongzhi	dasuan	种植 大蒜	‘plant garlic’
*2+1	zhongzhi	suan	种植 蒜	
1+2	zhong	dasuan	种 大蒜	
1+1	zhong	suan	种 蒜	

The generalizations are intuitively strong and widely accepted in the literature. It has been shown that they follow general phonological requirements. In particular, in [VO], phrasal stress goes to the object, which forms a monosyllabic foot in 2+1, violating Foot Binariness, a well-known phonological restriction (Prince 1980). This length preference is also confirmed by a corpus study (Duanmu 2012), which shows that 2+1 [VO] are rare: the rate of occurrences is generally well below 2%.

However, the generalizations have not been confirmed by acceptability judgement experiments. Moreover, a few important questions remain unanswered. For instance, is the judgement gradient or categorical? Do native speakers consider 2+1 a bad or even an illegal combination? Do native speakers find 2+2, 1+2 and 1+1 to be equally good? Are there other factors that affect native judgment?

To address these questions, we conducted an acceptability judgment experiment on all four length combinations of [VO] where both V and O have elastic length, such as examples in (1). Our results reveal that multiple factors are involved in the judgement of length combinations. It is shown that the effect of phonological restrictions is strong. Besides phonological factors, syntactic and semantic factors also play important roles. That is, (1) there is a semantic collocation effect between V and O; (2) the ambiguity of a monosyllabic form affects the judgment. In addition, we found considerable variations among participants, which suggests that personal perspectives may also play a role.

## **The Effects of Embodied Cognition on L2 Verbs Processing in the Spatial Cueing Paradigm**

冯茵 周榕 华南师范大学

On the basis of embodied cognition and embodied philosophy, the study adopts a spatial cueing paradigm to investigate the effect of embodiment on English verbs processing in terms of relative embodiment, spatial representation, SOA and L2 proficiency. Exp. 1 (short SOA) finds a significant inference effect on high embodied verbs and interaction effect between relative embodiment and spatial congruency. Exp. 2 (long SOA) finds, for advanced L2 learners, a significant facilitation effect on both high embodied and low embodied verbs, and a 3-factor interaction. For intermediate-low L2 learners, a facilitation effect is observed on high embodied verbs but no effect on low embodied verbs. The study gives empirical support to embodied cognition theory and its two-way effects, identifies the importance of relative embodiment in L2 lexical and semantic processing and reveals the dynamic and asymmetric nature of embodied recognition."

## **Semantics and morphological structure co-modulate early visual word recognition: Evidence from Event Related Potentials of Chinese compound words**

顾介鑫 江苏师范大学

The segmentation of single morpheme words that contain letter strings corresponding to morphemes (pseudomorphemes, e.g., corner) has been taken to argue that the early segmentation of complex words is blind to semantics in visual word recognition. Because semantically opaque words have pseudo morphological structures (e.g., "corner"  $\neq$  corn + er), while semantically transparent words usually have real morphological structures (e.g., "hunter" = hunt + er), whether the mechanism

of segmentation in the two cases is the same is a different question. Specifically the segmentation of complex words may be modulated by morphological structure and/or semantic transparency.

Through Event-related Potential (ERP) technique, two unprimed lexical decision experiments was conducted on high and low frequency Chinese compound words that varied in semantic transparency and morphological structure on morphemic boundness (FF, free root morpheme + free root morpheme, e.g., 下酒 xia jiu, literally descend liquor, go with liquor v.s. FB, free root morpheme + bound root morpheme, e.g., 美貌 mei mao, literally beautiful looks, beauty), while Electroencephalograph (EEG) was recorded. The effects of semantic transparency were found on P150 (130-160ms) for high and low frequency words, and N400 (ms) only for high frequency words. Different P150 effects were found between high frequency words and low frequency words, while no P150 effects were found on morphological structure, On high frequency words, a more positive P150 was elicited by semantically transparent words (e.g., 家乡 jia xiang, literally family country, hometown) compared to semantically opaque words (e.g., 眼力 yan li, literally eye capacity, eyesight); conversely, on low frequency words, only posterior electrodes recorded a more positive P150 for semantically opaque words (e.g., 下酒 xia jiu, literally descend liquor, go with liquor) compared to semantically transparent words (e.g., 扫描 sao miao, literally sweep depict, scan).Whereas the effect of morphological structure was merely found on N400 only for low frequenc words. Furthermore, an interaction of semantic transparency and morphological structure was found on N180 (160-200ms) only for high frequency words. Moreover, at 160-200ms time window, an interaction of semantics and morphological structure was shown on N180, bilateral anterior electrodes recorded a more negative N180 elicited by FB words (e.g., 美貌 mei mao, literally beautiful looks, beauty) compared to FF words (e.g., 扫描) when words were transparent.

The findings support an interactive activation account of early word recognition:

semantics and morphological structure information both influence the early processing of visual word forms, and co-modulate the subsequent processing of post-visual word forms.

### **Image Schema Study in Embodied Cognition**

郭聃 大连理工大学

As one of the proposers of “image schema”, Mark Johnson defines image schema as recurring patterns of sensory-motor-affective experience and the basis of abstract conception and rational inference, arguing that image schema plays a significant role not only in linguistic and psychological field, but also in embodied cognitive philosophy. Based on Mark Johnson’s view, the paper probes into the core role of image schema in embodied cognitive philosophy by analyzing the origin, definition and essential features of image schema, and argues that image schema theory can be recruited to explain how abstract conception generates from embodied experience and accordingly helps cognitive philosophy get rid of dualism; and meanwhile reveals the limitation of image schema theory and points out its developing direction in the future through discussing the non-structural aspects of image schema.

### **Emerging Trends and New Developments in Embodied Language Cognition: A Scientometrics Analysis in Citespace**

郭涵宁 大连理工大学国际教育学院

In the present study 2180 papers related to embodied cognition in the framework of linguistics were reviewed by using the bibliometric approach. The bibliographic records were collected from the Web of Science (Thomson Reuters) from 1992 to 2016, and were composed of a core dataset and an expanded dataset by topic

searching and citation expansion. Document co-citation analysis, citation burst detection and betweenness centrality measurement were conducted to explore and determine the thematic patterns, emerging trends and critical articles of the knowledge domain. The results indicate that the study concerning language comprehension is the most prominent cluster. In addition, the labels as conceptual metaphor and conversational analysis are active clusters in a certain period. Meanwhile, the bursts of detected papers demonstrate that the present focus on language comprehension is a process of mental simulation of sensorimotor and other related experiences, and the topic of meaning construction is the product of interactive embodiment and cognitive processing, highlighting the role of simulation in language comprehension in emerging trends and future directions.

### 抽象概念派生具身认知模式

#### **Derived Embodiment Cognitive Pattern in Abstract Concepts**

胡佳颖 宁波大学

Since abstract concepts lack directly perceivable or observable references in the world, the way of grounding such concepts becomes a big challenge in embodied perspective. According to embodied cognition, the meaning of concepts is acquired through sensorimotor experience interacting with the external world, which is proved to be incomplete to explain the representation of abstract concepts. But recently, researches focus more on other modalities beyond the normal senses, such as interoceptive systems, even the linguistic and social information. In this paper, firstly we make a review of the latest and classic theories on abstract concepts on the framework of embodied cognition. After introducing single theories, we turn to present multiple representation theories containing linguistic or social information and sensorimotor experience. With the significant role of language playing in the acquisition of abstract concepts, we discuss how derived pattern works in embodiment

cognition. Then, we integrate it with semantic pointers from a mechanistic theory of conceptual representation based on semantic pointer architecture, incorporating various embodied features beyond perceivable and motor experience. Finally, we conclude by discussing the prospects of this derived embodiment cognitive pattern and offering some directions for growing researches.

### **Animacy Effect in Metaphor Processing: an ERP Study**

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The ERP ( Event-related potential ) studies examined the role of animacy in metaphorical sentence comprehension in Mandarin Chinese by comparing animate or inanimate actor as sentence-initial noun in simple sentence with metaphor or literal meaning expression. Participants performed a metaphorically plausible judgment task with SVO structure in which the target word is the predicate and object. We observed a N400 effect for metaphorical sentences with an inanimate actor (subject) argument at the position of the predicate verb compared to other three conditions. At the object, subsequently, the amplitudes of the N400 (300-450 ) ERPs revealed no significant difference between metaphors and literal sentences. However, amplitudes of the P600 ERP component (500–850 ms) were more robust for metaphor condition compared to the literal. We suggest that this P600 effect to the metaphor may be related to processing costs and is compatible with metaphorical models assuming indirect access processing. In addition, inanimate metaphor elicited smaller P600 effects relative to the animate ones. This reduced P600 by inanimate metaphor arise from that the activation caused by preceding animacy violation may produce the novel prediction of an ideal argument for metaphor, therefore facilitated the late stage of integration of verb and inanimate argument information in the metaphorical expression. These findings provide the first demonstration that the animacy affects metaphorical comprehension and therefore yields new insights into the role of

animacy in the online linguistic comprehension.

