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ENG511 Midterm Short Notes BY PIN2 and MUHAMMAD (MAS All Rounder)

Lesson-01

Topic- 001: Introduction to Psycholinguistics

Psycholinguistics is the study of how individuals comprehend, produce, and acquire language. The study of psycholinguistics is part of the field of cognitive science. Cognitive science reflects the insights of psychology, linguistics, and, to a lesser extent, fields such as artificial intelligence, neuroscience, and philosophy. Psycholinguistics stresses the knowledge of language and the cognitive processes involved in ordinary language use. Psycholinguists are also interested in the social rules involved in language use and the brain mechanisms associated with language. Contemporary interest in psycholinguistics began in the 1950s, although important precursors existed earlier in the 20th century.

Topic-002: The Nature of Language: Psycholinguistics

Language in general is important not only because it distinguishes human beings from all other animals on the earth but because, directly or indirectly, it makes possible the elaborate organization of a civilized society and language in general is

interesting because although everyone knows and uses a specific language, few people understand what they know. Becoming self-consciously aware of what is known unself-consciously carries a special brand of excitement.

Topic-003: The Scope of Psycholinguistics

Psycholinguistics is part of the emerging field of study called cognitive science. Cognitive science is an interdisciplinary venture that draws upon the insights of psychologists, linguists, computer scientists, neuroscientists, and philosophers to study the mind and mental processes. Some of the topics that have been studied by cognitive scientists include problem solving, memory, imagery, and language. Anyone who is seriously interested in any of these topics must be prepared to cross disciplinary lines, for the topics do not belong to any one field of study but rather are treated in distinctive and yet complementary ways by various disciplines. As the name implies, psycholinguistics is principally an integration of the fields of psychology and linguistics. Linguistics is the branch of science that studies the origin, structure, and use of language. Like most interdisciplinary fields; however, psycholinguistics has a rich heritage that includes contributions from diverse intellectual traditions.

Topic-004: Language Processes and Linguistic Knowledge

At its heart, psycholinguistic work consists of two questions. One is, what knowledge of language is needed for us to use language? In a sense, we must know a language to use it, but we are not always fully aware of this knowledge. A distinction may be drawn between tacit knowledge and explicit knowledge. Tacit knowledge refers to the knowledge of how to perform various acts, whereas explicit knowledge refers to the knowledge of the processes or mechanisms used in these acts. We sometimes know how to do something without knowing how we do it. For instance, a baseball pitcher might know how to throw a baseball 90 miles an hour but might have little or no explicit knowledge of the muscle groups that are involved in this act. Similarly, we may distinguish between knowing how to speak and knowing what processes are involved in producing speech. Generally speaking, much of our linguistic knowledge is tacit rather than explicit.

Four broad areas of language knowledge may be distinguished. Semantics deals with the meanings of sentences and words. Syntax involves the grammatical arrangement of words within the sentence. Phonology concerns the system of sounds in a language. Pragmatics entails the social rules involved in language use. It is not ordinarily productive to ask people explicitly what they know about these aspects of language.

Topic-005: The Historical Context

The history of psycholinguistics can be divided into two periods of interdisciplinary activity separated by several decades of behaviorism. The first period was dominated by Wundt who presented a cognitive view of language. The behaviorist position later held that verbal behavior can be explained in terms of environmental contingencies of reinforcement and punishment. This view was criticized by Chomsky, leading to a second wave of psycholinguistic activity. This period was characterized by an effort to incorporate linguistic theory in psychological research as well as by the view that innate linguistic mechanisms are necessary to explain child language acquisition. Psycholinguistics is presently a more diverse field of study that draws insights and methodologies not only from psychology and linguistics but also from adjacent fields of study.

Topic-006: Early Psycholinguistics

When we turn around the time, we find Wilhelm Wundt as a major figure in early scientific psychology. He wrote about different aspects of language with a focus on grammar, phonology, language comprehension, first language acquisition, sign language, reading as well as other topics related to contemporary concern. Out of many other contributions towards language psychology, his major contribution is to develop theory of language production.

In his theory of language production, he has regarded sentence as the core unit of language instead of a word. He considered speech production as the transformation of a complete thought process into sequentially organized speech segments. After his theory, the interest of researchers continued, to investigate the speech production from both perspectives i.e. word by word process and whole sentence process.

The second period of interdisciplinary psycholinguistics really took hold in the late 1950s, beginning with the emergence of the linguist Noam Chomsky. Chomsky has also played a powerful role in how psychologists perceived language because he argued that the behaviorists' accounts of language were inadequate. Major concerns presented in that period consist of associative chain theory, discontinuous constituents, and poverty of stimulus.

Lesson-02

Topic-007: The Information-Processing System

The general strategies by which the human mind encodes, stores, and retrieves information can be described independently of language. Working memory provides a temporary repository of information that is relevant for ongoing cognitive tasks. It is divided into three components: the central executive, the phonological loop, and the visuo spatial sketchpad.

Long-term memory is divided into semantic memory and episodic memory. Semantic memory holds general knowledge, whereas episodic memory stores our experience from our personal perspective. Studies of individuals with various forms of brain damage suggest that these memory systems are controlled by distinct regions in the brain. These concepts provide a framework for understanding how language processing occurs.

Topic-008: Working Memory and Long Term Memory

Working memory: Working memory is only able to hold about seven units of information. This could simply be seven words, but because many sentences are longer than this, we need some way to deal immediately with more than seven words. One way we do this is to chunk the words into grammatical constituents such as noun and verb phrases, thereby reducing the

storage burden to perhaps two or three constituents. The processing function of working memory is used to organize the words into the constituents.

Long-term memory: Long term memory is defined as a memory structure that holds permanent knowledge. Tulving suggest that we should distinguish between two aspects of long-term memory, episodic memory and semantic memory. In the original formulation, episodic memory dealt with personally experienced facts and semantic memory dealt with general facts. For example, most people know that John Wilkes Booth killed Abraham Lincoln, and thus this fact is a part of our semantic memory. But if you happen to remember when and where you were when you first learned this information (for example, your fourth-grade class), this personal event is a small part of your episodic memory.

Topic-009: Central Issues in Language Processing

Serial processing: Serial processing is when one process is completed before the next starts.

Parallel processing*:* Parallel processing is a very different possibility which says that some or all of the processes involved in a cognitive task occur at the same time.

Parallel distributed processing: Parallel distributed processing deals with one problem with parallel processing; these processes operate simultaneously but independently of each other. In parallel distributed processing (PDP), cognitive processes operate at the same time and connections between them also influence the final outcome. This approach is also referred to as Connectionism.

Bottom-up processing*:* Bottom-up processing proceeds from the lowest level to the highest level of processing.

Lower level processing*:* Lower levels of processing operate without influence from the higher levels.

Top-down processing*:* A top-down processing model, in contrast, states that information at the higher levels may influence processing at the lower levels. For instance, in a sentence context may affect the identification of words within that sentence.

Topic-010: Examples of Language Processing

a) "I was afraid of Ali's powerful *punch*, especially since it had already laid out many tougher men who had bragged the could handle that much alcohol." (from Clark & Clark, 1977, p. 81)

b) The key word here is punch, which can mean either an alcoholic beverage or a boxing punch.

c) The subjective impression for most people at the end of the sentence is having assumed the wrong meaning and the backtracking.

d) One meaning at a time, with top-down processing playing only a limited role (decision is based on the immediate context not the entire sentence).

e) However, the retrieval of multiple meanings is a fixed property of the lexicon— that it is automatic, modular, and no related at all to the sentence context (that is, it is bottom-up).

f) Two stages of processing may exist: an automatic stage in which all meanings are retrieved and a more controlled stage that is more top-down in nature.

Topic-011: Development of Processing System

Stage 1: Input

The brain is exposed to a stimulus, at which point it analyzes and evaluates the information. For example, the online learner reads a passage and determines whether it's worth remembering. **Stage 2: Storage**

Our brains store the information for later use. It also adds it to our mental schema and encodes it. If the information is not reinforced, the brain may simply forget it over time.

Stage 3: Output

The brain decides what it's going to do with the information and how it will react to the stimulus. For example, after reading the passage, the individual uses the information they learned to overcome a challenge.

Topic-012: Developing Working and Long Term Memory

Working memory is only able to hold about seven units of information. This could simply be seven words, but because many sentences are longer than this, we need some way to deal immediately with more than seven words. One way we do this is to chunk the words into grammatical constituents such as noun and verb phrases, thereby reducing the storage burden to perhaps two or three constituents. The processing function of working memory is used to organize the words into the constituents. Longterm memory plays several roles. Semantic memory contains information on the speech sounds and words that we retrieve during pattern recognition. And while this process is going on, we are also building up an episodic memory representation of the ongoing discourse. That is, once we complete the processing of a given sentence, we might extract the gist of it and store that in episodic memory.

Lesson-0

Topic-013: Perception of Language

Speech perception is a product of innate preparation (nature) and sensitivity to experience (nurture) as demonstrated in infants' abilities to perceive speech. Research on the acoustics of speech (i.e., how sound is produced by the human vocal tract) demonstrated how certain physiologic gestures used during speech produce specific sounds and which speech features are sufficient for the listener to determine the phonetic identity of these sound units. Studies of infants from birth have shown that they respond to speech signals in a special way suggesting a strong innate component to language. Other research has shown the strong effect of environment on language acquisition by proving that the language an infant listens to during the first year of life enables the child to begin producing a distinct set of sounds
(babbling) specific to the language spoken by its parents. “The Native Language Magnet (NLM)” “Bottom-up” and “Top-down” processes are also used to understand speech: in the former, we receive auditory information, convert it into a neural signal. and process the phonetic feature information. In the latter, we use stored information about language and the world to make sense of the speech. Perception occurs when both sources of information interact to make only one alternative plausible to the listener who then perceives a specific message.

Topic-014: The Structure of Speech

The process of speech perception seems simple enough. Listeners must, in effect, categorize the sounds that they hear into one of the many classes of sounds that exist in their language. In fact, the task is an extraordinarily complex one, for two major reasons. First, the environmental context often interferes with the speech signal. Under normal listening conditions, the speech we hear competes with other stimuli for our limited processing capacity. Other auditory signals, such as a conversation across the room or someone's sneezing or burping can interfere with the fidelity of the speech signal.

Topic-015: Perception of Isolated Speech Segments

At the auditory level, the signal is represented in terms of its frequency, intensity, and temporal attributes, as with any auditory stimulus. At the phonetic level, we identify individual phones by a combination of acoustic cues such as formant transitions. At the phonological level, the phonetic segment is converted into a phoneme, and phonological rules are applied to the sound sequence.

Topic-016: The Motor Theory of Speech Perception

Liberman and his colleagues developed a theory of speech perception based on the notion that perception proceeds 'by reference' to production. Listeners use implicit articulatory knowledge— knowledge about how sounds are produced—as an aid in perception.

The main rationale for the motor theory is that it deals effectively with the lack of invariance and it argued that although the relationship between acoustic structure and perception is quite complex, sounds are produced in similar ways but with varying acoustic representations and are perceived in similar ways. Anecdotal evidence suggests that teaching students to produce sounds silently aids them in the identification of new sounds. The theory makes some testable claims about the brain mechanisms underlying language.

Topic-017: Perception of Continuous Speech

The perception of continuous speech clearly indicates that word recognition is influenced by prosodic factors such as stress and intonational patterns. In addition, we learned that there is a continuous interplay of bottom-up and top-down factors at work. We recognize words in part because we identify their constituent phonemes and in part because of the larger word, sentence, or discourse context.

Topic-018: Perception of Written Language

Written language is processed at three levels: feature level, letter level and word level. At the feature level, the stimulus is represented in terms of the physical features that comprise a letter of the alphabet. For instance, the letter K may be represented as a vertical line and two diagonal lines; R may be coded as a vertical line, a diagonal line, and a curved portion; and so on. At the letter level, the visual stimulus is represented more abstractly as an identity separate from its physical manifestation. That is, a stimulus may be represented as an F regardless of whether it is typewritten or handwritten. Finally, there is a word level of processing, in which an array of features and letters is recognized as a familiar word. As the word is recognized, various properties of the word, such as its spelling, pronunciation, meaning, become available to us.

Lesson-04

Topic-019: Phonological Knowledge

One part of our word knowledge is the phonological structure or pronunciation of words. For example, we know when two words are homophones, which are words that are spelled differently but sound alike (such as bare and bear). Similarly, we experience the tip-of-the-tongue (TOT) phenomenon when we are not quite successful at retrieving a particular word but can remember something about how it sounds. The phenomenon has been described vividly by William James: suppose we try to recall a forgotten name. The state of our consciousness is peculiar. There is a gap therein, but no mere gap. It is a gap that is intensely active. A sort of wraith of the name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness, and then letting us sink back without the longed for term. If wrong names are proposed to us, this singularly definite gap acts immediately so as to negate them. They do not fit into its mould. And the gap of one word does not feel like the gap of another, all empty of content as both might seem necessarily to be when described as gaps. .

Topic-020: Phonological Knowledge: Conceptual and Empirical Issues

Conceptual and empirical issues address the most central question i.e. 'Is phonological knowledge different from linguistic knowledge in general?' Burton-Roberts, Carr, and Docherty have recently shown that there are at least four main views concerning the goals and methods of phonological theory, and thus of phonological knowledge. Given the generally held assumption that phonological knowledge is intrinsic to linguistic knowledge, there are at least four different ways in which the various issues pertaining to the nature of investigation of phonological knowledge are envisaged and elaborated upon. We can call these views as:

(a) Isolative

(b) Functional

(c) Formal

(d) Integrational or Unified

The Isolative view, held by Bromberger and Halle, and endorsed by Chomsky considers phonology to be different from the rest of the language faculty, in belonging to the Periphery rather than the Core. The Functional View, in contrast to the Isolative view, held by Burton-Roberts, and supported by the work of Ohala, Lindblom, Bybee, and Hayes, among others, considers phonology to be grounded in the sensorimotor apparatus. The Formal view of phonology, represented by Hale and Reiss, and supported by the research on sign language phonology, considers phonology to be like the rest of language faculty, and to be grounded in the mind. While the extreme view represented by Hale and Reiss excludes phonetic substance entirely from phonology, other versions of this approach debate concerning the inclusion of phonetic substance in phonology. Finally, the Unified view, held by Pierrehumbert, Beckman, and Ladd, considers phonology to be a laboratory science, and argues for the adoption of scientific methodology to test formal claims.

Topic-021: Syntactic Knowledge

Our knowledge of words is the syntactic category, or part of speech, to which they belong. Two words belong to the same syntactic category when they can substitute for one another in a sentence. E.g.

(1) The aging pianist stunned the audience.

We can replace aging with any number of words, such as wealthy, poor, fat, solemn, and so on. Although the substitutions may change the meaning of a sentence, the sentence remains grammatical. One advantage of using syntactic categories is that we can formulate grammatical rules in terms of categories rather than lexical items. Thus, we have no rule that states that aging may appear before pianist in a sentence. The rule is that adjectives may modify nouns. To use such a rule, we need to include syntactic categories in the lexical entries in our mental lexicon.

- One class word
- Two class word

Traditionally, grammatical theory has recognized the syntactic categories of noun, verb, adjective, adverb, pronoun, preposition, conjunction, and interjection. From a psychological vantage point, these categories may be placed into two groups. Open-class words (sometimes called content words) include nouns, verbs, adjectives, and adverbs, and closed-class words (also called function words) include determiners, pronouns, prepositions, conjunctions, and interjections. We have all learned a large number of open-class words, and that number continues to grow. In contrast, closed-class words are much smaller in number—a few hundred in English—and are used over and over.

Topic-022: Children's Acquisition of Syntactic Knowledge

Children babble, pass through a single and multiword stage, and then start to produce entire sentences that increase in complexity. Exactly what knowledge base, if any, and what mechanisms drive this progression in the language acquisition process is a matter of controversy? The challenge for language acquisition researchers is to reveal how this process unfolds. Two current approaches to the problem of language acquisition are introduced.

