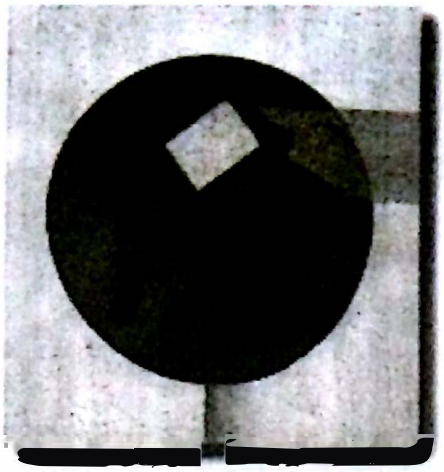
Essential INTRODUCTORY LINGUISTICS

Grover Hudson

Blackwell Publishing



ESSENTIAL INTRODUCTORY LINGUISTICS

Grover Hudson

Michigan State University

BLACKWELL Publishers

Copyright © Grover Hudson 2000

The right of Grover Hudson to be identified as the author of this work has been asserted in accordance with the Copyright, Designs and Patents Act 1988.

First published 2000

2 4 6 8 10 9 7 5 3 1

Blackwell Publishers Inc.
350 Main Street
Malden, Massachusetts 02148
USA

Blackwell Publishers Ltd
108 Cowley Road
Oxford OX4 1JF
UK

All rights reserved. Except for the quotation of short passages for the purposes of criticism and review, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher.

Except in the United States of America, this book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, resold, hired out, or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

Library of Congress Cataloging-in-Publication Data

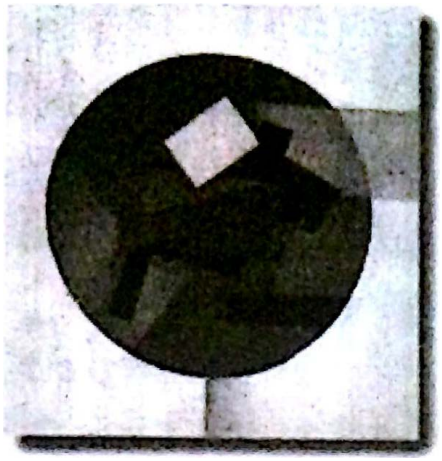
Hudson, Grover.
Essential introductory linguistics / Grover Hudson.
p. cm.
Includes bibliographical references and index.
ISBN 0-631-20303-6 (hbk: alk. paper). — ISBN 0-631-20304-4 (pbk: alk. paper)
1. Linguistics. I. Title.
P121.H746 1999
410—dc21 98-51949
CIP

British Library Cataloguing in Publication Data

A CIP catalogue record for this book is available from the British Library.

Typeset in 10 on 13 pt Sabon
by Graphicraft Limited, Hong Kong
Printed in Great Britain by T.J. International, Padstow, Cornwall

This book is printed on acid-free paper.

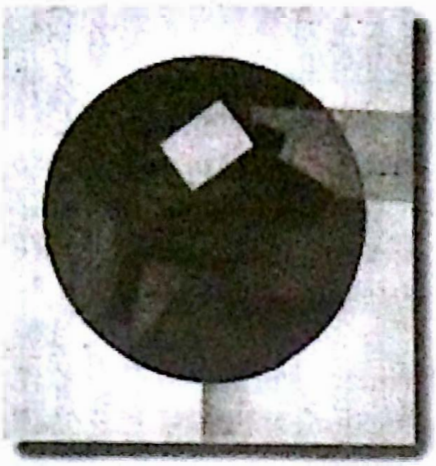


CONTENTS

	List of figures	vii
	List of tables	xi
	Preface	xiii
	Acknowledgments	xvi
1	Signs and Sign Systems	1
2	Phonetics	20
3	Phones and Phonemes	42
4	Morphemes	57
5	The Lexicon and Morphological Rules	73
6	Sentences and Syntax	88
7	Phrase Structure Rules	104
8	Child Language Learning	120
9	Explanations of Child Language Learning	135
10	Language and the Brain	151
11	Adult Language Learning	167
12	Animal Languages?	184
13	Phonological Rules	203
14	Phonological Features	220
15	Six Ways to Get New Words	239
16	Seven More Ways to Get New Words	255
17	Sentence Meaning	272
18	Sentence Form	290
19	Pragmatics: Inferring Meaning in Context	312
20	The Unity of Languages	331
21	The Basic History of Writing	350
22	The Ecology of Writing	372
23	Three Characteristics of Language Change	392

24 Eight Causes of Language Change 411
25 Language Families 430
26 Dialects and Other Sociolects 452
27 Register 471
28 The History of Linguistics 490

References 505
Index 517



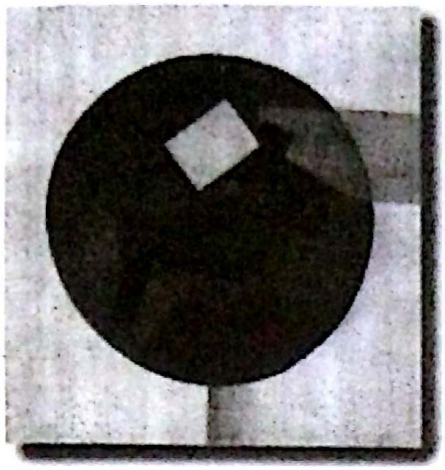
LIST OF FIGURES

1.1	The three parts of a sign	2
1.2	The three types of signs	3
1.3	Logos for international development communication	14
1.4	Two corporation logos: Travelers and AT&T	15
2.1	IPA charts of places and manners of articulation of common consonants and vowels of languages of the world	21
2.2	Diagram of speech physiology	22
2.3	Consonants and vowels of English	29
3.1	Derivations of *pin*, *cling*, and *stick*	51
3.2	Derivation of *Send in the clowns, please*	53
5.1	Six word structures	85
6.1	Tree diagram: sentence constituents	89
6.2	Tree diagram: recursion of prepositional phrases	93
6.3	Tree diagram: recursion of sentences	94
6.4	Tree diagrams: grouping ambiguity	97
7.1	Tree diagrams: five sentences	108
7.2	Tree diagrams: five coordinate structures	109
7.3	Tree diagram: The pigs ate some nice slop	110
7.4	Tree diagrams: five sentence	115
7.5	Unlabeled tree diagrams of eight sentences	117
7.6	Tree diagram: sentence of hypothetical language	119
8.1	Six stages in the learning of English plural nouns	128
8.2	Six stages in the learning of English past tense verbs	134
9.1	Chimpanzee and human oral–laryngeal cross-sections	145
10.1	Left hemisphere of the brain	152
10.2	Diagram of PET/CAT analysis of four language activities	156
10.3	Diagram of dichotic listening	156
10.4	Four major types of aphasia	157

