

心理语言学

PSYCHOLINGUISTICS

· 刘希彦 刘桂玲 合著 ·

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Preface

Psycholinguistics is a relatively young and rapidly growing field. It is the discipline that investigates and describes the psychological processes that make it possible for humans to master and use language. In order to study these mental processes, psychologists and linguists have to bring together theoretical and empirical tools of both psychology and linguistics. Thus psycholinguistics, a hybrid of psychology and linguistics, came into being.

Linguists are engaged in the formal description of the structure of language. This structure includes speech sounds and meanings, and complex system of grammar, which relates sounds and meanings. Psycholinguists want to know how linguistic structures are acquired by children, and how they are operated in the processes of speaking, understanding, and remembering. Psycholinguists, as Foss and Hakes (xii) write, are typically concerned with the following three questions: (1) "What does one know when one knows a language"? (2) "How does an individual use his or her knowledge when producing or comprehending speech"? (3) "How did we get this way? That is, how does one acquire the knowledge about language and the ability to use it" ?

These questions indicate again that Psycholinguists are concerned primarily with mental structures and operations that make communication possible.

Ten chapters focus on language and its structure, nature and scope of psycholinguistic inquiry, language comprehension, meaning and memory, psycholinguistic account of reading, speech errors as

linguistic evidence for sentence production processes, language acquisition, language and thought, and language and brain.

As a monograph, the book is also intended as a text for graduate students. Its goal is to convey fundamental information about new achievements and challenges in the study of the field. It has been updated so as to include new materials and recent advances in the field, and to take account of new developments and approaches. The book also reflects our preference for an interdisciplinary approach to the problems of Psycholinguistics.

From the reference page of each chapter, the reader will quickly come to know how hard we try to make a broad, but fair, coverage of the many topics that have taken the interest of psycholinguists over the past few decades.

Liu Xiyan and Liu Guiling

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Table of Contents

Chapter 1. Language and its Structure	1
1.1 Language	1
1.1.1 What is language?.....	1
1.1.1.1 Arbitrariness.....	3
1.1.1.2 Duality.....	4
1.1.1.3 Productivity.....	5
1.1.1.4 Displacement.....	6
1.1.2 Is language species specific?.....	7
1.2 Scientific Study of Language.....	10
1.2.1 Competence and Performance.....	11
1.2.2 Levels of Language Analysis.....	13
1.2.2.1 Phonology—The System of Sounds.....	14
1.2.2.2 Semantics—The System of Meaning.....	18
1.2.2.3 Syntax—The Structure of Language.....	23
1.2.2.4 Pragmatics—The Actual Use of Language.....	27
Summary.....	29
References.....	30
Chapter 2. An Introduction to Psycholinguistics.....	32
2.1 The Scope of Psycholinguistics.....	32
2.2 Theoretical Foundations.....	35
2.2.1 Structuralism.....	35
2.2.2 Linguistic Transformationalism.....	40
2.2.3 Behaviorism.....	48
2.2.4 The Cognitive Approach.....	54
2.3 The History of Psycholinguistics.....	56
2.3.1 The Origin of Psycholinguistics.....	57
2.3.2 The Development of Psycholinguistics.....	58

2.3.2.1 Formative Period.....	60
2.3.2.2 Linguistic Period.....	63
2.3.2.3 Psycholinguistics Today.....	66
Summary.....	69
References.....	70
Chapter 3. Language Comprehension.....	73
3.1 The Perception of Speech Sounds.....	74
3.1.1 The Perception of Vowels.....	76
3.1.2 The Perception of Consonants.....	79
3.1.3 The Nature of Speech Perception.....	82
3.2 Lexical Access.....	85
3.2.1 The Basic Perceptual Unit.....	85
3.2.2 Factors Affecting Lexical Access.....	86
3.2.2.1 Word Frequency and Recency.....	86
3.2.2.2 Imageability and Concreteness and Abstractness....	88
3.2.2.3 Context.....	89
3.3 Syntactic Processing.....	91
3.3.1 Parsing Strategies.....	91
3.3.2 Ambiguity.....	96
3.3.2.1 Lexical Ambiguity.....	96
3.3.2.2 Syntactic Ambiguity.....	99
3.3.3 Models of Sentence Parsing.....	102
3.3.3.1 The Autonomous Model.....	102
3.3.3.2 The Interactive Model.....	104
3.4 Understanding of Non-literal Meaning.....	107
3.4.1 Sarcasms, Metaphors, Indirect Speech Acts.....	108
3.4.2 Three Stage Processing.....	109
Summary.....	111
References.....	112

