Contents

Preface v
Panel of Reviewers vii

Part I: Papers
Is Grammaticalization Glossogenetic? Giorgos P. Argyropoulos 3
Mythology and the Evolution of Language Alan Barnard 11
Symmetrical Artefacts, Internal Reward and Language Precursors in the Head Brian Bayly 19
Linguistic Adaptation at Work? The Change of Word Order and Case System from Latin to the Romance Languages Christian Bentz, Morten H. Christiansen 26
Invariants and Variation in Biology and Language Evolution Robert C. Berwick 34
From Neurons to Signs Denis Bouchard 42
Cultural Ratcheting Results Primarily from Semantic Compression Joanna J. Bryson 50
Iterated Learning of Multiple Languages from Multiple Teachers David Burkett, Thomas L. Griffiths 58
On Protolinguistic ‘Fossils’: Subject-Verb vs. Verb-Subject Structures Eugenia Casielles, Ljiljana Progovac 66
Numerosity, Abstraction, and the Emergence of Metaphor in Language Frederick L. Coolidge, Thomas Wynn 74
Self-Organization and Emergence in Language, a Case Study for Color Joachim De Beule, Joris Bleys 83
Prosodic Features in Northern Muriquis Vocalizations Didier Demolin, César Ades, Fransisco D.C. Mendes 91
Have You Anything Unexpected to Say? The Human Propensity to Communicate Surprise and Its Role in the Emergence of Language
Jean-Louis Dessalles

The Innateness of Language: a View from Genetics
Karl C. Diller, Rebecca L. Cann

A New Theory of Language and its Implications for the Question of Evolution
Daniel Dor, Eva Jablonka

Horizontal Transmission of Call Features in Killer Whale Dialects
Olga A. Filatova, Erich Hoyt, Alexandr M. Burdin

Information and Influence in Animal Communication
Julia Fischer, Kurt Hammerschmidt

A Molecular Genetic Framework for Testing Hypotheses about Language Evolution
W. Tecumseh Fitch, Michael A. Arbib, Merlin Donald

Emergence of Aktionsarten: The First Step towards Aspect
Kateryna Gerasymova

Talking About Birds, Bees, and Primates Too. Implications for Language Evolution
Kathleen R. Gibson

The Effect of Social Popularities on Linguistic Categorization
Tao Gong

Exploring the Roles of Major Forms of Cultural Transmission in Language Evolution
Tao Gong

How To Identify the Units, Levels and Mechanisms of Language Evolution
Nathalie Gontier

Linguistic Analogy for Creativity and the Origin of Language
Takashi Hashimoto, Masaya Nakatsuka, Takeshi Konno

Applications of the Price Equation to Language Evolution
Gerhard Jäger

Interplay between Language, Navigation and Kin Selection
Dimitar Kazakov

Children Learn Sound Symbolic Words Better: Evolutionary Vestige of Sound Symbolic Protolanguage
Sotaro Kita, Katerina Kantartzis, Mutsumi Imai
A Sensorimotor Characterisation of Syntax, and its Implications for Models of Language Evolution 214
Alistair Knott

Why Robots? 222
Martin Loetzsch, Michael Spranger

Linguistic Arguments Probably Antedate Linguistic Predicates 230
Erkki Luuk

Towards a Simulation Model of Dialogical Alignment 238
Alexander Mehler, Petra Weiß, Peter Menke, Andy Lücking

Evolution of Grammatical Forms 246
Mieko Ogura, William S-Y Wang

The Silence of the Stones: On the Archaeological Record for (Neandertal) Language 254
WH Roebroeks

Minimum Description Length and Generalization in the Evolution of Language 263
Giancarlo Schrementi, Michael Gasser

Thoughts on Evolution of Language from the Point of View of Brain Neuroanatomy and Development, and Object-Oriented Programming 271
H. Lee Seldon

The Evolution of Segmentation and Sequencing: Evidence from Homesign and Nicaraguan Sign Language 279
Ann Senghas, Asli Özyürek, Susan Goldin-Meadow

Exploring the Nature of a Systematicity Bias: an Experimental Study 289
Andrew D.M. Smith, Barbora Skarabela, Mónica Tamariz

Open-Ended Semantics Co-Evolving with Spatial Language 297
Michael Spranger, Simon Paw, Martin Loetzsch

Lost in a Linguistic Jungle: What's in the Language Faculty? 305
Maggie Tallerman

The Role of Practice and Literacy in the Evolution of Linguistic Structure 313
Mónica Tamariz, J. Erin Brown, Keelin M. Murray

Acquisition Preferences for Negative Concord 321
Jacqueline van Kampen

The Predicability Tree. How, and Why? 329
Robert van Rooij
Strategy Competition in the Evolution of Pronouns: A Case-Study of Spanish Leismo, Laismo and Loismo

Remi van Trijp

336

Priming Through Constructional Dependencies: A Case Study in Fluid Construction Grammar

Pieter Wellens, Joachim De Beule

344

The Moving Target Argument and the Speed of Evolution

Bodo Winter

352

Part II: Abstracts

What is Special About the Language Faculty, and How Did It Get That Way?

