Cognitive linguists and psychologists have often argued that language is best understood as an association network; however, while the network view of language has had a significant impact on the study of morphology and lexical semantics, it is only recently that researchers have taken an explicit network approach to the study of syntax. This innovative study presents a dynamic network model of grammar in which all aspects of linguistic structure, including core concepts of syntax (e.g., phrase structure, word classes, grammatical relations), are analyzed in terms of associative connections between different types of linguistic elements. These associations are shaped by domain-general learning processes that are operative in language use and sensitive to frequency of occurrence. Drawing on research from usage-based linguistics and cognitive psychology, the book provides an overview of frequency effects in grammar and analyzes these effects within the framework of a dynamic network model.

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The Grammar Network

How Linguistic Structure is Shaped by Language Use

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Preface

Cognitive linguists have often argued that language is best understood as an associative network, but while the network view of language has had a significant impact on the study of morphology and lexical semantics, few studies have taken an explicit network approach to the analysis of syntax. This book presents a dynamic network model of grammar in which all aspects of linguistic structure, including core concepts of syntax (e.g., word classes, grammatical relations, constituent structure), are analyzed in terms of associative connections between different aspects of linguistic knowledge. These associations are shaped by domain-general learning processes that are operative in language use and sensitive to frequency of occurrence. A wealth of recent results indicate that frequency affects the activation and processing of lexemes, categories and constructions, which can have long-lasting effects on the development of linguistic structure.

Drawing on research from various subfields of linguistics (e.g., construction grammar, cognitive semantics, historical linguistics, linguistic typology) and cognitive psychology (e.g., language acquisition, sentence processing, structural priming), the book provides an overview of frequency effects in grammar and analyzes these effects in the framework of a dynamic network model.

The book is written for a broad readership, including researchers and graduate students of linguistics, psycholinguistics and cognitive science. It does not presuppose expert knowledge in any research area and approaches the study of grammar from an interdisciplinary perspective. While written as a monograph, the book can also be used as an advanced textbook for a seminar on usage-based linguistics or functional-cognitive grammar.

The idea of writing this book was born during my senior fellowship at the Freiburg Institute for Advanced Studies in 2011, when I also taught a seminar on usage-based grammar at the Graduiertenkolleg (Frequency Effects in Language) of the University of Freiburg. I would like to express my gratitude to the Freiburg linguists for providing me with a very stimulating environment and for many fruitful discussions.

After my visit to the University of Freiburg, it took another four years of reading and preparation before I eventually began to write the first chapters of
the manuscript during my fellowship at the Wissenschaftskolleg in Berlin (WIKO), where I joined an interdisciplinary research group on language evolution. During my stay at the WIKO (2015–2016), I had numerous discussions with language scientists from other disciplines who convinced me that my project would be of interest not only to linguists but also to researchers and students of psychology and cognitive science. As a consequence, I have written this book from an interdisciplinary perspective so that it is accessible to readers from different backgrounds. I am very grateful for the support I received from the Wissenschaftskolleg in Berlin and would like to thank the members of our research group, in particular, Luc Steels and Peter Gärdenfors.

A special word of thanks is due to Martin Haspelmath, who read drafts of several chapters of the manuscript and provided many valuable and insightful comments. I am also grateful to Michael Arbib, Heike Behrens, Barthe Bloom, Merlijn Breunesse, Daniel Jach and Eva-Maria Orth for stimulating discussions and to my colleagues from the University of Jena for providing feedback on several colloquium presentations on topics related to this book. Finally, I would like to thank the editor of Cambridge University Press, Helen Barton, for her support and encouragement.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>1</td>
<td>first person</td>
</tr>
<tr>
<td>2</td>
<td>second person</td>
</tr>
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<td>3</td>
<td>third person</td>
</tr>
<tr>
<td>A</td>
<td>transitive agent</td>
</tr>
<tr>
<td>ACC</td>
<td>accusative</td>
</tr>
<tr>
<td>ADJ</td>
<td>adjective</td>
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<tr>
<td>ADV</td>
<td>adverb</td>
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<tr>
<td>AdvP</td>
<td>adverb phrase</td>
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<tr>
<td>A(G)</td>
<td>agent</td>
</tr>
<tr>
<td>AGR</td>
<td>agreement</td>
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<tr>
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<td>adjective phrase</td>
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<td>aspect</td>
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<td>ASSOC</td>
<td>associative</td>
</tr>
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<td>ATTR</td>
<td>attribute</td>
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<tr>
<td>AUX</td>
<td>auxiliary verb</td>
</tr>
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<td>causative</td>
</tr>
<tr>
<td>CC</td>
<td>complement clause</td>
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<tr>
<td>CL</td>
<td>classifier</td>
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<tr>
<td>CLIT</td>
<td>clitic</td>
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<td>COMPL</td>
<td>complement</td>
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<td>CONJ</td>
<td>conjunction</td>
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<tr>
<td>COP</td>
<td>copular verb</td>
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<tr>
<td>CV</td>
<td>consonant-vowel</td>
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<tr>
<td>DAT</td>
<td>dative</td>
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<tr>
<td>DEM</td>
<td>demonstrative</td>
</tr>
<tr>
<td>DET</td>
<td>determiner</td>
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<tr>
<td>DITRANS</td>
<td>ditransitive</td>
</tr>
<tr>
<td>DEC</td>
<td>declarative</td>
</tr>
<tr>
<td>DOM</td>
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<tr>
<td>DU</td>
<td>dual</td>
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<tr>
<td>DUR</td>
<td>durative</td>
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</table>

xv
List of Abbreviations

EMPH  emphasis
ERG   ergative
F     feminine
FUT   future
G/GEN genitive
GER   gerund
IC    immediate constituent
IMPF  imperfective
INCEP inceptive
IND   indicative
INF   infinitive
INST  instrument
INTER interjection
INTR  intransitive
IRR   irrealis
L1    first (native) language
L2    second language
LOC   locative
M     masculine
MAIN  main clause
MOD   modal verb
N     noun
NC    noun class
NEG   negation
NML   nominalization
NOM   nominative
NP    noun phrase
NUM   numeral
O/OBJ object
P     preposition
P(A)  patient
PL    plural
POSS  possessive
PP    prepositional phrase
P.PRO personal pronoun
PRO   pronoun
PRS   present tense
PST   past tense
PTC   participle
PUNC  punctual
QP    question particle
RC    relative clause
# List of Abbreviations

<table>
<thead>
<tr>
<th>REL</th>
<th>relative pronoun/relative marker</th>
</tr>
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<tbody>
<tr>
<td>S</td>
<td>clause/sentence</td>
</tr>
<tr>
<td>SAI</td>
<td>subject–auxiliary inversion</td>
</tr>
<tr>
<td>SBJV</td>
<td>subjunctive</td>
</tr>
<tr>
<td>SFP</td>
<td>sentence-final particle</td>
</tr>
<tr>
<td>SG/S</td>
<td>singular</td>
</tr>
<tr>
<td>S/SUBJ</td>
<td>subject</td>
</tr>
<tr>
<td>SUB</td>
<td>subordinate (clause)</td>
</tr>
<tr>
<td>TAM</td>
<td>tense–aspect–mood</td>
</tr>
<tr>
<td>TH</td>
<td>theme</td>
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<tr>
<td>TOP</td>
<td>topic</td>
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<tr>
<td>TR</td>
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<tr>
<td>V</td>
<td>verb</td>
</tr>
<tr>
<td>VP</td>
<td>verb phrase</td>
</tr>
<tr>
<td>WH</td>
<td>question word</td>
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