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# INFORMATION

## Address

Department of English and American Studies  
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## Local organizing committee

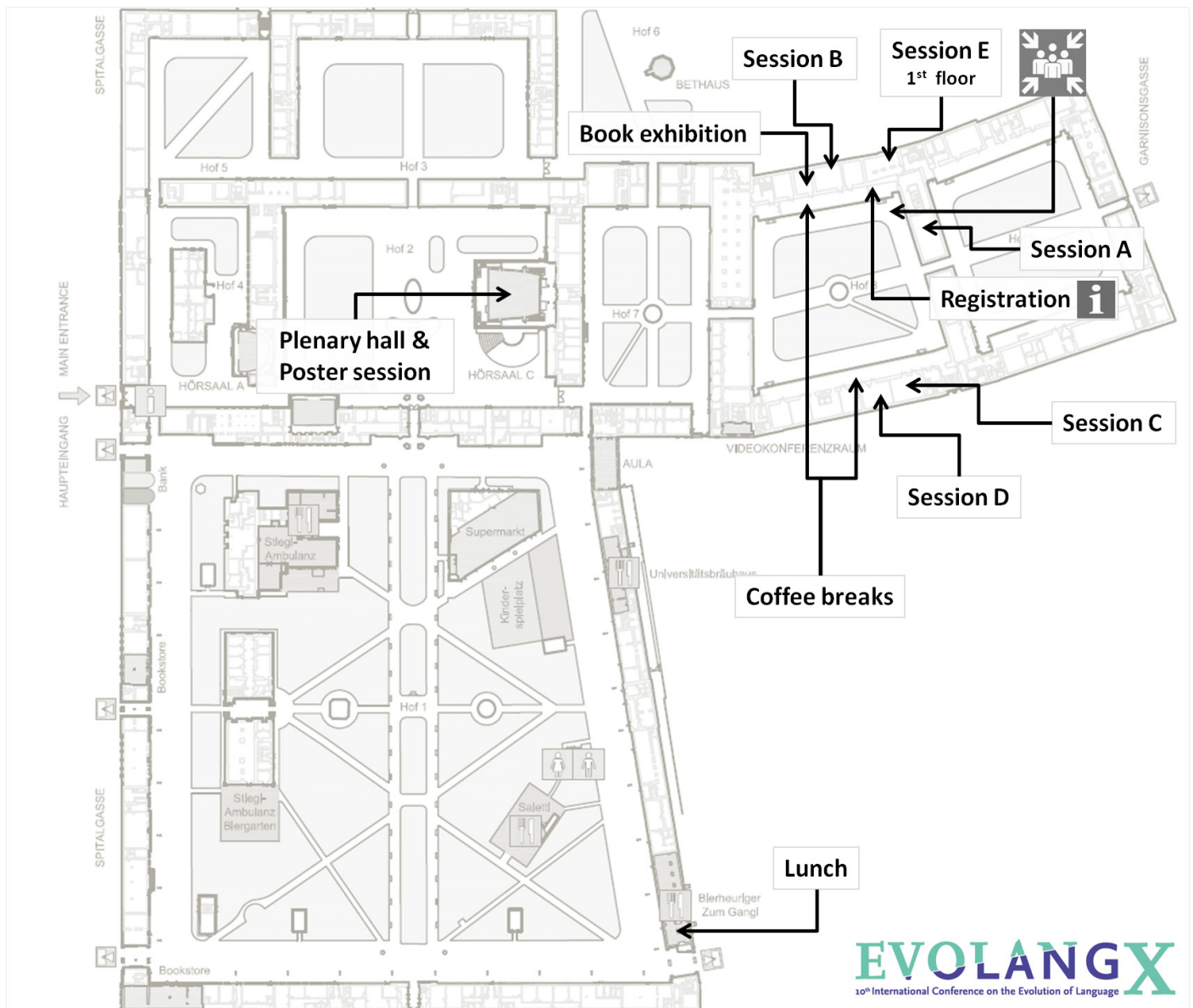
Nikolaus Ritt  
Andreas Baumann  
Klaus Hofmann  
Elnora ten Wolde  
Maria Valencia  
Lotti Viola  
Iris Vukovics  
Eva Zehentner

## Information desk

The registration & information desk will be open throughout the conference. If you have any questions, please don't hesitate to ask us.

## Meeting point

The general meeting point for social activities, etc. is the "Inukshuk" (stone statue) in front of the department.



# TIMETABLE

	Monday, 14 April	Tuesday, 15 April	Wednesday, 16 April	Thursday, 17 April	
09:00	Workshops	Plenary 2	Plenary 4	Plenary 6	09:00
09:15		Coffee Break	Paper Session 2	Paper Session 5	09:15
09:30					09:30
09:45					09:45
10:00					10:00
10:15	10:15				
10:30	Lunch	Poster Session & Lunch	Paper Session 8	Closing Session	10:30
10:45					10:45
11:00					11:00
11:15	Plenary 3	Paper Session 6	Paper Session 7	Plenary 7	11:15
11:30					11:30
11:45					11:45
12:00	Opening Session	Coffee Break & Book Launch	Conference Dinner	Post-conference activities	12:00
12:15					12:15
12:30					12:30
12:45	Plenary 1	Paper Session 4	Business Meeting	City tour	12:45
13:00					13:00
13:15					13:15
13:30	Coffee Break	Paper Session 3	20:30 EVOLANG Birthday Party	Coffee house tour	13:30
13:45					13:45
14:00					14:00
14:15	Paper Session 1	Paper Session 7	Conference Dinner	Leopold Museum	14:15
14:30					14:30
14:45					14:45
15:00	Paper Session 1	Business Meeting	20:30 EVOLANG Birthday Party	Schönbrunn Zoo	15:00
15:15					15:15
15:30					15:30
15:45	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Wienerwald walking tour	15:45
16:00					16:00
16:15					16:15
16:30	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Reception City Hall	16:30
16:45					16:45
17:00					17:00
17:15	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Reception City Hall	17:15
17:30					17:30
17:45					17:45
18:00	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Reception City Hall	18:00
18:15					18:15
18:30					18:30
18:45	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Reception City Hall	18:45
19:00					19:00
19:15					19:15
19:30	Paper Session 1	Paper Session 4	20:30 EVOLANG Birthday Party	Reception City Hall	19:30

