CAMBRIDGE

Cambridge University Press
0521831822 - Numbers, Language, and the Human Mind
Heike Wiese
Table of Contents
More information

Contents

Acknowledgments *page* ix

Introduction 1

1 Numbers and objects 9
- Cardinal number assignments: '3 pens', '3 kg', '3 °C' 18
- Ordinal number assignments: 'the third runner' 33
- Nominal number assignments: 'bus #3', 'football player #3' 37
- Overview: how to use numbers 40

2 What does it mean to be a number? 43
- The intersective analysis of numbers 44
- The itemising approach to numbers 52
- The relational view of numbers 57
- A criteria-based view of numbers 60

3 Can words be numbers? 68
- Counting words are special 70
- Counting words are non-referential 79
- Counting words are acquired differently 85
- A cut with Occam's razor 89
- Counting words as numerical tools 91

4 The language legacy 94
- Before language: quantitative capacities in infants and animals 95
- Number sense and beyond 108
- Symbolic reference and the evolution of language 113
- Matching patterns in symbolic reference and number assignments 121
- Language opens the way for numerical cognition: further support 124
- A possible scenario for the emergence of numerical tools 131
- Language and number as human faculties 143

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
0521831822 - Numbers, Language, and the Human Mind
Heike Wiese
Table of Contents
More information

5 Children's route to number: from iconic representations to numerical thinking 151
The acquisition of a counting sequence 153
Pre-numerical props for number assignments 157
Gateway to number 160
Language and the emergence of counting and cardinality 174

6 The organisation of our cognitive number domain 180
Representation of counting words as numerical tools 181
Concepts of numerical quantity 182
Abstract cardinalities 183
Measure concepts 188
Concepts of numerical rank 202
Concepts of numerical label 209
The architecture of the number domain 214

7 Non-verbal number systems 219
Arabic numerals as a non-verbal number sequence 222
The development of non-verbal numerals: from iconic representations to numerical tools 236
Two alternative number sequences: the correlation between counting words and arabic numerals 241

8 Numbers in language: the grammatical integration of numerical tools 264
Counting words and their referential cousins 265
How to express numerical concepts: the organisation of number word constructions 270
Referential number words are not outcasts 274
The return of the counting words 288

Appendix 1 Number assignments 297

Appendix 2 The philosophical background 300

Appendix 3 Numerical tools: possible sets N 304

Appendix 4 Conceptualisation of number assignments 314

Appendix 5 Semantic representations for number word constructions 319

References 322
Index 340

© Cambridge University Press www.cambridge.org