Introduction

- Psycholinguistics
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- First semester

- **Course title**
- Psycholinguistics
- **Text book**
- Gleason and Ratner (eds) 1998 *Psycholinguistics*. Second edition. Thomson, Wadsworth
- **Other material**
- Power point presentations, articles, websites, reference books.
- **Mark division**
- Midterm 20 marks
- Quizzes 15 marks
- Research and presentation 10 marks
- Class participation 5 marks
- Final 50 marks
- **office hours and location of office**
- **Class rules and regulations**

General Idea about the area of psycholinguistics

Definition and limiting the scope

- Psycholinguistics or the psychology of language is concerned with discovering the psychological processes by which humans acquire and use language.

What are the topics studied under the umbrella of psycholinguistics?

- Neurolinguistics
- Speech pathology
- Language processing (comprehension and production)
- First language acquisition
- Second language acquisition (learning)
- Artificial intelligence

What is Language?

- Language is a rule-governed system of behavior. Human language is characterized by its *hierarchical structure*. By this we mean that it is divisible into smaller units of analysis.
- All human languages express the full range of speaker's experience, past and present, even imaginary ones.
- All languages have conventions for knowing what words must be included and for ordering those words in sentences. These rules are quite arbitrary in nature; no real reason exists why English should require the particular grammatical conventions it does, e.g. **s-v-o word order**.

- Both the grammar and vocabulary of any language represent arbitrary conventions that the users of a language agree to abide by.
- Languages do not vary infinitely; there appear to be constraints on the nature of possible linguistic rules that reflect the nature of human cognition. Universal characteristics of human cognition and perception probably also underlie the presence in all languages of syntactic categories such as *noun* and *verb*. Properties shared by all languages are called linguistic **universals**.
- One of the properties attributed to language is that it is a uniquely human behavior. All human beings spontaneously acquire a language without overt instruction and relatively quickly during childhood, unless they possess handicapping conditions.

What speakers and listeners know A brief survey of linguistics

- Linguistics is the study of language in its various aspects. Its primary concern is the structure of the language, i.e. the rules for forming acceptable utterances of the language. Linguists take as their data what people say and what people find acceptable in language use. In this sense, linguistics is *descriptive*, rather than *prescriptive*.
- **Levels of language analysis:**
- A psychologist who wishes to understand how a sentence is processed must first acknowledge that understanding it depends on several smaller tasks:

- The *sounds* of the message must be isolated and recognized.
- The *words* must be identified and associated with their meanings.
- The *grammatical structure* of the message must be analyzed sufficiently to determine the roles played by each word.
- The resulting *interpretation* of the message must be evaluated in light of past experience and current context.

Only then can the utterance be considered "understood"

- Linguists and psychologists have long appreciated that language is a complex system that can be considered at multiple levels of analysis. Every human language may be analyzed in terms of:

- Its **phonology** (sound system)

- Its **morphology** (rules for word formation)
- Its **lexicon** (vocabulary)

- Its **syntax** (rules for combining words into grammatically acceptable sequences)

- Its **semantics** (conventions for deriving the meanings of words and sentences)

- And its **pragmatics** (rules for appropriate social use and interpretation of language in context)

- **Example of the relation between phonology and psycholinguistics:**
- Phonotactics (sequences of sounds)
- -TR-N-
- **Examples of the relation between semantics and psycholinguistics:**
- 1. When does an object deserve the label *cup,* rather than *glass*?
- 2. Explaining how people readily label easily perceived, concrete concepts as *dog* or *furniture*, and how they perceive abstract notions as *friendship* or *patriotism*, relational words as *good* or *short*, content words and function words, words that have more than one meaning.

- 3. Exploring frequency effects on lexical processing.
- 4. Exploring performance errors. For example, sometimes we cannot recall a word but remember its beginning sound. Another example is performance errors.

- Such conversational phenomena provide insight into the possible nature of our mental dictionary and some evidence for possible models of the way we use it.

- **Examples of the relation between morphology and psycholinguistics:**
- 1. The distinction between content and function words and between free and bound morphemes appear to be psychologically significant when we examine language understanding and production.
- 2. The language comprehension process must include a level of analysis to permit successful understanding of words such as *unmistakable*.

- **Examples of the relation between syntax and psycholinguistics:**
- 1. Syntacticians suggest that the sentence consists of units called **constituents** which are like building blocks that can be put together to build up a sentence, e.g. noun phrase, verb phrase, and prepositional phrase.

  These constituents consist of smaller units or lexical categories, such as noun, verb, preposition, etc.