## **Respectfulness Processing Revisited: An ERP study of Chinese sentence reading**

纪丽燕 北京大学

In Mandarin Chinese, the status of the speaker and addressee can constrain the use of the respectful or plain second-person singular pronouns: *nin* ('you [respectful]') or *ni* ('you [plain]'). Speakers of a lower status are expected to use the respectful form of the pronoun (*nin*) to show respect towards the addressee of a higher status, whereas speakers of a higher status are expected to use plain form (*ni*) towards the addressee of a lower status to show social dominance or to implement command. Jiang and colleagues (2013) have examined the event-related potential (ERP) correlates of the processing of respectful or plain pronouns in Chinese. However, there were a few methodological limits in their study (lack of necessary fillers, all anomalies occurring on the pronouns, baseline problem, etc.), which have restricted both the reliability and the functional interpretations of their findings. In the present study, we resolved these limitations and further investigated the neurocognitive mechanisms underlying the processing of pronouns' respectfulness. Participants read Chinese sentences that contained a second-person pronoun (*ni* or *nin*) which either consistent or inconsistent with its prior sentence context in terms of respectfulness. Unlike in Jiang et al., which observed a N400 (300-500ms) for both types of inconsistent pronouns, in the present study, a broad negativity response was found for inconsistent *nin-de*, but not for inconsistent *ni-de* in the 450-550ms range (see Fig. 1). This negativity effect may reflect difficulties in the semantic/pragmatic integration of the respectful form of pronouns with the social status of the speaker and addressee. The absence of an N400 effect for *ni-de* could be due to the pragmatic property of *ni*. In fact, *ni* can be used in scenarios where there is a close relationship between a speaker of a lower status and an addressee of a higher status (e.g., between a daughter and her mother). In addition,

Jiang et al. found a sustained positivity to inconsistent nin-de and a sustained negativity to inconsistent ni-de. In contrast, the present study found a late negativity for both types of anomalous pronouns in the 750-900 ms range (see Fig. 1), which could reflect the revision of the anomalous pronouns.

## 中国英语学习者名词语义加工与身物交互关系实证研究

### **An Empirical Study on the Interaction Between BOI and Noun Semantic Processing for L2 Learners**

江婷婷 宁波大学

This article, from the perspective of embodiment cognition, examined the relationship between body-object interaction(BOI) effects and nouns semantic processing for L2 learners(high level and low level). BOI measures perceptions of the ease with which a human body can physically interact with a word's referent. This experiment was divided into 2 parts, 80 stimulus were selected from Siakaluk, 2008. In Experiment 1, the relationship between BOI effects and nouns semantic processing were examined in semantic categorization tasks (SCT) in which participants decided if words are easily imageable. Responses were faster and more accurate for the nouns with high BOI effects (e.g., mask) than for nouns with low BOI effects (e.g., ship). In Experiment 2, the relationship between BOI effects and nouns semantic processing were examined in a semantic lexical decision task (SLDT), which taps both semantic feedback and semantic processing. Responses still were faster and more accurate for the nouns with high BOI effects than for nouns with low BOI effects. During the two experiments, high level participants responses faster and accurate than low level participants. Results of the present experiment indicates that L2 learners are more likely to acquire nouns with high BOI effects.

## **Research on the Application of Conceptual Metaphor to the Comprehension and Retention of English Idioms**

李爱华 辽宁对外经贸学院

Idioms, the essence of language, can deeply reflect a nation's thinking mode and cultural connotation. But most of the meanings of English idioms can't be inferred from the apparent meanings of their components. Accordingly, comprehending and memorizing English idioms is difficult for non-English majors. Cognitive linguistics holds the idea that semantics of English idioms are built on conceptual metaphor. Based on the assumption that conceptual metaphor has active impact on the comprehension and memory of English idioms, this empirical study was carried out in two intact classes with the same proficiency level to analyze two questions, namely, students' long-term and short-term memory effect of the idioms and their approval of the conceptual approach. The research findings are that conceptual metaphor produce better result in students' long-term and short-term memory and comprehension and the intermediate-scored learners benefit the most from this teaching method. The findings of the study have significant insights for the pedagogical teaching.

## **A Study of Interfering Embodiment Effect on Chinese “Transfer Verbs”**

李林夕 大连理工大学

Chinese language has the different verbal classification, as a result of special verbal composition. The present study aims to figure out the specific time of interference effect during the comprehension of action language, especially transfer verbs in Chinese, affected by sensory-motor system. In the experiment, participants are asked to read sentences describing a transfer either away from (At the court, player throws tennis ball throw to my side) or toward themselves (At the court, player throws tennis ball to opposite side). The sentences are all restricted by the special

structure “Ba” in Chinese. When the transfer verb appeared on the screen, and after three different timing onset (100ms, 200ms, 350ms), a visual motion cue prompts participants to move their hand either away from or toward themselves to press a button. The results shows that under the short time course (100ms and 200ms), meaning–action interference effect will appear for the matching conditions. After the delaying onset (350ms), permanent facilitation will appear. These results may provide evidence for activation of sensory-motor system in brain, in which competition may arise between language process and action performance process.

**Research Trends and Current Status of Studies on Intersubjectivity:  
Cornerstone and Prospects.**

李雪娇 大连理工大学

For social sciences, to grasp the state of art of a specialty often proves to be difficult. In the present paper, a dataset of 2667 papers related to “intersubjectivity”, a concept of philosophy rising in the 20th century, was reviewed. The bibliographic records were collected from the Web of Science (Thomson Reuters) from 1970 to 2018. Through the visualized networks generated with Citespace, we aim to present the foundation and prospects for this field from a scientometric approach. At the end of the paper, we also propose that the bibliometric analysis using Citespace will prove to be a rigorous tool to stay abreast of the development of the subjects in philosophy.

**The Processing Mechanism of Chinese Verbal Jokes-Evidence from Neural  
Oscillations**

李雪艳 长春工业大学

The research in processing mechanism of jokes has been focusing on the analysis of brainwaves and functional brain regions, revealing different stages and relevant

functional activities of humor processing in terms of time and space dimension. However, much less is known about the humor mechanism in light of frequency dimension. The current study made time-frequency decompositions of EEG power in specific frequency bands to provide the evidence of functional network dynamics in processing Chinese verbal jokes. The findings supported three-stage humor-processing model and indicated that P200 component is specific to the pre-processing of incongruity-detection in appreciating Chinese verbal jokes. The oscillation analysis on beta band also revealed similar results, illustrating the features of each humor-processing stage in different time windows from the perspective of the power change.

### 认知视角下的转喻语言研究

#### **The Study of Metonymy Language from Cognitive Perspective.**

李艳平 成都东软学院

传统的修辞学与认知语言学都承认转喻关系喻是基于临近性的。传统修辞学认为邻近关系是发生在真实世界的语言之间，而 Lakoff 等认知语言学家则认为转喻是概念层面上的邻近关系。根据 ICM 理论，Radden & Kovecses 等认为，我们从人类经验和人体感知显著性去分析转喻的使用。本文从转喻的概念本质出发，从认知语言学的角度去分析转喻现象，探讨转喻语言的转换，加深读者对转喻的认识和对转喻使用的意识。

Both traditional rhetoric and cognitive linguistics consider that metonymy is based on proximity. Whereas traditional rhetoric considers proximity happens between languages of the real world, however, cognitive linguists such as Lakoff thinks metonymy as conceptual proximity. According to ICM theory, Radden & Kovecses et al. believe that we analyze the use of metonymy from human experience and human perception saliency. Based on the conceptual essence of metonymy, this paper analyzes metonymy phenomenon from the perspective of cognitive linguistics, discusses the transformation of metonymy language, and deepens readers'

understanding of metonymy and their awareness of the use of metonymy.