# CONFERENCE PROGRAMME

Monday, 14 April 2014

09:00	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	09:00
	<p><b>Workshop</b></p> <p>Convenors: Carel ten Cate, Willem Zuidema</p> <p><i>The comparative biology of artificial grammar learning</i></p>	<p><b>Workshop</b></p> <p>Convenors: Luc Steels, Freek Van de Velde, Remi van Trijp</p> <p><i>How grammaticalization processes create grammar: From historical corpus data to agent-based models</i></p>	<p><b>Workshop</b></p> <p>Convenors: Bart de Boer, Tessa Verhoef</p> <p><i>Evolution of signals, speech and signs</i></p>	<p><b>Workshop</b></p> <p>Convenors: Andrea Ravignani, Bruno Gingras</p> <p><i>EvoMus: The evolution of language and music in a comparative perspective</i></p>	<p><b>Workshop</b></p> <p>Convenors: Melanie Malzahn, Nikolaus Ritt</p> <p><i>Evolutionary linguistics and historical language studies</i></p>	
11:15	Coffee Break					11:15
11:45	Workshops continued					11:45
13:45	Lunch					13:45

A	B	C	D	E	
15:00	Opening Session Vice Rector Susanne Weigelin-Schwiedrzik, Dean Matthias Meyer, Head of Department Barbara Seidlhofer & Nikolaus Ritt			15:00	
15:30	<p>Jim Hurford</p> <p>Chris Knight</p> <p><i>Language origins: not just evolution but revolution</i></p> <p>Chair: Maggie Tallerman</p>			15:30	
16:30	Coffee Break			16:30	
17:00	<p>Chair: Maggie Tallerman</p> <p>Salikoko S. Mufwene</p> <p><i>What Dwight L. Bolinger probably would have contributed to evolutionary linguistics</i></p>	<p>Chair: Bart de Boer</p> <p>Olga Vasileva</p> <p><i>Development of language through shared intentionality and categorization</i></p>	<p>Chair: Olga Feher</p> <p>Piera Filippi, Bruno Gingras, W. Tecumseh Fitch</p> <p><i>The effect of pitch enhancement on spoken language acquisition</i></p>	<p>Chair: Sean Roberts</p> <p>Damian Blasi, Morten H. Christiansen, Soeren Wichmann, Harald Hammarstrom, Peter Stadler</p> <p><i>Sound symbolism and the origins of language</i></p>	<p>Chair: Kenny Smith</p> <p>Rishiraj Saha Roy, Dastagiri Reddy, Niloy Ganguly, Monojit Choudhury</p> <p><i>Understanding the linguistic structure and evolution of web search queries</i></p>
17:30	<p>Heidi Lyn</p> <p><i>Comparative psychology and the evolution of language: Methodology matters</i></p>	<p>Willem Zuidema</p> <p><i>Requirements on scenarios for the evolution of language and cognition</i></p>	<p>Daniel L. Bowling, Christian T. Herbst, W. Tecumseh Fitch</p> <p><i>Social origins of rhythm? Synchrony and temporal regularity in human vocalization</i></p>	<p>Justin Sulik</p> <p><i>Symbolisation and cognition</i></p>	<p>Till Bergmann, Rick Dale, Gary Luppyan</p> <p><i>Informational structure of an emerging communication system is shaped by its environment</i></p>
18:00	<p>Koji Fujita</p> <p><i>Four wrong ideas in evolutionary linguistics</i></p>	<p>Mauricio Martins</p> <p><i>Recursion is not language domain-specific. Interim results of a research program</i></p>	<p>Michelle Spierings, Carel Ten Cate</p> <p><i>Prosodic cue weighting by Zebra Finches</i></p>	<p>Mutsumi Imai, Michiko Asano, Guillaume Thierry, Keiichi Kitajo, Hiroyuki Okada, Sotaro Kita</p> <p><i>Sound symbolism and arbitrary sound-meaning relationships in language</i></p>	<p>Simon Kirby, Hannah Cornish, Kenny Smith</p> <p><i>Systems emerge: The cultural evolution of interdependent sequential behaviours in the lab</i></p>
18:30	<p>Dillon Niederhut</p> <p><i>The phonatory culture hypothesis</i></p>	<p>Erkki Luuk, Hendrik Luuk</p> <p><i>The emergence of compound signals</i></p>	<p>Jacek Wilczynski, Sławomir Wacewicz, Przemysław Zywicki</p> <p><i>The influence of music on the perception of emotions in voice samples: Evolutionary implications</i></p>	<p>Denis Bouchard</p> <p><i>Sign-theory and the origin of language</i></p>	<p>Nicolas Fay, T. Mark Ellison, Riccardo Fusaroli, Kristian Tøyen</p> <p><i>The cumulative cultural evolution of an instruction language</i></p>
19:30	Reception City Hall			19:30	