One theory of language acquisition follows the theory of Universal Grammar advanced by Noam Chomsky. This is often called the generative approach to language acquisition. This theory takes as a basic assumption that children are 'hardwired with linguistic knowledge that gives them access to structural representations in the absence of experience.

The second approach is the usage-based account of language acquisition. This is the constructivist approach promoted by Elena Lieven, Michael Tomasello, and others.

Chomsky proposed that in order to establish how language is represented in the mind/brain of speakers, three questions need to be addressed:

1) What constitutes knowledge of language?

2) How knowledge of language is acquired?

3) How knowledge of language is put to use?

As will become clear, generative and usage-based linguistic theories have different ideas about what constitutes the representation of language, and syntax in particular, in the mind. The theories also depart in their perspective on whether acquisition of language is guided partly by innate knowledge or whether all knowledge of language is learned through experience. This is often known as the 'nature' versus 'nurture' controversy. Although it is of interest to record how language is used in context.

Topic-023: Morphological Knowledge

Any effort to identify vocabulary size will eventually have to confront the morphology of the language. Morphemes are the smallest unit of meaning in a language. Some words consist of just a single morpheme. Morphemes that are also words are called free morphemes. Bound morphemes are those that are attached to free morphemes to create new words. There are, in fact, two different kinds of bound morphemes to consider. Inflectional morphemes are involved when a bound morpheme is added to a free morpheme to express grammatical contrasts in sentences. Inflectional morphemes in English include the plural morpheme for nouns (cat/cats) and the past tense morpheme for verbs (jump/jumped).

Getting back to vocabulary size, our ability to form various alternative forms of root words effectively means that there is no limit to the number of new words in a language. How, then, do we estimate the size of a person's mental lexicon? For simple cases, such as the plural morphemes, it could be assumed that a person who knows book will also recognize books as a word. So, book and books should count as just one word. Other morphemes, such as -er, cause more problems. In some cases, the morpheme produces a predictable shift in meaning, as in run and runner. But in other cases, the meaning is opaque, as in tell and teller. Using this criterion— whether it would be possible to determine the meaning of a word with a morpheme by knowing its root—it is possible to estimate that the average high school graduate knows about 45,000 words. The number is likely somewhat higher in college graduates and for those who do a lot of reading.

Topic-024: Evaluating the Effectiveness of a Morphological Awareness Intervention

Intervention should begin with an introduction of the concept of morphology and provision of many relevant examples. This introduction should include an emphasis on the importance of morphology, explanation of target patterns (i.e., inflectional or derivational), and provision of multiple examples. Depending on the grade and cognitive level of the student, the jargon terminology may be taught directly (e.g., derivative, suffix), or it may be preferable to teach and use simpler terms (e.g., base word, word ending). The rationale should be provided that students will learn about morphemes to increase their vocabulary skills and/or to become better readers and spellers. For example, if a student is struggling with derivational morphology, we would begin with the explanation that there are base (root) words to which affixes, or word beginnings or endings, can be added to change meaning. A base word can stand all by itself and tells us what the word is about—it is the "power" of the word.

Given the theoretical and empirical support, along with the possibility that base words and their affixes are not necessarily being systematically taught in the school setting, it appears morphological awareness instruction offers an opportunity to facilitate language and literacy success for elementary school-age children. Several features of morphological awareness instruction have consistently been found to be effective with children with language and literacy deficits. These include the integration of problem solving or a motivating "detective" theme, the explicit focus on morphological meaning units, and the incorporation of morphological awareness in contextual or language-/literacy-related instruction.

Explicit vocabulary instruction based in morphological awareness may be especially important for children with language and literacy deficits. Vocabulary plays a fundamental role in a child's ability to communicate and read, and the vocabulary skills of typically developing students' likely increase when they apply morphological awareness while reading and spelling. A link to reading and spelling provides a functional context for students to apply their newly learned morphological awareness skills.

Intervention should focus on both the recognition of meaning and patterns in words and include production activities such as word building. Moreover, a link to reading and spelling provides a functional context for students to apply their newly learned morphological awareness skills. Based on the research based evidence, it was found that morphological awareness instruction linked to literacy might improve not only school aged children's ability to identify morphological relationships between words but also their vocabulary, phonemic awareness, reading decoding, and potentially reading comprehension skills.

Lesson-0

Topic-025: Semantic Knowledge

What is meaning? What is it that we know when we know the meaning of a word? And how is that meaning represented mentally? Linguists, philosophers, and psychologists have identified several important aspects of word meaning. Let us begin by looking at some of these distinctions.

Sense and Reference

The relationship between words and things in the world is termed as the reference of a word; the things in the world are called the referents of the word. This aspect of meaning is crucial for determining whether or not a given utterance is truthful. For instance, consider sentence (2):

(2) There is a brown cow grazing in the field.

When we understand the meaning of this sentence, then we grasp its truth conditions, the conditions under which the sentence may be said to be true. In this instance, there must be a cow, it must be brown, and it must be grazing in the field. That is, we must assess whether the events in the world correspond to the referents of the words cow, brown, grazing, and field. Reference concerns what the world should be like if a given utterance is true. Not all references are so easy. Some words clearly have meaning, but it is difficult to know what they refer to. This group includes abstract words, such as justice, plausibility, and relativity.

Meaning is developed through following ways:

- Synonymy
- Hyponymy
- Meronymy
- Taxonomic Relation
- Attributive Relations
- Functional Relations
- Denotation
- Connotation

Topic-026: The Concept of a Semantic Network

A semantic network or net is a graphic notation for representing knowledge in patterns of interconnected nodes and arcs. Computer implementations of semantic networks were first developed for artificial intelligence and machine translation, but earlier versions have long been used in philosophy, psychology, and linguistics.

What is common to all semantic networks is a declarative graphic representation that can be used either to represent knowledge or to support automated systems for reasoning about knowledge. Some versions are highly informal, but other versions are formally defined systems of logic.

A **definitional network** emphasizes the subtype or is-a relation between a concept type and a newly defined subtype. The resulting network, also called a generalization or subsumption hierarchy, supports the rule of inheritance for copying properties defined for a super type to all of its subtypes.

Assertional networks are designed to assert propositions. Unlike definitional networks, the information in an assertional network is assumed contingently true, unless it is explicitly marked with a modal operator. Some assertional networks have been proposed as models of the conceptual structures underlying natural language semantics.

Implicational networks use implication as the primary relation for connecting nodes. They may be used to represent patterns of beliefs, causality, or inferences.

Executable networks include some mechanism, such as marker passing or attached procedures, which can perform inferences, pass messages, or search for patterns and associations.

Learning networks build or extend their representations by acquiring knowledge from examples. The new knowledge may change the old network by adding and deleting nodes and arcs or by modifying numerical values, called weights, associated with the nodes and arcs.

Hybrid networks combine two or more of the previous techniques, either in a single network or in separate but closely interacting networks.

Topic-027: Hierarchical Network Models

A semantic network is an interconnected web of concepts connected by various relations. In the hierarchical network model we store our knowledge of words in the form of a semantic network with some words represented at higher nodes in the network than others. Although the hierarchical network model can explain some results, it is too rigid to capture all of our tacit knowledge of the lexicon.

Topic-028: Spreading Activation Models

Spreading activation models are network models that are not strictly hierarchical. Activation spreads from one node to neighboring nodes. Spreading activation models of the lexicon that incorporate conceptual, syntactic, and phonological knowledge appear to offer the most realistic picture currently available of the internal lexicon.

Topic-029: Advantages and Disadvantages of Semantic Differential Scale

Osgood's Semantic Differential was an application of his more general attempt to measure the semantics or meaning of words, particularly adjectives, and their referent concepts. The respondent is asked to choose where his or her position lies on a scale between two polar adjectives (for example: "Adequate-Inadequate", "Good-Evil" or "Valuable-Worthless"). Semantic differentials can be used to measure opinions, attitudes, and values on a psychometrically controlled scale.

Osgood and his colleagues performed a factor analysis of large collections of semantic differential scales and found three recurring attitudes that people use to evaluate words and phrases: evaluation, potency, and activity. Evaluation loads highest on the adjective pair 'good-bad'. The 'strongweak' adjective pair defines the potency factor. Adjective pair 'active-passive' defines the activity factor. These three dimensions of affective meaning were found to be cross-cultural universals i a study of dozens of cultures.

The Semantic Differential question scale offers a bipolar pair of adjectives between which the respondent must choose alon some form of scaling (typically a five-point scale). The pairs of words need not be opposite and may be used to discover fine differences in viewpoint. They are often adjectives.

Topic-030: Semantic Barriers

The meaning of words, signs, and symbols might be different from one person to another and the same word might have hundreds of meanings. So, when a message is sent by a sender to a receiver, it might be interpreted wrongly in a communication process causing misunderstandings between them. This can happen due to different situations that form th semantic (of, relating to, or arising from the different meanings of words or other symbols) of the sender and the receiver, known as the **semantic barrier**. It also arises due to language, education, culture, and place of origin (dialect or accent) or most likely their experiences.

Lesson-0

Topic-031: Models of Lexical Access

Lexical access is an area in psycholinguistics research that studies the activation or retrieval process of the mental lexicon fo people who can speak two languages.

Lexical retrieval is the process of getting from an abstract concept to a spoken word. There are two major classes of models that detail how lexical entries are retrieved during reading and listening tasks. The first types of models are known as serial search models, whereas the second type of models are parallel access models.

Serial search models believe that when we encounter a word, we look through all lexical entries to determine whether the item is a word or not and then retrieve the necessary information about a word (i.e., its semantics or orthography). Serial search models propose that lexical access occurs by sequentially scanning one lexical entry at a time.

Search Models: One of the earliest and most influential models is the autonomous search model of Forster. In this model, the word recognition system is divided into several different components. One is devoted to the orthographic (spelling) properties of a word and another to the phonetic properties. Each of these is organized in descending order of frequency. Thus, more frequent words are searched before lower-frequency words. When the input is matched to one of the items in

one of the two bins, a pointer to an entry in the master lexicon is retrieved. When this entry is retrieved, other properties of the word such as its syntactic function are retrieved. Forster's model assumes that the lexicon is autonomous or independent of other systems involved in language processing. Thus, according to this model, activation of words from the lexicon is not directly influenced by syntactic or semantic factors. Such factors affect the general cognitive system. Information from the lexicon is fed into this more general system, and in this way, syntactic/semantic information may influence word activation. Originally, the model assumed a single comparator that matched the incoming signal to the lexical representation in the phonetic or orthographic files. This led to a problem in terms of the number of files that needed to be searched versus the observed speed of word recognition. Thus, the revised model has separate comparators for each file bin.

Topic-032: Difference Between Logogen and Cohort Model

An important aspect of Morton's Logogen Model is that both sensory and contextual information interact in such a way that there is a trade-off relationship between them; the more contextual information input to a Logogen from top-down sources, the less sensory information is needed to bring the Logogen above threshold for activation. This feature of the Logogen model enables it to account for the observed facilitation effects of syntactic and semantic constraints on speed of lexical access as well as the word frequency and word apprehension effects reported in the literature. In the presence of constraining prior contexts, the time needed to activate a logogen from the onset of the relevant sensory information will be less than when such constraints are not available because less sensory information will be necessary to bring the logogen above its threshold value.

In Cohort Theory, as in the earlier Logogen Theory, word recognition and subsequent lexical access are viewed as a result of a balance between the available sensory and contextual information about a word at any given time. In particular, when deactivation occurs on the basis of contextual mismatches, less sensory information is therefore needed for a single word candidate to emerge. According to the Cohort Theory, once word recognition has occurred, the perceptual system carries out a much less detailed analysis of the sound structure of the remaining input. As Marslen-Wilson and Welsh have put it, "No more and no less bottom-up information needs to be extracted than is necessary in a given context".

Morton proposed one of the earliest activation models. In Morton's model, each word (or morpheme) in the lexicon is represented as a logogen, which specifies the word's various attributes (semantic, orthographic, phonological, and so on). The logogen is activated in either of two ways: by sensory input or by contextual information. Consider first the sensory route. As orthographic or phonological features of the input stimulus are detected, they are matched to the logogen. The logogen functions as a scoreboard or counter; when the counter rises above a predesignated threshold, the item is recognized. With regard to the contextual information, the semantic and syntactic structure of a sentence may influence the activation of the logogen for a given word. Consider the following sentence:

(13) Her closest relative was appointed as her legal guardian.

(13) "Her closest relative was appointed as her legal guardian."

Topic-033: Variables That Influence Lexicon Access

The following variables affect the lexicon access:

- Word Frequency
- Phonological Variables
- Syntactic Category
- Morphological Complexity
- Semantic Priming

Topic-034: Lexical Ambiguity

The form of ambiguity in which a single word may be interpreted to have more than one meaning is referred to as lexical ambiguity. Foss was the first to apply the phoneme-monitoring technique to the study of lexical ambiguity. He presented listeners with sentences containing ambiguous words, such as those in sentence:

The man started to drill before the truck arrived.

Topic-035: Appraising Models of Lexical Access

Lexical access is influenced by a variety of factors, including the frequency of a word, its phonological structure, its syntactic category, its morphological structure, the presence of semantically related words, and the existence of alternative meanings of the word. Common words and meanings appear to be in a state of greater readiness than less-often-used words and meanings. We rely on morphological structure when encountering unfamiliar words. Considerable research has investigated how we access lexically ambiguous words. Some research suggests that we briefly consider all meanings of an ambiguous word. However, when a preceding context primes the most dominant meaning of a word, lexical access may be selective.

Topic-036: Stages of Lexis in Speech Production

Stage 1 – Conceptualization

The first one is called the Conceptualization Stage. This is when a speaker spontaneously thinks of what he or she is going to say. It is an immediate reaction to external stimuli and is often based on prior knowledge of the particular subject. No premeditation goes into these words and they are all formulated based upon the speaker's knowledge and experience at hand. It is spontaneous speech. Examples of this can range from answering questions to the immediate verbiage produced as a result of stubbing your toe.

Stage 2 – Formulation

The second stage is called the Formulation Stage. This is when the speaker thinks of the particular words that are going to express their thoughts. It occurs almost simultaneously with the conceptualization stage. However, this time the speaker thinks about the response before responding. The speaker is formulating his or her words and deciding how to reply to the external stimuli in the best manner. Where conceptualization is more of an instant and immediate response, formulation is a little delayed.

Stage 3 – Articulation

The third stage is the Articulation Stage. This is when the speaker physically says what he or she has thought of saying. This i a prepared speech or planned wordage. In addition, the words may have been rehearsed such as when someone practices a presentation or rehearses a lie. It involves the training of physical actions of several motor speech organs such as the lungs, larynx, tongue, lips, and other vocal apparatuses. Of course, the first two stages also involve these organs; however, the articulation stage uses these organs multiple times for the same word patterns.

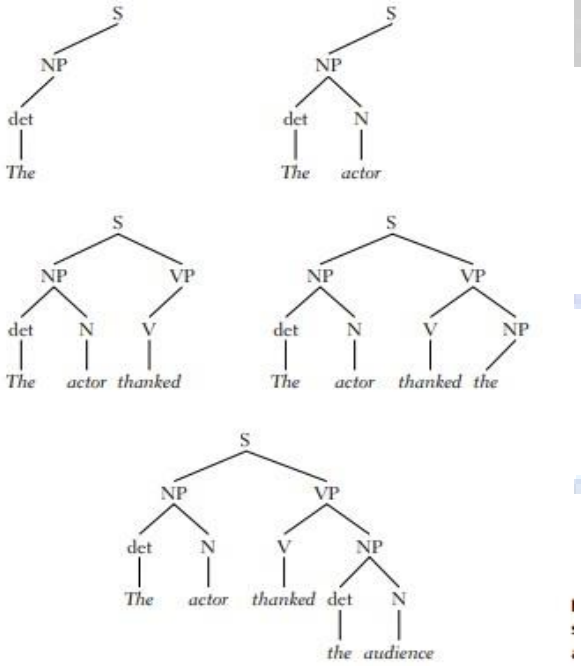
Stage 4 – Self-Monitoring

The fourth stage is called the Self-Monitoring Stage. This is when the speaker reflects on what he or she has said and makes an effort to correct any errors in his or her speech. Often times this is done in a rebuttal or last words argument. In addition, it could also be done during a conversation when the speaker realizes that he or she slipped up. This is the action of reflecting on what you said and making sure that what you said is what you meant.

