

Contents

1 Introduction	1
<i>Àngels Massip-Bonet, Albert Bastardas-Boada</i>	
2 Facing Complexity: Prediction vs. Adaptation	3
<i>Carlos Gershenson</i>	
1 Introduction	3
2 The Limits of Prediction	4
3 Complexity	5
4 Adaptation	9
5 Self-organization.....	9
6 Language	10
7 The Model and the Modeled	12
8 Conclusions	12
References	13
3 Sociolinguistics: Towards a Complex Ecological View.....	15
<i>Albert Bastardas-Boada</i>	
1 Introduction	15
2 The Perspective of Complexity.....	16
3 The Main Aspects of an Ecological Complexity: A Proposal	18
4 Sociolinguistic Complexity.....	20
5 The (Bio)ecological Perspective as a Metaphor	23
6 Towards a Socio-emo-cognitive Language Ecology	28
7 Time and Co-evolution in Sociolinguistics.....	32
References	34
4 Language as a Complex Adaptive System: Towards an Integrative Linguistics.....	35
<i>Àngels Massip-Bonet</i>	
1 Shared Assumptions	35
2 Main Vocabulary	36
2.1 Concept	36
2.2 Measures of Complexity	37
2.3 Systems	39
2.4 Context.....	40
2.5 Organisms	41

3	Change in Complex Systems	41
3.1	Irreversibility, Self-organization and Emergence	41
3.2	Attractors	43
3.3	On the Edge of Chaos	44
3.4	Co-adaptation	44
4	Characteristics of the Language System as a CAS (Complex Adaptive System)	44
4.1	Distributed Control and Collective Emergence	45
4.2	Intrinsic Diversity	45
4.3	Perpetual Dynamics	45
4.4	Adaptation through Factors of Amplification and Competition	46
4.5	Non-linearity and Phase Transitions	46
4.6	Sensitive Dependence on Network Structure	46
5	Language Change	46
5.1	Complexity and Change	46
5.2	Language Change and Variation	47
5.3	Parallels between Biological and Language Systems	48
6	Language Evolution and Language Change	48
7	Language and Thought: Grammar	49
8	Culture	50
9	From Genes to Culture	52
10	Brain and Culture	53
11	Theories and Time	53
11.1	Linguistic Theories and Complexity	53
11.2	Reducing Complexity	54
12	Epistemological Conclusions	55
12.1	Brain Activity and Epistemology	55
12.2	Neuronal Connections	56
13	Conclusions	57
	References	57
5	An Experientially-Based Informationless Communication	61
	<i>Òscar Vilarroya</i>	
1	Introduction	61
2	An Experientially-Based Communication	64
3	Information in Experientially-Based Communication	70
	Reference	73
6	Conversation as Emergent Function	75
	<i>Xavier Martorell</i>	
1	Introduction	75
2	Properties of Emergent Functions	75
3	Conversation Analysis	76
4	The Analytical Perspective	78
5	The Complex Perspective	79
5.1	Mind-Reading Modules	79

5.2 Social Intelligence	80
6 Who Studies Complexity?	81
7 How Are Cognitive Functions Generated?	82
8 Conclusions	83
References	84
7 Communication Situations: A Dialogic Quiz?.....	85
<i>Enric Puig-Giralt</i>	
1 Introduction	85
2 Complexity and Informal Speech	86
3 From the Historical Discourse to the Art of Advertising	87
4 A Whole Music Experience	91
References	93
8 Education, Emotion, Complexity	95
<i>Pere Darder</i>	
1 Introduction	95
2 References to the Theory of Complexity	96
3 The Emotions, Here and Now	96
4 The Characterization of Emotions	97
4.1 Emotional Education	98
4.2 School Education	98
4.3 The Emotional Competence of the Teacher	99
5 Rethinking Education	99
5.1 Integrated Education	99
5.2 Learning and Knowledge	100
5.3 Participation and Governance in Education	100
6 A Brief Final Consideration	101
References	101
9 Minds and Screens: Communication and Socialization from a Complexity Perspective	103
<i>Magdalena Alberro-Andrés</i>	
1 Assumptions about the Relationship between Media and Young People	103
2 Causes of the Use of the Non-complex Approach	106
3 How a Non-complex Approach Misleads Us	107
4 Applying a Complexity Perspective to the Use of Media Products and Media Education in Schools	110
References	114
10 Self-organization in Communicating Groups: The Emergence of Coordination, Shared References and Collective Intelligence	117
<i>Francis Heylighen</i>	
1 Introduction	117
2 Complex Systems	118

3 Self-organization.....120

4 Self-organization as a Problem of Coordination122

 4.1 Self-organization of Alignment123

 4.2 Division of Labor.....126

 4.3 Workflow127

 4.4 Aggregation128

5 Collective Intelligence129

 5.1 Requirements for Collective Intelligence129

 5.2 Groupthink and Polarization131

 5.3 Avoiding Groupthink132

6 The Self-organization of Shared References132

 6.1 The Origin of Language.....133

 6.2 Conversational Alignment135

 6.3 Group Alignment136

7 An Experiment in Collective Intelligence.....137

 7.1 Setting Up an Experiment.....137

 7.2 Results of the Experiment141

 7.3 Interpretation of the Results.....142

8 Conclusion144

References146

11 General Linguistics and Communication Sciences: Sociocomplexity as an Integrative Perspective151

Albert Bastardas-Boada

1 Introduction: The Need for a Perspective of Complexity151

2 Towards a Paradigm of Complexity153

 2.1 Constructing a World. The Representation of Reality, and Scientific Activity153

 2.2 (Re)thinking Reality154

 2.3 Wholes and Parts156

 2.4 Time.....159

 2.5 Human Beings: The Centrality of the Mind/Brain.....161

 2.6 Interdisciplinarity.....164

3 Linguistics and Complexity.....166

References171

12 The Fuzzy Complexity of Language.....175

Frederic Munné

1 Fuzziness as a Property of Complex Systems.....175

2 Inverting the Laws of Aristotelian Logic.....177

3 Language as a Fuzzy System178

4 Delimitation: Reducing the Fuzziness180

5 Categorization: A Resource for Definition182

6 Dichotomization: Glossing over the Fuzziness.....184

7 Words as Fuzzy Concepts.....186

8 Words and Definitions189

9	Indicators of Fuzziness	191
10	Expanding Fuzziness: Hypertext	193
11	Returning to Where We Began	195
	References	195
13	The Emergence of Complexity in Language: An Evolutionary Perspective.....	197
	<i>Salikoko S. Mufwene</i>	
1	Introduction	197
2	Languages as Technologies	201
3	The Phylogenetic Emergence of Complexity	204
3.1	The Nature of Linguistic Complexity	204
3.2	How Did Complexity Emerge Phylogenetically in Language?	208
4	Conclusions	213
	References	215
14	The Ecology of Pressures: Towards a Tool to Analyze the Complex Process of Language Shift and Maintenance.....	219
	<i>Roland Terborg and Laura García-Landa</i>	
1	Introduction	219
2	The Origin of Actions	222
3	The Origin of Pressure	222
4	Interests and Pressures	225
5	The State of the World and Pressures	228
6	Competence and Common Routine	229
7	Classification of Pressures	235
8	As a Conclusion	237
	References	238
15	Ethics and Progress in Today's World	241
	<i>Federico Mayor Zaragoza</i>	
	Author Index	247
	Subject Index.....	249