## Tuesday, 15 April 2014

A	B	C	D
09:00	Robert Boyd, Sarah Mathew <i>Reciprocity, third-party punishment and the evolution of human language</i> Chair: Kenny Smith		
10:00	Coffee Break		
10:30	Chair: Salikoko S. Mufwene  Erin Brown, Jordan Zlatev <i>Bridging the gap: From bodily mimesis to speech</i>	Chair: Katrien Beuls  Marcus Perlman, Rick Dale, Gary Lupyan <i>Iterative vocal charades: The emergence of conventions in vocal communication</i>	Chair: W. Tecumseh Fitch  Andrea Ravnigani, Daniel L. Bowling, Simon Kirby <i>The psychology of biological clocks: A new framework for the evolution of rhythm</i>
11:00	Bart de Boer  <i>Biological adaptation to cultural traits</i>	Marieke Woensdregt, Willem Zuidema <i>Neural networks, algebraic rules &amp; human uniqueness</i>	Gareth Roberts, Bruno Galantucci <i>The effect of iconicity on the emergence of combinatorial structure: An experimental study</i>
11:30	Sverker Johansson  <i>Did language evolve incommunicado?</i>	Andreea Geambasu, Michelle Spierings, Clara Levelt, Carel Ten Cate <i>Artificial Grammar Learning in infants, adults, and songbirds: What is shared, what is learned?</i>	Julio Santiago, Monica Tamariz, Gabriella Vigliocco, David Vinson <i>The role of iconicity in the evolution of linguistic structure</i>
12:00	Maggie Tallerman  <i>Is the syntax rubicon more of a mirage?</i>	Matthew Spike, Kevin Stadler, Simon Kirby, Kenny Smith <i>Minimal requirements for the emergence of learned signalling</i>	Elizabeth Irvine  <i>What iconicity can and cannot do for proto-language</i>
12:30	Lunch		
14:00	Ann Senghas <i>Recapitulation? Links between language acquisition, emergence, and evolution</i> Chair: W. Tecumseh Fitch		

	A			B			C			D		
15:15	Chair: Heidi Lyn			Chair: Willem Zuidema			Chair: Ramon Ferrer-i-Cancho			Chair: Monica Tamariz		
	Catherine Hobaiter, Richard Byrne, Klaus Zuberbuhler Multimodal communication in wild Chimpanzees			Emilia Garcia Casademont, Luc Steels Strategies for the emergence of first-order constituent structure			Tessa Verhoef, Bart de Boer Iterated learning of sound systems and the emergence of tone categories			Annemarie Verkerk, Andreea Calude, Mark Pagel Selection in the lexicon		
15:45	Katja Liebal A multimodal perspective on ape communication			Richard A. Blythe, Thomas Scott-Phillips The origins of combinatorial communication			Molly Flaherty, Susan Goldin-Meadow, Ann Senghas, Marie Coppola, Lila Gleitman Language from gesture? Emergent transitivity marking in Nicaraguan Sign Language			Alan Nielsen, Simon Kirby, Kenny Smith Motivated vs. conventional systematicity: Implications for language learning and the structure of the lexicon		
16:15	Adrien Meguerditchian, Marie Plouvier, Jill D. Pruett, William D. Hopkins From hand to mouth: Fine precision grip during mutual grooming elicited wide lip movements in wild Fongoli chimpanzees			Hannah Little, Bart de Boer The effect of size of articulation space on the emergence of combinatorial structure			Remi van Trijp Fitness landscapes in cultural language evolution: A case study on German definite articles			Luke McCrohon Culture vs. Biology: Adversarial coevolution during the evolution of the lexicon		
16:45	Coffee Break & Book Launch Jim Hurford: The origins of language. A slim guide											
17:15	Chair: Jim Hurford			Chair: Richard A. Blythe			Chair: Remi van Trijp			Chair: Luke McCrohon		
	Casey Lister, Nicolas Fay, T. Mark Ellison, Susan Goldin-Meadow Getting communication started: The superiority of gesture over non-linguistic vocalization			Vanessa Ferdinand, Simon Kirby, Kenny Smith Regularization in language evolution: On the joint contribution of domain-specific biases and domain-general frequency learning			Niklas Johansson, Gerd Carling, Arthur Holmer, Joost Van de Weijer, Jordan Zlatev Tracing language primitives: Phonosemantic realization of fundamental oppositional pairs			Catriona Silvey Words arise as predictive cues linking utterance comprehension and world knowledge		
17:45	David Leavens, Jared Tagliatela, William D. Hopkins From grasping to grooming to gossip			Raquel G. Alhama, Remko Scha, Willem Zuidema Rule learning in humans and animals			Stefan Hartmann A constructionist approach to the evolution of morphological complexity			Pierce Edminston, Gary Lupyan Words as unmotivated cues		
18:15	Lari Vainio, Mikko Tiiainen, Kaisa Tiippana, Martti Vainio On the relations between articulatory gestures and manual grasping			Jiani Chen, Naomi Jansen, Carel Ten Cate Zebra finches can learn to recognize affixations			Ramon Ferrer-i-Cancho Why might be SOV initially preferred and then lost or recovered? A theoretical framework			Monica Tamariz, Simon Kirby Culture: Copying, compression and conventionality		
18:45	Business Meeting (Room A)											



# Wednesday, 16 April 2014

	A	B	C	D	
09:00		<p>Bill Croft</p> <p><i>Evolutionary linguistics and the evolution of language</i></p> <p>Chair: Melanie Malzahn</p>			09:00
10:00		Coffee Break			10:00
10:30	<p>Chair: Dan Dediou</p> <p>Anneliese Kuhle</p> <p><i>Patterns of variation in language and tool use: An ethnographic and comparative approach</i></p>	<p>Chair: Carel Ten Cate</p> <p>Michael Franke</p> <p><i>Creative compositionality from reinforcement learning in signaling games</i></p>	<p>Chair: Hannah Cornish</p> <p>Mieko Ogura, Takumi Inakazu, William S-Y. Wang</p> <p><i>Evolution of tense and aspect</i></p>	<p>Chair: Jim Hurford</p> <p>Marieke Schouwstra</p> <p><i>About time: Semantic structure in emerging language</i></p>	10:30
11:00	<p>Jean-Louis Dessalles</p> <p><i>The role of the human political singularity in the emergence of language</i></p>	<p>Yau Wai Lam, Tao Gong</p> <p><i>Grasping compositional pattern in an artificial language by Chinese participants</i></p>	<p>Stefan Hartmann, Michael Pleyer</p> <p><i>A matter of perspective: Viewpoint phenomena in the evolution of grammar</i></p>	<p>Bodo Winter, Graham Thompson, Matthias Urban</p> <p><i>Cognitive factors motivating the evolution of word meanings: Evidence from corpora, behavioral data and encyclopedic network structure</i></p>	11:00
11:30	<p>Martin Edwardes</p> <p><i>What were we talking about? Exchanging social models as a route to language</i></p>	<p>Bill Thompson, Catriona Silvey, Simon Kirby, Kenny Smith</p> <p><i>The effect of communication on category structure</i></p>	<p>Katrien Beuls</p> <p><i>Spirals in language evolution</i></p>	<p>Pieter Wellens</p> <p><i>Adaptive strategies in the origins of semantic categories</i></p>	11:30
12:00	<p>Chris Knight, Jerome Lewis</p> <p><i>Hunter-gatherer egalitarianism enabled grammar to evolve</i></p>	<p>Dimitar Kazakov, Mark Bartlett</p> <p><i>Evolutionary paths to compositional language</i></p>	<p>Dekai Wu</p> <p><i>The magic number 4: Evolutionary pressures on semantic frame structure</i></p>	<p>Michael Spranger</p> <p><i>Incremental recruitment language - A formalism for evolutionary semantics</i></p>	12:00
12:30	Poster Session & Lunch				12:30