Lesson-0

Topic-037: Parsing

Following are the five stages in the parsing of a sentence:



We may think of parsing as a form of problem solving or decision making in the sense that we are making decisions (although not necessarily in a conscious manner) about where to place incoming words into the phrase marker we are building. We make these decisions immediately as we encounter a word, a principle they call the immediacy principle. According to this view, when we first see or hear a word, we access its meaning from permanent memory, identify its likely referent, and fit it into the syntactic structure of the sentence. The alternative to immediate processing is to take a ‘‘wait-and-see’’ approach: to postpone interpreting a word or phrase until it is clearer where a sentence is going. However, considerable evidence for the immediacy principle is available. Although we sometimes postpone decisions, more often than not we interpret the words as we hear or see them. The primary reason that we use immediate processing is that the number of decisions involved in understanding even a single sentence can be quite large and thus can overload our cognitive resources. Suppose we heard sentence (1):

(1) John bought the flower for Susan.

This sentence is syntactically ambiguous. It might mean that John bought the flower to give to Susan or that John bough a flower as a favor for Susan, who intended to give it to another person. This ambiguity is encountered when we hear the word for. Suppose further that we kept in mind both meanings of the sentence. But then flower has more than one interpretation also. It could mean flower or flour (remember, the sentence was heard). Suppose we take a wait-and-see approach and wait for further information before deciding which interpretation to use. Such an approach has a major disadvantage, however, if we retained two or more interpretations of each of the several choice points, we would rapidly overwhelm our working memory. Although immediacy of processing reduces memory load, it may lead to errors in parsing. For example, consider sentence fragment (2):

(2) The florist sent the flowers...

Where might this sentence be going? At this point it looks like a simple declarative sentence in which the florist is the subject and sent the flowers is the main verb phrase. But suppose it continues as indicated in (3):

(3) ... was very pleased.

Although it at first appears to be ungrammatical, in fact this is a grammatical sentence with an embedded relative clause (a clause that modifies a noun). One of the reasons that the sentence is difficult to comprehend is that the embedded clause is a reduced relative clause; it is not signaled with a relative pronoun, as in sentence (4):

(4) The florist who was sent the flowers was very pleased.

Another reason is that declarative sentences are more familiar than relative clauses, so we are more likely to ‘‘place our bets’’ on that outcome. If we took a wait-and see approach, we would not be surprised by the continuation in (3). But we ar surprised, so it appears that we immediately interpret the fragment in (2).

Topic-038: Parsing Strategies

Late Closure Strategy: One parsing strategy is called the late closure strategy. This strategy states that, wherever possible, we prefer to attach new items to the current constituent. A primary motivation for this strategy is that it reduces the burder on working memory during parsing. One example of late closure is sentence (5):

(5) Tom said that Bill had taken the cleaning out yesterday.

Here the adverb yesterday may be attached to the main clause (Tom said ...) or the subsequent subordinate clause (Bill had taken ...). Frazier and Fodor argue that we tend to prefer the latter interpretation. Another example is (6), in which the prepositional phrase in the library could modify either the verb put or the verb reading. We tend to prefer attaching the prepositional phrase to the latter verb.

(6) Jessie put the book Kathy was reading in the library.

Further evidence for the late closure strategy comes from Frazier and Rayner, who examined eye fixations of subjects reading structurally ambiguous sentences, such as this one:

(7) Since Jay always jogs a mile seems like a very short distance to him.

The ambiguity in this sentence is a little artificial because it lacks a comma after jogs. Nonetheless, the participants' eye fixations were interesting. Frazier and Rayner found that fixation times on the last few words were longer than on the earlie ones, implying that readers had misinterpreted the term a mile and had to make some later adjustments. Sentences such as (7) are garden path sentences. As we saw in Chapter 1, in a garden path sentence, we interpret a sentence in a particular way only to find out near the end that we misinterpreted it. The subjective impression is that of being led down a garden path until discovering at the end that we took the wrong way and have to retrace our steps. The garden path experience lends further support to the immediacy principle, for if we did not commit ourselves to an immediate interpretation, we would not have found ourselves in this predicament.

Minimal Attachment Strategy: A second strategy is referred to as the minimal attachment strategy, which states that we prefer attaching new items into the phrase marker being constructed using the fewest syntactic nodes consistent with the rules of the language.

Topic-039: Modular Versus Interactive Models

The modular approach suggests that the words of sentence activate syntactic processing strategies that are used to organize the words into a phrase marker. These strategies indicate that we prefer to attach incoming words to the most recent constituent as opposed to attaching them to earlier constituents or developing new ones. Although the strategies are generally useful, they sometimes lead to errors and subsequent re-analyses of syntactic structure.

The interactive approach emphasizes that we use all available information, including lexical, discourse, and contextual factors. Whereas the modular approach insists that syntactically based strategies are used first, with lexical and discourse factors coming in later, the interactive model asserts that we simultaneously use all available information to parse sentences. Current research supports the role of lexical and contextual factors in parsing, but the role of discourse factors is less evident.

Topic-040: Constraint Based Model

Theories into sentence processing can be viewed from two main accounts: a modular account or an interactive account. Garden path model proposed by Fraizer and Rayner supports the modular account, arguing sentence processing involves the analysis of each individual unit or module of a sentence, with little or no feedback, thus inhibiting correction. Whereas an interactive account supported by the constraint based theory, argues sentence processing involves immediate incorporation of all available information in creation of the final output. The Garden path model proposed by Frazier and Rayner, argues readers only consider initially one syntactic structure for any given sentence and meaning is not involved in the selection of preliminary syntactical meaning. Thus, readers and listeners can be misled by ambiguous sentences (i.e. garden path sentences). Whereas Constraint based theory proposed by MacDonald, argues all relevant information is available immediately to the parser during reading and listening.

Topic-041: Working Memory and Comprehension

Given the complexity of comprehension, we would expect that working memory capacity is also related to individual differences in comprehension performance. Gernsbacher and Faust provide evidence for this claim. They found that less skilled comprehenders were less efficient in rejecting the inappropriate meanings of ambiguous words. For example, when presented with sentences such as He dug with the spade, less skilled comprehenders were slower to reject the meaning of spade that pertains to playing cards in favor of the meaning that pertains to gardening.

Topic-042: Incomplete or Inaccurate Representations

The observation that comprehenders may develop incomplete or inaccurate representations of sentences is not new. In one classic example, participants were asked, 'How many animals of each sort did Moses put on the ark?' Most people respond by saying 'two,' instead of noticing that it was Noah, not Moses, who gathered the animals. The significance of incomplete o inaccurate representations is twofold. First, in naturalistic situations people frequently misinterpret what others are saying, for a host of reasons (they are distracted by others' comments, noise in the environment, and so on). Psycholinguists have

focused on people's ability to comprehend sentences in controlled laboratory environments, and in that context, errors are relatively infrequent. Although they are infrequent, these errors perhaps tell us more about comprehension in the natural environment than correct performance. Second, studies of incomplete representations emphasize the influence of expectations in sentence comprehension. As the 'Moses illusion' illustrates, we come to the process of sentence comprehension with some preexisting ideas or preferences. When sentences that do not match our expectations are presented, we sometimes misinterpret them initially and ultimately correct ourselves, as the original garden path studies suggested. But other times, the expectations win out and the meaning that we carry from the sentence is fundamentally flawed.

Lesson-0

Topic-043: Comprehending Figurative Language

Figurative language is language that means one thing literally but is taken to mean something different. It is a ubiquitous aspect of language. Honeck has noted the prevalence of figurative language in advertising. Studies of language use in television news programs have found that speakers use one unique metaphor for every 25 words.

Generally, in figurative language, the intended meanings of the words, sentences, and expressions used do not coincide with their literal meanings. When speaking figuratively, speakers mean something other than what they literally say. Therefore, to understand figurative language, an individual must be able to grasp the speaker's intention in a given context. The most common examples of figurative language include metaphors (e.g. 'Love is a journey'), which involve 'understanding and experiencing one kind of thing in terms of another.'

Topic-044: Types of Figurative Language

Two of these types have been examined most intensively in psycholinguistic research: indirect speech acts and metaphor.

Indirect speech acts: To understand indirect speech acts, we need to first understand the concept of speech act. And to do, this we need to define some terms. A good deal of research has been done into the various ways a speech utterance might function. Research was especially interested in certain utterances that do not seem to communicate much information but, instead, serve as an action. When we use phrases such as I promise ..., I apologize ..., and I congratulate ..., the very act of uttering the sentence is a kind of action. These are quite different than utterances in which assertions are made. For example, it makes no sense at all to respond No, that's not true to the following sentence:

It's going to be cold today.

Metaphor: When someone says that Jim's head is full of rocks, we instantly recognize it as a metaphoric statement. The comprehension of metaphoric language poses some very interesting problems for a general theory of language comprehension. For one thing, metaphors and other forms of figurative language are ubiquitous features of language and thus cannot be dismissed as a peripheral concern. Moreover, the apparent ease of comprehension of most metaphors suggests a link with the processes of language comprehension we have discussed throughout this chapter. Yet, the manner

in which word meanings are combined to form novel metaphors seems to extend our understanding of comprehension, for metaphors are invariably literally false. Thus, the question to be pursued here is in what way we comprehend a meaning that is literally anomalous but metaphorically not just meaningful but often amusing, thought provoking, or poignant. Metaphors consist of three main parts. Consider, for example, Billboards are warts on the landscape.

Topic-045: Studies of Figurative Language Comprehension

The different types of figurative language enable us to communicate a wider range of meanings than would be possible if we were limited to literal language. Metaphors are primarily used to convey ideas and feelings that are difficult to express, and indirect speech acts are often employed to state a request in a polite way. The evidence to date does not support the pragmatic theory that we comprehend figurative language by first considering and then rejecting the literal meaning. Proponents of the conceptual and class inclusion theories have responded, in different ways, to the limitations of the pragmatic theory, and both models have some appeal. The conceptual theory appears best equipped to explain instances in which we automatically access figurative meaning. The class inclusion model is most helpful in connecting the study of figurative language with the field of language comprehension in general and lexical comprehension in particular.

Topic-046: Comparison and Contrast Pragmatic Theory and Conceptual Metaphor Theory

Although figurative language is an important aspect of everyday language usage, it has only been in recent years that psycholinguists have studied this aspect of language in any detail. In this section of the chapter, we will examine research in figurative language comprehension. The research has been conducted in the context of three main theories of comprehension: the pragmatic, conceptual metaphor, and class inclusion theories.

Pragmatic Theory: It is generally held that linguistic communication takes place within a context of shared assumptions about communication. These implicit assumptions are referred to as conventions. Grice has identified four conventions (which he calls ‘‘maxims’’) governing conversation. According to Grice, we strive to be informative, clear, relevant, and truthful. Of course, these conventions provide no more than ground rules for successful conversations; all of us, from time to time, are uninformative, unclear, irrelevant, and deceitful. Grice’s point is that these conventions provide a basis for interpreting what others mean because we generally assume, unless we have information to the contrary, that such conventions will be observed.

Topic-047: Class Inclusion Theory

Glucksberg and his colleagues have advanced a model that states that metaphors are class inclusion statements. That is, when we see a metaphor, we understand it as analogous to the kinds of class inclusion statements. To determine whether either of these is true, we must retrieve the lexical representations of the appropriate nouns and assess whether the class inclusion relation is applied appropriately.

Topic-048: Comparative Figurative Languages

Metaphor: When you use a metaphor, you make a statement that doesn’t literally make sense. For example, “Time is a thief.” Time is not actually stealing from you but this conveys the idea that hours or days sometimes seem to slip by without you noticing.

Metaphors only makes sense when the similarities between the two things being compared are apparent or readers understand the connection between the two words. Examples include:

- The world is my oyster.
- You're a couch potato.
- Time is money.

- He has a heart of stone.
- America is a melting pot. You are my sunshine.

Simile: A simile also compares two things. However, similes use the words “like” or “as.” Examples include:

- Busy as a bee.
- Clean as a whistle.
- Brave as a lion.
- The tall girl stood out like a sore thumb.
- It was as easy as shooting fish in a barrel.
- My mouth was as dry as a bone.
- They fought like cats and dogs.
- Watching that movie was like watching grass grow.

Personification: Personification gives human characteristics to inanimate objects, animals, or ideas. This can really affect the way the reader imagines things. Personification is often used in poetry, fiction, and children’s rhymes. Examples include:

- Opportunity knocked at his door.
- The sun greeted me this morning.
- The sky was full of dancing stars.
- The vines wove their delicate fingers together.
- The radio suddenly stopped singing and stared at me. The sun played hide and seek with the clouds.

Hyperbole: Hyperbole is an outrageous exaggeration that emphasizes a point. It tends toward the ridiculous or the funny. Hyperbole adds color and depth to a character.

Examples include:

- You snore louder than a freight train!
- It's a slow burg. I spent a couple of weeks there one day.
- She's so dumb; she thinks Taco Bell is a Mexican phone company.
- I had to walk 15 miles to school in the snow, uphill, in bare feet. You could've knocked me over with a feather.

Symbolism: Symbolism occurs when a word has its own meaning but is used to represent something entirely different.

Examples in everyday life include:

- Using the image of the American flag to represent patriotism and a love for one’s country. Incorporating a red rose in your writing to symbolize love.
- Using an apple pie to represent a traditional American lifestyle.
- Using a chalkboard to represent education.
- Incorporating the color black in your writing as a symbol for evil or death.
- Using an owl to represent wisdom.

Lesson-0

Topic-049: Memory for Meaning Versus Surface Form

A basic idea in studies of sentence memory concerns whether we retain the exact or verbatim wording of a sentence or simply its meaning. Most of the early research on this issue suggested that only meaning was retained. Fillenbaum presented people with a long list of unrelated sentences and later gave them a multiple-choice test of each of the sentences

Topic-050: Time Course of Retention and Pragmatic Factor

Time course of retention: Studies like those we have been discussing have been used to support the idea that we ordinarily use the syntactic structure of a sentence to extract the underlying meaning. A classic study by Sachs examined the time parameters within which these processes might operate. The tendency to store only the meaning of a sentence in permanent memory is not limited to spoken languages.

Pragmatic factors: In some situations, however, we seem to remember the exact form of what was said to us. Perhaps it wa puzzling or confusing or irritating, and we found cause to mull it over a bit. A few studies have examined the way pragmatic factors interact with semantic and syntactic considerations in sentence memory.

Topic-051: Inferences and Sentence Memory

The notion that greater elaboration of processing leads to better retention has received a substantial amount of support in psychological studies of words, sentences, and discourse. Elaboration is thought of as a process by which incoming

information is related to information already stored in permanent memory, thereby enriching the memory representation o the new material. We have just seen how information processing pertaining to the pragmatic functions of everyday speech may serve as the basis for elaboration. We now turn to elaborations based on our general knowledge of the world, information that is not specifically linguistic in nature. A particular form of elaborative processing is the drawing of inferences.

Inferences and false recognition errors: The general experimental procedure used by Bransford has been to present people with long lists of sentences and later to probe their tendency to make false recognition errors: errors that people make by believing that they saw or heard something that was actually not presented. A long list is necessary to encourage participants to attend to the meaning, not just the form, of the sentences. In one study, Johnson, Bransford, and Solomon examined people's comprehension and retention.