Chapter 4. Meaning and Memory.....	116
4.1 Semantic Representation of the Mental Lexicon.....	116
4.1.1 Organization of the Mental Lexicon.....	116
4.1.2 Models of Semantic Representation of the Mental Lexicon...	123
4.1.2.1 Featural Models.....	123
4.1.2.2 Schema or Prototype Models.....	129
4.1.2.3 Procedural Models.....	133
4.2 Models of Lexical Access.....	136
4.2.1 Serial Search Models.....	137
4.2.2 Parallel Access Models.....	141
4.2.2.1 Logogen Model.....	141
4.2.2.2 Connectionist Models.....	143
4.2.2.3 Cohort Model.....	145
4.3 Knowledge Representation in Memory.....	147
4.3.1 Imagery Models.....	147
4.3.2 Propositional Models.....	149
4.3.3 Procedural Models.....	151
4.3.4 Schema Models.....	152
Summary.....	154
References.....	155
Chapter 5. A Psychological Account of Reading.....	159
5.1 Relationship Between Sentence Perception and Sentence Reading.....	159
5.1.1 The Direct Access Hypothesis.....	160
5.1.2 Speech Recoding Hypothesis.....	163
5.1.3 The Dual-Encoding Hypothesis.....	168
5.2 Factors Affecting Discourse Processing.....	169
5.2.1 Cohesive Devices.....	169
5.2.2 Textual Knowledge.....	174
5.2.3 World Knowledge.....	179

5.3 Individual Differences in Reading.....	183
5.3.1 Eye Movements.....	184
5.3.2 Working Memory Capacity.....	186
5.3.3 Speed of Encoding Letters.....	189
5.3.4 Age.....	190
5.3.5 Phonemic coding in Working Memory.....	192
5.4 Elements in the Representation of Texts in Memory.....	193
5.4.1 Causal Relations.....	194
5.4.2 Anaphoric Relations.....	198
5.4.3 Inference.....	199
Summary.....	205
References.....	206
Chapter 6. Speech Production.....	213
6.1 Anomalies in Sentence Production.....	213
6.1.1 Speech Errors.....	214
6.1.2 Disfluencies.....	221
6.2 Issues in Sentence Production.....	224
6.2.1 What are the planning units?.....	224
6.2.2 How is the mental lexicon organized?.....	227
6.3 Models of Sentence Production.....	230
6.3.1 Garrett's Model.....	230
6.3.2 Shattuck-Hufnagel's Model.....	233
6.3.3 Dell's Model.....	235
6.4 Causes of Speech Errors.....	238
6.4.1 The Psychoanalytic Approach.....	238
6.4.2 The Psycholinguistic Approach.....	242
6.4.2.1 Lexical Bias.....	242
6.4.2.2 The Repeated-Phoneme Effect.....	243
6.4.2.3 Phonemic Similarity.....	244

6.4.2.4 Environmental Contamination..	245
6.4.2.5 Language Productivity.....	246
6.4.2.6 Competing Plans.....	247
Summary.....	248
References.....	249
Chapter 7. Language Acquisition I.....	253
7.1 Theories of Child Language Acquisition.....	253
7.1.1 The Behavioristic View.....	254
7.1.2 The Nativist View.....	260
7.1.3 The Social Interactionist View.....	266
7.2 Some Issues of Language Acquisition.....	267
7.2.1 Caretaker's Role in Child Language Acquisition.....	267
7.2.2 Stages of Language Development.....	272
Summary.....	275
References.....	276
Chapter 8. Language Acquisition II.....	279
8.1 Phonological Development.....	279
8.1.1 Jakobsonian Postulation.....	279
8.1.2 Early Phonology.....	283
8.2 Semantic Development.....	289
8.2.1 Learning Words.....	289
8.2.2 Over- and Under-extensions.....	293
8.2.3 Theories of Early Semantic Development.....	295
8.2.4 Later Semantic Development.....	301
8.3 Syntactic Development.....	306
8.3.1 Acquisition of Morphology.....	308
8.3.2 Putting Words Together.....	313
8.3.3 Later Syntactic Development.....	318

8.3.3.1 Negatives.....	318
8.3.3.2 Questions.....	321
8.3.3.3 Passives.....	322
8.3.3.4 Complex Sentences.....	323
Summary.....	325
References.....	326
Chapter 9. Language and Thought.....	332
9.1 Is thought language?.....	332
9.2 Linguistic Relativity.....	333
9.2.1 Evidence in Favor of the Hypothesis.....	335
9.2.2 Evidence Against the Hypothesis.....	340
9.3 Language as Reflection of Thought.....	342
9.4 Linguistic Universals.....	345
Summary.....	348
References.....	348
Chapter 10. Language and the Brain.....	351
10.1 Hemisphere Differences.....	351
10.2 Models of Hemispheric Specialization.....	358
10.3 Aphasia.....	360
10.4 Development of Laterality.....	363
Summary.....	366
References.....	367
Glossary.....	370

Chapter 1

Language and its Structure

The study of language is essential to psycholinguistic studies. This chapter will be concerned with the nature of language and the study of language as a scientific discipline and it will first try to answer some of the questions about language.