10.5	Which faces, upper or lower, are happier?	165
11.1	Graph of relationship between age of arrival in the US and total score on the test of English grammatical morphology	176
11.2	Graph of mean percentage of errors on 12 aspects of English morphology by six age-of-arrival groups	177
11.3	Graphs of test scores in relation to age of arrival for subjects before and after puberty	177
11.4	Graph comparing child and adult second-language learner relative accuracies for eight English grammatical morphemes	179
12.1	Dog giving 'I'm angry' signs	185
12.2	Gelada monkey, at right, giving 'I'm angry' sign	186
12.3	Sparrow song produced under four conditions	189
12.4	Acoustic images of mobbing and aerial predator bird-calls	190
12.5	Figure-8 dance of the honeybee	191
12.6	Open figure-8 dance of the Italian honeybee	192
12.7	Three ASL signs: 'eat', 'candy', and 'jealous'	193
12.8	Conditional sentence understood by Sarah	195
12.9	Part of Kanzi's computerized sign-board	195
12.10	Graph of increase of MLU in the chimpanzee Nim, and four children	197
12.11	Nine ASL signs: what do they mean?	200
13.1	Derivation of *coats* and *coating*	212
14.1	Feature matrix of airstream features and English phonemes (affricates and voiced obstruents omitted)	222
14.2	Feature matrix of articulator features and English phonemes (affricates and voiced obstruents omitted)	224
14.3	Feature matrix of tongue body features and English phonemes (affricates and voiced obstruents omitted)	225
14.4	English vowels characterized by articulator and tongue body features	225
14.5	Sonority scale	226
14.6	Sonority structure of some English words	226
14.7	Feature matrix of 12 features and English phonemes (affricates and voiced obstruents omitted)	228
14.8	Lexical feature matrix of English phonemes (affricates and voiced obstruents omitted)	229
14.9	Phonemic feature matrix of *Cats will play*	230
14.10	Phonetic feature matrix of *Cats will play*	231
14.11	Phonetic feature matrices of 15 English words	236
14.12	Phonetic feature matrix of *Ring the bell, please*	238
17.1	Tree diagram: compositional meaning	273
17.2	Tree diagram (hypothetical): extraposition	274
17.3	Tree diagram: Get up on the wrong side of the bed	275
17.4	Tree diagram: People throw food to trout from bridges	279

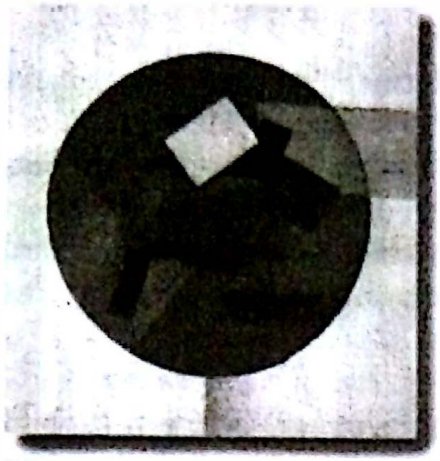
18.1	Tree diagram: active sentence	294
18.2	Tree diagram: passive sentence	295
18.3	Tree diagram: auxiliary verb	297
18.4	Tree diagram: recursive VP	297
18.5	Tree diagram with auxiliary inversion	299
18.6	Tree diagram with do-insertion and auxiliary inversion	299
18.7	Tree diagram with unfronted wh-word	300
18.8	Tree diagram: prepositional adverb inversion	303
18.9	Two tree diagrams	307
18.10	Four tree diagrams	307
18.11	Tree diagram: Whom do the anglers give their fish to?	308
18.12	Tree diagram: sentence with relative clause	309
18.13	Tree diagram: sentence with relative clause	310
19.1	Tree diagrams: grouping ambiguity	315
19.2	Tree diagrams: function ambiguity	316
20.1	Tree diagrams: c-command	342
21.1	Cave painting, Altamira, Spain, ca. 15,000 BC	351
21.2	Seven logograms of four early logographic writing systems	352
21.3	Sumerian clay tablet (ca. 4000 BC) with sheep sign and impressions	353
21.4	Evolution from icon to symbol of six Sumerian cuneiform characters, ca. 3200 to 800 BC	354
21.5	Evolution from icon to symbol of nine Chinese characters, ca. 1200 BC to AD 300	355
21.6	Rebuses in Chinese character compounds	357
21.7	Egyptian hieroglyphic: a mixed writing system	358
21.8	Linear B sentence with unrepresented syllable-final consonants	359
21.9	Japanese syllabic characters and their Chinese logographic character basis	359
21.10	Comparison of Egyptian, Sinaitic, Phoenician, early Greek, Greek, and Latin characters	362
21.11	Greek via Latin sources of English letters	364
21.12	Twenty Chinese pictograms and their modern character descendants	370
22.1	English words written in the Arabic writing system	385
22.2	English words written in the Amharic writing system	386
22.3	English words written in the Devanagari writing system	387
22.4	English words written in the Korean writing system	388
23.1	Old, Middle, and Modern English texts	393
23.2	The English Great Vowel Shift	396
23.3	The rise of *do* as an auxiliary verb, 1400 to 1700	403
23.4	Old English verb inflections	404
23.5	Numerals for 1 to 10 and 100 in 18 languages	408
24.1	Some words of truckers' jargon	418

24.2	Some words of Los Angeles gang slang	419
25.1	Diagram of language differentiation and diversification	432
25.2	World map of language families	433
25.3	Ten widespread language families and example languages	434
25.4	The world's 12 most populous languages	434
25.5	Indoeuropean	435
25.6	Afroasiatic	436
25.7	Hypothetical spread of Indoeuropean 6000 + years ago and of Afroasiatic 7000 + years ago	438
25.8	Family tree of the six Ethiopian languages	448
26.1	Three dimensions of language variation	453
26.2	Five domains of language in a multilingual Ethiopian community	455
26.3	Language and dialect in linguistic and popular usage	457
27.1	An eleven-point scale of politeness	473
27.2	A five-point scale of register	477
27.3	Six functional dimensions of language and three features characteristic of each	481
27.4	Ranking of genres on dimension 6	488
27.5	Five genre scales illustrating five functional dimensions of language	488