Topic-052: False Recognition Errors

The Deese–Roediger–McDermott (DRM) paradigm is a procedure in cognitive psychology used to study false memory in humans. The procedure was pioneered by James Deese in 1959, but it was not until Henry L. Roediger III and Kathleen McDermott extended the line of research in 1995 that the paradigm became popular. The procedure typically involves the oral presentation of a list of related words
(e.g. bed, rest, awake, tired, dream, wake, snooze, blanket, doze, slumber, snore, nap, peace, yawn, drowsy) and then requires the subject to remember as many words from the list as possible.

Topic-053: Propositions and Sentence Memory

It appears that we generally store the gist of what another person has said rather than the exact form of the sentence. An exception is statements that are pragmatically striking, such as those that require a response from us or flout the normal conventions of everyday discourse. In these cases, we often draw some inference based on what a person has said and store this enriched meaning along with the surface form of the utterance. Moreover, other forms of inference that we draw are based not on purely linguistic knowledge but rather on general world knowledge. These inferences are drawn in the process of comprehension and are, after a period of time, increasingly indistinguishable from the exact sentences to which we were exposed.

Topic-054: Analysis of Propositions, Sentences and Clause Type

A proposition is an idea unit; it is a statement that expresses a factual claim; it is the basic unit involved in the understanding and retention of text. Propositions correspond roughly to verbs, adjectives, adverbs, prepositions, and subordinating conjunctions (not nouns or pronouns). Proposition density is an important factor in reading comprehension because of a proposition's role in text comprehension and retention. In addition, sentences in print often have a complex, embedded syntax that places demands on the reader's working memory. The combination of text comprehension and retention, and demands on the reader's working memory suggest that proposition density might be useful in the selection of college textbooks. The widely adopted readability formulas utilized in reading comprehension research do not estimate proposition density. Those readability formulas include Flesch-Kincaid Grade Level or Reading Ease, Degrees of Reading Power, Lexiles, and Coh-Metrix. These single metrics are based on length of words and sentences (Flesch Kincaid), readers' performance on a cloze procedure (Degrees of Reading Power and Lexiles), and on various language-discourse levels (Coh-Metrix). Sentence and clause types and nonfinite verbals are important in this research because they are directly related to complex, embedded syntax.

Lesson-1

Topic-055: Local and Global Discourse Structure

Comprehension of connected discourse depends less on the meanings of the individual sentences than on their arrangement. Indeed, it is entirely possible for a group of meaningful sentences to be thrown together in a way that makes no sense at all.

Topic-056: Discourse Structure: Theory, Practice, and Use

The claim that a theory of discourse involves the search for the rules or conventions which govern it has dominated both structural and functional approaches to discourse. In structural approaches, the aim is to discover the rules which, if followed, result in an acceptable or well-formed text. In approaches which view discourse in terms of communicative behavior, the aim is to discover the social conventions which determine which utterances may occur and what they may be combined with. In other words, the main concern is with the acceptability of discourse.

Topic-057: Cohesion

A central concept is the notion of cohesion. Halliday and Hasan (1976) define cohesion a referring to ‘‘the range of possibilities that exist for linking something with what has gone before.’’

Categories of cohesion: One type of cohesion is called reference. Reference deals with the links between words and objects or events in the world. In discourse, reference deals with the links between words (or phrases) and other words (or phrases) in discourse. More precisely, reference is a semantic relation whereby information needed for the interpretation of one item is found elsewhere in the text. We often use pronouns such as she, he, it, his, her, and their to refer to earlier items.

Topic-058: Strategies Used to Establish Coherence

Given information refers to information that an author or speaker assumes the reader or listener already knows, whereas **new information** is the information that the comprehender is assumed to not know. Most sentences contain both given and new information. For example, sentences (1) and (2) are similar in their grammatical structure but convey different expectations, with (1) assuming that readers already know that the bank was robbed (the given information) but do not know who did it (the new information), and (2) assuming that readers know that Steve robbed something but not what it was he robbed.

(1) It was Steve who robbed the bank.

(2) It was the bank that Steve robbed.

Direct matching: The simplest case is surely that in which the given information in the target sentence directly matches an antecedent in the context sentence:

(3) We got some beer out of the trunk.

(4) The beer was warm.

In comprehending the target sentence, we first divide it into given and new information. The definite article the marks beer as given and was warm as new. We then search our memory for a previous reference to beer and find it in the context sentence. Finally, we attach the information that the beer was warm to the previously stored information.

Bridging: In some cases, we do not have a direct antecedent for the given information but can still tie the sentences together:

(5) Last Christmas, Eugene went to a lot of parties.

(6) This Christmas he got very drunk again.

Here, we must make a bridging inference, such as that Eugene got very drunk at last year's parties, to make sense of the word again. In contrast, a direct antecedent pair such as

(7) Last Christmas, Eugene got absolutely smashed.

(8) This Christmas he got very drunk again.

requires no such bridge for comprehension. Haviland and Clark (1974) have shown that target sentences that require bridge take longer to comprehend than those for which there is a direct match of antecedents.

Reinstating old information: The best way to understand this strategy is to compare the following two passages: (i)I am trying to find a black dog. He is short and has a dog tag on his neck that says Fred.
Yesterday that dog bit a little girl. She was scared, but she wasn't really hurt. (ii) Yesterday a black dog bit a little girl. It got away, and we are still trying to find it. He is short and has a dog tag on his neck that says Fred. She was scared, but she wasn't really hurt. You probably found that the target (last) sentence in the first passage was easier to comprehend than in the second passage. Because a direct antecedent for she is presented, we do not need to resort to bridging. The problem in the second passage is simply that the antecedent is too far removed from the target. Using Chafe's terms, the dog is in the foreground and the girl is in the background by the time we see the target, whereas the girl is in the foreground in the first passage. When a sentence refers to something or someone already introduced but no longer in the foreground, the comprehender must reinstate the information that is to be matched with the target information. Several studies have shown that reinstatements increase comprehension time.

Topic-059: Identifying New Topics of Discourse

Identifying new topics of discourse: We have discussed three cases so far. When there is a direct match between given information in the target and an antecedent immediately preceding it, the given/new strategy is performed without any problem. If we cannot find an antecedent readily, we might form a bridge between the antecedent and target, or we might search information recently entered in permanent memory for antecedents that could be reinstated. In general, we form bridges when we believe the author intends for us to find a relationship between the context and the target but has not spelled it out explicitly. Reinstatements are more likely to be used when we think our failure to find a unique antecedent has been caused by the carelessness of the author.

FIGURE 7.1 A memory representation.

Topic-060: Role of Working Memory

As with other aspects of language, individual experiences and abilities vary. Because the process we have been describing in this section deals with the operation of working memory, it would be reasonable to expect that individual differences in working memory might influence how we comprehend discourse.

Daneman and Carpenter developed a complex reading span task to examine this trade-off. The researchers had participants read aloud a series of sentences (processing function) and then recall the final word in each sentence (storage function). The task began with only two sentences in a series and progressed until a person could not recall the final words in each sentence. For their participants, the reading spans (the number of final words recalled) varied from two to five. The researchers then administered a reading comprehension task: each participant read a passage and answered a few

questions about it. Daneman and Carpenter found a significant correlation between reading span and reading comprehension.

Lesson-1

Topic-061: Memory for Discourse

Preserved working memory is pivotal for language processing effectiveness, being an essential tool for resolving structural and lexical ambiguity during the discourse processing and comprehension. Based on this premise, several investigators have suggested that changes in the capacity of working memory will have an impact on the linguistic processing, leading to problems in comprehension of larger units like discourse.

Topic-062: Surface Representations

One early study that suggested that surface representations of discourse are very short-lived presented individuals with a long oral passage that was interrupted at irregular intervals. Individuals were asked at each interruption to write down in verbatim form as much of the preceding discourse as they could. Two versions of the passage were created. Consider sentences (1) and (2):

(1) The confidence of Kofach was not unfounded.

To stack the meeting for McDonald, the union had even brought in outsiders.

(2) Kofach had been persuaded by the international to stack the meeting for McDonald.

The union had even brought in outsiders. Although the final clauses in (1) and (2) were identical, the material immediately preceding either came from the same sentence (1) or the earlier sentence (2). It was found that the percentage of correct recall of the next-to-last clause was far better when it was part of the current sentence than when it was part of an earlier sentence. These and similar results have been taken as evidence that the surface or verbatim form of a sentence is stored in working memory only until its meaning is understood, then purged to make room for the next sentence. There is an exception to this rule, however. Subsequent results indicate that we sometimes remember the exact wording over a long time period.

Topic-063: Propositional Representations

Evidence for the psychological reality of propositions comes from Kintsch and Keenan, who showed that the number of propositions influences the time required to read a passage when preparing to recall it. For example, the following two sentences have about the same number of words:

(3) Cleopatra's downfall lay in her foolish trust in the fickle political figures of the Roman world.

(4) Romulus, the legendary founder of Rome, took the women of the Sabine by force.

However, sentence (3) is more complex propositionally than (4), which contains four propositions. Kintsch and Keenan found that a proposition added about 1.5 seconds to the reading time. Later studies provide somewhat lower estimates of the time needed to encode a single proposition but support the general conclusion that the number of propositions is related to reading time. Further work explored the notion that discourse is stored as a network of propositions.

Topic-064: Inferences and Propositional Representations

From a communication standpoint, an inference is a proposition in the underlying discourse structure that is intended but not explicitly expressed by the author and thus must be drawn by the reader. Furthermore, evidence indicates that when we draw inferences from a text, we store the implicit propositions right alongside the explicit propositions we have derived from the text itself.

Topic-065: Situational Models

Situational models represent the state of affairs that a text refers to. That is, the assumption is that as we comprehend the propositions of a text, we construct a mental or situational model of the world as described by the text. One possibility is a spatial layout, other is situational models.

Kinds of situational models: All of the preceding examples of situational models are spatial models, but there are other kinds of situational models. Zwann and Radvansky identified a number of different types of models other than spatial models.

One is a causal model, in which the parts of a text are connected by causal relations. The highest level of representation is the situation model which represents ideas of the text in an abstract format (e.g., the people, the actions, the setting, the events, and the inferences). Information in the situation model interacts with preexisting knowledge (i.e., episodic and semantic memory) of the reader, so that situation models can be updated online as one continues reading/listening to the text.

Topic-066: Simultaneous Investigations of All Three Levels

As we have seen, we form surface, propositional, and situational representations during the course of comprehending discourse. Most of the studies we have discussed to this point have attempted to isolate one of these levels or to distinguish between different levels. It is also helpful, however, to set up a study that attempts to investigate how each of the levels operates in the same experiment. Fletcher and Chrysler have reported such a study.

Topic-067: Schemata

A schema (plural: schemata) is a structure in semantic memory that specifies the general or expected arrangement of a body of information. The notion of a schema is not new in psychology. It is generally associated with the early work on story recall by Bartlett. In some imaginative studies that are still cited very frequently, Bartlett attempted to show that remembering is not a rote or reproductive process but rather a process in which we retain the overall gist of an event and then reconstruct

the details from this overall impression. He conducted experiments that were conducive to memory errors—unusual, bizarre stories that were repeatedly recalled over long time intervals—so that he could examine the guiding function of schemata in the reconstruction process. He found that when college students were given stories that were inconsistent with their schemata, recall was usually distorted in the direction of the schemata. Bartlett suggested that when we encounter an event that is discrepant from our usual understanding, we have difficulty fitting it into our existing schemata and subsequently tend either not to remember it or to 'normalize' it, altering its details until it is congruent with existing schemata. Bartlett's ideas were relatively unappreciated at the time but have taken on new significance recently as psychologists have developed new techniques to explore the way people comprehend and remember stories. Bartlett's notion of a schema, although appealing, was rather vague, and modern extensions of his work have focused primarily on two issues: characterizing schematic knowledge more precisely and determining how this knowledge is used during discourse comprehension.

Topic-068: Genres

The schemata considered up to this point have been based on content, such as the behavior of a burglar. We can also talk about schemata regarding certain forms of discourse. It is helpful here to introduce the concept of genre, which is a type of discourse that has a characteristic structure. We have genres for, among other things, lectures, sermons, opinion articles, presidential inauguration speeches, and comedy monologues. Genres are important because they provide us with general expectations regarding the way information in a discourse will be arranged. Let us consider a few examples. The organization of a news article in a newspaper can be thought of as an inverted pyramid. The most important points are introduced in the headline and at the beginning of the article. As the article progresses, less important details are brought in. This structure is directly related to the way news stories are edited. If space is not available for the entire article as written, the editor typically deletes paragraphs near the end of the story. Consequently, journalists arrange their stories so that the more important pieces of information are higher in the story.

Psychology students are familiar with another genre, the format that the American Psychological Association uses in its journal articles. The article begins with an abstract, followed by an introduction, the method, the results, and the discussion. Students encountering a journal article for the first time frequently report that it can be very difficult to understand. Gradually, as students become aware of where to find various pieces of information in the article, comprehension improves. One genre that has been studied a great deal in discourse research has been narrative discourse. Typically, stories begin with the introduction of characters and setting. The main character sets out with some sort of goal, runs into some obstacles, and ultimately resolves the dilemma. There are many different genres for stories; in fact, there are different ones for detective stories, fairy tales, and romances.

Narrative discourse can be contrasted with expository discourse in which the goal of the writer is not to tell a story but rather to convey information about the subject matter. This is the form of discourse that we encounter when reading a textbook or, for the most part, listening to a lecture. The emphasis is on presenting the information in an organized, logical manner. In the remainder of this section, we will explore how we comprehend and experience narrative discourse.

Topic-069: Narrative Discourse Processing

Story Grammars: Some of Bartlett's ideas have been formalized by contemporary researchers into the concept of a story grammar. A story grammar is a schema in semantic memory that identifies the typical or expected arrangement of events in a story. In general, story grammars view narratives as consisting of a setting, one or more episodes, and then an ending. In turn, episodes have a characteristic structure: some initiating event occurs, leading to some internal response on the part of the protagonist. The response leads to a goal, an attempt to reach the goal, and an outcome.

Psychological validity of story grammars: A fair amount of evidence indicates that story grammars (or something like them) correspond to several aspects of how comprehenders process simple stories. For example, the story grammar approach places emphasis on the concept of an episode. Several sources of evidence indicate that episodes are an important unit in our memory for stories. One is that episodes tend to be recalled in an all-or-none fashion as if they are stored in separate

chunks in working memory. Black and Bower showed that the length of one episode does not influence the recall of another Similarly, Glenn reported that the episodic structure of recall is unaffected by the length of the episodes.

Cross-cultural investigations: Mandler, Scribner, Cole, and DeForest examined whether these patterns of story recall are similar or different in different cultures. There is relatively little evidence on this issue. As we saw earlier, Bartlett presented Eskimo folktales to British college students and found that their recall was very poor. Presumably, this was because their story schemata did not match the schemata implicit in the folktales.

Topic-070: Inaccessibility of Knowledge

We have been discussing how we activate appropriate knowledge bases during the course of comprehending narratives. We may now round out our discussion of narrative by considering cases in which we fail to activate the appropriate knowledge. We have already considered one case of inaccessibility of knowledge. The Columbus passage was written so obscurely that we were initially unable to bring our knowledge of the subject matter to the task of comprehension. Here, when knowledge was not activated, comprehension was severely impaired. Yet, it is also possible to comprehend a passage and still not activate the relevant body of knowledge. Consider, for example, the following passage from Garrison Keillor: In Uncle Lew's story, a house burned down on a cold winter night and the little children inside ran barefoot into the snow of 1906—some were pitched out the bedroom window by their father— and all were safe. But although I heard the story dozens of times, whenever he told it again I was never sure they'd all get out.

