Cognitive Bases of Language
Lorraine McCune

This chapter examines the cognitive bases of language transitions, including studies of infant “category formation”, the logic of action characterizing infant problem solving, and the earliest evidence of the mental representation of objects. It is shown that Piaget's theory provides a comprehensive guide to children's cognitive development between about 6 months and 2 years of age, the time of transition into language. Results from experimental approaches provide support for gradual cognitive developments during the same time period. Findings from a Piagetian approach integrate well with the notions of embodied cognition and a dynamic systems view of development. Two related sorts of cognitive ability emerging during this time are essential for beginning referential language: (1) the capacity to process an ongoing event as it occurs in real time and space and (2) the capacity for mental representation of meaning.

Dynamic Systems in Language Development and Language Production
Lorraine McCune

This chapter presents a dynamic systems analysis of the variables contributing to the transition to reference, integrating material from the previous chapters. Topics discussed include dynamic systems in language development, control parameters and the shift to referential
language, mental representation and the other dynamic variables, production of context-limited and referential words in real time, considering neurological aspects of word knowledge, and form/meaning synergies.

How Children Learn to Learn Language
Lorraine McCune

Published in print: 2008 Published Online: May 2008
Item type: book

Studies of language acquisition often assume that children will simply begin to learn language, without questioning what sets the whole process in motion. This book examines the often-neglected topic of how children discover the possibility of language and demonstrates that pre-language development involves a dynamic system of social, cognitive, and vocal variables that come together to enable the transition to referential language. The relationship with a caregiver is integral to this development because language is a system of symbolic communication that can emerge only with children's recognition that they are separate from others. This book sees language learning as constructed equally from needing to develop meanings and learning to produce the sounds sequences that represent them. In order for this dual construction to be effective, however, children must discover their capacity to refer to objects and events in the world by having their internal states of focused attention accompanied by an autonomic, physiologically based vocalization, which is the grunt that results from physical or mental effort. When the grunt is intensified and directed at a conversational partner, as when children attempt to convey an internal state, it becomes their first protoword.

Primary Relationships and the Symbol Situation
Lorraine McCune

in How Children Learn to Learn Language

Published in print: 2008 Published Online: May 2008
Item type: chapter

This chapter discusses the nature of what children confronting language must learn and the role of their relationships with caregivers in this transition. Topics covered include language development in the context of caregiver relationships, shared meaning prior to language,
the development of joint attention, various forms of interaction, the formation of symbolic vehicle-referent relationships, shared perceptual and representational meanings, and dynamic schematizing.

**Entering Language: The First Phase**

Lorraine McCune

in *How Children Learn to Learn Language*

Published in print: 2008 Published Online: May 2008

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Item type: chapter

This chapter addresses characteristics of the single-word period, including definitions applied in this book and some areas of current controversy in lexical development. Topics covered include methods for studying children's entry into language, when a word is a word, the formation of patterns that represent objects and events, learning words, the holistic nature of single-word utterances, context-limited words, the nature of referential words, the rate of lexical development, and an analysis of Vihman and McCune data.

**Representational Play and Language**

Lorraine McCune

in *How Children Learn to Learn Language*

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DOI: 10.1093/acprof:oso/9780195177879.003.0006


Item type: chapter

This chapter evaluates developments in representational play as control parameters for sequential phase shifts in language. Topics covered include the development of representational play, combinatorial ability in play and language, and representational play and mother-infant intersubjectivity. It is argued that a child's developing consciousness of distinctions between self and other is the primary motive for representational development.
This chapter sets out a strategy for investigating the evolutionary biology of language. Central here is the following thesis: In order to understand the emergence of linguistic capacity as an innovation in the hominid line, it is necessary to work backwards from language-relevant anatomy. The assumption is that each piece of the anatomical mosaic will have a different evolutionary story, and that each story will be more or less evident in ancestral species, depending on the availability of biological evidence in the fossil record. The use of this strategy is illustrated by discussing the evolution of Broca's area and the parietal-occipital-temporal junction (POT) plus Wernicke's area — areas of the brain that are 'necessary, if not sufficient, for language'. It is argued that the complex comprising Broca's area and the POT was evolutionarily shaped to improve the neurological control of the hand and thumb, and became available for exaptation after the divergence of the hominid and pongid lineages. This position gains further support from recent work on primate neuroanatomy.

‘When, why, and how did language evolve?’ ‘Why do only humans have language?’ This book looks at these and other questions about the origins and evolution of language. It does so via a diversity of perspectives, including social, cultural, archaeological, palaeoanthropological, musicological, anatomical, neurobiological, primatological, and linguistic. Among the subjects it considers are: how far sociality is a prerequisite for language; the evolutionary links between language and music; the relation between natural selection and niche construction; the origins of the lexicon; the role of social play in language development; the use of signs by great apes; the evolution of syntax; the evolutionary biology of language; the insights offered by Chomsky's biolinguistic approach to mind and language; the emergence of recursive
language; the selectional advantages of the human vocal tract; and why women speak better than men. The authors are prominent linguists, psychologists, cognitive scientists, archaeologists, primatologists, social anthropologists, and specialists in artificial intelligence. As well as explaining what is understood about the evolution of language, they look squarely at the formidable obstacles to knowing more: the absence of direct evidence, for example; the problems of using indirect evidence; the lack of a common conception of language; confusion about the operation of natural selection and other processes of change; the scope for misunderstanding in a multi-disciplinary field, and many more. Despite these difficulties, the authors in their contributions to this book are able to show just how much has been achieved in this area of research in the social, natural, and cognitive sciences.