LIST OF TABLES

2.1	Consonant phones of English	24
2.2	Vowel phones of English	25
10.1	Hemisphere dominance for language determined by sodium amytal procedure in 119 patients	154
11.1	Comparison of three measures of language learning ability	174
14.1	Consonant sequences of English syllable heads	237
20.1	Arabic independent pronouns	336
20.2	Correlations between VO order and other word orders in 534 languages	338
20.3	Vowel inventories of 24 languages	348
23.1	Regular consonant correspondences in English and Latin cognates	396
23.2	Examples of the English Great Vowel Shift	397
23.3	Old English noun classes	402
25.1	Seven words in eight languages	447
25.2	Twenty words in six Ethiopian languages	448
25.3	Probable cognates among the six Ethiopian languages	449
25.4	Eleven words in five Romance languages	449
25.5	Ten words of Swahili, Persian, and Indonesian	451
26.1	Variable post-vocalic *r* in New York City	460
27.1	Representative linguistic features and genres of English	480



PREFACE

Knowledge in linguistics has grown greatly since, in the early 1970s, introductory linguistics courses began to be commonly taught to college undergraduates, and introductory linguistics textbooks have tried to present more and more of this knowledge, much of it in increasingly abbreviated form.

In this time, also, the place of linguistics in the college curriculum, and students of linguistics, have changed. Linguistics has become perceived as less arcane and esoteric, and student life is more competitive. More students enroll in introductory linguistics classes because they need these, whether as the foundation of their major field of study, as a requirement of a major in another field, or because linguistics is perceived as relevant for a career – in language teaching or other areas of education, in audiology and speech science, communication fields, computer science, and cognitive psychology, for example. As a result, students are more demanding; they want teachers and textbooks to be very clear about both the content and the goals of lessons. Reasonably, they want to know what the point is, and they want to get to the point.

The structure and method of this book, therefore, is somewhat different from that of other introductory linguistics textbooks. First, it is more selective in its inclusion of topics and subtopics, limiting these, with reasonable consideration to the tradition and expectations of the field, strictly to what the author considers to be essentials. Second, with this selectivity, it has been possible to present each topic with sufficient clarity and thoroughness, and, importantly, to organize, relate, and integrate topics with one another.

Please notice that:

- Chapters are numerous compared to other such books, 28, but relatively short, as seems appropriate for units of study.
- Each chapter is strictly organized, and this organization is made very clear: each chapter begins with a statement of its major content and goals, and

the structure of each chapter is overt with use of numbered and labeled sections, each of which rarely exceeds a few paragraphs in length.

- Wherever possible, information is presented as a list of points and subpoints.
- Points are amply exemplified and illustrated, often in numbered lists.
- When first raised, new concepts and terms are in bold type, and defined. A number of topics reappear from chapter to chapter, and are cross-referenced.
- New concepts and terms are also listed at the end of each chapter.
- The outline of each chapter is presented at the end of each, as a basis for review. Topics of the outlines can be readily rephrased as study questions.
- Finally, at the end of each chapter there are recommended readings, and a number of fairly short, often objective, exercises. Sometimes secondary points which expand on those of the main text are raised in conjunction with these exercises.

It is hoped, therefore, that the book will serve as a study guide as well as the textbook for a course.

Chapters on 'core linguistics' areas of phonology, morphology, and syntax are distributed as follows: After chapters 2–7, two each on phonetics–phonology, morphology, and syntax, there are chapters on language acquisition, brain and language, and animal communication. Then follow six more chapters on core linguistics, two each on phonology, morphology, and syntax–semantics. The 12 chapters on core linguistics have been broken up in this way in order to illustrate applications and to motivate the study of descriptive and theoretical linguistics topics, as well as to more evenly distribute these more technically oriented chapters.

Of course, teachers rarely agree completely on the proper content of the introductory linguistics course, and many will disagree with the present selection. But with the strict and overt structure of this textbook, and with its short chapters, it should be relatively easy for teachers to omit chapters and/or their subunits, and to introduce and integrate additional topics in a coherent way. No doubt many teachers will choose to omit one or both of the chapters on writing (21, 22), that on the history of linguistics (28), perhaps that on animal communication (12), on language families (25), or on universals of language (20).

In a few ways, the content of introductory linguistics as well as its selection and presentation is differently conceived in this book.

- Chapter 1 provides a thorough introduction to the background concepts of the sign and sign systems, using the original terminology of C. S. Peirce: icon, index, and symbol. Other textbooks have avoided these terms, because of their different meanings in ordinary language. Here, this difference between technical, linguistic, and ordinary language usage has been made an emphasis, and the nature of the sign is a topic which is returned to in

several chapters, as one which connects areas of linguistics from structure, to learning, to change.

- Chapter 1 also introduces the general nature of language through the six characteristics of arbitrariness, creativity, openness, duality, grammaticality, and cultural transmission, and these topics also come up again and again in subsequent chapters – particularly that of the probable innateness of language in contrast to the more obvious characteristic of cultural transmission.
- Chapter 2, concerning phonetics, presents the palatal glide in its IPA [j] symbolization versus more typical Anglocentric [y], in order to acknowledge international versus American usage, and to emphasize the difference between phonetic and alphabetic writing.
- Chapter 14 provides a thorough introduction to phonological (distinctive) features, despite the difficulty of this topic and its perceived technical nature by students, in the belief that this important aspect of the unique structure of language is essential and must be made clear.
- Chapters 15 and 16 introduce topics in morphology by a thorough survey of processes of new word formation in English.
- Chapters 21 and 22 provide a more complete treatment of writing systems than is usual. It is well known that students usually find this topic of interest, if most linguists do not. It seems important both to satisfy the student interest, and to take advantage of it to emphasize the difference between language and writing, and to emphasize for native English readers the efficacy of non-alphabetic and non-European writing systems.

Finally, I hope that teachers will forgive, as a necessity, some simplification in the treatment here of a few important but potentially over-complex topics, including:

- the set of universal phonological features, for example, concerning their binarity or not, phonological markedness, and the feature (here [peripheral]), which distinguishes English 'tense/lax' vowel pairs;
- the nature of lexical entries, presented here as traditional pairings of form and meaning;
- the nature and representation of morphophonemic alternations, with suppression of the possibility of rule ordering;
- the proper relation between syntactic representation and sentence meaning; and
- the treatment of several syntactic rules as raisings to 'specifier' nodes, and the suppression of X-bar theory.