## 认知语言与情绪加工之间的关系

### **The relationship between cognitive language and emotional processing**

刘璃蓓 辽宁对外经贸学院

Emotional processing is an important factor affecting language cognition, it is more importance than cognitive language in learning second language. Emotional factors are important factors in language cognition in teaching. Emotional processing involves learners' feelings, feelings, emotions and attitudes in the process of learning. All these emotional processing determine the proportion of language learners' input and output. Emotional processing can promote or impede language cognition. Emotional factors include the individual factors of the learners (motivation, interest, attitude, anxiety, self-confidence, etc.), as well as between learners and learners, between learners and teachers, and between the learners and the culture of the target language, such as empathy, cultural attitudes and so on. For a long time, people often pay attention to the role of cognitive factors and ignore the influence of emotional processing on language learning. In 1985, Krashen summed up a complete set of SLA models through a series of observations and practices, known as the the Monitor Hypothesis, which consisted of five hypotheses, in which the "Affective Filter Hypothesis" (Affective Filter Hypothesis) believed that emotional processing had a direct impact on language cognition. Therefore, in the process of English learning, the development and utilization of emotional processing and the enhancement of emotional transmission between teachers and students are of great help to students in mastering English and developing intelligence. This paper tries to explore the influence of emotional processing and cognitive language on College English classroom.

中国 ESL 学习者英文手部动作语言理解的具身效应研究：来自 ERP 的证据

**Embodiment Effect on the Comprehension of English Manual Action Language  
by Chinese ESL Learners: An ERP Study**

刘美玲 大连理工大学

According to embodiment theories, language comprehension is realized by activating sensory-motor system in the brain, as people tend to simulate the events in the sentences so as to interpret the meanings of the sentence. For instance, some researchers proved that sentences describing two manual actions performed simultaneously (motor incompatibility) by an agent give rise to larger amplitude of N400 component, which stands for the semantic incongruence, in comparison with the sentences describing the same actions performed sequentially (motor compatibility). However, most of the previous studies focus on the native speaker's action language comprehension. The present ERP study is designed to investigate brain response to motor compatibility processes in native Chinese speakers who learn English as a second language (ESL). The English stimuli are selected through three pre-tests, composed of 80 experimental sentences, describing two manual actions either in incongruent condition marked by the English adverb while or congruent condition marked by the English adverb after, and 60 filler sentences describing two actions with reverse conditions (while for congruent condition and after for incongruent condition). The experiment is operated on the software E-PRIME and the data is recorded and analyzed on the MATLAB and EEGLAB.

## **The Effect of Language on Conceptualizing Event Sequences**

Nian Liu Louise Kuehster

University of Oklahoma

USA Previous cross-linguistic studies have shown that there is at least some causal influence from language to non-verbal cognition and unconscious habitual thought (Lucy, 1992; Gumperz & Levinson, 1996, etc.), with new fine-tuned methods, this has been validated in the field of space (McDonough et al, 2000, etc.), time (Casasanto & Boroditsky, 2008, etc.), categorization (Lucy & Gaskins, 2001, etc.) and so on.

However, the effects of punctuation and parsing patterns have not yet been studied. Punctuation and parsing patterns are the means by which language users separate language into units of meaning, and the punctuation system used by one's language may influence how one divides thoughts and group information into small chunks for the ease of processing. Almost all modern languages use punctuation, including marks to indicate a full stop (a period) and a pause (comma). Modern Chinese adopted some variation of the English punctuation system in the past few decades, but the use of punctuation in Chinese is fairly different. Chinese sentences tend to be much longer than English sentences with possible employment of serial verbs, and Chinese speakers use about twice as many commas per sentence than English speakers. In addition, Chinese speakers also use commas in different grammatical contexts than English speakers (Jin et al, 2004). Since punctuation splits language into units of meaning, it's reasonable to assume that one's punctuation system might influence how meaning is split into units in online processing.

An experiment was designed to test this hypothesis. Chinese and English speakers were presented with a set of picture cards, and instructed to arrange them on the table while listening to the story narrated by robot-speech generator in their native language. The arrangement of pictures by the participants was analyzed for trends in

how the lines were broken up.

Results show that Chinese- and English speakers arranged the pictures in different patterns. Chinese speakers had much longer line lengths than English speakers ( $t=2.38$ ,  $p<0.05$ ). This supports the theory of linguistic relativity, in that Chinese sentences tend to be longer than English ones. Also, Chinese speakers had a higher standard deviation than that of their English counterparts, indicating the flexibility of the use of punctuation in Chinese. The results of this study indicate that the parsing patterns of a speaker's native language impact how people actually break long sequences of events into smaller chunk of information in language processing, adding a new piece of evidence to the Sapir-Whorf Hypothesis.

### 从《红楼梦》“根”隐喻英译看英汉空间认知异同

#### **Differences in English and Chinese Space Cognition Reflected by the “Root”**

#### **Metaphor Translation in Dream of the Red Mansion**

刘晓 南京航空航天大学

Complex metaphor with the image “root” is very common in the original text of Dream of Red Mansions, yet the quantity of “root” metaphor in both two English translation versions( by Yang and Hawkes) is much less, even the reserved metaphors have been interpreted in varied ways. Basing on the fact that the comprehension of metaphor is closely related to the cognition structure, this paper attempts to reveal the differences in cognition between Eastern and Western cultures by a comparative analysis of the translations of “root” metaphor. Through the analysis, a primitive conclusion has been drawn, that “root” is always viewed and emphasized as an inseparable part of the plant in its metaphorical use in Chinese, whereas in English, “root” is usually used independently. Besides, “root” metaphor in Chinese can be specified to a concrete object, while in English the metaphor is used in a general sense. The preliminary assertion has been testified by comparative online corpus analysis with the help of Powerconc.

## 二语语音和语义对一语产出的影响：来自中国英语学习者的证据

刘雪丽 南京师范大学

已往研究发现语言产生过程中双语者的两种语言系统都会激活，但目前就激活的非目标语对目标语的加工起促进还是抑制作用这一问题尚未达到共识。本文试图采用图图干扰范式探索二语词汇的语音和语义对汉英双语者在一语图片命名时的影响。结果发现，对于高水平英语学习者来说，二语语音对一语概念提取起促进作用，而二语语义起抑制作用；对于低水平英语学习者来说，二语语音和语义对一语提取均不起作用，说明低水平英语学习者在一语词汇提取过程中二语并未激活，语言水平决定了二语是否激活及激活的层面。本文分别从非特定语言提取理论和特定语言提取理论对结果进行解释。

## 基于自定步速阅读方法的汉语把字句研究

娄开阳徐晓东

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国际汉语教学界一直认为把字句作为汉语句法中的特殊句式是外国学生习得汉语时的难点，张宝林（2010）通过语料库证实把字句的习得并不困难，外国人使用把字句的正确率约为 87.48%。本文想通过自定步速阅读的实验方法，从心理语言学和神经语言学的角度来证实：对外国学习者而言，汉语把字句并非语法习得的难点。具体情况如下：(1)实验假设：从神经机制上来看，汉语把字句并非外国学生的语法习得难点。(2)实验原理：将中外受试分成两组，通过考察两组不同的受试对把字句理解的差异，来判断把字句是否是汉语作为二语习得中的语法难点。若受试理解的时间长说明习得把字句的难度大，若受试理解的时间短则说明习得把字句的难度小。(3)实验材料：选用带有动结式短语的把字句，如“张三把李四灌醉了”。通过变换句式结构（把字句/非把字句）、增删连词（有连词/无连词）以及换用不同动词（一价/二价/三价）的方式，来观察两组受试对句子的理解情况。如：1a.张三把李四灌醉了，因为他酒量大/小。1b.张三把李四灌醉了，尽管他酒量大/小。(4)实验要求：采用自定步速阅读的方法，让被试分别通过打分和选择的方式，判断“他”指代什么人（张三、李四、第三方）。预期结果：中外学生在理解汉语把字句时，心理机制上没有明显的差异，汉语把字句不是语法学习的难点。

## The Effect of Mood on L2 Morphosyntactic Learning

柳鑫淼 北京外国语大学

It is well documented that mood has influence on lexical learning, syntactic learning and discourse comprehension. However, the extent to which morphosyntactic learning can be influenced by mood conditions remains unclear. In an experiment with 54 undergraduates, we examined the effect of inducted positive versus negative mood on L2 morphosyntactic learning by using a semi-artificial grammar task. Music and pictures were used to induce positive and negative affective states. It was found that negative mood facilitated the learning of word order rules, especially simple word order structures, but had no significant effect on the learning of case-marking rules. There was no significant association between positive mood and morphosyntactic learning. Contrary to our initial hypothesis, positive mood was not found to be beneficial to L2 morphosyntactic learning. The findings hold important implications for second language learning and teaching.