  Sentences thus have a hierarchical structure, i.e. constituents can be combined into larger and larger units that can be represented with the **phrase-structure tree (p.18).**

  Entire clause can be embedded within one another to form **complex sentences.** Complete sentences can be conjoined rather than parts of sentences to form **compound sentences.**

- **The psychological implication**: Concepts such as **constituents** are important building blocks in sentence comprehension and production processes. Recombining constituents also allows us to creatively understand or produce completely novel utterances that we have never heard before.
- **How do we account for this ability?**
- One possible answer would be that we have implicit knowledge of certain ***rules*** that tell us how to combine a finite number of words into an infinite number of sentences.
- Such rules must be **learnable**- that is, they must be formulated in a way that would account for how children are able to learn them in a short period of time with little explicit training.
- Such rules must also fulfill the goal of **universality**-they must capture common features of grammars of all languages.

Syntactic theory in the 1960s

- Transformational grammars:
- Grammatical descriptions of languages prior to the 1960s showed little success in addressing the problem of explaining the infinite productivity of language.
- One influential approach to grammatical description of English was developed by the linguist Noam Chomsky (1957, 1965). He suggested that the knowledge of the grammar of one's language consists of an abstract system of rules and principles that is part of the speaker's grammatical **competence.** He distinguishes this type of knowledge from **performance,** which is related to the "actual use of language in concrete situations". The kind of model that Chomsky proposed to describe this abstract mental competence was known as **transformational Generative (TG) grammar.**

- The TG model posited that the grammar consists of two types of rules that allow us to *generate* various sentence types in a given language- *phrase-structure* rules and *transformational* rules. (briefly explained on pages 20-22).
- TG grammar offered interesting possibilities for the collaboration between linguists and psychologists. It made testable claims about whether certain sentences might be more difficult than others for speakers to produce or understand. It also made predictions about how children might move through stages in learning language, some of which were substantiated by studies of children's language development.

Problems with TG grammar

- 1. TG grammar was problematic from a learnability point of view because it posited so many different rules for a language learner to acquire in such a short time. It was not clear that all children are exposed to the kind of data needed to learn the precise form of these different rules or the conditions under which to apply them.
- 2. TG grammar shed little light on theories of sentence processing. For example, **the derivational theory of complexity** (DTC) proposed a direct relationship between the number of steps involved in the linguistic derivation of a surface structure and the time it would take to comprehend it, which was addressed by several psycholinguistic studies. These studies did not necessarily reflect the proposed linguistic derivation of sentences, i.e. activities that are harder to do may not necessarily take longer to do.

Syntactic theory in the 1970s and 1980s

- TG theory underwent substantial modification during the 1970s and 1980s. A major successor was **Principles and Parameters Theory**, also referred to as **Government and Binding (GB) Theory.**
- Some major categories of change that have important implications in syntactic processing and the acquisition of language by children are:
- 1. phrase-structure rules of the following sort:
- **XP-X Comp**
- If we do this, another regularity of English emerges, i.e. English is a headfirst language, something it shares with many other languages, but which crucially distinguishes it from other families of languages, such as Japanese.

- **Psychological implications**:
- Discovering whether your language is headfirst or head last can thus have important ramifications for the child's acquisition of syntax, because a simple rule predicts how all phrases of the language should be organized.
- 2. The numerous transformational rules have been reduced to only one: *move* (alpha), which simply means "move something." Instead of many different rules, there are now limits on what can be moved (heads or phrases), and where they can "land" or be moved to.

- **Psychological implications**:
- 3. The increasingly important role accorded to the lexicon.
- **Endorse: V; Agent, Patient**
- **NP NP**
- So, we just need to look at the information associated with *endorse* in our mental lexicon.
- 4. PPT, in doing away with transformational rules, attempts to solve the problem of learnability by reducing the number of rules the learner has to learn and replacing them with a few powerful and universal innate principles called **Universal Grammar,** or **UG.**

- In order to account for differences among languages, UG includes **parameters,** each in the form of a grammatical yes-no choice, rather like switches, that learners must set in one way or the other to construct the grammar of their specific language, e.g. heads first or heads last.
- Chomsky and, more recently, Crain (1991) argue strongly for the innateness of these principles and parameters. They suggest that the existence of universals in the world's languages and the early emergence of knowledge of syntactic structures in children in the absence of explicit instruction are evidence in favor of an innate UG.

Syntactic Theory in the 1990s

- Syntactic theory in the 1990s has continued the trend started in the PPT model of the 1980s toward making simpler, more economical, and more powerful generalizations that lead to what has been termed the *minimalist program*, although little work in psycholinguistics has been carried out using this framework.
- Other non-transformational theories also developed, such as:
- Lexical Functional Theory, Construction Grammar, Optimality Theory, and Relational Grammar.
- Psychologists who conduct research on syntactic processing can choose among these grammatical models when designing their studies.