Prelinguistic Communication: Grunts as a Gateway to Language
Lorraine McCune
in How Children Learn to Learn Language
Published in print: 2008 Published Online: May 2008
Item type: chapter

This chapter evaluates the contribution of prelinguistic communication and the recognition of sound/meaning correspondence, emphasizing the importance of communicative grunts. Topics covered include grunts use in human infants, the origins of communication, grunts and the transition to referential words, the role of gesture, and the increase in overall communicative frequency with communicative grunt onset.

Precursors to language and early language
Carolyn B. Mervis and Angela E. John
in Neurodevelopmental Disorders Across the Lifespan: A neuroconstructivist approach
Published in print: 2011 Published Online: May 2012
Item type: chapter

This chapter focuses on precursors to language acquisition and the acquisition of language by toddlers, preschool children, and early primary-school children who have Williams syndrome (WS). It begins by briefly summarizing the findings from research on the intellectual abilities of toddlers and young children with WS as measured by
performance on standardised assessments. It then describes the findings from research on the early language phenotype of WS, focusing on results related to prelinguistic and early language development in the areas of vocabulary (lexicon), grammar, and pragmatics. Two central themes emerge. First, despite the initial claims regarding the independence of language from cognition, WS provides strong evidence for their interdependence throughout development. Second, there is considerable continuity in the pattern of strengths and weaknesses across development, with the adult pattern apparent in early childhood.

**Dynamic Systems and the Quest for Individual-Based Models of Change and Development**

Paul van Geert and Kurt W. Fischer

in Toward a Unified Theory of Development Connectionism and Dynamic System Theory Re-Consider

Published in print: 2009 Published Online: September 2009
Item type: chapter

This chapter discusses the question of how dynamic systems theory can be fruitfully applied to the development of the kind of phenomena and variables that have been of interest for a long time. Examples of these phenomena are (a) the development of language, including the development of the lexicon and syntactic and grammatical knowledge and skill; (b) the development of cognition and thinking, including the emergence and acquisition of cognitive skills and knowledge in various domains; (c) the development of reflective judgment, including metacognition and social understanding; and (d) the development of social skills and behavior. Behind all these phenomena are the development of context-specific but overarching principles of skill formation, such as principles of relationships, systems of relationships, and so on.

**Language: symbolization and beyond** *

Eric Reuland

in The Prehistory of Language

Published in print: 2009 Published Online: May 2010
Item type: chapter
This chapter argues that it is ‘too simplistic’ to view language as primarily a symbolic system used for communication. This view leads to an interpretation of the archeological record that is ‘too naïve’. Central to this argument is the assumption that natural language is a computational system by which linguistic form and semantic interpretation are mapped systematically onto each other. The mapping is based on an inventory of lexical items and a combinatory system that includes the process known as ‘recursion’ which, roughly, has the capacity to form infinitely long sentences by embedding phrases within phrases. The introduction of this process altered the nature of linguistic signs, severing the direct connection between form and interpretation. This gave rise to desymbolization, which is the ‘most characteristic’ property of language. If this view is correct, evidence of symbolic activity by itself would not be a proper diagnostic of the presence of language.

The Hebrew Language

J. A. Emerton

in Text in Context: Essays by Members of the Society for Old Testament Study

Published in print: 2000 Published Online: April 2004
Publisher: Oxford University Press
Item type: chapter

This is the second of five chapters on the text of the Old Testament. It summarizes some developments in the study of the Hebrew language of the biblical period that have taken place since the years surveyed in Tradition and Interpretation (an earlier volume of essays by members of the Society for Old Testament Study, which was published in 1979). Here, attention is focused especially on the history of the development of the Hebrew language, which is important both in itself and because of its bearing on the composition and dating of the books of the Old Testament. Hence, the main section of the chapter is entitled ‘The history of the Hebrew language and its development’. The other, smaller, sections are: Grammar, syntax, and linguistics; The Hebrew verbal system; and Lexicography.