[pat] 'pot', [apt] 'opt', and [tap] 'top'. (By the rules of English phonology, the three other possibilities [pta], [tpa], and [atp] are impossible.)

3.4.5. *Grammaticality*

Grammaticality is the characteristic of languages that they have rather strict rules about how things may be said. Only certain sounds may be combined in words, and meanings have to be combined in certain ways, in words and sentences. As just noted, [pat] is a possible English word, but [pta] is not. To form a question in English, one can say *Are they here?*, inverting the subject and verb, but not *Came they here?*. As a consequence of choosing to express certain meanings, languages require that certain other aspects of meaning, so-called 'grammatical' meaning, be expressed. In English, for example, if a noun with plural meaning is mentioned its plurality must be expressed as a suffix on the noun. One can't say *I ate two pear*, even though the plurality of *pear* is obvious given mention of '*two*', but must say *I ate two pears*. Other languages may not have this requirement, but they have others. The difference between grammatical and lexical meaning is a topic of chapter 4.

All languages – and all stages of language including the earliest child language – have their particular such 'rules' of grammar. Utterances in the language which follow the rules are said to be grammatical, and those which don't follow the rules are ungrammatical.

3.4.6. *Cultural transmission*

Languages differ from place to place in the world, and we have to learn the form appropriate for the place. This learning is called **cultural transmission**. If languages were completely instinctive or innate (genetically encoded in us), like knowing how to swallow, digest, or to recognize faces, languages wouldn't differ this way, and we wouldn't need to learn them.

This cultural transmission of language in humankind contrasts with the **innateness** of the typical signs of nonhuman species, for example the basic songs of most birds or the signs of chimpanzees including facial expressions and a few vocalizations. Animal communication is the topic of chapter 12.

Because language learning by children is almost completely spontaneous, very regular, and seemingly effortless, especially when considered in relation to the complexity of human language, it is certain that we come into the world with a considerable amount of innate knowledge that makes language learning possible: in some sense, expectations about what is a possible language. Perhaps even a significant if highly abstract part of our adult linguistic knowledge is innate to the human species – a controversial issue which comes up elsewhere in this book (chapters 9 and 20). But it is also certain that a significant part of language, also, is not genetically encoded but culturally transmitted, intensively if effortlessly, especially before age four, but throughout life.

Because languages vary, and are learned, they always differ from generation to generation (the topic of chapters 23 and 24). The changed forms of language

persist as variants which distinguish the different varieties of language of social groups, including dialects (the topic of chapter 26), and as the different forms of language by which we express our understanding of different social circumstances (the topic of chapter of 27).

Suggestions for ADDITIONAL READING

Charles Sanders Peirce's writings on his philosophy are notoriously obscure. His basic ideas on his theory of signs may be found in the chapter 'Logic as semiotic: the theory of signs' (1897), in *Philosophical Writings of Peirce*, ed. by Justus Buchler (1955, pp. 98–120). A presentation of Peirce's theory in relation to language is found in chapter 1 of Raimo Anttila's *Historical and Comparative Linguistics* (1989). There is also James Jakob Liszka's *A General Introduction to the Semeiotic of Charles Sanders Peirce* (1996).

There are other compact introductions to linguistics, for example Jean Aitchison's *Teach Yourself Linguistics* (1992), Richard Hudson's *Invitation to Linguistics* (1984), and R. L. Trask's *Language: the Basics* (1995). There are many textbooks of introductory linguistics which, like this one, are written for students and include exercises, for example, Edward Finegan's *Language: its Structure and Use* (1994).

On the characteristics of the nature of language, see the first chapter of Anttila (1972). Convenient reference works in which to find more information on this and other specific topics of this book are the *International Encyclopedia of Linguistics* (1992) edited by William Bright, *The Linguistics Encyclopedia* (1992) edited by Kirsten Malmkjaer, and *The Cambridge Encyclopedia of Language*, edited by David Crystal (1987).

IMPORTANT CONCEPTS AND TERMS IN THIS CHAPTER

- sign
- form
- meaning
- communication
- language
- speech
- icon
- index
- symbol
- simple word
- complex word
- morpheme
- phonology
- phone
- phonological feature
- phonological rule
- morphology
- morphological rule
- syntax
- parts of speech
- syntactic rule
- arbitrariness
- displacement
- creativity

- orthographic form
- phonetic form
- translation equivalent
- synonym
- mimetic word
- lexicon
- grammar
- rule
- openness
- recursion
- duality
- grammaticality
- grammatical
- ungrammatical
- cultural transmission
- innateness

OUTLINE OF CHAPTER 1

1. **Three basic concepts: sign, communication, and language**
   1. Sign
   2. Communication
   3. Language
2. **Signs**
   1. Three types of signs
      1. Icon
      2. Index
      3. Symbol
   2. Linguistic signs
      1. Morphemes
      2. Symbolic nature of morphemes
      3. Evidence for the symbolic nature of linguistic signs
         1. Translation equivalents
         2. Synonyms
         3. Iconically expressible meanings
         4. Exceptionality of iconic and indexical morphemes
3. **Language**
   1. Two-part structure of sign systems
   2. Three substructures of language
      1. Phonology
      2. Morphology
      3. Syntax
   3. Other types of linguistic structure
   4. Six aspects of the general nature of language
      1. Arbitrariness
      2. Displacement
      3. Creativity
         1. Openness
         2. Recursion
      4. Duality
      5. Grammaticality
      6. Cultural transmission

EXAMPLES AND PRACTICE

EXAMPLE

1. Logos for international development communication. The journal *Development Communication Report* introduced in its June 1981 issue the set of 'logos' presented in figure 1.3. The *Report* defined *logo* as a 'visual symbol representing an idea or concept'. According to the *Report*, the logos were 'created for the Clearinghouse on Development Communication by Washington designer Timothy Bradford Ward'. It says that logos are 'a kind of visual shorthand', which 'guide readers quickly to subjects of special interest to them', and 'make it easier for readers to scan the newsletter to get an idea of the content of the articles'.

Notice some of the iconic, indexical, and symbolic aspects of these 'logos for international development communication'.

a. The 'audiocassette' logo is basically iconic. It has the actual appearance of an audiocassette.
b. The 'nutrition' logo is basically indexical. It has pictures of a fish, a fruit or vegetable (a pineapple?), and a bowl of rice.
c. The 'information' logo is basically symbolic. It consists of the letter *i*, which is only arbitrarily – in the English language – associated with this meaning.