## 感官感知动词“V 到”与“V 见”的认知研究

鲁志杰 北京语言大学

现代汉语里感官感知动词中“V 到”与“V 见”存在多种形式，语义特征为[+感觉到]，在表达对信息的感知时可替换使用。词语的多义性、[+到达]语义特征等都是影响“V 到”和“V 见”存在差异的因素，被动感知和主动感知、外界刺激与主观判断、施事在场与非在场是差异形成的内在机制。语法规则和语义结构存在着一定的对应关系，感知类动词“V 到”和“V 见”的物理空间和心理空间的意向图式为：行为的发出者—感知方式—（容器内的实体）—感知的结果，“V 到”进一步向言语空间投射，语义由感知行为义虚化为因果推理义。

## **The Improvement of the Interpretation Internalized by the Written Translation Practice from the Perspective of Cognitive Schema**

马娜 辽宁对外经贸学院

Zhang Wei and Wang Kefei have conducted an experiment on how significantly the written translation practice has integrated with the oral learning process. The more exercises on translation activity, the better the translators, or even the interpreters play. In the practice, the cognitive process has exerted its great influences on the integration between the written translation and the interpretation. Therefore, the author will make an attempt on the analysis of the internalization of the written translation skills in the improvement of the interpretation from the perspective of cognitive schema.

### **隐喻能力与新闻阅读素养关系初探**

莫咏仪 华南师范大学外国语言文化学院

隐喻是人类概念化内在世界和外部世界的核心机制,可以体现出不同语言观察世界和人生的不同方式和态度,蕴含深厚的社会文化意义。隐喻思维及其认知功能对诠释复杂的社会文化现象起重要作用。根据系统性原则,结构映射使知识更关联、更系统,在类比推理中优于单个特征匹配的比较,从而有助于整体理解。本研究采取 e-prime 行为实验研究范式,分别利用结构隐喻图片和直义图片,对阅读语篇进行启动和不启动的比较实验。研究表明,英语新闻语篇若配以适当的隐喻图像,有助于理清文字信息的关系及其逻辑组织,提升语言学习效率和动力,并提升思维组织方式的准确性。本文从多模态隐喻的角度,证实了隐喻是一种强大的认知工具,对增加人们的认知水平具有很强的推动力,能提升人们对信息处理自动化的能力,此外,图像隐喻有助于提高概念流利性,即基于隐喻推理,理解目标语组织或编码概念的方式。

Metaphor is the core mechanism for human to conceptualize the inner world and the outer world, which can reflect different ways and attitudes different languages adopt to observe the world and life, entailing profound social and cultural significance.

Metaphorical thinking and its cognitive function play an important role in interpreting complex social and cultural phenomena. According to the systematic principle, structural mapping renders knowledge more related and systematic, and it is better than the mapping of single feature in analogical reasoning, thus contributing to the overall understanding. This research, adopting the e-prime behavior experimental research paradigm, has experimented on structural metaphoric pictures and literal pictures to prime or unprime news reading discourses. The result shows that when English news are illustrated with the appropriate pictorial metaphors, it can better clarify the relationship of text information and its logical organization, raise language learning motivation and efficiency, and improve the accuracy of thinking organization. In the perspective of multimodal metaphor, this research confirms that metaphor is a powerful cognitive tool to increase people's cognitive level and to benefit automation in information processing. The result also shows that pictorial metaphors help improve conceptual fluency, i.e., understanding how concepts are organized and encoded in the target language, based on metaphoric reasoning.

### **Intentionality and the Two-Phase Mental Process of language**

聂思成 郑州升达经贸管理学院

“Doublet Structure of Consciousness” is the most noticeable theory among the theories and methodologies proposed in the field of Philosophy-of-Mind Approach to Language. Within the framework of “reality---mind---language”, such a theory offers an inspiring description of the mental process from reality to mental representation. However, despite the prerequisite that language is based on mind, the projection of mind into language is not necessarily one-to-one but possibly one-to-many or one-to-zero. In an effort to better explain various linguistic phenomena, “Two Phases of Language Production” is proposed based upon “Doublet Structure of Consciousness”. Human mind perceives reality and forms primary consciousness,

based on which first reflective consciousness is formed so as to produce some certain mental representation of the reality. The episteme phase is completed at this moment and begins the expression phase, in which second reflective consciousness adjusts the mental representation to the context and finally produces linguistic representation. The expression phase can also be unconscious, but if second reflective consciousness is involved intentionality targets it to the context. When studying the mental process of language, one should take into consideration the possible work of second reflective consciousness during the expression phase. The supposition of “second reflective consciousness” concerns the cognition of context in the mental processing of language to add the variable of social function so as to better explain the mental process of language production.

### **Identification of Gendered Emotion Metaphors in Modern Chinese Poetry**

潘震 江苏师范大学 外国语学院

Emotion is one of the cores in modern Chinese poetry. And we believe that emotion metaphors are gendered in most cases. Men and women may prefer quite different images for the expression of their similar emotions. Therefore, this article tries to investigate the gendered nature of emotion metaphors with the corpus of modern Chinese poems, find out the particular metaphors for men and women to transmit their emotions, and describe their main features and functions. In the categorization of the gendered metaphors, the analysis also tends to reveal cultural traits in the mappings and entailments of gendered emotion metaphors in the poems.

### **伊万卡.特朗普助选演讲的批判话语分析**

施惠芳 浙江师范大学

这一届美国总统换届选举中，以候选人唐纳德.特朗普的胜选落下帷幕。而

在竞选过程中，特朗普的女儿伊万卡发表的一篇助选演讲对选举的形式和结果起了不可估量的作用。除了其独特的个人魅力外，演讲语言产生的极强感染力是毋庸置疑的。所以本文将以费尔克劳夫的三维分析模式为理论框架，结合韩礼德的系统功能语法理论，从描述，阐述，解释三个分析步骤出发，解读伊万卡演讲的语言特色，并探究其是如何通过话语出发建立与听众之间的关系并获得他们支持的。

通过分析发现，为吸引更多的民众支持特朗普，伊万卡的助选演讲采用了很多话语技巧，如使用一些个人特色的词汇或者及物性话语来构建自己的三重身份，即有责任感的美国公民，特朗普女儿以及平凡母亲的身份；还使用人称代词，情态动词等来调整跟听众之间的关系来获取他们的支持，还通过标记主位来强调一些重大的社会民生问题。通过对伊万卡助选演讲的分析，我们体会这篇演讲稿语言魅力的同时，也可以提高对政治演讲词的批判性思考能力。

## **An ERP Study on the Processing Order during Chinese-English Bilingual Metaphor Comprehension** 汉英双语隐喻加工顺序的 ERP 研究

孙雅琳 大连理工大学

In neurocognitive studies on the metaphor processing mechanism, the central concern lies in either the lateralization of the metaphor comprehension or the sequence of metaphorical language processing. Moreover, many experimental studies have summarized several hypotheses on the metaphor processing order, however, most researches focused on the monolingual rather than bilingual metaphor processing. The present study aims to investigate the processing order and the specific time course of the brain activation during metaphor processing for Chinese-English bilinguals. Two experiments, behavioral and ERP studies are designed to explore the following questions: 1) Is there any processing order difference during metaphor processing for Chinese(L1)-English(L2) bilinguals? 2) What is the procedure of Chinese-English bilingual metaphor processing? Is it a one-step processing or two-step processing? 3) Which brain correlates are activated during the metaphor processing?

And what's the difference between the bilingual metaphor comprehension on brain activities? The paper also tries to falsify the existing models for metaphor processing. Chinese-English bilingual students with high proficiency of English may be employed in ERP studies to do a relatedness judgement on 180 metaphors(90 Chinese, 90 English) randomly matched with 3 types of targets(literal, metaphorical, unrelated).The time interval between metaphors and targets are respectively controlled in 100ms, 300ms and 500ms for dynamic analysis.Data are planned to analyze by sLoreta to visualize the activated brain correlates.In the behavioral study, it is expected that higher ACCs and shorter RTs for the metaphorical targets than the literal ones no matter how long the time interval is.In the ERP study, higher N400 for literal targets and control ones, and higher LPCs for metaphorical targets while the opposite for the literal ones."