Holistic communication and the co-evolution of language and music: resurrecting an old idea

Steven Mithen

in The Prehistory of Language

Published in print: 2009 Published Online: May 2010
Publisher: Oxford University Press
DOI: 10.1093/0199545872.003.0004
acprof:oso/9780199545872.003.0004
This chapter argues that we should return to ideas about the relationship between language and music advocated by scholars such as Rousseau, Darwin, and Jespersen. It further articulates the view that language and music co-evolved — a view that is tied in with recent arguments to the effect that protolanguage was holistic. It is argued that the proposal of a music-like protolanguage enables us not only to explain certain continuities between human speech and primate vocal communication but also to explain the seeming alacrity with which newborn infants respond to language and music alike, and the significant overlaps of the respective brain regions recruited for language and music. In addition, the chapter cites different reasons for assuming that protolanguage used holistic phrases, not compositional ones. It discusses a number of reasons why so-called hominin holistic phrase communication would have had a degree of musicality. In interweaving various strands of evidence, the chapter illustrates the extent to which work on language evolution has become an interdisciplinary endeavor.

The Invention of Language
Deborah Levine Gera

in Ancient Greek Ideas on Speech, Language, and Civilization

Published in print: 2003 Published Online: January 2010
Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780199256167.003.0004
Item type: chapter

This chapter surveys a wide range of texts which tell of human’s ascent to civilised life and their acquisition of language as part of the process. It discusses that in these progress narratives, speech was seen either as a gift from the gods, the brainchild of a single inventor, or the product of a joint effort by a society of men. It conducts a study of these inventors, followed by a close examination at some detailed accounts of the various stages of language development. It investigates the place assigned language within the overall development of civilisation, and the parallels between the invention of language and the discovery of other arts, in particular fire.
The Phonological Development of Child Language and Aphasia as a Linguistic Problem (1956)
Roman Jakobson

in Broca's Region

This chapter presents a paper published by Roman Jakobson in 1956. His 1941 seminal monograph Kindersprache, Aphasie und allgemeine Lautgesetze (Child Language, Aphasia, and Phonological Universals) was an attempt to identify universal dimensions to phonological analysis and to show that these unfold at a fixed order in language development and break down at a reverse order in aphasia (the regression hypothesis). Some of Jakobson's later ideas are presented in an excerpt from Fundamentals of Language (co-authored with Morris Halle).

Why only humans have language
Robin Dunbar

in The Prehistory of Language

This chapter has three main objectives. First, it briefly summarizes the reasons why language might have evolved, and what we are to make of these. It then considers what this has to tell us about why only the hominin lineage evolved the capacity for language. Finally, it revisits the author's previous analyses (Aiello and Dunbar 1993) on the timing of language evolution in the hominin fossil record using new estimates for all the equations involved, in order to explore the sequence by which language might have evolved, and the transitional states involved.

Cognition: The developmental trajectory approach
Michael S. C. Thomas, Harry R. Purser, and Jo Van Herwegen

in Neurodevelopmental Disorders Across the Lifespan: A neuroconstructivist approach

Page 9 of 11
One emphasis of this volume is on the use of developmental trajectories in the study of developmental disabilities. This chapter focuses on theoretical, methodological, and analytical issues surrounding trajectories, but it is grounded in examples drawn from one aspect of research on Williams syndrome (WS), that of figurative language development. Figurative language is relevant to everyday communication skills, and it is of theoretical interest because it lies at the interface of language, cognition, and social skills. It therefore brings to the fore issues surrounding the uneven cognitive profile frequently observed in WS. In particular, how the development of figurative language fares in WS is considered, given the apparent strengths in language and social skills whereas the overall IQ indicates moderate levels of learning disability. The methods described are more general, however, and could be applied to a variety of neurodevelopmental disorders.

Spoken Language Development of Deaf and Hard-of-Hearing Children: Historical and Theoretical Perspectives
Marc Marschark and Patricia Elizabeth Spencer

in Advances in the Spoken Language Development of Deaf and Hard-of-Hearing Children

Published in print: 2005 Published Online: April Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780195179873.003.0001

This chapter argues for a reconsideration of the history, progress, and future directions of research on spoken language development of deaf children. Such a discussion will help to provide a more a complete understanding of deaf education, the Deaf community, and the development of deaf children in today's context. It discusses language development by deaf children, historical views of language development and deaf children, spoken language in deaf education, language development research with deaf children, and current oral methods for educating deaf children.
Is sociality a crucial prerequisite for the emergence of language? *
Luc Steels

in The Prehistory of Language

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DOI: 10.1093/acprof:oso/9780199545872.003.0003
Item type: chapter

This chapter reports theoretical research exploring the hypothesis that language evolved in a cultural fashion as a complex adaptive system. It does not propose a theory to explain how sociality may have arisen or how it gets reinforced by an existing language system. Instead, it examines the extent to which ultrasociality is indeed a crucial prerequisite. Is it the case that if the sociality assumption is not adopted at the linguistic level, communication systems do not get off the ground at all? Is sociality not only a sufficient but also a necessary condition for the emergence and transmission of complex symbol-based communication? And how strict does sociality have to be? Is it possible that some form of linguistic cheating can be tolerated? And how can an existing communication system reinforce sociality once it has emerged? Before delving into these issues, the chapter first summarizes the main hypothesis for the cultural evolution of language (section 3.2), gives an example of the language-game experiments we have been carrying out (section 3.3), and then turns to the sociality question itself (section 3.4).