What is language? How does it differ from animal communication systems? What are the characteristics of human languages? Traditionally, what are the levels of analysis in the scope of linguistics?

People communicate in many ways, but there is no doubt about the claim that language is the most efficient means of human communication.

1.1 Language

We use language everyday to ask for things, to give commands to exchange ideas or to achieve social communication. But as an average language user, we have always taken the command of language ability for granted and no one has given our unique ability to use language a serious thought.

1.1.1 What is language?

Different linguists have given various definitions to the word "language" (Bloch & Trager 1942; Hall 1968; Robins 1979; Chomsky 1957), but maybe most of them would agree that language is a system

of arbitrary vocal symbols used for human communication.

From the definition we can see that it stresses the “vocal” quality of language, and most linguists also hold the opinion that speech is prior to writing. This can be seen from the following four aspects:

a) Historically, speech existed long before writing came into being and this is the reason why we only have the remains of writing or symbols of the last several thousand years. There is no known human society existing or having existed without the capacity of speech and nowadays still many languages, well-developed or primitive in form, do not have writing systems at all. In some human societies, although there are both spoken signals and written symbols for the language they use, still a large number of the people in the society are illiterate.

b) Genetically, children learn to speak much earlier than they learn to write. During a very short period of time, roughly less than four or five years, they can have a good command of a spoken language and can use it very productively and flexibly, but it will take them twice the length of the time to learn to write in that language, still only limitedly and rather awkwardly.

c) Structurally, speech is more basic than writing. The spoken language finds expression in sounds and the written language in letters, characters or other symbols. English speakers know that *zlib* and *ngaluke* could not be English words because the English phonology can not explain and does not permit such formations. That is to say, they have no way of reading such words. Speaking presupposes writing.

d) Functionally, spoken language serves human beings more extensively than written language, and the written language is used as

a substitute for spoken language only when the latter fails. That is to say, when “vocal-audio communication is impossible, unreliable or inefficient” (Lyons 1981). Nowadays there are telephones and tape-recorders, the former making the use of spoken language across distance possible and the latter making it possible for speech sounds to be recorded like written symbols took down speech forms in the old days. Because the research interest in psycholinguistics is the use of language in natural settings, in this book speech will be given special attention.

As has been mentioned, language is “arbitrary” and is “used for human communication”, what properties does a language have that underlie the processes of language production, understanding, and acquisition and make it a system suitable for human communication? Hockett (1960, 1966) concludes through the study of human and animal communication systems that there are a number of “design features” such as displacement, arbitrariness, openness and duality, that appear to distinguish the two kinds of systems and he claims that such features are universal among human languages. Some of the properties of language will be discussed in the following paragraphs thus providing a deeper understanding of the structure of the system itself.

1.1.1.1 Arbitrariness

Have you ever thought of the question “Why is the thing I am writing with called “*pen*” in English, “*bi*” in Chinese “*hon*” in Japanese and in many other ways in other languages?” Undoubtedly borrowed words appear similar across languages, but with linguistic knowledge you know that people named things the way they are

called today when they invented languages and the relationship between meanings and sounds is arbitrary. Although there are words in every language that imitate natural sounds, i.e., onomatopoeia, such as “*creak*” “*bark*”, and “*jingle*” in English and “*zhiga*” (吱嘎), “*wangwang*” (汪汪), and “*dingdang*” (叮当) in Chinese the forefathers of the Anglo-Saxons might as well use the word *bird* to denote the animal denoted by “*dog*” now, and our ancestors might possibly use the sound string “*ben*” to refer to the thing we are writing with for another thought. As is illustrated in the classical lines:

What's in a name?

That which we call a rose by another word

would smell as sweet

Hockett (1966) defines the word “arbitrariness” as follows: “the relation between a meaningful element in language and its denotation is independent of any physical resemblance between the two.” The quality of arbitrariness also holds true for the grammatical structures of languages. There are roughly three types of sentence orders in all languages: SVO, SOV and VSO (Here S stands for subject, V stands for predicate verb, and O stands for object), and phrases in some languages are head-first, while in others they are head-last.

1.1.1.2 Duality

Language is a means of relating two different kinds of patterns or forms of representation — sound and meaning. The representation of sound the phonological system, as an external representation, and the representation of meaning, the semantic system, as an internal representation are closely inter-related by the syntactic system the three together forming a meaningful whole (The three levels of

analysis will be further discussed in 1.2.).