### **The Effect of Social Status Factors on Metaphor Cognition**

唐晓东 东北大学

Metaphor serves as a powerful facilitator for people to cognize this world and to communicate with each other, especially in the formation and interpretation of abstract concepts. The process of metaphor cognition may be affected by many factors. In the field of psychological linguistics and neurocognitive linguistics, in order to achieve a better understanding of metaphor cognition, some experiments are designed and conducted in attempt to find out individual differences and cross-cultural differences in relation to metaphor construction and comprehension. This article is based on a series of experiments to explain what influence social status may affect the progress of metaphor comprehension. The author starts with a brief introduction to the current research on metaphor cognition. Through some experiments some social factors related to metaphor cognition and comprehension are revealed. The subjects are divided into several groups. Except social status, the subjects of each group are

about the same age, and they come from similar cultural background. And after analyzing the result of experiment, the author gives the conclusion as follows: first, the social status has influence on the speed of understanding metaphor in particular domain. Second, the higher the social status is, the higher speed the process of metaphor cognition is. Thirdly, the influence of social status on metaphor cognition is less obvious than some other factors, such as the age of the subjects, or gender.

### **Body-Object Interaction Effects in the Semantic Processing of English Ergative Verbs**

陶家玉 于善志 宁波大学

This article discusses the relationship between the English ergative verbs and the body-object interaction effects (BOI) from the perspective of embodied cognition. It first probes into the theoretical basis of the embodied semantic processing of the English ergative verbs. And then E-Prime 2.0 is adopted to explore Chinese English learners' processing of different types of English unergative verbs and English ergative verbs. It finds that Chinese English learners learn transitive alternating ergative verbs and unergative verbs better than intransitive alternating ergative verbs and non-alternating ergative verbs. The findings suggest that the embodied semantic factors, including BOI, autonomous features and motor features, are the main factors that cause the asymmetric processing of ergative verbs and unergative verbs.

### **Using a Fast Mapping Approach to Investigate Children's Video Word-Learning**

王海红 浙江师范大学

A great amount of research has suggested that very young children learn less from screen media than from equivalent real-life experience, which is referred as video deficit. According to dual representation theory, we predicted that simultaneous

appearance of familiar and novel objects in the video can help children to appreciate the association between the video and real world for them, thereby ameliorating children's video deficit. Independent groups of 24-38 months old and 38-50 months old were asked to learn a new word through watching videos (video condition) or using real objects (reality condition). All children completed two tasks including pointing task and naming task. The former task was to explore whether there was a difference about children's fast mapping ability between video condition and reality condition. And the latter task was to explore whether there was a difference about children's retention ability for novel words between the two conditions. We found that children remained the video deficit in both tasks. But children's performance in the pointing task was significant above the chance level under the both conditions. That is, 2-year old children could fast map a new word to a referent when watching videos to learn a new word. And the results of pointing task under video condition in our study was better than Yow's study's result (2017) (86%>65%), which suggested that the appearance of familiar objects to some extent helped children associate the information between the video and the real world.

## 汉语声调加工的 ERP 研究

### **ERP study on pre-attentive processing of Chinese tones in adults and young children**

王梦如 辽宁师范大学

Chinese is a tone language, which main characteristic is reflected by spoken word phonological information. The semantic meanings of Chinese words are carried both by segmental information (such as vowels and consonants) as well as suprasegmental information (such as tone). Besides there is very little co-variation between segmental and suprasegmental information. Mandarin contains four tones, and in accordance with the phonological it can be divided: high level tones (T1), tone

(T2), falling tone (T3) and the whole tone (T4). And that there are different tones on the acoustic characteristics of different similarity (Xu, 1997). This study aimed at mandarin tone on the acoustic characteristics of the different characteristics of different similarity, using the method of ERP and passive oddball paradigm to investigate the processing of different tones of Mandarin Chinese in the pre-attention stage of adults and children to reveal the influence of different similarity degree of lexical tones on the processing stage of adult and preschool children. In order to avoid the influence of lexical semantics, frequency, and other factors, the non-phonetic Version (hummed) corresponding to the tone of the standard syllable is used in the experiment. There are two experiments in this study, each of which contains the following experimental conditions: Syllable 13 tone T1 / T3 ; Pitch 13 tone T1 / T3 ; Syllable 23 tone T2 / T3 ; Pitch 23 tone T2 / T3 .The probability of standard stimulus and deviation stimulus were 90% and 10% respectively. It was found that the syllable T1/T3 and pitch T1/T3 in both adults and young children were cited by the mismatch negativity (MMN), the syllable T2/T3 and the pitch T2/T3 only in adults were subjects cited in the MMN. The average amplitude of MMN in adults and young children caused by syllable and pitch T1/T3 was significantly higher than that of the average amplitude of MMN induced by T2/T3 and pitch. The results show that, in the pre-attention processing stage, the processing of Mandarin tones in adults is mainly processed by the left hemisphere of the brain, but children are mainly manifested in the right hemisphere of the brain processing advantages.

### **The contribution of phonology or orthography in the lexical boost in priming**

王梦醒 华南师范大学

We investigated the contribution of phonology or orthography in the lexical boost in priming. Beroniet et al (2014) and Santesteban et al (2010) found phonological relationships at the lexical level affect syntactic encoding during

sentence production based on the homonyms as the materials sharing the same orthography and phonology. Here we report two experiments investigating the existence of single phonological or orthographical level of representation would affect the way syntactic structures are selected and processed. When describing a dative verb which have different senses- e.g. “打” in Chinese is the ‘fetch’ sense in to “打了一碗水给某人 in the Chinese sentence ” but the other ‘knit’ sense is in to ‘打了一件毛衣给某人 in the Chinese sentence’—and these kinds of dative verbs we chose have the same phonology and orthography, Experiment 1 showed the homonym boost to dative priming. Experiment 2 revealed that, the only phonological information overlap between the head verbs of prime and target sentences still cause a boost to dative priming, based on the homophones sharing the phonology. Finally, the combinational analysis of Experiment 1 and 2 revealed that orthographical level do not enhance syntactic priming. Therefore, in the other words, for the homonym boost in the Experiment 1, actually it is only homophone rather than orthography that did work in the enhancement of the syntactic priming. We interpreted these results in terms of theories of syntactic encoding.

### 情绪调节对双语转换成本的脑机制

王云 苏州科技大学

本研究使用图片命名任务考察情绪调节对汉英双语者语言转换的影响。结果表明：1) 情绪启动与任务类型交互作用显著，具体表现为，中性情绪条件下，重复任务的反应时显著长于转换任务的反应时；2) 情绪启动对转换成本影响的主效应显著，愉快条件下的转换成本显著大于中性条件，中性条件下的转换成本显著小于恐惧条件下的转换成本；3) 脑电数据显示，三种情绪的语言转换成本在 ERPs 上存在 N2 效应差异，表明不同的情绪效价导致了转换成本的差异，支持情绪调节影响双语转换成本的假设。

## **A Cognitive Analysis of Chinese and English Metaphors**

魏三军 中国石油大学文学院

Metaphor is a widespread phenomenon in natural language and a basic method of human thinking. As an important way of thinking and cognitive tool, metaphor can help people better understand the world. Cognitive linguists hold that metaphor is a general thinking mode as well as a means of cognition. The method for automatically processing metaphors simulated the way human identify, interpret and generate metaphors. It is believed that conceptual metaphors are a source for cognition. Metaphors are integral to the human understanding of a lot of abstract or complicated concepts. Conceptual metaphor plays an important role in interpretation. Over the past thirty years, cognitive linguists have devoted an impressive amount of research to conceptual metaphor. The main features of metaphor can be studied through the discussion of some language phenomena, ranging from morphology and the lexicon to syntax, pragmatics and multimodality. Due to the same body mechanism and similar life experience, there are many similar conceptual metaphors in English and Chinese. Humans' feelings could find their corresponding expressions in other languages. Metaphors express humans' abstract feelings, which rely on the physical body's cognition. For human beings, the most important and common experience is feeling. Some linguists believe that conceptual metaphors share some similarities in English and Chinese language. However, differences are also found. The reasons are as follows: thinking differences, cultural differences, natural environment differences and perspective differences.