A	B	C	D	
14:30	<p style="text-align: center;">Joan Silk  <i>Negotiating social bonds in baboons: The role of kinship, reciprocity, and good intentions</i>            Chair: Erica Cartmill</p>			14:30
15:45	Chair: Chris Knight  Camilla Power <i>Female philopatry and egalitarianism as conditions for the emergence of intersubjectivity</i>	Chair: Bill Croft  Caroline Kamps, Vanessa Ferdinand, Simon Kirby <i>The origins of regularity in language: Why coordination matters</i>	Chair: Richard Moore  Michael Wilson, T. Mark Ellison, Nicolas Fay <i>Semantic crowding triggers systematically structured sign systems</i>	15:45
16:15	Dan Dediu, Stephen Levinson <i>Language and speech are old: A review of the evidence and consequences for modern linguistic diversity</i>	James Winters, Simon Kirby, Kenny Smith <i>Experimentally investigating the role of context in the structuring of the linguistic system over cultural evolution</i>	Dominic Mitchell, Joanna Bryson, Gordon Ingram <i>On the reliability of unreliable information: Gossip as cultural memory</i>	16:15
16:45	Coffee Break			16:45
17:15	Andrey Vyshedskiy <i>The mental synthesis theory predicts the dual origin of human language</i>	Gregory Mills <i>Establishing a communication system: Miscommunication drives abstraction</i>	Anne Schel, Zarin Machanda, Simon Townsend, Klaus Zuberbuhler, Katie Slocombe <i>Chimpanzee food grunts are directed at specific individuals: Precursors for triadic communication?</i>	17:15
17:45	Sean Roberts, Dan Dediu, Stephen Levinson <i>Detecting differences between the languages of Neanderthals and modern humans</i>	Jon Carr, Hannah Cornish, Simon Kirby <i>The cumulative cultural evolution of category structure in an infinite meaning space</i>	Bradley Walker, Nicolas Fay, T. Mark Ellison <i>Frequency-dependent bias affects the spread of human communication systems</i>	17:45
19:00	Conference Dinner			19:00

# Thursday, 17 April 2014

A	B	C	D		
09:00	<p>Michael Arbib  <i>Evolving the Language-Ready Brain: The Case for a Comparative Neuroprimatology</i>            Chair: Jim Hurford</p>			09:00	
10:00	Coffee Break			10:00	
10:30	<p>Chair: Jean-Louis Dessalles</p> <p>Paul Vogt, J. Douglas Mastin  <i>Social word learning strategies in different cultures</i></p>	<p>Chair: Michael Arbib</p> <p>Antonio Benítez-Burraco, Cedric Boeckx  <i>Language disorders as windows on language evolution</i></p>	<p>Chair: Luc Steels</p> <p>Kevin Stadler, Richard A. Blythe, Kenny Smith, Simon Kirby  <i>Momentum-based language change: A non-adaptive model of directional selection</i></p>	<p>Chair: Przemysław Zywczyński</p> <p>Kate Arnold, Klaus Zuberbühler  <i>Primate pragmatics: Putty-Nosed monkeys use contextual information to disambiguate the cause of alarm calls</i></p>	10:30
11:00	<p>Whitney Tabor, Russell Richie, Harry Dankowicz  <i>Language emergence in the laboratory: A method suitable to dynamical systems analysis</i></p>	<p>Glen Green, Caroline Green  <i>Language development in children with laryngeal abnormalities: identities prerequisites for verbal protolanguage</i></p>	<p>Martina Pugliese, Vittorio Loreto, Christine Cuskley, Claudio Castellano, Francesca Colatori, Francesca Tria  <i>The role of interaction in regularization</i></p>	<p>Thomas Scott-Phillips, Max Burton-Chellew, Stuart West  <i>Handicaps are unnecessary for human communication</i></p>	11:00
11:30	<p>Mark Dingemans, Francisco Torreira, N.J. Enfield  <i>Conversational infrastructure and the convergent evolution of linguistic items</i></p>	<p>Chris Code  <i>The dissolution of language &amp; speech following brain damage</i></p>	<p>Jerome Michaud  <i>On the emergence of bilingualism in a competition between social conformism and language simplification</i></p>	<p>Richard Moore  <i>Is Gricean communication necessarily cooperative?</i></p>	11:30
12:00	<p>Florenca Reali, Nick Chater, Morten Christiansen  <i>The paradox of linguistic complexity and community size</i></p>	<p>Cedric Boeckx, Antonio Benítez-Burraco  <i>A proposal concerning the gene network that regulates the shape of the language-ready brain</i></p>	<p>T. Mark Ellison, Nicolas Fay, Monica Tamaritz, Dale Barr  <i>Representations are selected: They don't just drift</i></p>	<p>Katie Slocombe, Simon Townsend, Zarin Machanda, Klaus Zuberbühler, Anne Schel  <i>Intentionality in the production of Chimpanzee alarm calls</i></p>	12:00
12:30	<p>Kenny Smith  <i>Cultural evolution: implications for understanding the human language faculty and its evolution</i>            Chair: Nikolaus Ritt</p>			12:30	
13:30	<p>Closing Session            Nikolaus Ritt</p>			13:30	