Topic-071: Identifying the Main Points

Careful attention to the local structure of discourse helps, but it can still be difficult to figure out what an instructor or author regards as the main points. This may be particularly true for individuals with learning disabilities. Several studies indicate that the difficulty in determining main points may be traced to the presence of distracting and often confusing details. Meyer, Brandt, and Bluth (1980) found that when the key points of a passage are signaled explicitly, performance improves.

These researchers found that the signals improved the immediate retention performance of readers whose comprehension was otherwise poor (those who did not share the schema of the author) but did not affect the retention of good comprehenders. Strategy training led to increased recall performance relative to groups that were given training in assessing their interest in the subject matter or given no training. In addition, as in earlier studies, signals led to improved recall performance. However, strategy training was more effective in improving performance than signaling. Reder and Anderson (1980) tried a different approach. Instead of highlighting the main points, they eliminated many of the details from the passage. This is the idea behind publications such as Cliff Notes, which present condensed versions of plays and novels. Reder and Anderson found that retention was better when the material was presented in a condensed version rather than in a standard textbook version. In a similar vein, Giora (1993) found that analogies in text did not facilitate comprehension and may actually impair recall. It appears that we comprehend best when extraneous material is omitted from text.

Topic-072: Building Global Structures

Devices that highlight the main points of a passage are certainly helpful in the short run, but ultimately we need to identify important points even when they are not so explicitly marked. As we become more familiar with the content and structure of an author's prose, we can gradually deduce the author's schema. One good test of whether we have successfully done this is to write a summary for a portion of the text. This requires us to select specific propositions as the most important ones and to generalize some of the individual propositions into broader thematic statements (see Fletcher, 1994). By comparing our summary with the author's, we can see how close we have come to extracting the gist of the text. As we become more proficient, we can shift to a greater reliance on global processing strategies.

Lesson-1

Topic-073: Sign language: A True Language Without Speech

The production of signs is important theoretically because it gives us an opportunity to disentangle the cognitive processes involved in translating thought into language from the physical characteristics of our speech apparatus. Speech shares the vocal channel with respiration; in contrast, sign production can occur entirely in parallel with, and unimpeded by, respiratory activity. Thus, consideration of sign production in comparison with speech production can yield insights into some of the biological limits on linguistic form (Bellugi & Studdert-Kennedy, 1980). We will examine both similarities and differences between the two modes. One striking similarity is that errors occur in signing that strongly resemble those found with. Studies of sign language production are valuable because they enable us to distinguish between those aspects of production that are constrained by broad biological forces and those that are specific to speech. Sign language, because it exists in an entirely different mode from speech, might well differ substantially from speech in terms of grammatical organization. In contrast, basic similarities have been found in the two modes' organization of basic units into words or signs and in the syntactic rules by which words and signs are combined to form sentences. These similarities are illustrated by slips of the hand, which, like those of speech, typically involve a systematic error in a single linguistic unit. These results provide evidence that the parameters underlying signs are planned independently of one another.

Topic-074: Speech-Based Sign Languages

Principally, there are two types of sign language: one that relates to ordinary speech-based language and one that is independent of ordinary language. Speech-based sign languages represent spoken words (or their spelling) and the order of these words or morphemes as they appear in ordinary spoken languages, such as Swedish, English, and French. This contrasts greatly with such sign languages as American Sign Language and British Sign Language, which are not speech based and not mutually intelligible. These sign languages are independent of the ordinary spoken language, having developed their own words and grammatical systems for the production and understanding of sentences. We shall call these Independent Sign Languages (ISLs). Sign language based on the speech of ordinary language can be of two different kinds: one that represents the morphemes of speech and one that represents spelling (orthography). Let us begin with the latter, which is easier to explain and which, by the way, every signer of whatever system must learn so as to be able to express proper nouns such as the names of people or places.

Topic-075: Basic Grammatical Concepts

Four basic grammatical concepts are duality of patterning, morphology, phrase structure, and linguistic productivity. Words are composed of phonemes, which, in turn, have distinctive features. In each instance, the smaller units are combined in a rule-governed manner to produce the larger units. Words consist of one or more units of meaning or morphemes. The system of grammatical morphemes in a language provides speakers with a way of signaling subtle differences in meaning. Phrase-structure rules codify our intuitions about the groupings of words in a sentence. Some sentences are ambiguous and may be grouped in more than one way. Linguistic productivity refers to the fact that there is no limit to the number of sentences in a language. One type of phrase-structure rule, that of recursion, is responsible for some of this productivity.

Topic-076: Insights from Sign Language

We now consider some of the linguistic properties of **American Sign Language (ASL)**. Unlike speech, signs are expressed in visual or spatial form. This enables us to examine the extent to which the grammatical concepts we have just considered generalize to language in a visual modality. American Sign Language is sharply distinguished from manual forms of English that translate English sounds into signs. The best known is fingerspelling, which, as the name implies, translates English words letter by letter into manual form. It is a secondary gestural system, derived from the English language. In contrast, AS is independent of English and derived from French Sign Language. Although in the past ASL was regarded as mere pantomime or grammatically deficient in various ways, several decades of scholarly research on ASL have put these ideas to rest. Even if we accept the notion that ASL is an autonomous language, we must ask what its relation to spoken languages is

We will begin to answer this question by considering some of the differences between signed (especially ASL) and spoken languages and then some of the similarities.

Topic-077: Transformational Grammar

Evaluation of Grammars: If grammar is a theory of language, how do we evaluate how good a theory it is? Chomsky has suggested three criteria.

Observational adequacy: First, the grammar must specify what is and what not an acceptable sequence in the language is. This criterion, referred to as observational adequacy, applies at several levels of language. We know at the phonological level that pbort is not an acceptable sequence. Similarly, at the syntactic level we want the grammar to have rules that generate grammatical sentences without also generating strings of words we would regard as ungrammatical. A grammar is observationally adequate if it generates all of the acceptable sequences in a language and none of the unacceptable sequences.

Descriptive adequacy: The second criterion is that the grammar must specify the relationships between various sequences in the language, a criterion known as descriptive adequacy. It is not enough for the grammar to mark a sequence as permissible; it must also explain how it relates to other sentences that are similar in meaning, opposite in meaning, and so on. If, for example, two sentences are similar in meaning but differ in syntax, the grammar should be able to explain this fact.

Explanatory adequacy: The third criterion is called explanatory adequacy. Chomsky points out that it is theoretically possible for a number of grammars, all based on different principles, to attain these two forms of adequacy. How, then, does the linguist determine which of the descriptively adequate grammars is the best? Chomsky's answer pertains to language acquisition in children. He suggests that the child learning a language is presented with samples of the language and must determine the grammar from these samples. Chomsky notes, however, that even though the incoming data may be consistent with any number of grammars, children choose one particular grammar. This implies that certain innate language constraints enable the child to deduce the correct grammar. These innate language mechanisms would presumably be related to linguistic universals common to all languages. Thus, the final level of adequacy goes beyond the ability to describe patterns in a particular language; instead, it involves the ability to explain the role of linguistic universals in language acquisition.

Topic-078: Issues in Grammatical Theory

Psychological reality of grammar: As indicated earlier, much psycholinguistic research in the early and mid-1960s was based on transformational grammar. This research was guided by the belief that the structures and rules of transformational grammar were psychologically real; that is, they were a part of how people comprehend and produce language. One assumption that was made was that the surface structure was the starting point for comprehension and that the deep structure was the end point; the roles were assumed to be reversed for production. If so, then it would be reasonable to assume that the distance between surface and deep structure (as measured by the number of transformations in a sentence's derivation) would be an accurate index of the psychological complexity of the sentence. This view was called the **derivational theory of complexity** or DTC. Early studies were encouraging. A variety of studies showed that negative sentences such as

(1) The sun is not shining.

were more difficult to comprehend than the corresponding affirmative form such as (2) The sun is

shining.

But these sentences differ in meaning as well as transformational complexity, so this point is hardly conclusive. Later studies directly contradicted DTC. Sentence (3) is, for example, transformationally more complex than (4):

(3) The boy was bitten.

(4) The boy was bitten by the wolf.

In transformational theory, (3) requires a transformation that deletes the phrase by the wolf, so DTC would predict it would be more difficult to comprehend than (4). However, neither intuition nor experiment has revealed any relationship to processing difficulty. Similarly, there is no psychological difference between sentences that have undergone particle-movement transformation and those that have not. These studies have been reviewed extensively elsewhere. As Berwick and Weinberg (1983) pointed out, however, these results do not necessarily mean that the linguistic theory of transformational grammar is faulty. It could be that the linguistic theory is correct but that some of the psychological assumptions guiding DTC are faulty. More recent work has been more favorable to the hypothesis that linguistic theory has psychological reality. Consider this sentence:

(5) The dentist from the new medical center in town was invited by the actress to go to the party.

The use of the passive voice results in the movement of the NP that is the object of the verb (dentist) from the object position to the subject position. However, according to recent grammatical theory, it is assumed that the moved constituent leaves a trace at its earlier location. Thus, the presumed linguistic representation of (5) would be more like (6):

(6) The dentist from the new medical center in town was invited [trace] by the actress to go to the party.

If this proposal has psychological reality, then the hypothesis would be that comprehenders would be likely to reactivate the moved noun (dentist) when its trace was encountered. Osterhout and Swinney (1993) have provided evidence that comprehenders do this. Participants responded rapidly when words semantically related to the moved noun were presented in the trace position. It is as if they were thinking about dentist which made it easier to respond to a semantically related word, such as tooth. Responses were slower either before or after the trace position.

The centrality of syntax: There have long been controversies within linguistics regarding the proper way to characterize linguistic knowledge. As we have seen, phrase-structure rules are insufficient in themselves to account for our linguistic capacities, and these insufficiencies led Chomsky to propose transformational grammar. In the years since transformational grammar was formulated, it has gone through a number of changes. In the most recent version, Chomsky (1995) has eliminated many of the transformational rules in previous versions of grammar and replaced them with broader rules, such as a rule that moves one constituent from one location to another. It was just this kind of rule on which the trace studies were based. Although newer versions of the theory differ in several respects from the original, at a deeper level they share the idea that syntactic structure is at the heart of our linguistic knowledge. However, this view has been controversial within linguistics. We will discuss two alternative linguistic theories. One alternative approach is supplied by lexical theories of grammar. In lexical theories (for example, Bresnan, 1978), greater emphasis is placed on individual lexical items (words) than is given in more structural theories, such as transformational grammar. This view has been influential in recent years in diverse areas of psycholinguistics, including language comprehension, language production, and language development. Let us go through an example to contrast structural and lexical views. In most grammars, the lexical entry for a word includes its meaning, its spelling, its pronunciation, and syntactic characteristics such as part of speech. Bresnan's lexical-functional grammar, lexical entries also include the various forms of the word (for example, kiss, kissed, kissing) and the different kinds of sentences into which each form would fit. For verbs, this includes the arguments or semantic roles, such as the agent (the person doing the action) and the patient (the one to whom the action is done) that are associated with the verb, as well as the surface structure designation, such as subject or object, that goes with it. Consider sentences (7) and (8):

(7) Mother kissed her baby.

(8) Baby was kissed by her mother.

The lexical entry for kiss would indicate its underlying semantic structure as kiss: (agent, patient) That is, the verb requires both an agent and a patient (Mother kissed is not a grammatical sentence). In addition, the entry includes various forms of the word, including kiss: agent = subject, patient = object and (be) kiss: agent = object; patient = subject. The first verb form, used in sentences in the active voice, assigns the agent role to the surface-structure subject and the patient to the surface object. The second form, used in passive sentences, assigns the patient to the subject and the agent to the object of the preposition by.

Lesson-1

Topic-079: Introduction of Production of Speech Language

Stages of Production

1. **Planning / preparation:** Language production consists of several interdependent processes which transform nonlinguistic message into a spoken, signed, or written linguistic signal. Though the following steps proceed in thi approximate order, there is plenty of interaction and communication between them. The process of message planning is a active area of psycholinguistic research, but researchers have found that it is an ongoing process throughout languag production. Research suggests that messages are planned in roughly the same order that they are in an utterance. Afte identifying a message, or part of a message, to be linguistically encoded, a speaker must select the individual words— als known as lexical items—to represent that message. This process is called lexical selection. The words are selected based o their meaning which in linguistics is called semantic information. Lexical selection activates the word's lemma which contain both semantic and grammatical information about the word.

The first important goal of conceptual preparation is to establish which parts of the conceptually available information are going to be encoded and in what order. The second goal is to convert the conceptual information into a format that is a suitable for the linguistic formulation processes. One important open issue concerning conceptual preparation is how to characterize the mapping between conceptual and grammatical encoding. First is the question of whether conceptual preparation takes language specific properties into account. Languages differ in which conceptual or formal properties nee to be realized as a detail of the sentential form. For example, in English the word 'friend' does not carry information concerning the sex of the friend. In Spanish, the corresponding word is differentially inflected for a man ('amigo') or a woman ('amiga'). In English, adjectives used as predicates (e.g., 'tall' in 'The friend of Luis is tall') do not agree in gender wit the noun; in Spanish they do (e.g., 'El amigo de Luis es alto' or 'La amiga de Luis es alta').

2. **Grammatical information:** Critical grammatical information includes characteristics such as the word's syntacti category (noun, verb, etc.), what objects it takes, and grammatical gender if it is present in the language. Using some of thes characteristics as well as information about the thematic roles of each word in the intended message, each word is the assigned the grammatical and thematic role it will have in the sentence. Function morphemes, like the plural /s/ or the pas tense /ɪd/, are added in this stage as well.

Grammatical encoding refers to the processes involved in developing a syntactically well-formed sentence. It comprises first those processes that map the relationships among the participants in a conceptual representation (e.g., agent, patient, etc.) onto functional syntactic relations between the words of a sentence (e.g., subject, direct object, etc.). Next, on the basis of the resulting hierarchically organized syntactic frame for the sentence, the words in the sentence are linearized in a manner allowed by the language being spoken. The first step is also referred to as functional level processing, the second as

positional level processing. Distinguishing between building hierarchical and linear frames provides a solution to an important problem that the language production system faces. Speech production has to be incremental to allow for fluent utterances, but at the same time, the resulting utterance has to obey language specific constraints that force the use of only certain word orders. Assuming incremental conceptualization, however, the order in which parts of a conceptual message are processed do not necessarily correspond to a word order allowed in the speaker's language. This problem can be solved by separating the construction of hierarchical structures from the serial ordering of the words. In this way, hierarchical structures can be built in an incremental manner as soon as lexical elements are available; these can then be mapped to permissible linearly ordered positions.

3. **Phonological encoding:** After an utterance, or part of one, has been formed, it then goes through phonological encoding. In this stage of language production, the mental representation of the words to be spoken is transformed into a sequence of speech sounds to be pronounced. The speech sounds are assembled in the order they are to be produced.

Phonological encoding refers to the processes that are responsible for determining the phonological word forms and prosodic content of the sentence. First, the phonemes of words are retrieved from the mental lexicon, together with a metrical frame which specifies stress pattern and number of syllables in the word. Following this retrieval process, the resulting sequence of phonemes is syllabified according to a language specific set of syllabification rules. The domain of syllabification is assumed to be the phonological word which can but need not coincide with a lexical word. It should be noted that in this view, the syllabic structure of an utterance is computed on-line. The reason for this assumption is that the actual syllabification of a word in running speech depends on the context in which it appears. For example, the word 'deceive' in isolation is syllabified as 'de-ceive,' but in the context of the utterance 'deceive us,' the syllable structure becomes 'de-cei-veus.' This observation also provides a functional reason as to why the phonological form of a word is not stored and retrieved as one entity: such a representation would have to be broken up into its constituent parts whenever the stored syllabification of a word does not agree with its syllabification in the context of running speech. The representation formed by phonological encoding, a syllabified phonological code, forms the input for the articulatory processes which realize this code as overt speech. It is an open issue whether the transition from phonological encoding to articulation involves accessing a 'syllabary,' i.e., memory representations specifying the motor tasks that have to be performed to generate each syllable.