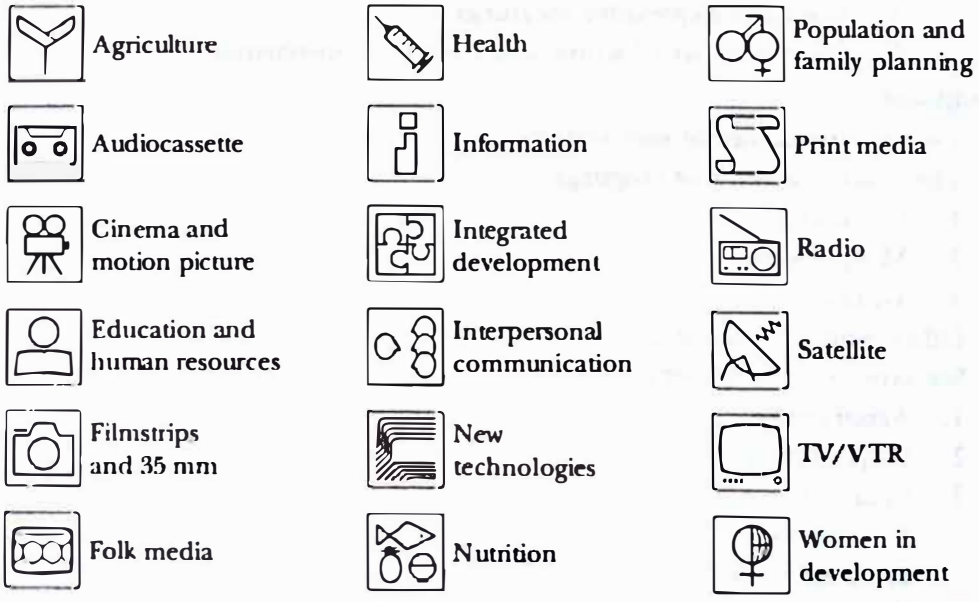


Figure 1.3 Logos for international development communication
Source: Development Communication Report, June 1981

PRACTICE

Identify six more of the logos for international development communication, two which are basically iconic, two which are basically indexical, and two of which are at least partly symbolic, and for each one say, as in the three examples above, what makes it iconic, indexical, or symbolic.

EXAMPLE

2. Corporation logos. Corporation logos are visual signs whose meaning is the corporation. A pair of examples is shown in figure 1.4, for Travelers Insurance and AT&T.

Often these logos mix iconic, indexical, and symbolic aspects with the intention to present a quick and clear impression of the product(s), service(s), name, and/or intended image of the corporation. Thus:

a. The Travelers Insurance logo is an umbrella (red in color, actually). An umbrella gives protection and so does insurance, so this may be understood as an indexical sign. The umbrella also looks sort of like a letter 'T', possibly a symbolic sign, the initial letter of the word 'Travelers'.

b. The AT&T logo has the English letters 'A', 'T', and 'T', a symbolic sign, and also a circle with lines crossing it. Perhaps the circle represents the world, and the lines represent electronic communication lines. These may be indexical signs, associations with the international electronic business of this corporation.

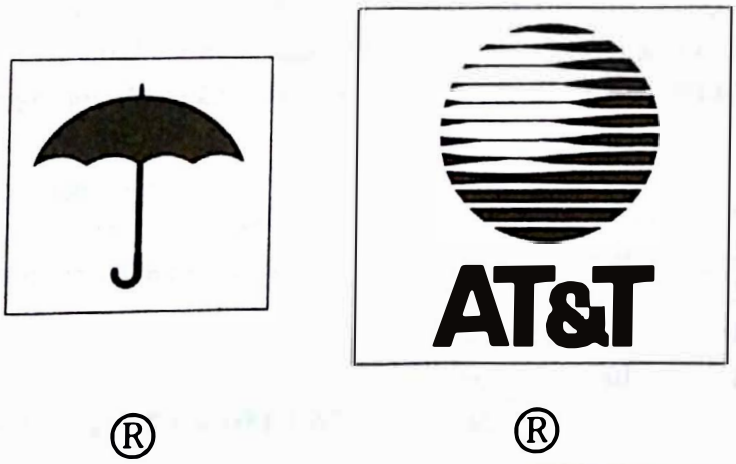


Figure 1.4 Two corporation logos: Travelers and AT&T

PRACTICE

Find in a magazine or an old (!) telephone book two more corporation logos which mix symbolic, indexical, and/or iconic aspects. Draw them or cut them out and attach them to a piece of paper, and briefly describe, as in the examples (a) and (b) above, the types of signs which they illustrate.

linear order, and for choosing among allomorphs. There is often good evidence for this when children say things like *rided*, *foots*, and *gooder*, instead of *rode*, *feet*, and *better*. When children have not heard the former, they must have formed these words as the products of the grammar they have created.

As adults we continue to do this sort of analysis, on speech and on written language. Hearing the pronunciation [ənáyshə̀ws], for example, given its context of occurrence, we decide whether this represents 'a nice house' or 'an ice house'. Seeing words like *cyberspace*, *cybertalk*, and *cybersex*, we abstract knowledge of a new morpheme *cyber*, a noun-prefix meaning something like 'having to do with computer-assisted communication'.

3.2. Morphological analysis of language data: Sidamo verbs

3.2.1. Data

Consider the following quite typical morphological data concerning verbs of the Ethiopian language Sidamo, written phonemically. The linguistic analysis of these data involves the same learning process as the child's: isolating and listing the morphemes and finding the rules, or generalizations, necessary for combining these morphemes into words.

SIDAMO VERBS

1.	aganno	'he drinks'	11.	agí	'he drank'
2.	murí	'he cut'	12.	itanno	'he eats'
3.	giiranno	'he burns'	13.	murtú	'she cut'
4.	laʔí	'he saw'	14.	umí	'he dug'
5.	umanno	'he digs'	15.	ittú	'she ate'
6.	fantú	'she opened'	16.	runtú	'she cursed'
7.	rumí	'he cursed'	17.	runtanno	'she curses'
8.	murtanno	'she cuts'	18.	laʔanno	'he sees'
9.	untú	'she dug'	19.	untanno	'she digs'
10.	fanί	'he opened'	20.	rumanno	'he curses'

3.2.2. Analysis

Notice in the data that the meaning 'drink' is always associated with the phoneme sequence /ag/. This morpheme, /ag/ 'drink', is a verb stem, always followed by something else within a word. Also notice in the data that the meaning 'he, past tense' is always associated with the form /í/. This morpheme, /í/ 'he, past tense', is a suffix, always attached to a verb stem.