## **Cognitive Grammar, Schema, and Reflexive Marking**

翁金 辽宁对外经贸学院

In cognitive grammar, a fundamental way language is organized and linked with

our conceptual system is through schemas that support and guide language learning and language use. Some schemas develop by abstracting from linguistic expressions common patterns. In addition, the schematic structure of language is hierarchical with low-level schemas subsumed under higher level ones. Schemas may also be prelinguistic structures that guide the way we view and interpret our experiences. Cognition is able to construe events in different ways, and it is the belief that this variation in construal will be mirrored in the lexical and/or grammatical properties of a language. In this paper, I consider underlying schemas for the reflexive marking system, guided by cognitive grammar.

### **Chinese EFL Learners' Embodied Semantic Processing of Value Words**

奚梦澜 林立红 宁波大学 外国语学院

Embodied cognition theory holds that cognition is grounded in experience and based on our sensorimotor system. Under the framework of the embodied theory, this empirical research adopts e-prime and related statistical analysis software to study the embodied semantic processing of value words by the intermediate and advanced Chinese EFL learners. The results are as follows: 1) when processing both English and Chinese value words, both groups of EFL learners are sensitive to the “up-down” vertical spatial metaphor and “big-small” dimensional spatial metaphor; 2) they are insensitive to the “light-heavy” tactile metaphor; 3) L2 proficiency influences the processing cost and accuracy, with the intermediate group's shorter reaction time but lower accuracy rate in contrast with the advanced group's higher accuracy but longer reaction time; 4) there is an asymmetrical processing of Chinese and English value words: both groups tend to be quicker and more accurate when processing Chinese value words compared to their English counterparts. And the findings are discussed from the perspectives of embodied cognition and L2 processing theories.

## Use of noun on language expression and cognition in children with ASD

肖诚 武汉大学

Autism Spectrum Disorder (ASD) is a relatively common disease among the children with developmental disorders. Its main pathological manifestations include delayed language development, a narrow range of interests, lack of social interacts and stereotyped behaviors. Through six-months of field observation and research in Wuhan Mental Health Center, with the method of noun-scale test, pathological record, and questionnaire analysis on autistic children aged three to eight years, this study collected more than 20,000 corpus data about the autistic children and thus built 30 language-pathological profiles for every autistic child. This study mainly focuses on the noun expression and cognition of the autistic children. From the expression perspective, this study analyzes their noun vocabularies which are applied to express nature, color, transport, time, shape, daily life, animals, geography, clothing, etc. From the cognition perspective, this study analyzed their use of the common words, the abstract nouns and the compound nouns. Based on the noun analysis of the autistic children, the study attempts to establish the mental lexicon, to point out the psychological tendency in the noun selection, and to recapitulate the neural mechanism of the autistic children in Wuhan. In the end, combined with the current researches from the medicine and psychology field, this study attempts to give some linguistic suggestions on the language acquisition and rehabilitation to improve language performance of the autistic children.

## 工作记忆与二语听力句子理解中的生命性和世界知识的 ERP 研究

徐方 青岛科技大学

We present results from a study demonstrating that high and low-span second language listeners show qualitatively different brain responses when comprehending

simple active sentences. Participants listened to naturally produced sentences in three conditions in which the plausibility of thematic relations was manipulated. Event-related potentials were recorded to the first noun, the verb, and the second noun in all three conditions. In the second condition, the thematic relations between the words in the sentence are less expected given our world knowledge, and this resulted in an N400 effect of semantic processing difficulty to the second noun for both high- and low-span subjects. In the third condition, the inanimate first noun cannot be the agent of the verb. Only high-span subjects showed an effect of animacy on the sentence-initial nouns, evident from a larger anterior negative shift to inanimate than animate nouns. Furthermore, to the thematically violated verbs in the third condition, low-span subjects showed an N400, whereas high-span subjects generated a P600. We suggest that this P600 effect to the thematically violated verb may be related to processing costs resulting from a conflict between the provisional thematic roles assigned as a function of the inanimate sentence-initial noun, and the actual (animate) agent required by the verb. We further argue that low-span subjects lag behind those with highspan in their use of animacy, but not real-world knowledge in the on-line computation of thematic roles in spoken language comprehension.

## 神经语言学视阈下二语习得性别差异研究——基于不同性别学生学习风格的实证调查

徐爽 山东大学

神经语言学研究的是语言与大脑的关系，是一门整合了语言学，神经科学，心理学和认知科学的学科。神经语言学在我们国家的研究开始的比较晚，但是，通过语言学，心理学，医学，认知科学等多个领域专家的不懈努力，神经语言学已经进入了稳步发展的时期。目前神经语言学的研究方法主要有三种：一是语言学的研究方法；二是心理语言学的行为实验方法；三是神经科学的研究方法。第二语言习得作为一门独立的学科形成于二十世纪六十年代，其主要目标是回答什

么是学习外语的最佳途径，什么是最有效的外语教学方式。如今，神经语言学与外语教学相结合的研究显然是不够的，而神经语言学中的许多理论尤其是偏侧化理论可以为外语教学带来启迪。在大脑发育方面，女性早于男性，语言处理大多在左脑进行，右脑在学习第二语言方面也起着重要作用。性别差异也反映在胼胝体等大脑结构中。学习风格是指学习者吸收和维护信息的方式。根据认知语言学，语言是一种认知活动。因此，学习者的外语学习风格不能与其认知机制分开。本文是基于相关文献提供的理论背景和调查收集的数据，以及我自己的课外教学实践所作。本文分为三个部分。第一部分包括相关文献综述，对神经语言学，二语习得和性别差异的神经基础进行了详细的介绍。第二部分是对不同性别学习风格的调查。我选择 120 名学生做测试量表调查并分析结果。第三部分基于性别差异对未来英语教学提出建议。

### **Chinese EFL learners' syntactic processing of lexically-based and rule-based sentence: An ERP study**

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The current study aimed to investigate Chinese EFL learners' syntactic processing of Lexically-based and Rule-based sentences with Event-related potentials (ERPs). Following questions would be addressed: (1) What are the characteristics of Chinese EFL learners' syntactic processing of Lexically-based and Rule-based sentences? (2) Do lexically-based and rule-based syntactic sentences differ in behavioral and neural representations for Chinese EFL learners? The present study included fifteen English majors from a foreign language university in China. Multifactor experimental designed were employed with two levels of sentence type (P: Lexically-based, Rule-based), two levels of hemisphere (H: left, right), three levels of anterior-posterior (A: frontal, fronto-temporal, temporal [anterior sites]; central, parietal and occipital [posterior sites]), and two levels of lateral-medial (L: lateral,

medial), and two levels of condition (C: correct, violation) as within-subjects factors. The behavioral data showed that syntactic processing accuracy of Rule-based sentences was higher than lexically-based sentences. For ERP data, in 300-500ms time window, rule-based sentences elicited larger negative amplitude in frontal and frontal-temporal area; in 300-500ms time window, incorrect sentences elicited larger negative amplitude in left hemisphere; in 700-900ms time window, incorrect sentences elicited larger positive negative in frontal and frontal-temporal area. Results of the current study indicated: (1) For Chinese EFL learners, both N400 and P600 effect appeared in second language syntactic processing. The patterns are different from English natives. (2) Rule-based and lexically-based sentences processing were served by separable cognitive systems with distinct neural correlates."

### **The Time Course of the Memory Retention of the Novel Word**

颜维卫 浙江师范大学

Previous studies have shown that novel words are encoded rather swiftly but that their semantic integration occurs more slowly and the time course of memory retention of the novel words is not clear. Here, we test the amount of memory retention for word-picture associations differently when it was learned explicitly or using a fast mapping strategy. Fast mapping is an incidental form of learning that references new information to existing knowledge and possibly allows neocortical integration already during encoding. In this study, 24 college students studied novel words, together with their meanings under FM and EE(Explicit Encoding). We found that subjects who learned the novel words through EE had better recognition performance than those who learned through FM. In Experiment 2, we test whether memory retention is affected by time under FM and EE. It was found that the difference of recognition performance of the novel words was not obvious among shortly after learning, the 2nd and the 50th days after learning. Our results thus indicate that the amount of memory retention did not diminish over time.