# PLENARY ABSTRACTS

## WHAT I HAVE LEARNED ABOUT LANGUAGE EVOLUTION IN 20 YEARS, AND QUESTIONS THAT I HOPE TO SEE ANSWERED IN THE NEXT 20

JAMES R. HURFORD

Twenty years ago, I knew virtually nothing about language evolution. Coming from linguistics, and influenced by Pinker and Bloom's 1990 paper, I assumed that the story would be of the natural selection of a number of abstract principles of an innate universal grammar (UG). Since then,

linguists have abandoned the idea of such a rich collection of abstract principles, which makes the steps in language evolution easier to envisage. The remaining operation, Merge, is easier to accommodate to the complexities of languages if one assumes a Construction Grammar approach, according to which humans are capable of massive storage of a range of more or less concrete constructions, associated with semantic and pragmatic information. Merge operates on constructions. Over time, the constructions got more complex and abstract by cultural processes of grammaticalization, and the human language capacity co-evolved for faster processing of more complex structures.

In the next twenty years, I hope that progress will be made in documenting the full grammatical/semantic/pragmatic complexities of minor languages, before they die out. There will further progress in genetics, with the discovery of more language-relevant genes and their complex interactions. A single crucial genetic mutation somehow enabling language will not be found. In neuroscience, there will be continued mapping of the complex interdependencies of various parts of language and other human capacities. This will involve study of both normal and pathological cases. Finally, I would like to see a long-range evolutionary study of mechanisms of attention, from origins in creatures only capable of registering a single feature of their environment, through to humans who are capable of isolating objects and simultaneously tracking up to about four of them.

## LANGUAGE ORIGINS: NOT JUST EVOLUTION BUT REVOLUTION

CHRIS KNIGHT

When EVOLANG was first formed in the mid-1990s, archaeologists widely attributed the emergence of human language and symbolic culture to a revolution – 'the human revolution', as they called it. The theory was that although modern humans evolved in Africa some 200,000 years ago, they were at this stage only anatomically modern, accomplishing the transition to behavioural and cognitive modernity only on arriving in Europe to spark the Upper Palaeolithic 'symbolic explosion' some 40,000 years ago. Since then, archaeologists have been abandoning this theory in droves, some of the most influential titles being 'Re-thinking the human revolution' 'The revolution that wasn't' and 'Down with the revolution.' There can be no doubt that the earlier theory was

incorrect – archaeologists now have abundant evidence for symbolic ritual and other complex behaviour stretching far back into the African Middle Stone Age, at least 100,000 years before the Upper Palaeolithic and probably associated with the speciation of *Homo sapiens*. There is therefore no longer a 'sapien paradox' – a disconnect between 'anatomical' and 'behavioural' modernity. But how far should the pendulum be allowed to swing back toward Darwinian gradualism? Linguists know that language is revolutionary – a mode of cognition and communication utterly without precedent in the animal world. The question is not whether there was a revolution, but what kind of revolution it was.

## RECIPROCITY, THIRD-PARTY PUNISHMENT AND THE EVOLUTION OF HUMAN LANGUAGE

ROBERT BOYD & SARAH MATTHEWS

The communication systems of most mammals are based on costly, self-verifying signals. In contrast, human language uses low cost signals that can be recombined to generate an unlimited range of messages making it vulnerable to deceptive signals. It seems likely that repeated interactions coupled with the sanctioning of liars controls deception, but there has been little explicit modeling. Here we study the repeated Sir Philip Sydney

Game as a model of the evolution of low cost signaling. We show that when lies are easily detected reciprocity works well to maintain honest communication. However, when lies are hard to detect, the conditions under which reciprocity can maintain honest communication are limited. Adding third-party monitoring and punishment substantially increases the range of parameters allowing the evolution of honest signaling.

# EVOLUTIONARY LINGUISTICS AND THE EVOLUTION OF LANGUAGE

BILL CROFT

Evolutionary linguistics is defined here as the employment of evolutionary theories to understand language change (e.g. Croft 2000; Mufwene 2001, 2005, 2008; Ritt 2004). Contemporary processes of language change differ in a number of crucial ways from the evolutionary origins of language in humans (or hominins). Language change research is focused on changes in linguistic units, whereas language origins research focuses at least as much on the biological evolution of human cognitive and social cognitive capacities. Language change research is also blessed with much direct data, while language origins research must rely on fragmentary indirect data, such as fossil and archaeological remains, and comparison to primate behavior, nonhuman species communication, and child language development. Is it possible for results drawn from the rich direct data of language change to provide insights into a prehistoric process under very different biological, cognitive and social conditions? I will explore two such avenues for fruitful interaction between language change and language origins research: an evolutionary framework developed to explain language change, and an understanding of language as a complex adaptive system.

The evolutionary framework for language change presented in Croft (2000, 2006) is based on Hull's (1988, 2001) General Analysis of Selection (GAS), an abstract theory of change by replication that Hull applies to biological evolution and to conceptual change in science, a cultural transmission process like language change. Evolutionary change is a two step process: generation of variation, and selection of variants. Central to GAS is the positing of two distinct roles in the evolutionary process: the replicator and the interactor. I argue that linguistic units - tokens of language use, which I called "linguemes" - are the replicators in language change, and speakers function as interactors whose interaction with their social and communicative environment lead to selection of linguemes, that is, language change. The recognition of the two steps of the evolutionary process and the two

distinct roles has a profound impact on understanding language change. Generation of variation involves different mechanisms of change than selection. Replication of linguemes occurs at a much faster rate than human biological generations. The relationship between interactors and replicators allows us to define different types of social selection mechanisms. Recent research on modeling language change suggests that mechanisms and processes specific to replicators are necessary for understanding how languages change; reliance on interactor (speaker) mechanisms and processes alone for lingueme selection are insufficient. These results suggest that independent processes associated with replicators probably played a role in the evolution of language from the earliest emergence of those replicators (that is, linguistic units).