3.2.2.1. Lexicon. Continuation of such analysis, matching meanings with forms, will result in the following list of associations: a partial lexicon of Sidamo consisting of 12 morphemes, eight verb stems and four verb–subject suffixes, again written phonemically.

LEXICON OF SIDAMO VERBS

ɑg-	'verb, drink'	ru{m, n}-	'verb, curse'
mur-	'verb, cut'	it-	'verb, eat'
giir-	'verb, burn'	-ɑnno	'he, present'
lɑʔ-	'verb, see'	-í	'he, past'
u{m, n}-	'verb, dig'	-tɑnno	'she, present'
fɑn-	'verb, open'	-tú	'she, past'

Two of the verb morphemes each have two allomorphs, /um, un-/ 'dig' and /rum, run-/ 'curse'. Analysis will show that the forms that end in /n/ (/un-, run-/) appear before the two suffixes which begin with /t/, /-tú/ and /-tɑnno/, and the forms that end in /m/ (/um-, rum-/) appear before the suffixes which begin with vowels.

3.2.2.2. Rules. Thus we can give the following morphological rules for Sidamo verbs employing the above twelve morphemes.

RULES FOR SIDAMO VERBS

a. A verb consists of a verb stem and another morpheme expressing person, gender and tense.
b. The person/gender/tense morpheme is a suffix on the verb stem.
c. Of morphemes ending in both /m/ and /n/, the allomorph with /n/ appears with suffixes beginning with /t/ and the allomorph with /m/ appears otherwise.

Analysis might be carried farther, and the rules might be stated differently. For example, we could separate the /t/ of -/tɑnno/ and /-tú/ as a separate morpheme meaning 'feminine', so that /-ɑnno/ and /-ú/ are just '3rd person', understood as masculine ('he') when feminine /t-/ is absent. We could say that the verb-stem allomorph with final /m/ appears with suffixes beginning with vowels, and the allomorph with /n/ appears otherwise. We could even say that the /n/ of morphemes which end in /m/ is the result of changing the /m/ to /n/ when a following suffix begins with /t/. Such data typically present a number of possibilities of analysis. As more and more data are examined, some of these possibilities have to be rejected.

Suggestions for ADDITIONAL READING

Words, and how we organize them in our mental dictionary, are the topic of *Words in the Mind* (1994) by Jean Aitchison. Two textbooks for the advanced study of morphology are *Morphological Theory* (1991) by Andrew Spencer, and *Current Morphology* (1992) by Andrew Carstairs-McCarthy. Lexical and grammatical categories in a variety of languages are surveyed in volume 3 of *Language Typology and Syntactic Description: Grammatical Categories and the Lexicon* (1992) edited by Timothy Shopen.

At this point, some readers may want to refresh their study and understanding of English grammar. Good books for this purpose are *English Grammar: an Outline* (1995) by Rodney Huddleston, and *English Grammar: Principles and Facts* (1995) by Jeffrey P. Kaplan.

IMPORTANT CONCEPTS AND TERMS IN THIS CHAPTER

- lexicon
- mental dictionary
- lexical entries
- parts of speech
- nouns
- verbs
- adjectives
- subject–verb agreement
- noun classes
- citation forms
- topic
- subject
- object
- causative
- intransitive verb
- transitive verb
- morphological rule
- morphophonemic rule
- hierarchical structure
- morphological analysis

OUTLINE OF CHAPTER 5

1. **Lexicon**
   1. Organization of the lexicon
   2. Lexical morphology: parts of speech
      1. Nouns
      2. Verbs
      3. Adjectives
   3. Nouns, verbs, and adjectives in Amharic

4. Grammatical morphology in English and other languages
    1. Subject-verb agreement
    2. Swahili noun classes
    3. Spanish verb classes
    4. Japanese topics, subjects, and objects
    5. Amharic causative verbs

2. Morphological rules

1. Morphology of possessive nouns in English
2. Morphology of possessive nouns in Amharic
3. Hierarchical structure of words

3. Morphological analysis of languages

1. Morphological analysis in language learning
2. Morphological analysis of language data: Sidamo verbs
    1. Data
    2. Analysis
        1. Lexicon
        2. Rules

EXAMPLES AND PRACTICE

EXAMPLE

1. Morphemes in the mental dictionary. Unlike in book-dictionaries, words can be accessed in our mental dictionaries in various ways: by first phoneme, first letter, synonymy, rhyme, semantic feature, association in a context, etc.

PRACTICE

Fill in the blanks with words which you access in your English mental dictionary according to the characteristic at the top of each column. A few of the blanks are filled in as examples.

		First phone	First letter	Synonym	Rhyme	Opposite	Associated word
a.	love	_____	_____	adore	dove	hate	_____
b.	send	sit	_____	_____	_____	_____	letter
c.	happy	_____	help	_____	_____	_____	_____
d.	cat	_____	_____	_____	_____	_____	_____
e.	apple	_____	_____	_____	_____	_____	_____
f.	quick	_____	_____	_____	_____	_____	_____
g.	over	_____	_____	_____	_____	_____	_____
h.	new	_____	_____	_____	_____	_____	_____
i.	harm	_____	_____	_____	_____	_____	_____
j.	road	_____	_____	_____	_____	_____	_____

EXAMPLE

2. Word structure. It was noted in §2.3, above, that *unenjoyable* may be said to have the structure [un [enjoy + able]] and *resettlement* the structure [[re + settle] ment]. This is so because *enjoy* + *able* is a likely combination but *un* + *enjoy* is not, and *re* + *settle* is a likely combination but *re* + Noun is not.

PRACTICE

Match the six words (a)–(f) with the six word structures of figure 5.1, by writing the parts of the words in the blanks: (a) *engagements*, (b) *remagnetize*, (c) *winterizes*, (d) *nonconformist*, (e) *darkened*, (f) *predemocratic*. The first step should be to match the part of speech of each word (noun, verb, or adjective) with that shown at the top of each structure.