## **A Study of Embodied Meaning in Comprehending Mandarin Counterfactual Sentences**

闫小莉 大连理工大学

Recent empirical research suggests that understanding language can activate the embodied simulations, and the factual language has been the focus of previous studies. Different from factual sentences, counterfactual ones describe situations or events that are counter-to-fact, hence factually false. What about counterfactual sentences comprehension in terms of embodied simulation. The present study aims to explore how counterfactual action-language is processed. Select the mandarin counterfactual sentences containing transfer verbs marked by “如果.....就..... (ruguo...jiu...)” as the experimental materials. Participants firstly read a sentence building up a context (e.g. Last Sunday was Thanksgiving Day), and then heard a counterfactual or a factual sentence describing a transfer towards or away from them (e.g. counterfactual: If Li Yang stayed with me, and I would have given an apple to him, or factual: Li Yang stayed with me, and I gave an apple to him). After the transfer verb (e.g. give) was presented visually, the verbal motion cue asked the participants to move their finger away from or towards them to press a button. By collecting the response time of pressing the button, our results found the embodied simulations were also involved, and showed that the finger motion was interfaced at the initial time of the verb onset in the matching condition (transfer away–motion away), implying the motor simulations happened during counterfactual sentences processing. Meanwhile, the slightly different temporal course of motor simulation between factual and counterfactual sentence comprehension was also found.

**The Cognitive Processing of Verbal Irony: An ERP Case Study on Comparatively Familiar Chinese Verbal Irony**

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Ironical utterances (or verbal irony) abound in our daily conversation. And three major models or hypotheses have been postulated regarding the processing of figurative language (verbal irony included), namely, the Standard Pragmatic Model (SPM), the Direct Access View (DAV) and the Graded Salience Hypothesis (GSH). Many experimental researches have been conducted concerning the above three models or hypotheses, but their findings disagreed. The disagreements and key problems thereon are summarized and pinned down as: (1) Is the processing of verbal irony a different and special one relative to that of literal language? (2) Which model or hypothesis better suit the processing of verbal irony? (3) How are different cerebral areas activated in verbal irony processing? Does the so-called “right hemisphere advantage” view hold? Also targeting these disagreements and problems, this study explores the neural mechanism of cognitive processing of comparatively familiar Chinese verbal irony under the research framework of neuropragmatics. An ERP experiment was conducted to record and analyze the N400 and P600 modulations induced by designed stimuli, and the major findings and conclusions are: (1) irony induced a larger N400 and P600 modulations relative to its literal counterpart, indicating that the processing of ironical meaning needs more effort for semantic integration caused by expectation or context, and later pragmatic integration and inference; (2) the location and activation of N400 and P600 demonstrate respectively a right hemisphere advantage and a left hemisphere advantage, indicating the participation of a global network for the whole process; (3) larger N400 and P600 modulations induced by irony relative to its literal counterpart supports SPM and partially supports GSH, but does not support the DAV; (4) these findings and conclusions suggest that figurative language requires a processing progress different

from that of the literal language, and also extra processing effort.

### **The role of salience in pronoun resolution of second language acquisition**

杨艳琴 南京师范大学

The present study investigates how perceptual salience and psychological salience influences English pronoun's understanding of Chinese students. With perceptual salience realized by pronouns' prominence and psychological salience by verb types, this paper finds that both types of salience have significant effect in pronoun's resolution of low level learners, in addition, two factors have mutual influence on each other. Meanwhile, learners in high English level are not sensitive to salience. The results implies the importance of improving the application and focus on salience especially in the primary stages of second language instruction.

### **An empirical study of time movement in spatiotemporal metaphors**

饶诗雨高原 中国科学院大学外语系

Metaphor is a fundamental mechanism in cognition that allows us to use what we know about our physical and social experience to provide understanding of countless other subjects. To represent time, many cultures around the world rely on the concrete concept space. Two dominant spatial metaphors are used to sequence events in time, ego-moving metaphor and time-moving metaphor. The present research, based on the idea of metaphorical structuring theory, concerns Chinese English as a foreign language (EFL) learners' perspectives of time movement in spatiotemporal metaphors. Specifically, our investigation focuses on the relation between foreign language proficiency and Chinese EFL learners' representations of time. We first review all of the available evidence about perspectives of time movement along horizontal axis for

both Chinese speakers and English speakers. An empirical experiment is then designed to explore participants' implicit processes in understanding time movement between participants at the high language proficiency level and those at the low proficiency level. Furthermore, the effect of different models of stimulus on participants in the two groups is probed. The results demonstrate that Chinese EFL learners from different language proficiency levels do think about time movement differently. Participants from the high English proficiency group are more likely prompted ego-moving model, while participants from the low proficiency group prefer time-moving model and are hardly affected by the ego-moving stimulus.

**Processing A-not-A interrogative structure in Chinese during sentence  
comprehension: An event-related potential study**

岳金星 哈尔滨工业大学

A Chinese A-not-A structure expresses interrogation through repeating a questioned constituent word (i.e., A) juxtaposed by a negative morpheme. However, the syntactic operations underlying the derivation of such structures remain under debate. The present study aims to address this issue by recording native speakers' event-related brain potentials (ERPs) to A-not-A and incongruent B-not-A structures, formulated by monosyllabic transitive verbs, during sentence comprehension. The A and B verbs in each sentence frame were set to be equally plausible for the context. The repetition effects of ERPs were controlled by using two control conditions. The results showed that the violation of A-not-A structures elicited greater frontally distributed positivity and P600 than those canonical structures. These findings suggest that the syntactic operations in comprehending A-not-A structures are morphosyntactic in nature. In other words, an A-not-A structure realizes interrogation via the presence of the repeated form. Furthermore, no reliable N400 effects were identified, indicating that the non-repeated predicative verbs did not induce prominent

conceptual integrating difficulty. Our findings are in favor of a modular account of A-not-A questions.

### **Embodied Metaphor in Patients' Narratives about their Experiences**

张超 南方医科大学

Metaphor is pervasive in everyday life as well as in thought and action. Our ordinary conceptual system is fundamentally metaphorical in nature. In this manner, we can look back upon our metaphorical system through linguistic expressions. Many scholars and medical professionals have argued over the importance of metaphor in patients' speaking of disease narratives. Our study presents an analysis of the metaphors by 11 patients in their narratives of their experiences with distinctive diseases. In describing disease and disease related experiences of patients themselves, metaphors permeates their descriptions. Metaphors in these descriptions can both represent and explain patients' diseases. DISEASE AS WAR metaphor is frequently used in patients' descriptions. However, patients use this metaphor not only in describing their war with disease, but also in war with life. In other words, disease metaphors are not only physical but also psychological and embodied. As embodiment is a dynamic system, it is important to study embodied cognition in a more dynamic way. While our conscious awareness is ordinarily directed toward the world, making our physical actions and perceptions appear to be natural, at times of dysfunction, such as illness, the body suddenly seizes our attention and is perceived as alien. In these moments, bodily experience often becomes not just the source, but also the target of metaphorical mappings. This study also reveals that embodiment is an intrinsic nature of metaphors in disease narratives.

## **An Exploration of Translation Technology from the Cognitive Perspective**

翻译技术认知探究

张晨曦 大连大学

With the development of information technology, translation technology has become a major trend in the translation industry. Most of the academic achievements on translation technology are focused on the aspects of practice and teaching. The paper explores the translation process from the cognitive perspective, and proposes the research direction of cognition and translation technology.

## **Implications of Embodied Cognition on FLT**

张莹 大连理工大学

Cognitive science has been taking an embodied cognition turn, which regards body, perception, action and environment as in an interaction process. Embodied cognition has observed that human mind and perception depends on body to a significant degree. Physical activity, body structure and movement experience decide world knowledge, cognitive mode and thinking. Embodiment, dynamics and subjectivity is predicted to be an inevitable trend of foreign language education reforms. The present studies propose three suggestions in respect of language teaching viewed from embodied cognition with hope to promote the significance of body in classroom instructions, and enhance individuality, initiative and creativity of language learners. First, the interaction between teachers, learners and teaching situation is the prominent concern of language teaching design; efficacious foreign language education must be guided by embodied cognition to investigate how language information is acquired through the communication of body and environment in classroom. Secondly, proper relaxation of body can enhance learner experience, thus resulting in improving teaching effectiveness. Exertion and potentiation of body in

language construction in specifically designed teaching situation help form a mind-body-environment cognitive mechanism in the cognitive process. Thirdly, creating a teaching environment that contributes to positive interaction between teachers and learners induces active participation of learners and guarantees language acquisition.