Topic-080: Slips of Tongue

Slips-of-the-tongue are speech errors in which intended utterances are rearranged between other words or sounds. According to psychologist Gary Dell, slips-of-the tongue are significant because they show a person's widespread knowledge about language, including its sounds, structures, and meanings. There are three types of slip-of-the-tongue errors. These types include sound errors, morpheme errors, and word errors. A sound error occurs when the sounds in words close by are exchanged. For example, instead of saying "flower pot," one says "power flot." A morpheme error occurs when morphemes, which are the smallest meaningful units in language, are switched in words close by. For example, instead of saying "self-destruct instruction," one says, "self-instruct destruction." Word errors occur when actual words are rearranged. For example instead of saying, "reading a book to my dog," one says, "reading a dog to my book." Errors in speech production and perception are also called performance errors.

According to Sigmund Freud, slips-of-the-tongue reveal the thoughts and desires of the unconscious mind. These slips-of-the-tongue are called Freudian slips or parapraxes. Speech errors are made on an occasional basis by all speakers. They occur more often when speakers are nervous, tired, anxious, or intoxicated.

During live broadcasts on TV or on the radio, for example, nonprofessional speakers and even hosts often make speech errors because they are under stress. Some speakers seem to be more prone to speech errors than others. For example, there is a certain connection between stuttering and speech errors. Charles F. Hockett explained that "whenever a speaker

feels some anxiety about possible lapse, he will be led to focus attention more than normally on what he has just said and o what he is just about to say.
These are ideal breeding grounds for stuttering. Slips of the tongue are a normal and common occurrence.

One study shows that most people can make up to as much as 22 slips of the tongue per day. Speech errors are common among children, who have yet to refine their speech, and can frequently continue into adulthood. When errors continue past the age of 9, they are referred to as "residual speech errors" or RSEs. They sometimes lead to embarrassment and betrayal of the speaker's regional or ethnic origins. However, it is also common for them to enter the popular culture as a kind of linguistic "flavoring." Speech errors may be used intentionally for humorous effect, as with Spoonerisms.

Topic-081: Types of Speech Error

Although speech errors cover a wide range of semantic content, there appear to be only a small number of basic types. Examples of the eight types are given in Table 8.1, with the words that were apparently intended in parentheses.

TABLE 8.1 Major Types of Slips of the Tongue

Type	Example
Shift	That's so she'll be ready in case she decide to hits it (decides to hit it).
Exchange	Fancy getting your model renosed (getting your nose remodeled).
Anticipation	Bake my bike (take my bike).
Perseveration	He pulled a pantrum (tantrum).
Addition	I didn't explain this clarefully enough (carefully enough).
Deletion	I'll just get up and mutter intelligibly (unintelligibly).
Substitution	At low speeds it's too light (heavy).
Blend	That child is looking to be spaddled (spanked/paddled).

Topic-082: Common Properties of Speech Error

Other patterns in these speech errors deserve a closer look. Garrett has identified four generalizations about speech errors that reappear with striking regularity. First, elements that interact with one another tend to come from similar linguistic environments, as indicated by examples (2) through (4):

(2) The little burst of beaden (beast of burden).

(3) You're not a poojin pitter-downer, are you? (pigeon putterdowner) (4) Children interfere with

your nife lite (night life).

Notice that the phonetic segments in the beginning of a word tend to be exchanged with other initial segments; the same is true for middle and final segments. Moreover, exchanges of segments are more common when the segments that precede them are similar. The exchange of /f/ and /t/ in sentence (4) follows this principle. Second, elements that interact with one another tend to be similar to one another. In particular, consonants are invariably exchanged or shifted with other consonants but not with vowels. Errors involving similar sounds, such as in sentence (5), often have little relation to meaning but are based, instead, on phonetic similarity:

(5) Sesame Street crackers (sesame seed crackers).

Topic-083: Explanations of Speech Errors

Speech errors, the bane of performers on live television and radio, are systematic and typically fall into one of eight categories: exchanges, substitutions, additions, deletions, anticipations, perseverations, blends, and shifts. Various hypotheses concerning the basis for such errors have been advanced. One of the more prominent has been Freud's view that errors occur because we have more than a single plan for production and that one such plan competes with and dominates the other. Although a Freudian type of explanation may apply to some speech errors, more recent thinking has focused on the psycholinguistic processes underlying speech errors. The most common interpretation is that we produce speech through a series of separate stages, each devoted to a single level of linguistic analysis. Errors typically occur at one level, but not others, during the production process. In the following section, we will examine this notion of stages of production more closely.

Topic-084: Differences in Freudian and Psycholinguistics Explanation

The Freudian explanation: One intriguing idea is that speakers have more than one idea in mind at a time. During the 1992 campaign, President George Bush began his remarks for one speech by saying (6):

(6) I don't want to run the risk of ruining what is a lovely recession (reception).

This, of course, could be construed as simply a sound error, as the two words are similar phonologically. But it could also be evidence that the president was pre-occupied with the recession (and its effect on his campaign). Or consider a student who explains that he wants to postpone an exam with statement (7):

(7) Last night my grandmother lied (died).

This could be an innocent phonological error, but then again, the slip could reveal the student's thinking more than he wishes.

Freud emphasized the role of psychodynamic factors in making certain types of content more available than others. He argued that these errors 'arise from the concurrent action—or perhaps rather, the mutual opposing action—of two different intentions' (Freud, 1916–1917/1963, p. 44). One of these actions was thought to constitute the conscious intention of the speaker, whereas the other pertained to a more disturbing thought or intention that interfered with the former. Sometimes the disturbing comment would be censored; but, on other occasions, the outcome of this hypothetical intrapsychic conflict would be a slip of the tongue that expressed some aspects of the less conscious intention. Examples consistent with Freud's position include a general who referred to a group of injured soldiers as battled scared (scarred) and a speaker extolling the achievements of a fellow worker who had just expired (retired).

Freud's position was that virtually all speech errors were caused by the intrusion of repressed ideas from the unconscious into one's conscious speech output. Although the Freudian interpretation may be appealing in cases in which the slip of the tongue results in a word with emotional significance, many slips seem to reflect simpler processes, such as anticipation (a meal mystery instead of a real mystery) and perseveration (he pulled a pantrum in place of he pulled a tantrum) of phonetic segments. In these latter cases, it seems to be unnecessarily complicated and unconvincing to claim that the error originated from intrapsychic conflicts. Still, these more common speech errors demand an explanation.

A Psycholinguistic explanation: Most recent psycholinguistic and linguistic thinking has focused on the insights gained in understanding language mechanisms (not unconscious motivations) from the study of speech errors. In this respect, errors of linguistic performance occupy a role in psycholinguistic theories similar to that played by aphasic disorders. The types of language breakdowns that occur in each case provide important insights for normal language functioning. For example, a study has shown that many of the segments that change and move in speech errors are precisely those postulated by linguistic theories, lending support to the notion that linguistic units such as phonetic features, phonemes, and morphemes constitute planning units during the production of an utterance.

One view of language production is that we produce utterances by a series of stages, each devoted to a different level of linguistic analysis. If so, speech errors can tell us a good deal about what these specific stages might look like. In the next few sections, we will examine some of the psychological and physiological processes that take place when we go from idea to articulation.

Lesson-1

Topic-085: Serial Models of Linguistic Planning

The pioneering studies of Fromkin suggested that the process of planning speech can be viewed as a series of stages, each devoted to one level of linguistic planning.

TABLE 8.2 Fromkin's Model of Speech Production

Stage	Process
1	Identification of meaning—a meaning to be conveyed is generated.
2	Selection of a syntactic structure—a syntactic outline of the sentence is constructed, with word slots specified.
3	Generation of intonation contour—the stress values of different word slots are assigned.
4	Insertion of content words—appropriate nouns, verbs, and adjectives are retrieved from the lexicon and placed into word slots.
5	Formation of affixes and function words—function words (articles, conjunctions, prepositions), prefixes, and suffixes are added.
6	Specification of phonetic segments—the sentence is expressed in terms of phonetic segments, according to phonological rules.

SOURCE: Based on "The Non-Anomalous Nature of Anomalous Utterances," by V. A. Fromkin, 1971, *Language, 47*, pp. 27–52, Linguistic Society of America.

Topic-086: Independence of Planning Unit

What evidence can be given that the stages hypothesized in Table 8.2 are actually independent of one another? Probably the clearest evidence is that the vast majority of speech errors contain mistakes at only one level of planning. One of Fromkin's examples is sentence (1), which was pronounced so-er:

(1) singing sewer machine (Singer sewing machine)

Here the error is at stage 5, as the suffixes are exchanged for one another. Yet the rest of the utterance—the content words stress values, and syntactic structure— remained unaltered. An even more striking example of the point is Garrett's sentence (2):

(2) Stop beating your brick against a head wall. (Stop beating your head against a brick wall.)

Topic-087: Editing Processes

In addition to the stages of planning, some intriguing evidence indicates that editing processes intervene between the planning of an utterance and its articulation. These editing operations might provide a last check to determine whether the planned utterance is linguistically and socially acceptable. It is clear that some monitoring and editing processes occur after a speech segment is uttered; after all, we often spontaneously correct ourselves. The question we want to consider now is whether we also have editing processes prior to articulation.

Topic-088: Freud's View of Slips of Tongue

One intriguing idea is that speakers have more than one idea in mind at a time. During the 1992 campaign, President George Bush began his remarks for one speech by saying (3):

(3) I don't want to run the risk of ruining what is a lovely recession (reception).

This, of course, could be construed as simply a sound error, as the two words are similar phonologically. But it could also be evidence that the president was preoccupied with the recession (and its effect on his campaign). Or consider a student who explains that he wants to postpone an exam with statement (4):

(4) Last night my grandmother lied (died).

This could be an innocent phonological error, but then again, the slip could reveal the student's thinking more than he wishes. Freud emphasized the role of psychodynamic factors in making certain types of content more available than others. He argued that these errors 'arise from the concurrent action—or perhaps rather, the mutual opposing action—of two different intentions' (Freud, 1916– 1917/1963, p. 44). One of these actions was thought to constitute the conscious intention of the speaker, whereas the other pertained to a more disturbing thought or intention that interfered with the former. Sometimes, the disturbing comment would be censored; but, on other occasions, the outcome of this hypothetical intrapsychic conflict would be a slip of the tongue that expressed some aspects of the less conscious intention. Examples consistent with Freud's position include a general who referred to a group of injured soldiers as battled scared (scarred) and a speaker extolling the achievements of a fellow worker who had just expired (retired) (Ellis, 1980). Freud's position was that virtually all speech errors were caused by the intrusion of repressed ideas from the unconscious into one's conscious speech output. Although the Freudian interpretation may be appealing in cases in which the slip of the tongue results in a word with emotional significance, many slips seem to reflect simpler processes, such as anticipation (a meal mystery instead of a real mystery) and perseveration (he pulled a pantrum in place of he pulled a tantrum) of phonetic segments. In these latter cases, it seems to be unnecessarily complicated and unconvincing to claim that the error originated from intrapsychic conflicts. Still, these more common speech errors demand an explanation.

Topic-089: Parallel Models of Linguistic Planning

Speech errors from both spontaneous speech as well as laboratory studies have provided researchers with a body of data about the production of language. Theories of how we proceed from message to linguistic structure come in two types. Serial models assume that we begin with the overall idea of an utterance, followed by syntactic organization, content words, morphemes, and phonology. Slips of the tongue typically involve just one level of planning, with other levels unaffected. There may be a final stage, after the planning of an utterance but before its articulation, that edits the utterance-to-be in a manner not inconsistent with Freud's ideas. Recent alternatives to the stage models are parallel models of production. These models assume that the linguistic message is organized at semantic, syntactic, morphological, and phonological levels. Activation of a node at one level may trigger activation of nodes at other levels, and feedback may occur from morphological and phonological levels back to higher levels of processing. Models organized along these lines have been shown to account for several important research findings.

Topic-090: The Role of Agreement

A line of research that may be helpful in evaluating serial and parallel models concerns number agreement. In English, in order for a sentence to be grammatical there needs to be number agreement between subjects and either verbs or pronouns. Thus, we say The concerts this Summer have been wonderful, not The concerts this Summer has been wonderful, and The pitcher's fastball is his best pitch, not The pitcher's fastball is their best pitch. We sometimes make agreement errors that are instructive. For example, in sentence (5), the head noun (time) controls the correct form of the subsequent verb (is), but we sometimes err by using a form of the verb (are) that matches the immediately preceding word (games).

(5) For example, the time for fun and games is over.

Lesson-1

Topic-091: Articulating Planning and Production Cycles

Once we have organized our thoughts into a linguistic plan, this information must be sent from the brain to the muscles in the speech system so that they can then execute the required movements and produce the desired sounds. However, it is useful to understand certain basic aspects of articulation, in anticipation of our later comparison of the production of signed versus spoken language. Three Systems of Muscles Fluent articulation of speech requires the coordinated use of a large number of muscles. These muscles are distributed over three systems: the respiratory, the laryngeal, and the supralaryngeal or vocal tract.

Topic-092: Planning and Production Articulating Cycle

Several studies have converged on the conclusion that we alternate between planning speech and implementing our plans. Consider first a study performed by Henderson, Goldman-Eisler, and Skarbek (1966), who analyzed the hesitations and fluent speech of individuals being interviewed. Note that there appears to be an alternation of steep parts (primarily pausing) and flat parts (mainly speech). Henderson and his colleagues found that all of the participants showed this cycle of hesitation and fluency, although the ratio of speech to silence varied among speakers.

Topic-093: Self-Monitoring

Speakers routinely monitor their utterances to ensure that they are saying what they wanted to and in the way they wanted to. When errors are detected, speakers interrupt their speech nearly immediately and begin editing their utterance. Both the use of editing expressions and the linguistic structure of the repair itself appear to facilitate listener comprehension.

Topic-094: Editing Expressions

It appears that the editing expression conveys to the listener the kind of trouble that the speaker is correcting. James (1972) analyzed utterances containing expressions such as uh and oh, suggesting that these convey different meanings. For instance, in sentence (1), the uh suggests that the speaker paused to try to remember the exact number of people. In contrast, sentence (2) would be used when the speaker did not know the precise number but was trying to choose a numbe that was approximately correct.

(1) I saw ... uh ... 12 people at the party.

(2) I saw ... oh ... 12 people at the party.

Topic-095: Insights from Sign Language

We now consider some of the linguistic properties of American Sign Language (ASL). Unlike speech, signs are expressed in visual or spatial form. This enables us to examine the extent to which the grammatical concepts we have just considered generalize to language in a visual modality. American Sign Language is sharply distinguished from manual forms of English that translate English sounds into signs. The best known is fingerspelling, which, as the name implies, translates English words letter by letter into manual form. It is a secondary gestural system, derived from the English language. In contrast, AS is independent of English and derived from French Sign Language. Although in the past ASL was regarded as mere pantomime or grammatically deficient in various ways, several decades of scholarly research on ASL have put these ideas to rest. Even if we accept the notion that ASL is an autonomous language, we must ask what its relation to spoken languages is We will begin to answer this question by considering some of the differences between signed (especially ASL) and spoken languages and then some of the similarities.

American Sign Language has its own set of grammatical rules and is a language that is independent of English. Our preliminary look at ASL indicates some striking similarities in its grammatical organization, suggesting that some of the basic concepts we have been discussing might be universal. At the same time, there are significant differences between ASL and English, and we will examine these further. Because the similarities and differences between ASL and spoken languages are so intriguing, we will return periodically to the study of ASL throughout this book.

Topic-096: Production Rate

Studies of production rate reveal differences between the two modes. Speakers achieve differences in speech rate primarily by varying the number of pauses, whereas signers vary the duration of signed segments and both the duration and number of pauses. These dissimilarities reflect the effects of respiratory functioning on speech but not on signs.