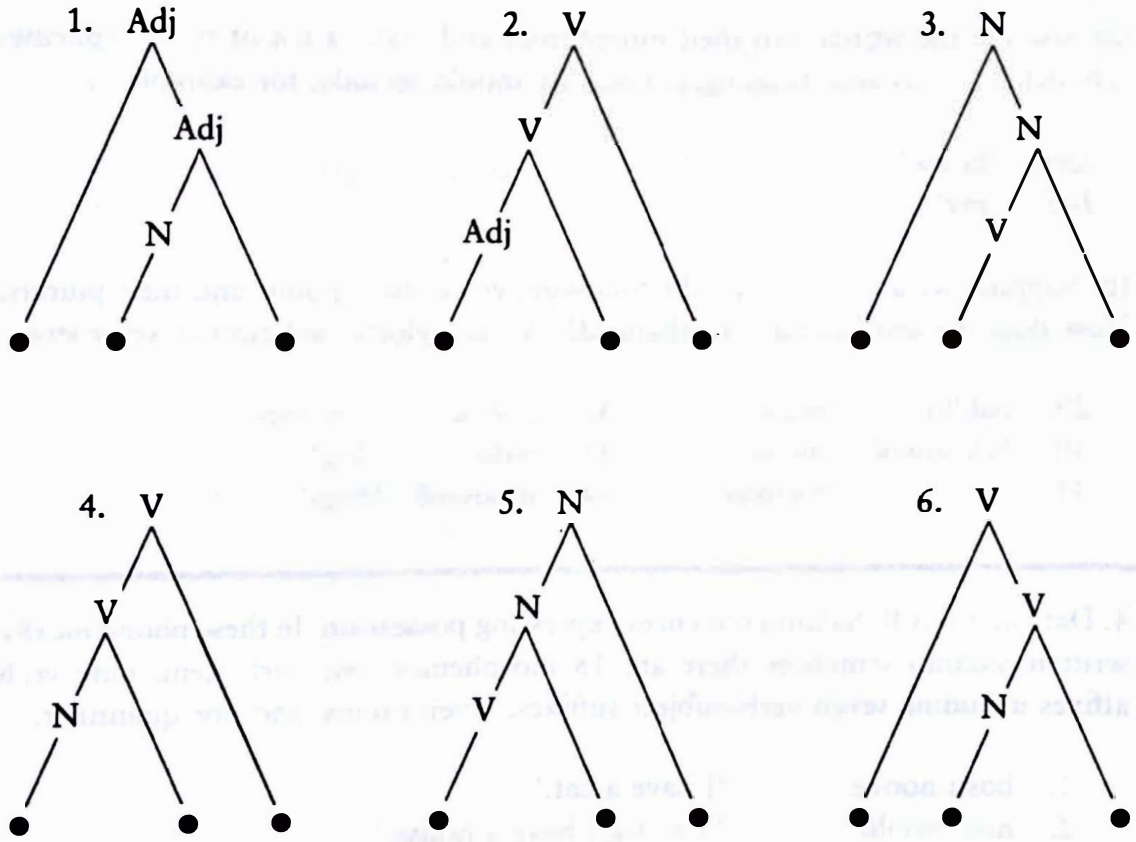


Figure 5.1 Six word structures

EXAMPLE

3. Data analysis I: Amharic nouns. The following list of Amharic nouns, written phonemically, includes twelve morphemes: five nouns and seven suffixes. 'M.sg.' and 'f.sg.' mean 'masculine singular' and 'feminine singular', respectively; /ɨ/ is a high central unrounded vowel, not ordinarily heard in English.

1. bet	'house'	4. betɨh	'your (m.sg.) house'
2. bete	'my house'	5. fərəsoč	'horses'
3. betɨš	'your (f.sg.) house'	6. fərəse	'my horse'

7.	fərəsiš	'your (f.sg.) horse'	18.	betu	'his house'
8.	fərəsih	'your (m.sg.) horse'	19.	betoču	'his houses'
9.	kisoč	'pockets'	20.	kiswɑ	'her pocket'
10.	kise	'my pocket'	21.	kisočwɑ	'her pockets'
11.	kisiš	'your (f.sg.) pocket'	22.	fərəswɑ	'her horse'
12.	kisih	'your (m.sg.) pocket'	23.	fərəsočwɑ	'her horses'
13.	betoče	'my houses'	24.	səʔɑtɑččɨn	'our clock'
14.	betočiš	your (f.sg.) houses'	25.	fərəsoču	'his horses'
15.	betɑččɨn	'our house'	26.	zəmədе	'my relative'
16.	fərəsɑččɨn	'our horse'	27.	zəmədoče	'my relatives'
17.	səʔɑtoč	'clocks'	28.	zəmədočɑččɨn	'our relatives'

PRACTICE

(a) Analyze the words into their morphemes and make a list of the morphemes (phonemic forms and meanings). Your list should include, for example:

/bet/ 'house'
/-e/ 'my'

(b) Suppose we add to the list the following vowel-final nouns and their plurals. How does the analysis have to changed? (/k'/ is a glottalized ejective velar stop).

29.	bək'lo	'mule'	32.	eliwoč	'tortoises'
30.	bək'lowoč	'mules'	33.	wišɑ	'dog'
31.	eli	'tortoise'	34.	wišɑwoč	'dogs'

EXAMPLE

4. Data analysis II: Sidamo sentences expressing possession. In these phonemically written Sidamo sentences there are 18 morphemes: one verb stem, nine verb affixes including seven verb–subject suffixes, seven nouns, and one quantifier.

1.	bɑsu nooʔe	'I have a cat.'
2.	mini noohe	'You (sg.) have a house.'
3.	sɑɑ noosi	'He has a cow.'
4.	waṭi noose	'She has money.'
5.	ǰiro noonke	'We have wealth.'
6.	mini nooʔne	'You (pl.) have a house.'
7.	ǰiro noonsɑ	'They have wealth.'
8.	bɑsu diṇooʔe	'I don't have a cat.'
9.	mini nooseni	'Does she have a house?'
10.	sɑɑ nooʔne	'You (pl.) have a cow.'
11.	sɑɑ dinoosini	'Doesn't he have a cow?'
12.	wɑši dinoose	'She doesn't have a dog.'
13.	ullɑ nooheni	'Do you (sg.) have land?'

14. lowo ulla dinooʔe 'I don't have much land.'
15. lowo saa noohe 'You (sg.) have many cattle.'

PRACTICE

Analyze the Sidamo sentences and list the 18 morphemes (form and meaning). Your list should include, for example, /basu/ 'cat'.