### **Study on the Influence of Emotion on Language Processing-- A Case Study of Ivanka Trump's My Father Is a Fighter**

张淑雅 武汉理工大学

With the development of Affective Neuroscience, people are increasingly concerned about the relationship between emotion and cognition. As we all know, language, a means of communicating and studying in human society, is one of the vital cognitive activities of human beings. Therefore, the relationship between language processing and emotional processing is valued by researchers all over the world. The influence of emotion on language processing, especially, in the process of public speech, is studied in this paper. Public speech which has been vital in human cultures around the world for several millennia is not only a kind of language communication activity but also an important kind of cognitive activity. More than a manner of influencing people's ideas, it's a vital form of engaging various activities through which people express ideas and affect society. So this paper chooses Ivanka Trump's My Father Is a Fighter as a case to study the regulation function of emotion on language processing. The study in this paper mainly includes three aspects. First is the influence of human beings' emotional states on language processing, including happiness, enthusiasm, fear, anxiety and other emotions. Second is the influence of external emotional backgrounds on language processing, including the music, the atmosphere and other emotional backgrounds. The last one is the influence of personal behaviors on language processing, including posture and face expression.

## **A Study of Embodied Cognition from the Perspective of Vygotsky's Socio-cultural Theory**

张雪娇 大连理工大学

Embodied cognition is an approach to cognition that departs from traditional Descartes' mind-body dualism in its emphasis on bodily interactions with the environment. From the perspective of philosophical methodology, the paper outlines Vygotsky's socio-cultural theory and his contributions to the development of cognitive science. Specifically, three basic themes of Vygotsky's writings are described: genetic forces as a foundation of study of mind, social origin of higher mental functioning and mediation of sign systems in inter-mental and intra-mental functioning. Against the background of Vygotsky's sociocultural theory, we further discuss how embodied cognition was grounded on Vygotsky's aforementioned theories. It is claimed that bodily states or recurring body-environment interactions are closely tied to sense-making. Embodied cognition should put emphasis on the unity of body and consciousness, mediation, and cultural environment. Finally, the paper concludes with a discussion of the implications on the importance to situate the study of embodied cognition in a sociocultural context.

## **Study on the Influence of Listening Input Modes of Listening Comprehension**

郑晓曦 武汉理工大学外国语学院

Hu Yongjin and Zhang Delu (2013) believe that multimodal listening teaching can improve the listening ability of English learners; visual information can play a positive role as long as it corresponds to auditory information; English subtitles are more beneficial to learners' listening comprehension than Chinese subtitles. Based on metacognitive strategy and guided by multimodal discourse analysis theory, this study testified the interaction between multimodal teaching and metacognitive strategies

through empirical research. The study investigated the effects on listening comprehension and memory of English majors by means of two listening input modes. The second-year English majors of each class (three classes) were divided into three groups (excellent, medium and poor) according to the listening comprehension level. Two groups of video and audio materials were played every week in the multimedia teaching classroom for 10 weeks. The students' present status and abilities of using listening strategies would be discussed and the control was controlled by control. The discoveries of comparative experimental covered: 1) when the contents of visual materials were similar to the audio materials, the visual materials could more effectively deepen the listening comprehension of the three groups of students than the pure audio material; (2) when the video materials and audio showed Small correlation, three groups of students showed obviously difference in choice of strategy, focus of comprehension and description of details; 3) the English subtitles were more helpful to the listening comprehension and to recall the listening content; 4) the preview of questions or tasks and replay of listening materials made great efforts on listening comprehension of the middle level students; 5) the anxiety reduced the processing efficiency of working memory, and finally led to the failure of the listening comprehension.

### 具身认知视角下的语言理解观

#### **Language Comprehension under the Umbrella of Embodied Cognition**

周倩 四川外国语大学

具身认知是当前认知科学最新的研究趋势和研究焦点，强调认知的情境性、发展性、具身性、以及动力系统性。在此影响下的语言理解观，认为语言根植于知觉和运动系统。具身认知的支持者提出一系列的理论解释语言理解中信息如何表征。其中，心理模拟理论的接受度更广，成为具身认知框架下语言理解观的典型代表。不同于外显的心理想象，心理模拟是内隐的和无意识的，是与外部世界

互动中身体和心理体验中获得的感知运动和内省状态（情感体验）的内部重演，模拟通过感知觉运动系统的激活完成。根据心理模拟的观点，语言理解以感知运动经验为基础，语言理解在本质上是经验性的(experiential)。而且，模拟和现实世界具有很强的相似性，比如，运动动词的模拟和对应的动作如何在现实世界中高度一致。

In the past two decades, embodied cognition has gradually become the mainstream of research orientation in cognitive science. It argues that cognition is embodied, situated, developmental and dynamic system. Under the umbrella of embodied cognition, the role of body in language comprehension is emphasized. Embodied approaches to language comprehension propose this is done by mentally simulating through the brain's perception and action system. Simulation is the reenactment of perceptual, motor, and introspective states acquired during experience with the world, body, and mind. As people comprehend a text, they construct simulations to represent its perceptual, motor, and affective content. Therefore, simulation plays a pivotal role in language comprehension. It which is considered different to mental imagery occurs automatically and implicitly. What's more, simulation is highly similar to the processing of a comparable real-world event.

### **A Study on Children's Development of Comprehension and Production Abilities of Metaphorical Categorization**

周榕成颖

华南师范大学

Categorization is one of the most basic human cognitive activities, and an important way of understanding the world. Different from established (conventional) categories, metaphorical categorization categorizes unrelated things by "X is Y" structure and rebuild a shared superordinate category and thus is an important form of

categorization in human being's cognitive process and language development. However, little attention has been paid to children's cognitive development on it. Therefore, it might be of theoretical and practical significance to probe into when and how children come to consciousness of metaphorical categorization. This study aims to explore what developmental trend and characteristics children show in comprehending and producing expressions of metaphorical categorization.

For the reason that the construal of metaphorical categories is based on human analogical abilities, we adopted a paradigm of problem-solving analogy for testing children's comprehension and production abilities of novel metaphors. The study was conducted in two regular primary schools and subjects are children from grade two to grade six. A group of college students were selected as the reference group. Subjects in comprehension test finished choosing task first, then interpreting task, and for the production test a completion task was used. The results show that: 1. Children show a relatively consistent trend of development in comprehending and producing metaphorical categories, and Grade Three and Four is the key period of comprehending such expressions while Grade Four and Five is a buffer period of producing metaphorical categories; 2. Children rely more on external similarities when comprehending and producing metaphorical categories, and those metaphorical categories based on internal relations are more difficult for children to understand and produce; 3. Children adopt different comprehension strategies in comprehending different metaphorical categories; 4. Children showed a relatively lower production ability. Implications and suggestions for the formation and development of human metaphorical categorization and for conducting effective language teaching and learning are discussed.

## **ERP Evidence for Hemispheric Advantage during Chinese-English Bilingual Metaphor Processing**

朱希楚 大连理工大学

The hemispheric advantage of metaphor processing has been a research focus these years. And the Fine-Coarse Semantic Coding theory which argues the Right Hemisphere performing computation for coarser language processing is widely testified. However, it remains unclear about the laterality of bilingual metaphor interpreting. From an interdisciplinary perspective, this study aims to examine the hemispheric processing of metaphorical and literal expressions in the first language and second language. An event-related potential (ERP) experiment combined with divided-visual-field (DVF) paradigm is designed according to the research purposes. The behavioral results show that participants consume longer time and make more mistakes when understanding both familiar metaphors and unfamiliar literals in Chinese with left-visual-field presentation. These results indicate a right hemisphere advantage of Chinese familiar metaphor and unfamiliar literal processing. The response time of English (L2) metaphor and literal expressions is longer than that of Chinese (L1) expressions no matter which visual field presented. This suggests the difficulty for bilingual participants processing less salient L2 expressions. The ERP results are consistent with the behavioral results. For both familiar metaphors and unfamiliar literals, there is a right hemisphere (RH) advantage during semantic processing in both Chinese and English. Chinese metaphors presented to the left-visual-field (LVF)/right hemisphere (RH) evoke smaller N400 amplitudes than those presented to the right-visual-field (RVF)/left hemisphere (LH). The N400 amplitude for English metaphors is larger when presented to RVF/LH. For literal expressions, Chinese literals with the RVF/LH presentation show larger N400 effects, while English literals with RVF/LH presentation also show larger N400 effects. From the results we can see that familiarity and language are both influencing factors on bilingual semantic processing. Expressions with less salient meaning and long

semantic distance are processed in the right hemisphere (RH), which basically supports the Fine-Coarse Semantic Coding Theory and the Graded Salience Hypothesis. But some unique processing mechanisms for metaphors in hieroglyphic languages, like Chinese, still call for a further exploration.

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