Stephen R. Anderson

363

On the Origin of Universal Categorization Patterns: An In-Silica Experiment

Andrea Baronchelli, Tao Gong, Vittorio Loreto, Andrea Puglisi

365

Coordination of Language Strategies based on Communicative Fitness

Joris Bleyts

367

Samplers, Maximisers and the Cultural Evolutionary Dynamics of Language

Richard A. Blythe

369

Acoustic Variability in Nonhuman Primates: Individuality and Social Context

Hélène Bouchet, Catherine Blois-Heulin, Alban Lemasson

371

Contexts of Language Diversity

Ingar Brinck

373

Coordinated Multi-Modal Expression and Embodied Meaning in the Emergence of Symbolic Communication

J. Erin Brown

375

Do Ape Gestures Have Specific Meanings? Shifting the Focus from Flexibility to Semanticity

Erica A. Cartmill, Richard W. Byrne

377

Brains, Genes and Language Evolution

Morten H. Christiansen

379

Could Evo-devo Save Chomsky from the Evolutionary Paradox?

Hangjun Chu

381
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestural Communication in Human Children: Ontogenetic Perspective in</td>
<td>383</td>
</tr>
<tr>
<td>Favour of the Gestural Hypothesis of Language Origin</td>
<td></td>
</tr>
<tr>
<td><em>Hélène Cochet, Jacques Vauclair</em></td>
<td></td>
</tr>
<tr>
<td>The Path from Point A to Point B: How Gestures Became Language in</td>
<td>385</td>
</tr>
<tr>
<td>Nicaraguan Signing</td>
<td></td>
</tr>
<tr>
<td><em>Marie Coppola, Ann Senghas</em></td>
<td></td>
</tr>
<tr>
<td>The Emergence of Structure from Sequence Memory Constraints in</td>
<td>387</td>
</tr>
<tr>
<td>Cultural Transmission</td>
<td></td>
</tr>
<tr>
<td><em>Hannah Cornish, Morten H. Christiansen, Simon Kirby</em></td>
<td></td>
</tr>
<tr>
<td>Cross-modality: Reviving Iconicity in the Evolution of Language</td>
<td>389</td>
</tr>
<tr>
<td><em>Christine Cuskley, Simon Kirby, Julia Simner</em></td>
<td></td>
</tr>
<tr>
<td>Squiggle: Large-Scale Social Emergence of Simple Symbols</td>
<td>391</td>
</tr>
<tr>
<td><em>Rick Dale, Gary Lupyan</em></td>
<td></td>
</tr>
<tr>
<td>Using Software Agents to Investigate the Interactive Origins of</td>
<td>393</td>
</tr>
<tr>
<td>Communication Systems</td>
<td></td>
</tr>
<tr>
<td><em>Pieter de Bie, Thomas Scott-Phillips, Simon Kirby, Bart Verheij</em></td>
<td></td>
</tr>
<tr>
<td>The Perceptual Effect of Air Sacs</td>
<td>395</td>
</tr>
<tr>
<td><em>Bart de Boer</em></td>
<td></td>
</tr>
<tr>
<td>The Influence of Language on Concept Formation in Artificial Agents</td>
<td>397</td>
</tr>
<tr>
<td><em>Joachim de Greeff, Frédéric Delaunay, Tony Belpaeme</em></td>
<td></td>
</tr>
<tr>
<td>Recreating Duality of Patterning in the Laboratory: A New Experimental</td>
<td>399</td>
</tr>
<tr>
<td>Paradigm for Studying Emergence of Sublexical Structure</td>
<td></td>
</tr>
<tr>
<td><em>Alex del Giudice, Simon Kirby, Carol Padden</em></td>
<td></td>
</tr>
<tr>
<td>From Hand to Mouth: An Experimental Simulation of Language Origin</td>
<td>401</td>
</tr>
<tr>
<td><em>Nicolas Fay, Stephanie Lim</em></td>
<td></td>
</tr>
<tr>
<td>Does Input Matter?: Gesture and Homesign in Nicaragua, China, Turkey,</td>
<td>403</td>
</tr>
<tr>
<td>and the USA</td>
<td></td>
</tr>
<tr>
<td><em>Molly Flaherty, Susan Goldin-Meadow</em></td>
<td></td>
</tr>
<tr>
<td>Deception, Tells, and the Evolution of Combinatorial Communication</td>
<td>405</td>
</tr>
<tr>
<td><em>Jacob G. Foster, Matthew Slayton</em></td>
<td></td>
</tr>
<tr>
<td>The Evolution of Semantics: a Meeting of Minds</td>
<td>407</td>
</tr>
<tr>
<td><em>Peter Gärdenfors</em></td>
<td></td>
</tr>
<tr>
<td>Does Deixis Precede Vocabulary Development in Language-Trained</td>
<td>411</td>
</tr>
<tr>
<td>Apes?</td>
<td></td>
</tr>
<tr>
<td><em>Kristen Gillespie-Lynch, Yunping Feng, Patricia M. Greenfield, Sue</em></td>
<td></td>
</tr>
<tr>
<td><em>Savage-Rumbaugh, Heidi Lyn, Christina Khou</em></td>
<td></td>
</tr>
</tbody>
</table>
Why Ape-Human Similarities and Learning Mechanisms Are Important: A Developmental and Cladistic Approach to the Evolution of Language