We can take the external and internal systems as deep layers for the different codes. The phonological code is the form in which language is transmitted from one person to another that is from speaker to hearer. It consists of phonological elements that do not have meanings in themselves, and these elements will have meanings when they are strung together under the phonological constraints of the language. The semantic code is the tool with which the partners can exchange their communicative intentions. In another word the semantic code is the representation of the content of communication. The semantic code is very difficult to specify because it is a mental representation, and therefore it can not be observed directly. The syntactic system is essentially a means of relating the two codes with each other. The syntactic system helps to translate the phonological representation into the semantic representation and vice versa. The syntactic system must be very systematic and versatile as it can translate two systems, not directly related very efficiently. The syntax of a language can help the speaker construct a meaning representation of the message he wishes to communicate so that the hearer could understand what the speaker means by using the same set of syntactic rules.

1.1.1.3 Productivity

Productivity, or creativity or open-endedness designates the nature of language that enables the users to produce and understand an infinite variety of stimulus-free utterances. As has been claimed by Titone (1985), It is highly unlikely that a reader would have previously heard or read the following sentence: My kangaroo

swallowed the pencil that you put on the TV set last night. Nevertheless all readers will understand the meaning of this sentence without any difficulty and it is equally possible for us to produce endless other very long or bizarre sentences. Another important aspect of linguistic open-endedness is the ability of a speech community to formulate new words to designate new concepts, which is also based on the arbitrariness of language. This is done by inventing totally new vocabulary in accordance with the phonological and morphological constraints present in the language (e.g., *xerox*, *hippies*, etc.), or giving new meanings to already existing words (e.g., *chip*, *disc*, etc.); sometimes this is done by joining words or parts of words that had previously existed as in the use of classical affixes in scientific terminology (e.g., *television*, *internet*, etc.); and sometimes this is done by borrowing words from other languages (e.g., *naive*, *gusto*, etc.).

1.1.1.4 Displacement

Language can be used to refer to things that are not real or present, that will possibly happen, or that the speaker has never seen before. In other words language can be used to refer to things that only exist in the speaker's mind and this is what we mean by "displacement". Language allows us to express stimulus-free meanings. This property is not possessed by animal communication systems which are stimulus-bound, or fixed to a given situation even though the well-known work with chimpanzees (see 1.1.2) has demonstrated that some primates have the ability to learn complex systems. This property of language enables us to talk about a wide range of things, free from the barriers of time and place. This involves

the ability of abstract thinking of human beings. Animals can not do this. We can talk about Pyreneese Mountains although we have never climbed that range, only seeing the scene from pictures or television shows or just out of imagination. We can talk about the things we ate last year or the feeling we had long ago. We can talk about dragon or phoenix although such things do not exist in the world at all. Such ability is called displacement.

1.1.2 Is language species specific?

Nearly all the human beings, except a few pathological exceptions can acquire a certain language in not a very long period of time (usually four or five years), and according to some linguists, the versatile and flexible use of language is the unique feature that sets human beings apart from the other species though bees, dolphins and other animals are capable of fairly sophisticated message exchanges. As Bertrand Russell once said “No matter how eloquently a dog may bark he cannot tell you that his parents were poor and honest.” It is said that language is species specific, but is it so?

There have been attempts to teach human language to animals particularly primates, but speaking involves the use of articulate system and the ability to think about complex ideas. On the one hand most animals do not have such flexible organs; on the other, they can not think properly. Although a parrot may always say “pretty bird” she may not know that “You are a pretty bird” and “You look very beautiful” mean almost the same as the sentence she always utters. In Taylor and Taylor’s *Psycholinguistics: Learning and using language* (1990) and Slobin’s *Psycholinguistics* (1971) we can find the following summary of the experiments of teaching animals language

forms, which can give us some clues in this respect:

Speech Sounds Hayes (1951) tries to teach his chimp, Viki spoken language. After six years of intensive training and living with the Hayeses, the chimp learned to make only a few words equivalent to *mama*, *papa*, and *cup* in English. But is the inability to acquire language due to the fact that chimps lack essential features of the human articulate system.

Gestures Gardner and Gardner (1975) did not take the trouble to challenge the articulatory abilities of chimps. Instead, they taught American Sign Language (ASL in short) to their one-year-old chimp, Washoe. At age three and a half, Washoe had 132 items of expressive vocabulary, with which she could produce “sentences” and answer questions at a rudimentary level:

(1) Trainer: *What you want?*

Washoe: *You me out.*

Washoe learned more than just symbol-referent relations because the same object can be referred to by different signs due to various situations. For example, for the same thing—Washoe’s bed—she will give different answers to different questions from the experimenter:

(2) Experimenter: *What that?*

Washoe: *Bed.*

(3) Experimenter: *Whose?*

Washoe: *Mine.*

(4) Experimenter: *What color?*

Washoe: *Red.*

Here the symbols are used meaningfully or even thoughtfully and it can not be termed as rote learning or conditioned response.

Washoe’s adopted son, Loulis, picked up the gesture language