Lesson-1

Topic-097: The Structure of Conversation

The linguist Charles Fillmore has stated that the language of face-to-face conversation is the basic and primary use of language, all others being best described in terms of their deviation from that base, and this appears to be a reasonable starting point. Let us begin, then, by comparing conversation with other types of discourse. Debates, for example, typically have topics specified in advance, and rules specifying who can speak at a given time and for how long are also usually agreed on ahead of time. The turns of each speaker are identified clearly. Speakers typically speak for an extended period of time. Ceremonies, such as an awards dinner, are also formalized. The topic is specified in advance but not the length of time any given speaker may take. Turns are identified rather clearly, with formal introductions given for each speaker. Again, the length of a given speaker's monologue can be rather long. Meetings are typically less formal than either ceremonies or debates. While it is not uncommon for specific rules, such as Robert's Rules of Order, to be used to organize discussions, the discussions themselves vary, as a general rule, more than those of more formal types of discourse. Also, the number of participants is much larger than for debates, and the contributions of different members vary a great deal. It is not uncommon for one member of a committee to dominate the proceedings. Finally, conversations are the least formal of these four types of oral discourse. The number of participants, the topic, the length of a given speaker's contribution, and many other factors are left undecided or decided on the spot. The relaxation of formal rules is, of course, one of the prime enjoyments of a good, rich conversation. Yet, in the absence of formal rules, we have implicit communicative conventions that help organize everyday conversations.

Topic-098: Opening Conversations

Theoretically the number of possibilities for opening conversations is infinite; in practice we do so in a limited number of ways. Most commonly, we address another person (Hey, Carl), request information (Do you know what time it is?), offer information (Are you looking for someone?), or use some form of stereotyped expression (Hello) or topic (Strange weather lately, eh?). These serve to get the listener's attention and often lead to stock replies. This quickly establishes the alternation of turns that is central to conversation: A asks a question, B replies, followed by a sequence of the form ABABAB.

Topic-099: Closing Conversations

Conventions are also at work when we close conversations. Schegloff and Sacks (1973) suggest that one way to end a conversation is to present a preclosing statement like we-ell, so-o-o, or OK, which signals a readiness to end the conversation. The listener then may accept the statement with an utterance such as yeah or OK. Alternatively, the listener might bring up another topic and the conversation would continue. Here is an example of the latter (from Clark, 1994, p. 1004):

June: yes

Daphie: thanks very much June: OK?

Daphie: right, I'll see you this

June: because there how did you beat him?

Daphie: no, he beat me, four one (laughs)

June: four one

Daphie: yes, I was doing quite well in one game, and then then I—I lost

June: oh, how disgusting

Daphie: yes

June: OK. Right

Daphie: right

June: see you tonight

Daphie: right, bye

June: bye love

Notice that June, in the third line, signals a potential end to the conversation (OK?) and Daphie seems to reciprocate (right, I'll see you this), but then June brings up another topic. The topic continues for some time until the end of that topic leads to the end of the conversation as a whole. Albert and Kessler (1978) list several ways in which we end conversations, including summarizing the content of the conversation, justifying ending contact at this time (I have another meeting), expressing pleasure about each other, making reference to the ongoing relationship and planning for future contact (see you later), and wishing each other well (take care, have a good trip). Albert and Kessler propose that these closing moves form a sequence, with the items occurring in the order indicated earlier. Their evidence supports such a sequence; for example, speakers were more likely to use summary statements at the beginning of the ending sequence and well-wishes at the end. In addition, use of closing sequences was reciprocal: Listeners tend to respond to summaries with agreement, to positive statements with similar statements, and to well-wishes with good-bye. By presenting one of these closing statements and having one's conversational partner reciprocate, the conversationalists are implicitly negotiating an end to the conversation. It is different with young children, of course. When they are done with a particular conversation, they simply walk away.

Topic-100: Taking Turns

Conversations become more complicated when more than two people are present. Nevertheless, the single-most outstanding fact about conversations is that they run so smoothly in the absence of formal rules. How do speakers avoid ''bumping into'' one another in the course of conversations? According to Sacks and colleagues (1974), turn taking during conversations operates by three implicit rules. The first rule states that the current speaker is allowed to select the next speaker. This is often done by directing a question to another person. The second rule is that of self-selection: If the first rule is not used, another person may speak up. The third rule states that the current speaker can continue, although she or he is not obligated to do so. These rules are ordered: The first one takes priority over the second, which takes priority over the third. If speaker A addresses a comment specifically to B while C starts to talk, B has the floor.

Topic-101: Negotiating Topics of Conversations

It is not enough, however, merely to take turns with others in conversation. As Grice has noted there is a strong social convention to ''be relevant.'' In conversations, this means sticking to the topic and tying one's comments to those of the previous speaker. Schank argued that there are, indeed, rules of this kind, although it is probably more accurate to say that they govern rather than severely restrict our responses. This is reflected in the observation that while some responses are clearly odd, a wide range of ''acceptable'' responses to any statement is possible.

Topic-102: Identifying Participants and Nonparticipants

Clark has pointed out that conversations often take place in a context in which various types of nonparticipants are also present. Consider Figure 9.1. Suppose Alan asks Barbara a question. Alan and Barbara then are participants in the conversation. Suppose Connie has been present during the conversation but is not directly involved in the question. She is a side participant in the conversation. Others within earshot are overhearers, who come in two varieties. Bystanders are those who are openly present but do not participate in the conversation. Eavesdroppers are those who listen in without the speaker's awareness. Many conversational situations bring these roles into play. For example, if I am having lunch with Hal and Greg stops by, I may, after introducing the two, chat briefly with Greg in such a way as to define Hal as a side participant I might, for example, ask Greg how his family is, knowing that a family member had been seriously ill some time back. My question and Greg's answer can be phrased in such a way that Hal is completely unaware that anything significant has been discussed. Later, if Greg asks him a question, Hal is once again a full participant in the conversation. We resort to a variety of strategies when dealing with over hearers, including disclosure, concealment, and indifference (Clark & Schaefer, 1992). Consider a situation in which a man and a woman were served by an inept waitress in a restaurant. The waitress dropped the man's forks on the floor but did not replace

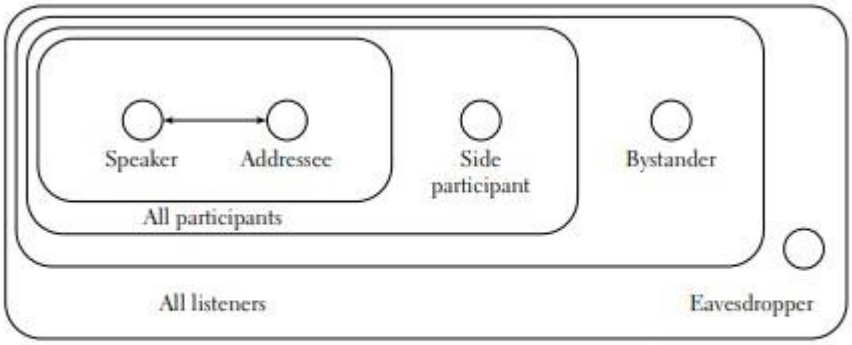


FIGURE 9.1 Different roles in conversations. (From *Using Psychology,* by H. H. Clark. Copyright © 1996 Cambridge University Press. Reprinted by permission.)

them. After the waitress brought the food but was still within earshot, the man asked his companion, Could I use one of you forks? In this instance, the speaker's apparent intent was to allow the bystander to hear him without having to confront her about her lapse. Thus, although the waitress is a bystander, the intent is to disclose the information that is communicated to the dinner companion. As another example, when we are at an airport, trying to say good-bye to a loved one, all sorts of strangers are nearby. Although we may wish to engage in some private conversation, there are many potential eavesdroppers. We resort to a variety of strategies in these kinds of situations to conceal our meaning from eavesdroppers, including referring to personal events (for example, the event we talked about yesterday) and using private codes such as in group jargon or even foreign languages. These points merely scratch the surface of what is a complex but poorly understood process. The main point is that when speakers address their listeners, they must also take over hearers into account. I have to this point sketched out a series of general principles about how conversations take place—taking turns, distinguishing participants from nonparticipants, and so on. But this characterization raises the question ''How general are these principles?'' In the following sections, we explore two ways of answering this question. First, we look at whether these principles apply equally to various types of participants, such as friends and acquaintances or males and females. Then, we examine whether these principles apply equally well to different conversational settings, with particular emphasis on psychotherapy as a form of conversation.

Lesson-1

Topic-103: Friends and Acquaintance

Common ground: One concept that is helpful here is what Clark calls common ground, which refers to the shared understanding of those involved in the conversation. For knowledge to qualify as common ground, person A must know a given information X, and person B must know X, and A must know that B knows, and B knows that A knows, and so on; that is, both parties are aware that they share the information. Some of this common ground is culturally based, such as cultural values, commonly held beliefs, or culturally prescribed roles. For example, when you have a conversation with your academic adviser, your discussion is linked to these roles. Other types of common ground are more personal, in which shared experiences influence the nature of the conversation. It is this personal common ground that is our concern at this point.

Topic-104: Gender Differences in Conversation

Early studies of gender differences found that men interrupt women more than vice versa, a result that has not been found as often recently. Studies of conversational participants flesh out an outline of conversational processes sketched earlier in the chapter while, at the same time, suggesting new avenues for research and theory.

Topic-105: More Recent Work on Interpreting the Conversational Strategies

In recent years, some scholars within linguistics, sociology, and psychology have examined the strategies of interpreting conversations among different participants. The studies of Simkins Bullock and Wildman (1991) and McMullen, Vernon, and Murton (1995) contributed in the most recent work in this area. The primary findings include that there was no evidence that women necessarily worked harder in their conversations with men. One reason that the linguistic differences—tag questions, minimal responses, and so on—do not always differentiate women and men is that couples differ in the ways tha they share power. In turn taking, Edelsky recorded the verbal behavior of women and men only to find that there were different kinds of turns; some turns had a clear speaker while others listened or responded; other turns were more collaborative in nature, with several people sharing the turn. Men took longer turns during the former type, but there were fewer differences between genders in the collaborative turns.

Topic-106: Conversational Settings

Conversational settings shape conversational processes. Friends tend to converse in different ways than do acquaintances and strangers. Some studies of gender differences reveal that males speak more and interrupt more than females.

Topic-107: Therapeutic Discourse

For the most part, psychotherapists and related professionals (counselors and so on) attempt to help clients by listening to their concerns and talking to them. When the primary means of achieving therapeutic results is through language, we would expect that therapists are especially skilled at conversational processes. What kinds of special characteristics, then, comprise therapeutic discourse? Or, to put it slightly differently, what are the special institutional rules of psychotherapy? It might be helpful to begin with an admittedly simplistic model of what therapists do and then examine each of these tasks in terms of conversational processes. We may distinguish three main tasks during therapy. First, the therapist listens carefully as the client reports experiences, issues, and concerns. Second, the therapist interprets the client's experiences and symptoms. Third, the therapist collaborates with the client regarding potential courses of action. These tasks are not necessarily organized sequentially; therapeutic sessions interweave data, interpretation, and suggestion in a complex pattern.

Topic-108: Other Forms of Institutional Discourse

Relatively little work has been done on conversations in other institutional settings, but at least a preliminary comparison with therapeutic discourse may be attempted. As we have already seen, most institutional settings identify a particular individual (therapist, judge, academic adviser, physician, and so on) as the authority figure. In addition, we have seen that although psychotherapists are authority figures, they are careful in the ways that they exercise their authority. Judges, by contrast, are not as timid. In a court of law, there are more clearly prescribed patterns of allowable questions and answers, and most judges do not hesitate to control their courtrooms when matters tend to get out of hand. It is not uncommon to hear judges, for example, tell attorneys who have strayed too far on a given topic to shut up (Jones & Beach, 1995). Physicians probably occupy an intermediate position on a continuum of how strictly or loosely institutional authority is wielded. Like therapists, physicians require data from the patient to be of much help, and good physicians listen carefully to their patients' symptoms and concerns. Also like therapists, physicians reserve the role of interpreting these symptoms, often with the aid of various diagnostic tests. Once the test results are in, the physician interprets their significance to the patient and either recommends a particular course of action or outlines the alternative possible actions (Parsons, 1975). Particular interest has centered on the diagnostic part of the office visit: how and in what way the physician communicates the diagnosis of the condition to the patient. Diagnoses may vary from a single word (for example, bronchitis) to a detailed description of a condition. As Heath (1992) has observed, the diagnosis is a pivotal point in the consultation between patient and physician. It marks the end of the ''data-gathering'' phase and begins (and in fact is the basis for) the discussion of possible treatments. And it is the province of the physician to form this medical judgment. If the patient offers candidate diagnoses, the physician is likely to defer consideration of them until the examination or diagnostic tests are complete.

Lesson-1

Topic-109: Prelinguistic Communication

Until the early part of their second year, infants communicate with their world primarily in nonverbal ways: they tug at people's clothes, point at desired objects, and wave bye-bye. These gestures, though basic, reveal a good deal about the infant's understanding of how communication works. It appears that the emergence of these communication skills is made possible by advances in the child's understanding of how actions can be used as means for achieving desired goals. These advances take place in the first year of life, suggesting that infants' understanding of communication precedes and facilitates much of the child's acquisition of phonology, syntax, and semantics.

Topic-110: Prelinguistic Gestures

Despite the richness of the language infants receive in the first year of life, it is some time before they are able to speak themselves. Before they use language to communicate, they communicate with gestures. Well before 10 months of age, children engage in a lot of vocal behavior that appears to have some communicative value. Children's smiles and (most

definitely) cries elicit parental behavior. Moreover, different cries are discriminated by parents, and these yield responses that differ in urgency as well as type. Still, these sounds are not true forms of intentional communication because infants do not display flexible, goal-directed behavior. For example, if a cry is ineffective in obtaining adult attention, young infants do not turn to another behavior, such as banging an object against the side of the crib. Thus, although infants' cries generally elicit parental responses, the infant is not using the cry for that purpose. Rather, it is simply a built-in response with predictable consequences.

Topic-111: Early Phonology

Children's acquisition of the sound system of their language does not occur in isolation of the communicative processes we have just discussed. Rather, children come to the task of learning phonology with some knowledge of how to communicate in nonverbal ways. The prelinguistic infant knows how to use gestures to make assertions and requests and, once early speech sounds are mastered, they are quickly used for these same communicative functions. The child's first attempts at producing sounds, however, have more to do with practicing with the sound system than with communicating with others. Eventually, the abilities to communicate without words and vocalize without meaning merge into a productive and communicative speech. The task of identifying what the child knows about phonology is difficult, for the ways in which phonological knowledge is expressed can often be rather indirect. Consider again the example presented at the beginning of the chapter, in which a child named Lisa pronounces her own name as Litha but objects when an adult does the same. Apparently a child can perceive a distinction that she cannot produce, an occurrence that has been christened the fis phenomenon after a child who called fish fis (Berko & Brown, 1960). Thus, we cannot simply look at children's production to assess their perception of the phonology of their native language. Our survey of phonological development begins with the child's perception of speech, and then turns to the production of speech.

Topic-112: Early Words on Lexical Development

Children begin by focusing on words related to the here and now, an observation that fits well with Piaget's description of the sensorimotor period of cognitive development. Many of their early words consist of nominals that refer to concrete aspects of their environment. They learn the names of the toys they play with, the clothes they wear, and the food they eat. Children have a bias toward objects that change or move in response to their actions; they are more likely to learn the word ball than the word chair. Their early vocabulary, however, is not limited to nominals. As Nelson has shown, children use words from various grammatical classes early on. Nelson found that general nominals such as ball and car were most prevalent, followed by specific nominals (Mommy), action words (up, go), modifiers (dirty, pretty), personal and social words (please, want), and function words (what, for).