Patricia M. Greenfield

Evolving Linguistic Competence in the Absence of Performance

Marc D. Hauser

Simulating Creole and Dialect Formation

Zena Hira, Mark Bartlett

Ecological and Sexual Explanations for Larynx Lowering

Jean-Marie Hombert

Observing the Birth of Phonology

Assaf Israel, Wendy Sandler

Relaxation of Selection Can Lead to Signal Variations: An Example in Birdsong

Hiroko Kagawa, Hiroko Yamada, Ruey-Singh Lin, Kazuo Okanoya

The Co-Involvement of Hands and Mouth in Utterance Construction: Implications for Language Origins Theories.

Adam Kendon

Relationship Between Iconic Gestures and Sound Symbolic Words: Evidence for Multimodal Protolanguage

Sotaro Kita, Asli Özyürek, Shanley Allen, Tomoko Ishizuka

Cooperative Breeding Models: Implications for the Evolution of Language

Chris Knight, Camilla Power

Contributions of Aphasiology to Language Evolution Research

Andreas Kyriacou, Sverker Johansson

How Important Are Words for Conceptual Coordination?

Cyprian Laskowski, Martin Pickering

Vocal Abilities in a Group of Nonhuman Primates

Alban Lemasson, Klaus Zuberbühler

Vocal Deception From a Hunter-Gatherer Perspective

Jerome Lewis, Chris Knight

The Emergence Of Self-Organization In Language: Evidence From English Word Formation

Mark Lindsay, Mark Aronoff

Beyond Communication: Language Modulates Visual Processing

Gary Lupyan
Declaratives in Apes: Impact of Environment on Purely Informative Communications
Heidi Lyn, Patricia M. Greenfield, Sue Savage-Rumbaugh, Jamie Russell, Kristen Gillespe-Lynch, William Hopkins

Languages As Evolutionary Aggregates
Luke McCrohon

3D-Morphometric and Acoustic Analysis of Chimpanzee and Human Vocal Tracts, and Their Use in the Reconstruction of Neanderthal Vocal Tracts and Their Acoustic Potential
Sandra Martelli, Antoine Serrurier, Anna Barney, James Steele

The Cultural Evolution of Language in a World of Continuous Meanings
Cristina Matthews, Simon Kirby, Hannah Cornish

Investigation of Gestural vs Vocal Origins of Language in Nonhuman Primates: Distinguishing Comprehension and Production of Signals
Adrien Meguerditchian, Jacques Vauclair

The Interaction of Animacy and Word Order in Human Languages: A Study of Strategies in a Novel Communication Task
Irit Meir, Adi Lifshitz, Deniz Ilkbasaran, Carol Padden

On the Track of the Origin of Language: A Comparative Study Quantifying Hand Preference in Object Manipulation and Gestural Communication in Non Human Primates
Hélène Meunier, Jacques Vauclair

A Functional Transcranial Doppler Ultrasound Study of Brain Lateralisation in Stone Tool Making and Language
Georg Meyer, Sophie Wuerger, Natalie Uomini