Pragmatics and Discourse

- Pragmatics determines our choice of wording and our interpretation of language in different situations.
- 1. Politeness system in English.
- 2. addressing different types of listeners.
- These specially marked ways of speaking are called **registers.**
- Other registers are baby talk, foreigner talk, nurse talking to patients, etc.
- Discourse is the verbal or written interaction longer than single utterances. We need to evaluate what we hear or read within a particular context and on the basis of our prior knowledge-we are thus able to make inferences.

Metalinguistic capacity

- Metalinguistic means language about language.
- In this course we ask metalinguistic questions such as:
- 1. How do I understand the meaning of a word?
- 2. How do I find words when I want to talk about things?
- 3. Are some words easier or harder for people to understand?
- The task for the psycholinguist is to account for the discrepancy that often arises between the time required to produce or understand an utterance, and the time required to explain how this was accomplished, e.g. **tag questions.**
- This distinction between linguistic and metalinguistic ability is both frustrating (you can produce the phonemes of your language, but cannot produce a simple list of those phonemes) and fascinating to the psycholinguist and often requires us to develop special experimental techniques for measuring and describing the ways people generate and understand language.

Language diversity and language universals

- The great variability found in human languages has prompted the search for linguistic universals that might characterize languages, their use and their acquisition.
- In general, more cross-linguistic research has been carried out in developmental psycholinguistics than in the study of adult language comprehension and production.
- Linguists continue to search for candidate rules for the universal grammar. Recently, child language-acquisition research and second language research have become increasingly concerned with testing theories about the nature of the universal grammar, thus attempting to link hypothetical linguistic universals with strategies seen in language learning. For example, Slobin (1973, 1985) proposed universal operating principles that govern the course of child language development. He suggests that language learners *pay attention to the ends of words*, thus accounting for the usually early acquisition of inflectional morphemes in a wide variety of highly inflected languages.

Written language

- sound-base writing system that uses individual symbols to represent the phonemes of a language is considered *alphabetic*. Written English is primarily an alphabetic system, although it is not completely regular, e.g. /f/, /u/, th.
- Consider the effects of irregularities on the process of acquiring the spelling system.
- There is evidence that readers of sound-based written material make grapheme-phoneme correspondences (associate graphemes or grapheme sequences with their appropriate pronunciation) during certain reading activities. Irregularly spelled words may be processed differently.

- Many of the world's languages possess writing systems that are not sound-based. Such systems link linguistic concepts (lexical and grammatical) with written symbols and are considered ideographic or logographic. Written Chinese is an example of such a system. Ideographic writing systems use **ideograms** to symbolize an idea or concept rather than a particular word, and logographic systems use **logograms** to represent whole words. We also use few logograms in our writing system- for instance $ stands for dollar.

The evolution of psycholinguistic inquiry

Many of the questions that concern current psycholinguistic inquiry have been of interest to philosophers, linguists, and scientists.

1. The Greek philosopher Plato in the fourth century B.C., considers the relationships between names and the entities they represent and argues that names are linked to their referents merely through social convention, a view that was adopted by Aristotle.
2. The role of the brain in language functioning has been explored since the days of the Egyptian pharaohs.
3. Some view the psychologist Wilhelm Wundt (1832–1920) as the founder of modern psycholinguistics. Wundt developed the earliest theory of speech production and piloted the use of many experimental measures that are basic to psycholinguistic research, such as **reaction time (RT).** The premise that underlies the measurement of reaction time is that the time taken to process different experimental tasks reflects the degree of mental complexity involved in the task.

1. However, the field of psycholinguistics is relatively young. Some researchers date its birth to the early 1950s. Psychology during the 1950s was strongly governed by behaviorist, or learning theory, principles that emphasized serial patterning in behavior. All viewed learning as the outcome of successive **stimulus-response-reinforcement** chains.
2. The emergence of the Transformational Generative grammatical framework (1957;1965) dramatically altered the study of language structure and its mental representation.
3. More recently, increasing attempts have been made to relate the principles of newer transformational grammars such as Government and Binding theory to adult sentence processing, child language acquisition, and language disorder.

The acquisition of language by children

- The rapidity with which children acquire language has fascinated scholars and parents for thousands of years. Although questions about the nature of child language learning and methods of study varied, they embrace many recurring themes. The **nature-nurture** controversy maintains a robust presence among child language researchers. Some (often called nativists) side with **nature** and maintain that language is basically innate, that children are born with a special, unique human talent that can extrapolate the grammar of a language without overt instruction or correction. Others stress the role of **nurture** and claim that adults teach language to children by using special kinds of simplified language with them and providing them with feedback when they have used the language well or poorly.