Topic-113: Early Grammar

Children begin to speak in word combinations by about 2 years of age, and over the course of the next few years, they make impressive advances in grasping the grammar of their native language. These aspects of grammar, of course, differ from language to language. Children learning English must pay close attention to word order, which is the primary way in which meaning is signaled. Those acquiring a more inflected language, such as Turkish, must spend a relatively greater amount of time learning the different forms or conjugations of verbs. These language differences surely play an important role in language acquisition. There are, however, important similarities in children's early grammatical efforts. Slobin has suggested that at least the early stages of grammatical development are similar in all of the world's languages. Studies have now been conducted on dozens of different types of languages, and these have found that what Slobin calls basic child grammar is a universal construction of children learning their native language. In this section, we will consider the structure of basic child grammar and some ideas researchers into child language have developed as to what rules comprise this grammar as well as review evidence that indicates individual differences in early language acquisition.

Topic-114: Emergence of Grammatical Categories

The structure of early utterances: It may seem odd to talk of two-word utterances as sentences having a grammatical structure. After all, early utterances such as all gone baby and more crayon are hardly grammatical by adult standards and may appear to be little more than random combinations of previously acquired words. Most investigators of child language, however, agree with Sachs that ‘‘the two-word utterances he [the child] says are neither simple imitations of adult utterances nor random combinations of the words he knows. Rather, they follow from the system that the child is using to express meanings at that time.’’ Several lines of evidence support this view. First, when children first put words together, they tend to combine content words and leave out function words, thus producing utterances such as more milk, push truck and so on. This is similar to the way adults phrase utterances when sending a telegram, where there is a premium on word cost: lost money, send cash, and so on. This suggests that the child has an understanding of this grammatical distinction as well as an intuitive appreciation that content words may be more informative than function words. Second, as children put words together, particular words are put in particular positions in the sentence. A child, for example, is much more likely to say all gone sock than sock all gone. Thus, the child is not merely stringing together separate words that she knows but is putting them together in a systematic way.

Interpretations of early multiword utterances: What, then, is the child’s system? Several different possibilities have been explored. Consider a simple utterance such as baby cry. We can describe this in syntactic terms as a subject followed by a predicate. Alternatively, we can describe it in semantic terms as an agent (an animate being who is the instigator of an action) and an action. Or we can describe it in positional terms, with baby being a word typically in the initial position and cr as typically in the latter position. These characterizations differ in degree of abstractness, with the syntactic description as most abstract and the positional description as least abstract. The syntactic description does not appear to fit children’s utterances, at least not in the earliest stages. The subject of a sentence may be an agent, but it could also be an object (The book is on the table), an instrument (The nail pierced the wood), or a location (Dallas is dull).

Acquiring grammatical categories: Ultimately children must grasp categories that are defined in syntactic terms, and there has been much debate concerning how they do this. One suggestion is that they use their knowledge of semantic relations to learn syntactic relations. This process is known as semantic bootstrapping. As Bowerman puts it: children launch their syntactic careers by learning simple order rules for combining words which in their understanding perform semantic functions such as agent, action, and object acted upon, or perhaps other even less abstract semantic functions. Through additional linguistic experience, a child may begin to recognize similarities in the way different semantic concepts are formally dealt with and to gradually reorganize his knowledge according to the more abstract grammatical relationships which are functional in the particular language he is learning. For instance, children ordinarily use sentences in which the grammatical subject is the semantic agent. Then they use this correspondence to begin learning the grammatical category o subject. As children become more linguistically experienced, they induce grammatical concepts from the semantic-positiona configurations already acquired. Exactly how this is done is still very much up in the air, but Maratsos has provided evidence that children acquire some of the concepts during the preschool years. Maratsos suggests that children do this by paying attention to the grammatical operations that given linguistic forms take. For example, although like and fond are similar semantically, like takes the grammatical morpheme -ed, whereas the past tense of fond is formed with the auxiliary be (was fond).

Lesson-20

Topic-115: Later Grammar

Children make impressive strides in their acquisition of grammar in their first 2 to 3 years. They develop the ability to form simple, functional utterances such as Daddy chair that express their meaning relatively directly. Later grammatical acquisitions are built on earlier accomplishments. In this section, we look at two such acquisitions: grammatical morphemes and more complex sentence constructions.

Topic-116: Cross-linguistic Differences in Later Grammar

Children acquire grammatical morphemes gradually throughout the preschool years. As children acquire morphemes, they use them in productive ways, sometimes producing errors such as over- regularizations. Complex syntactic constructions such as negatives, questions, and relative clauses are also developed during the preschool years. Ease of acquisition appears to be related to the formal and conceptual complexity of the construction, along with certain processing limitations in the child.

Topic-117: Metalinguistic and Discourse

While a good deal of our linguistic knowledge is tacit, explicit awareness of linguistic units and processes is essential for writing, reading, and other aspects of language. The emergence of linguistic awareness takes place after the child's basic grammatical system is organized, in the late preschool and early school years.

Topic-118: Discourse Processes in Children

Children as young as 2 or 3 years old are able to tell stories and participate in conversations, albeit in limited ways. During the subsequent preschool years, they become more flexible and skilled conversationalists and storytellers. They use a greater variety of cohesive devices, learn new genres, adapt their speech to different listeners, and formulate and justify requests of others. As children enter school, they have an impressive repertoire of communication skills.

Topic-119: Language in School

The language skills that children bring to the school setting are important because language is the predominant means of instruction in a wide variety of subject matters. But the language of the school is different from the language of home and of the playground, and children must adapt to these differences as they enter formal schooling. The main focus in school is on oral communication in the classroom, and then discusses the relationships between reading and language development.

Topic-120: Reading and Language Development

There is, of course, another major difference between language in the school and language before school. Schooled language is increasingly written language, and the demands of written language pose a considerable challenge for most children entering formal schooling. The beginning reader is already a fluent language user. Many of the comprehension skills that have been acquired to deal with oral language are also applicable to reading. These include the ability to extract the meaning of a sentence, interpret that sentence in a given communicative context, draw inferences from individual statements, and monitor one's own comprehension. These may be referred to as general comprehension skills. In addition, learning to read involves mastering other skills specific to the written language. These include using eye movements to scan sentences in a text, extracting the visual features of letters and words, reading from left to right on a page (in most languages), and relating printed language to spoken language in some way. It is likely that some of these skills may be acquired rather easily, but others may take substantial time and effort. What this suggests is that reading involves a variety of skills that are well coordinated only in the mature reader. That is, the early reader is consumed with the task of identifying even familiar words in a new and unfamiliar mode.

Lesson-2

Topic-121: Contexts of Childhood & Bilingualism

The meaning and definition of bilingualism varies tremendously from situation to situation. Some individuals are bilingual because they live in bilingual regions; some become bilingual because their home language is not the same as their school or business language; some become bilingual because colonization has imposed another language. Others become bilingual because they have studied a language in school or because they grew up in homes with two languages. A distinction has been drawn between simultaneous bilingualism and sequential bilingualism. When children acquire two languages at the same time, their bilingualism is referred to as simultaneous bilingualism. Sequential bilingualism occurs when an individual (child or adult) acquires a second language after already acquiring a native language. This type of bilingualism is also referred to as second-language acquisition. Most commonly, children learn two languages simultaneously when they are born into a community that is bilingual. In some communities, bilingualism is simply expected.

Topic-122: Bilingual First-Language Acquisitions

Popular ideas about bilingual language development are curiously mixed. Because bilingualism is the norm in many parts of the world and younger children are often regarded as superior language learners than older children or adults, some believe that young children can effortlessly acquire two or more languages simultaneously. At the same time, some parents and educators fear that bilingual language exposure may slow children's language development and even cause them to mix or confuse their languages. We will examine some of these ideas. Do bilingual children learn each language in a similar way and in a way that is also similar to how monolingual children acquire their language? And are bilingual children able to learn two languages at the same rate as monolingual children learn one, or does the presence of a second language slow their development? And is language mixing or interference between languages inevitable? Much of what we know about bilingual language acquisition comes from early case studies based on diaries kept by parents.

Several concerns arise regarding the use of case studies. One is that it is impossible in the context of a case study to know precisely what circumstances may have caused a particular developmental outcome. If, for example, a family moved when the child was 2 and the child's language changes at that point, it is not possible to know whether it would have changed anyway. Another concern is that parents may have difficulty being fully objective when recording their children's language development. Outstanding utterances may be preserved better than errors. Nonetheless, a good deal can be gleaned from these studies, particularly when the data are recorded carefully. In many instances, case studies have provided detailed data that inspired subsequent studies of bilingual language acquisition.

Topic-123: Second Language Acquisitions

Many children learn a second language after attaining considerable proficiency in their native language. For ease of exposition, the first language is referred to as L1 and the second language as L2. As Gass and Selinker (2001) point out, the boundaries of child second-language acquisition are somewhat arbitrary. At one end, the term excludes those children we have just considered who are acquiring two or more languages simultaneously. At the other end, child second-language acquisition generally excludes individuals who are acquiring L2 beyond about 12 years. The reason for this exclusion is that it

is commonly thought that there is a critical period for L2 acquisition and that acquiring a second language after puberty is much more difficult. For our purposes, it is generally agreed that child second-language acquisition extends from about 5 to 9 years, or after the primary language is essentially acquired but before any possible effects related to a critical period.

Topic-124: Metalinguistic Awareness

If children learn two languages, they learn two ways of referring to objects in their environment. Does the bilingual child who has learned that the cat and el gato refer to the same animal better understand that language is arbitrary, the principle that there is (in general) no relation between a word and its referent? Leopold thought so, stating that ‘‘the most striking effect of bilingualism was a noticeable looseness of the link between the phonetic word and its meaning.’’ This phenomenon may be broader than word meaning. It may be that bilingual children are in general more attentive to language than monolingual children. As Vygotsky (1934/1986) has suggested, a bilingual child would ‘‘see [one’s] language as one particular system among many, to view its phenomena under more general categories, and this leads to an awareness of [one’s] linguistic operations.’’

Topic-125: Cognitive Control

Another cognitive consequence of bilingualism may be cognitive control, the ability to selectively attend to some stimuli and ignore others. A fascinating recent report by Bialystok, Craik, Klein, and Viswanathan (2004) suggests that bilingualism may help to offset age-related losses in cognitive or executive control. Bialystok et al. (2004) used a task known as the Simon task (Lu & Proctor, 1995). The task is based on stimulus–response compatibility and assesses the extent to which a person can ignore irrelevant spatial information. In the Bialystok et al. study, investigators presented colored stimuli to the left or right side of a computer screen. Each of the two colors was associated with a response key that was also on one of the sides of the keyboard. On congruent trials, the stimulus and the key were both on the same side, whereas on incongruent trials, they were on the opposite side. In general, individuals are faster to respond to congruent trials than to incongruent trials. Moreover, the difference in reaction time— referred to as the Simon effect—is greater for older adults than younger adults. Apparently, the ability to selectively attend to the most relevant stimuli is an ability that declines somewhat with age. Interestingly, Bialystok et al. (2004) found that bilingualism was associated with smaller Simon effects in both middleaged and older adults. The bilingual advantage was greater for the older adults. The authors suggest that the use of two languages encourages development of cognitive control mechanisms, such as when one has to suppress a word in one language in favor of another language.

Topic-126: Problem Solving and Creativity

It was once commonly accepted by scholars that bilingualism led to cognitive impairment. For example, the prominent linguist Otto Jesperson stated that ‘‘the brain effort required to master the two languages instead of one certainly diminishes the child’s power of learning other things which might and ought to be learnt’’ (p. 148). Many early psychologists also concluded that bilingualism had a detrimental effect on children’s intellectual development and academic performance. As Hakuta has pointed out, however, many of these studies had serious methodological flaws. Many studies failed to control for group differences in socioeconomic status between monolingual and bilingual samples. Thus, the apparent problems associated with bilingualism may have instead been due to low socioeconomic status; the bilingual children usually came from poor backgrounds. In addition, these studies did not always ensure that the bilinguals were truly fluent in both languages. Some of the early investigators ‘‘assessed’’ bilingualism through family names. Obviously, this procedure leaves considerable doubt whether the ‘‘bilingual’’ children were really bilingual.

Lesson-2

Topic-127: Introduction of Process of Language Acquisition

One way to think about the factors that play a role in language acquisition is to identify necessary and sufficient conditions. A necessary condition is one that must be present in order for language to occur in a normal way. A sufficient condition is one that, if present, ensures that language will develop normally. It is rare for a complex behavior to have a single sufficient condition. On the contrary, it may have several necessary conditions, none of which is sufficient by itself to ensure a positive outcome. Think, for example, of the conditions that must be present to ensure a child with a healthy self-concept or a marriage that is stable over time. Most behaviors have multiple causes. Three classes of variables have been proposed as necessary or sufficient conditions for language acquisition. These are environmental, cognitive, and innate factors. Although each of these is sometimes discussed to the exclusion of the other two, it is likely that all three classes of variables are needed for a complete account of language acquisition. If so, a successful theory of acquisition will be one that explains the interactions among these factors.

Topic-128: Feral and Isolated Children

The first question has been addressed through studies of feral and isolated children. Feral children are those who have grown up in the wild. Lane presented a detailed description and analysis of a boy named Victor, who was found in the wood

of France in 1797. Peasants spotted the boy running naked through the woods, searching for potatoes and nuts, and he was subsequently captured by some hunters and brought to civilization. They called him the Wild Boy of Aveyron, after the province in which he was found. The Wild Boy came to the attention of Jean-Marc-Gaspard Itard, a young physician. At the time of his capture, Victor was thought to be about 12 or 13 years old. He had no speech, although his hearing was normal and he uttered some sounds. Other physicians thought that Victor was deaf and retarded, but Itard was optimistic that he could be trained to be socialized and to use language. Itard worked intensively with Victor for 5 years, using techniques of language training and behavior modification similar to those used by modern researchers. For example, he taught Victor to name objects such as milk by presenting the object and then the French word for it. Victor would name objects that were presented but would not request them by using their names. Victor had other problems with language.

Topic-129: The Critical Period Hypothesis

There is a period early in life in which we are especially prepared to acquire a language is referred to as the critical period hypothesis. Many investigators who favor the critical period hypothesis suggest that there are neurological changes in the brain that leave a learner less able to acquire a language, although the nature of these supposed changes is not well understood. Most commonly, these changes are assumed to occur near puberty. Surprisingly, although the critical period hypothesis has evoked much discussion, there have been few empirical studies that have tested the hypothesis. A landmark study was reported by Johnson and Newport (1989) who examined native speakers of Korean and Chinese who had immigrated to the United States at various ages between 3 and 39 years of age. On the average, the participants who arrive earlier (that is, before puberty) had been in the United States about the same amount of time as those who had arrived later. They also included a group of native speakers for comparison purposes.

Topic-130: Critical Period Effects in Second Language Learning

The evidence from second-language acquisition research has not provided unequivocal evidence for the critical period hypothesis. The best we can say is that young children generally learn L2 better than older children and adults, at least in the long run. Moreover, the advantage that younger learners display in some studies may be due to biological changes (as assumed in the critical period hypothesis), environmental factors, cognitive changes, or some combination of factors. Clearly, we have much more to learn about how the capacity for language acquisition changes over the life span.

Topic-131: Motherese

Language development deals with the ways adults speak to young children. Adult-to-child language, which has been called motherese, differs in a number of ways from adult-to-adult language.

Topic-132: Some Characteristics of Adult Speech to Children

In general, speech to children learning language is shorter, more concrete, more directive, and more intonationally exaggerated than adult-directed speech. Of course, just because we speak in these ways to children does not necessarily mean that this speech will assist them in acquiring language. As a matter of fact, some of the properties of adult-to-child language are also seen when adults speak to dogs and even to plants. The effect of this form of speech on dogs and plants is not known. Although it would appear that such properties would assist children in their language development, data on this basic question are relatively scarce, and widely different opinions exist on the matter (DePaulo & Bonvillian, 1978; HoffGinsburg & Shatz, 1982; Marshall, 1980; Snow, 1979).

The End!

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