The Evolution of Information Structure
Vanessa Micelli

A Missing Link in the Cultural Evolution of Language: Connecting Sequential Learning and Language Empirically
Jennifer Misyak, Morten H. Christiansen, J. Bruce Tomblin

Balancing Arbitrariness and Systematicity in Language Evolution
Padraic Monaghan, Morten H. Christiansen, Stanka Fitneva

Speaker-Independent Perception of Human Speech by Zebra Finches
Verena R. Ohms, Arike Gill, Caroline A.A. van Heijningen, Gabriel J.L. Beckers, Carel ten Cate

An Avian Model for Language Evolution
Irene Pepperberg
Grooming Gestures of Chimpanzees in the Wild: First Insights Into Meaning and Function
   Simone Pika, Chris Knight

The Relevance of the Developmental Stress Hypothesis to the Evolution of Language
   Anne Pritchard

Co-Evolution of Language and Social Network Structure through Cultural Transmission
   Justin Quillenan, Simon Kirby, Kenny Smith

The Origins of Sociolinguistic Marking and its Role in Language Divergence: an Experimental Study
   Gareth Roberts

Considering Language Evolution from Birdsong Development
   Kazutoshi Sasahara, Miki Takahasi, Kenta Suzuki, Olga Féher, Ofer Tchernichovski, Kazuo Okanoya

Semantic Bootstrapping of Grammar in Embodied Robots
   Yo Sato, Joe Saunders

Why Do Wild Chimpanzees Produce Food-Associated Calls: A Case of Vocal Grooming?
   Anne Schel, Klaus Zuberbühler, Katie E. Slocombe

The Importance of Exploring Non-Linguistic Functions of Human Brain Language Areas for Explaining Language Evolution
   P. Thomas Schoenemann

Language Evolution: The View from Adult Second Language Learners
   Marieke Schouwstra

The Evolution of Communication and Relevance
   Thomas Scott-Phillips

Pragmatics Not Semantics As the Basis for Clause Structure
   Thomas Scott-Phillips, James R. Hurford, Gareth Roberts, Sean Roberts

Production Of The Vowels /a, i, u/ Based on an Articulatory Model of Feeding
   Antoine Serrurier, Anna Barney

Vocal Or Gestural? What Empirical Comparative Evidence Can and Cannot Currently Tell Us about Language Evolution
   Katie E. Slocombe, Bridget Waller, Katja Liebal
Regularisation of Unpredictable Variation Through Itertated Learning 497
Kenny Smith, Elizabeth Wonnacott

Implausibly Cooperative Robots Meet Their Selfish Gene Counterparts 499
Luc Steels, Chris Knight

Identifying Selective Pressures in Language Evolution: Pólya Urns and the Price Equation 501
Mónica Tamariz

What Are The Analogues of Genotype and Phenotype in the Cultural Evolution of Language? 503
Mónica Tamariz

Acoustic Potential For Reference-Like Communication in Wild Indris 505
Valeria Torti, Viviana Sorrentino, Cristina Giacoma, Marco Gamba

Simple Rules Can Explain Discrimination of Putative Recursive Syntactic Structures by Songbirds: a Case Study on Zebra Finches 507
Caroline A.A. van Heijningen, Jos de Visser, Willem Zuidema, Carel Ten Cate

The Critical Period and Preservation of Emerged Vowel Systems 509
Tessa Verhoef, Bart de Boer

Simulations of Socio-Linguistic Change: Implications for Unidirectionality 511
Maarten Versteegh, Federico Sangati, Willem Zuidema

Lessons for Evolution from First Language Development 513
Marilyn Vihman

The Relevance of Body Language to Evolution of Language Research 515
Slawomir Wacewicz, Przemysław Żywiczyński

Vocal and Facial Productions in Nonhuman Primates: Do They Express Emotions or Language Related Treatments? 517
Catherine Wallez, Jacques Vauclair

Language As Extended Phenotype? 519
Dennis Waters

Reconsidering the Code Model of Communication for Simulations of Language Evolution 521
Matthijs Westera

Cultural Evolution of Bird Song and Genetic Degradation of Learning Bias 523
Hajime Yamauchi, Terrence W. Deacon, Kazuo Okanoya

Optimality and Teleomatic Causes in the Faculty of Language 525
Hajime Yamauchi, Kazuo Okanoya
From Body to Mouth (and Body)  
  Jordan Zlatev, Merlin Donald, Göran Sonesson  

Author Index