

Lesson 1

Introduction to Psycholinguistics

Topic 1

Introduction to Psycholinguistics

Psycholinguistics is the study of how individuals comprehend, produce, and acquire language. Psycholinguists are also interested in the social rules involved in language use and brain mechanism associated with language.

Origin of the Term

The term *Psycholinguistics* was coined in 1936 by Jacob Robert Kantor. It was frequently used in 1946 due to his student Nichols Henry. Psycholinguistics as a separate branch of study emerged in the late 1950s and 1960s as a result of Chomskyan revolution.

Sub-Disciplines within Psycholinguistics

- Theoretical psycholinguistics
- Developmental psycholinguistics
- Social psycholinguistics
- Educational psycholinguistics
- Neuro-psycholinguistics
- Experimental psycholinguistics
- Applied psycholinguistics

To conclude, Psycholinguistics encompasses different aspects of language, from language acquisition, to syntax and semantics, phonology and morphology. Psycholinguistics aims to advance our understanding of the human brain.

The Nature of Language:

Grammar: deals with Phonology, syntax, and semantics.

Competence and performance

Linguistic competence

Linguistic Performance

Function: a description of how sentences/utterances communicate

The Nature of Language:

- **Structure:** Grammar of language
- **Process:** A description of mental tools, materials and procedures people use in producing or comprehending utterances.

Psycholinguistics Involves:

- Language processing
- Lexical storage and retrieval
- Language acquisition
- Special circumstances
- The brain and language
- Second language acquisition and use

To conclude, Psycholinguistics is an area of study which draws from linguistics (study of language) and psychology (study of behavior and mind) and focuses upon the comprehension and production of language.

Topic 2

The Scope of Psycholinguistics

- Psycholinguistics is a part of the emerging field of study called cognitive science.
- It is concerned with the relationship between the human mind and the language
- It is interested in the ways of storing lexical items and syntactic rules in mind
- It is also interested in the processes of memory involved in perception and interpretation of texts

Psycholinguistics covers three main points (Clark & Clark, 1977; Tanenhaus, 1989):

1. **Comprehension:** How people understand spoken and written language

a. Imitation

b. Conditioning

c. Social cognition

2. **Speech production:** How people produce language

Spoken words are selected to be produced, have their phonetics formulated and then finally are articulated by the motor system in the vocal apparatus

3. **Language Acquisition:** How people learn language

Language acquisition is the process by which humans acquire the capacity to perceive and comprehend language, as well as to produce and use words to communicate.

The Significance of Psycholinguistics for Language Teaching and Learning

- Psycholinguistics is the detailed study of the psychology of language.

To conclude, scope of psycholinguistics involves:

- How language is acquired and produced by users
- How brain works on language
- Comprehension, speech production and acquisition processes.

Language Processes and Linguistic Knowledge

- Tacit knowledge
- Explicit knowledge
- Semantics
- Syntax
- Phonology
- Pragmatics

Garden path sentences

A sentence whose wording leads one to expect one meaning, but it turns out to

be another one. e.g. "The old man the boat".

- Indirect Requests

(1) Can you open the door?

(2) Open the door!

- Language in Aphasia
- Wernicke's aphasia

Before I was in the one here, I was over in the other one. My sister had the department in the other one (Geschwind, 1972, p. 78)

Language in children

Inference of linguistic knowledge in children is intractable.

When the mother leaves a room and comes back with the child's (a year old) favorite doll, the child says "doll," not mother.

Closed-class or function words (prepositions, conjunctions, and so on)

Adults

Open-class or content words (nouns, verbs, adjectives)

Children

To conclude, two primary psycholinguistic questions are, What mental processes are involved in language use? And what linguistic knowledge is involved in language use?

The questions address adult language comprehension and production, the social use of language, language use in aphasia, and language in children.

Topic 3

Historical Context

- Neurolinguistics is an old term for psycholinguistics. In 18th century the relationship between language and human brain was called Neurolinguistics.
- Work on psycholinguistics starts as far as PLATO. It became prominent in 19th century with linguistics.
- Paul Broca, Charles Hockett and Willem Levelt are important who did work on it.

How one can know so much with little knowledge
Plato's problem)

Willem Levelt

Willem is a Dutch psycholinguist. He is an influential researcher of human language acquisition and speech production. He developed a comprehensive theory of the cognitive processes involved in the act of speaking, including the significance of the "mental lexicon".

Paul Broca

He was a French physician, surgeon, anatomist, and anthropologist. He is best known for his research on Broca's area, a region of the frontal lobe in brain.

Charles Hockett

In the 1960s, linguistic anthropologist Charles F. Hockett defined a set of features that characterize human language and set it apart from animal communication. He called these characteristics the design features of language.

13 features

Overall, the historical context of Psycholinguistics includes contribution of renowned scientists and the distinguished theories and frameworks emerged from different school of thoughts.

Lesson 2

The connection between Psycholinguistics & Neurolinguistics

The Information-Processing System

- An information processor or information processing system, is a system which takes information in one form and processes (transforms) it into another form.
- An information processing system is made up of four basic parts, or sub-system:
- Input **Comes from external stimulus**
- Processor
- Storage
- Output
- Working memory is the temporary storage of information
- The Baddeley –Hitch model:
- The visuospatial sketchpad temporarily maintains & manipulates visuospatial information.