GAS has been challenged as a theory of biological evolution, because its instantiation in biology by Hull is largely (though not completely) neo-Darwinian. Developmental Systems Theory (DST; Oyama 2000; Griffiths and Gray 1994, 2001) argues against a gene-centric view of biological evolution and argues for viewing evolution as applying to entire developmental systems. GAS and DST are not as incompatible as their adherents claim; DST does suggest a way to address certain problems in my application of GAS to language change (see Ritt 2004). Replicators and interactors must be treated as parts of a complex adaptive system (CAS) for achieving joint action (Clark 1996; Croft 2000, 2009; Tomasello 1999, 2008). This suggests that the evolutionary origins of language have at least as much to do with the evolution of social cognitive capacity, as Tomasello (2008) argues, as with cognitive capacities of syntactic recombination, memory storage etc. I conclude by considering the implications of recent work on the evolution of cooperation and morality by Tomasello and colleagues (Tomasello 2011; Tomasello et al. 2012; Tomasello and Vaish 2013) for the evolution of language.

## References

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# NEGOTIATING SOCIAL BONDS IN BABOONS: THE ROLE OF KINSHIP, RECIPROCITY, AND GOOD INTENTIONS

JOAN B. SILK

Sociality has evolved in many animal taxa, and presumably reflects a balance between the benefits of living in groups (such as lower risk of predation) and costs (higher rates of competition over resources). Selection is expected to favor morphological traits and behavioral strategies that enable individuals to increase the benefit/cost ratio. The formation of close social bonds among female baboons may be favored as a means of increasing b/c ratios. In some primate species, strong affiliative ties are linked to coalitionary success and the ability to acquire high ranking positions in the dominance hierarchy. Data from two different long-term studies of baboons show that females form strong, equitable, supportive, tolerant, & stable social relationships with selected partners, particularly close maternal kin and peers. Close social bonds seem to help female baboons to cope with various

sources of stress. In addition, females with close social bonds have higher survival among their offspring and live longer themselves than other females. These findings suggest that close social bonds may provide a means for females to increase the b/c ratio of group life. However, to form these bonds, females must overcome barriers that keep them apart – the risk of conflict. Work on baboons suggests that baboons use grunts to communicate peaceful intentions. That is, grunts provide a reliable predictive signal of nonaggressive behavior. Grunts facilitate proximity and affiliation, reconcile aggressive conflicts, and relieve anxiety. Thus, these signals may provide an important link between the benefits of social bonds and the risks inherent in interacting with potential competitors.

## EVOLVING THE LANGUAGE-READY BRAIN: THE CASE FOR A COMPARATIVE NEUROPRIMATOLOGY

MICHAEL ARBIB

Building on the hypotheses of *How the Brain Got Language* (Oxford University Press, 2012), the talk examines three issues: the relevance of macaque data to claims about the relative roles of voice and hand on the early path to language; the interaction between modeling and brain scanning of macaques, chimpanzees

and humans in hypotheses about gestural communication in the last common ancestor of chimpanzees and humans; and ways in which construction grammar should develop to make fuller contact with neurolinguistics in defining what neural capacities actually evolved to support human language.

## CULTURAL EVOLUTION: IMPLICATIONS FOR UNDERSTANDING THE HUMAN LANGUAGE FACULTY AND ITS EVOLUTION

KENNY SMITH

Uniquely among the communication systems of the natural world, human language exhibits combinatorial and compositional structure. Structure in language gives us massive expressive power: at least at a first approximation, anything you can think you can express in language. No other species has a communication system which provides this expressive power. Why do humans?

One explanation for the presence of structure in human language appeals to biological evolution under natural selection (Pinker & Bloom 1990; Pinker 2010): language is fundamentally a biological trait, underpinned by some innate language-specific apparatus. The ability to communicate propositions which a structured language provides is adaptive, since it facilitates social interaction and social coordination and ultimately increases fitness; therefore, structure in language represents a biological adaptation to a uniquely socially-interdependent human ecology. A second account explains structure in language as a consequence of cultural, rather than biological, evolution (Kirby, Smith & Brighton 2004; Christiansen & Chater 2008). Rather than language structure reflecting an evolved domain-specific learning apparatus,

languages themselves have adapted over repeated episodes of learning and production in response to weaker, domain-general constraints arising from the biases of language learners.

In this talk I'll briefly review some of the evidence (from simulation, mathematical and experimental models of cultural transmission) which show that structure in language can be explained as a consequence of cumulative cultural evolution, and discuss the conditions under which this occurs (for recent reviews see e.g. Smith 2014; Kirby, Griffiths & Smith, forthcoming). I'll then explore what these findings mean for our understanding of the biological basis of human language. Co-evolutionary modelling shows that constraints on language learning are adaptive and can evolve rapidly, but these adaptations only weakly constrain language learning, rather than hard-wiring particular design features into language learners (Smith & Kirby 2008; Smith, Thompson & Kirby, submitted). Secondly, given that this modelling work seems to predict that structure should arise from cultural transmission under fairly general conditions, I'll review recent studies on cultural evolution of structure in non-humans (Fehér, Wang, Saar, Mitra & Tchernichovski, 2009; Claidière, Smith, Kirby &

Fagot, submitted). Based on these various sources of evidence, I conclude that language is a product of gene-culture co-evolution, supported by a suite of domain-general capacities, which, if specialised for language at all, are nonetheless highly flexible. We

have structured language because we are social, but rather than language being a biological adaptation to this social ecology, it is primarily a cultural adaptation arising from our propensity to learn socially.