EXAMPLE

5. Data analysis III: Samoan sentences (data from Langacker 1972). Samoan is the language of Samoa. Study these Samoan sentences, written phonemically. There are 16 morphemes.

1. e faʔapaʔū e faifeʔau le niu 'A missionary fells the coconut palm.'
2. sa puʔe e le fafine le pusi 'The woman caught the cat.'
3. e faʔapaʔū e le fafine niu 'The woman fells a coconut palm.'
4. e puʔe upega siaosi 'A net catches George.'
5. sa paʔū le pusi 'The cat fell.'
6. sa puʔe le upega le faifeʔau 'The net caught the missionary.'
7. e paʔū le upega 'The net falls.'
8. sa faʔapaʔū e malia le laʔau 'Mary felled the tree.'
9. sa puʔe e siaosi le pusi i le upega 'George caught the cat with the net.'
10. e puʔe e le faifeʔau le pusi i upega 'The missionary catches the cat with a net.'

PRACTICE

List the 16 Samoan morphemes (form and meaning). There are two morphemes with the form /e/. One of these has grammatical function unlike anything in English; describe its meaning as precisely and concisely as you can.

SENTENCES AND SYNTAX

This chapter is about the nature of syntax, sentence structure, especially the unbounded length of sentences, how this unboundedness is possible, and how we deal with it through abstract knowledge.

1. UNBOUNDEDNESS OF SYNTAX

Every language has a certain number of phonemes, and an inventory of morphemes (a mental dictionary), but there can be no inventory of sentences. This is apparent in the fact that every day, repeatedly, we freely speak and understand sentences which we have never spoken or heard before. Probably, indeed, the reader has never before encountered any of the sentences in this book. Despite their complete novelty as whole sentences, hopefully you will have little difficulty understanding them. Take the following quite ordinary sentence, presumably new to you:

The corner grocery sells motor oil but it closes at ten.

The words are few and ordinary, and the topic mundane, just like most of the sentences we utter and encounter. It is likely, indeed, that most sentences which we encounter are new to us, because the number of sentences of a language is **unbounded.**

Even the length of sentences is unbounded. Given any sentence in any language, no speaker of the language will have difficulty adding one more word to it:

What? What happened? What happened next? Guess what happened next. I guessed what happened next. You know I guessed what happened next. Do

2.2. Parts of speech

In our formal grammar with phrase structure rules, the parts of speech such as determiner, noun, and verb appear as the 'terminal nodes' at the bottom of the tree. We can partially understand our knowledge of the parts of speech, then, as knowledge of where words of particular types may be 'plugged in' at the bottom of tree diagrams. In the tree diagram of figure 7.3, *the* and *some* are determiners, *pigs* and *slop* are nouns, *ate* is a verb, and *nice* is an adjective. Provided we plug in the words appropriately, basic requirements of the grammar are fulfilled: *the nice slop ate some pigs* is somewhat sensible or grammatical, if a bit unusual, meaning-wise, whereas plugging in words in complete violation of their parts of speech yields a fully ungrammatical sentence, just a string of words, really, as in **some the nice ate slop pigs.*

2.3. Heads and modifiers

The head of a phrase is always the included word of the category of the phrase, and the other words are specifiers or modifiers, by rule 3 (a distinction not developed here). Thus the head of an NP is its N, of VP its V, etc. There is an ambiguity when we talk about subject, object, etc.: the subject of a sentence is the highest NP of that sentence, and the head of that NP.

3. SYNTACTIC CATEGORIES OF VERBS

3.1. Four types of verb complement

In addition to specifying syntactic functions, the phrase structure rules formalize our knowledge about verbs and their possible **verb complements** within the predicate (VP). This is so, because the phrase structure rules establish or define a relatively small number of structures, or frames, within which verbs may appear. Rule 5 for English, for example, defines the verb phrase as having, after the verb, maybe a noun, maybe an adjective, maybe a sentence, and maybe none of these. The rule thus defines four **syntactic categories** of verb: (a) verbs which take nouns as their complements, (b) those which take adjectives, (c) those which take sentences, and (d) those which have no complement. Following are five examples of each type:

EXAMPLES OF TYPES OF ENGLISH VERB ACCORDING TO THEIR COMPLEMENTS

Noun Complement	*Adjective Complement*	*Sentence Complement*	*No Complement*
see	be	say	fall
eat	look	imagine	smile

2.2.6. *Overextension and underextension of meaning*

Phenomena known as overextension and underextension show that first language learners often have word meanings which are broader or narrower than those which adults have and which the children will, eventually, acquire.

In overextension a word has a broader range of meaning than the apparently equivalent adult word. The child's word for 'dog', for example, may be used for cats and various stuffed animals. Its meaning seems to be something like 'furry animal-like thing'. The child's word for 'daddy', unhappily for daddy, may be used for all large human males. Underextensions are also seen, in which a word has a narrower range of meaning than the apparently equivalent adult word. A child's word for 'dog', for example, may be used for a single dog, as if it were, in fact, the dog's name.

2.2.7. *MLU*

'MLU' abbreviates 'mean length of utterance'. It expresses the average number of morphemes in one of the child's utterances – not always recognizable as sentences. MLU is difficult to calculate, but, counted according to strict understandings about what qualifies as a morpheme and as an occasion of use of a morpheme, it appears that by about eighteen months, a year and a half, an English-learning child's MLU may often average one and a half. The child has virtually no bound morphemes at this time, so each morpheme is a word, basically, and MLU expresses the average number of words per utterance. A good average for MLU at age three appears to be about three, or twice that of MLU at one and a half.

2.3. Two-word sentences

2.3.1. *Telegraphic speech*

The second stage of two-word sentences, from about 18 months, is characterized by telegraphic speech, so termed because the child learner's utterances at this time are like those of a telegram, lacking grammatical morphemes. Telegrams were paid for according to the number of words, so senders of telegrams would omit the unnecessary words and these were mostly grammatical morphemes: for example, 'Having wonderful time; wish you here', rather than 'we are having a wonderful time, and wish that you were here'. The absent words *are*, *a*, *and*, *that*, and *were* are all grammatical morphemes (and among the most frequent words of the language). A child at this stage says things like 'There rabbit', not 'There's a rabbit,' and 'Snowy gone', not 'Snowy is gone'.

2.3.2. *Syntax of two-word sentences*

When children first begin to assemble sentences with two or more words, there is already evidence of lexical and grammatical structure. Words appear to be classified by the child into two groups, which might be called object words, of