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# LIST OF POSTERS

Diachronic processes in language as signaling under conflicting interests	Christopher Ahern, Robin Clark
The Putty-Nosed monkey “Pyow-Hack” sequence: Compositional or an idiomatic expression?	Kate Arnold, Klaus Zuberbuhler
The evolution of human cognitive systems: Comparative approaches to language and music	Rie Asano, Uwe Seifert
Syntactic development in phenotypic space	Lluís Barcelo-Coblin, Antoni Gomila Benejam
Finding the underpinnings: The last quarter century	Ted Bayne
Speaking of language and evolution	Christina Behme
The emergence of combinatoriality in the cultural transmission of pop songs in a children’s gameshow	Jon Carr
The evolution of polysemy in child language	Bernardino Casas, Neus Catala, Ramon Ferrer-i-Cancho, Jaume Baixeries
Vocal communication in Gibbons	Esther Clarke, Klaus Zuberbuhler, Ulrich Reichard
Linguistic animals: Understanding language through a comparative approach	Piera Filippi
A revival of the Homo Loquens as a builder of labeled structures	Tomas Goucha, Emiliano Zaccarella, Angela D. Friederici
Comparative method for determining lexical stress in nonsense words	Marisa Hoeschele, W. Tecumseh Fitch
Formant tuning technique in vocalizations of non-human primates	Hiroki Koda, Isao Tokuda, Chisako Oyakawa, Toshikuni Nihonmatus, Masumi Wakita, Nobuo Masataka, Takeshi Nishimura
Bow-and-arrow technology: Mapping human cognition and perhaps language evolution	Alexandra Kratschmer, Miriam Haidle, Marilize Lombard
Social structure from language games	Dorota Lipowska, Adam Lipowski
Pronominal characteristics of an evolved language: Is brevity an evolutionary advantage?	Caroline Lyon
Broadcasting to the enemy: Deception as a solution in evolution of language	Ludovít Malinovsky
The nature of language in interaction	Ashley Micklos
Dogs need embodied directions: Children but not dogs possess skills needed for communicating with absent interlocutors	Richard Moore, Bettina Mueller, Juliane Kaminski, Michael Tomasello
Homo Praedicans	Albert Naccache
Orofacial gestures in language evolution: The auditory feedback hypothesis	Sylwester Orzechowski, Sławomir Wacewics, Przemysław Zywczyński
Iconicity and ape gesture	Marcus Perlman, Nathaniel Clark, Joanne Tanner
Constructions, construal and cooperation in the evolution of language	Michael Pleyer, Nicolas Lindner
Social interaction influences the evolution of cognitive biases for language	Sean Roberts, Bill Thompson, Kenny Smith
Accelerated regions and the language faculty	Carmen Saldana
The cognitive underpinnings of metaphor as the driving force of language evolution	Andrew Smith, Stefan Hofler
Linearisation of adjectives: The grammatical face on perceptual/conceptual biases?	Jakob M. Steixner
The evolutionary relations between music and language: A cross-musical idiom approach from the comparative perspective of language and music	Xiaoxia Sun, Uwe Seifert
Organization of language: Evaluation of modularity theories	Adam Szalontai, Katalin Csiszar
Supporting evidence for language polygenesis from Neanderthal-Human interbreeding	Pui Yiu Szeto
Language emergence in the laboratory: A method suitable to dynamical systems analysis	Whitney Tabor, Russell Richie, Harry Dankowicz
Symbol extension and meaning generation in cultural evolution for displaced communication	Kaori Tamura, Takashi Hashimoto
Model fitting and prediction for language evolution	Bill Thompson, Vanessa Ferdinand
Learning speech-like signals from a skewed continuous distribution	Sabine van der Ham, Bart de boer
Language evolved for storytelling in a super-fast evolution	Till Nikolaus von Heiseler
Speech is characterized by robustness, neutrality and evolvability	Bodo Winter



# SOCIAL PROGRAMME

## Reception

- › City Hall – Rathaus  
Rathausplatz 1, 1010 Vienna
- › Monday, 14 April, 7.30 PM
- › Meeting point: 7.10 PM, in front of the Department of English
- › Contact person: Lotti Viola  
(sarolta.viola@univie.ac.at / +43 669 12680652)

## Conference Dinner

- › Heuriger Mayer am Pfarrplatz  
Pfarrplatz 2, 1190 Wien
- › Wednesday, 16 April, 7.30 PM
- › Meeting point: 6.50 PM, in front of the Department of English
- › Contact person: Lotti Viola  
(sarolta.viola@univie.ac.at / +43 699 12680652)

## Thursday activities

- › **City walk**
  - › Thursday, 17 April, 3 PM
  - › Meeting point: in front of the Department of English
  - › Contact person: Lotti Viola  
sarolta.viola@univie.ac.at +43 699 12680652
- › **Schönbrunn Zoo**
  - › Old Apehouse – Schönbrunn Zoo  
Maxingstraße 13b, 1130 Wien
  - › Thursday, 17 April, 3.30 PM
  - › Meeting point: 2.30 PM, in front of the Department of English
  - › Contact person: Maria Valencia  
maria.valencia@univie.ac.at / +43 664 9238924
  - › **You'll need a ticket for public transport!**
- › **Leopold Museum**
  - › Museumsquartier  
Museumsplatz 1, 1070 Wien
  - › Thursday, 17 April, 3.30 PM
  - › Meeting point: 2.45 PM, in front of the Department of English
  - › Contact person: Eva Zehentner  
eva.zehentner@univie.ac.at / +43 680 2388734
  - › **You'll need a ticket for public transport!**
- › **Wienerwald walking tour**
  - › through the Wienerwald
  - › Thursday, 17 April
  - › Meeting point: 3.15 PM, in front of the Department of English
  - › Contact person: Nikolaus Ritt  
nikolaus.ritt@univie.ac.at / +43 650 3270160
  - › **You'll need a ticket for public transport!**

# RESTAURANTS & LUNCH

If you have a **lunch voucher**, please go to “Gangl Bierheuriger” in Hof 1. Otherwise, these options are close by:

1. **Ambulanz**  
On campus (Hof 1)  
Traditional Austrian food
2. **Unibräu**  
On campus (Hof 1)  
Traditional Austrian food
3. **Café Salettl**  
On campus (Hof 1)  
Snacks, coffees
4. **BILLA grocery store**  
On campus (Hof 1)  
Sandwiches, salads and a deli counter
5. **BILLA Box**  
Garnisongasse 18, 1090  
Corner shop: a range of lunch items, e.g. sandwiches, salads, baked goods
6. **Restaurant Königshofer**  
Beethovengasse 2, 1090  
Traditional Austrian food, with a modern touch; lunch menus
7. **Albert's café.lounge**  
Garnisongasse 14-16 and Schwarzspanierstraße 13, 1090 (two entrances)  
International food, lunch specials
8. **Diana**  
Schwarzspanierstr. 15, 1090  
Pizzas and Italian food
9. **Weltcafé**  
Schwarzspanierstr. 15, 1090  
International food, soups, bread and salads; 100% fair trade and organic
10. **Hayaci**  
Schwarzspanierstr. 22, 1090  
Japanese food
11. **Die Döneria**  
Schwarzspanierstr. 22, 1090  
Döner kebab shop; offers meat as well as falafel sandwiches
12. **Culinarium**  
Lackierergasse 9, 1090  
General Asian food, all you can eat buffet
13. **Ethiopian Restaurant**  
Währingerstr. 15, 1090  
Authentic Ethiopian dishes (NOT open on MONDAY)
14. **Hotel Regina/Restaurant Roth**  
Währinger Strasse 1, 1090  
Austrian and international food, lunch specials
15. **Zwillingsgwölb**  
Universitätsstraße 5, 1010  
Austrian food, lunch specials
16. **Edison**  
Alserstraße 9, 1080  
International food, lunch specials
17. **Café Motiv**  
Universitätsstraße 5, 1090  
Traditional Viennese café
18. **Cafe Maximilian**  
Universitätsring 4, 1010  
A typical Viennese Café
19. **Pie Factory**  
Spitalgasse 15, 1090  
British pies, savory and sweet; with the best dessert pies in Vienna
20. **Gasthaus zur böhmischen Kuchl**  
Schlüsselgasse 18, 1080  
Traditional Czech food



# 10<sup>TH</sup> EVOLANG BIRTHDAY PARTY

## ORGANIZED BY THE EVOLUTIONARY LINGUISTICS ASSOCIATION (ELA)

To celebrate the 10th birthday of Evolang, the Evolutionary Linguistics Association (ELA) is organising a SMASHING BIRTHDAY PARTY which will be held on Tuesday evening April 15 at Replugged. Doors open at 8:30 pm. There is free entry (with your badge) and a free drink for all Evolang participants.

At 9:00 pm, a program of LIVE MUSIC starts. A band with iterated learners from Edinburgh called ACACIA EMERGENCY will bring songs about members of the language evolution community. This is followed by a TALKING HEADS cover band from

Brussels with a surprising lead singer. This band celebrates the Talking Heads Experiment which was the first large-scale experiment in synthetic language evolution carried out 15 years ago.

At intermission ELA is going to give their “Life Time Achievement Award” to two distinguished language evolution scientists. Past recipients of the award were Bernd Heine and Bill Croft.

The party ends at 11.00 pm

Don't miss this exciting event!

### Address and public transport

#### Replugged

Lerchenfelderstraße 23  
1070 Vienna

15-20 minutes walk from the campus, or alternatively:

Tram 46 (Strozzigasse)

Bus 13A (Piaristengasse)

Underground U2 and U3 (Volkstheater)



# PRACTICAL INFORMATION

## Technical details

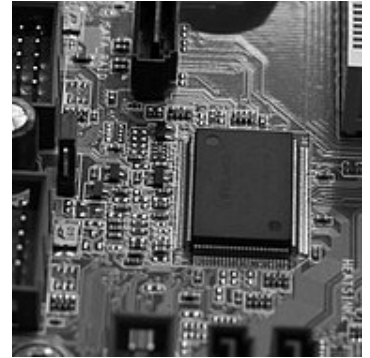
Each room is equipped with a PC, a projector and an audio system. You can use your own laptop, but copying your presentation to the pre-installed PC might be a more robust option.

**Installed software:** Windows 7, Office 2010+, VLC 2.1.0+, Adobe Reader

**Projector connection:** VGA (if using a Mac, please make sure to bring an appropriate adapter with you)

**Audio-system connection:** 3.5mm stereo plug

WiFi will be available in all lecture rooms (vouchers will be distributed; alternatively you can use your eduroam account).



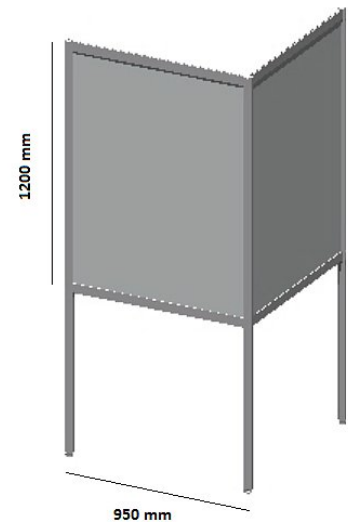
## Posters

The poster session will take place during the lunch break on Wednesday, 16 April, from 12:30 until 14:30 in the foyer of the plenary hall. There will be a buffet, which is free for all participants.

Posters should **not be much larger than DIN A0**, portrait (i.e. 1189mm high and 841mm wide). The poster stands are 1200mm high and 950mm wide, see figure on the right.

Presenters are advised to hang-up their posters during the coffee break from 10:00 to 10:30. The poster stands will be removed at 17:30.

For requests, please us.



## Handouts

If you are planning to distribute handouts, please keep in mind that each lecture room accommodates up to approximately 50 to 75 participants.

Handouts can be printed at a copy shop, which is located in walking distance to the conference venue. See [www.copystudio.net](http://www.copystudio.net).

Alternatively, you can print and copy handouts at the university copy shop Facultas, which is located in Courtyard/Hof 1 at the university campus.

See [www.facultas.at/standorte/wien/campus](http://www.facultas.at/standorte/wien/campus).