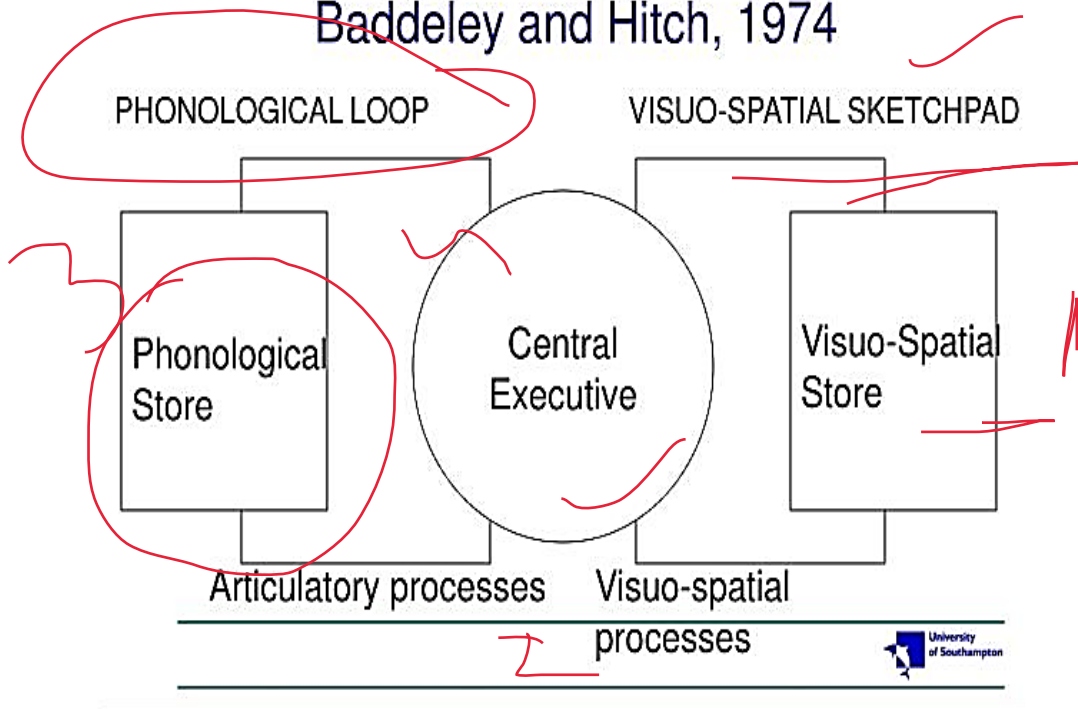
It allows us to form visual images and convert words into images



- The phonological store holds phonological representations for a brief period of time.
- The central executive a limited capacity pool of general processing resources.

THE WORKING MEMORY MODEL

Baddeley and Hitch, 1974



To conclude, information processing system focuses on how we deal with the vast amount of information that is available to us when we are performing skills.

Working and Long term Memory

Working Memory

Deals with temporarily holding of information being processed

- Used interchangeably with STM, technically refers more to the whole theoretical framework of structures and processes used for the temporary storage

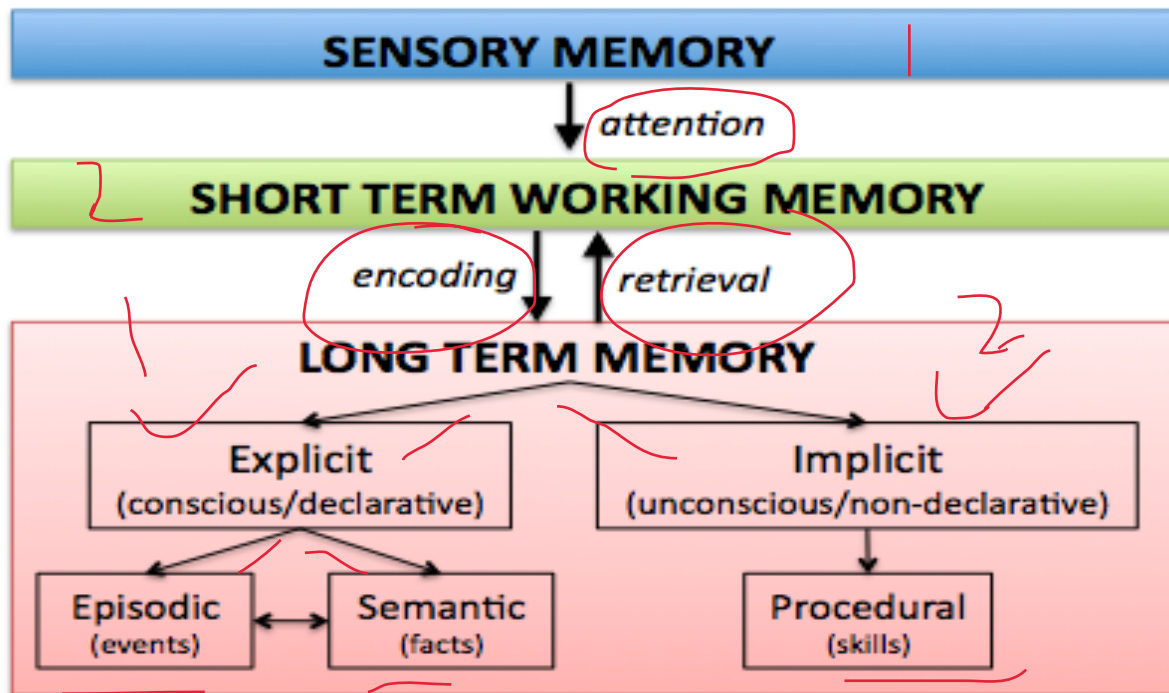
Long term memory

Defined as a memory structure that holds permanent knowledge.

- LTM is divided:

1. *Episodic memory* Related to personal memory

2. **Semantic memory** More general things memorized



To conclude, the general strategies by which the human mind encodes, stores, and retrieves information can be described independently of language.

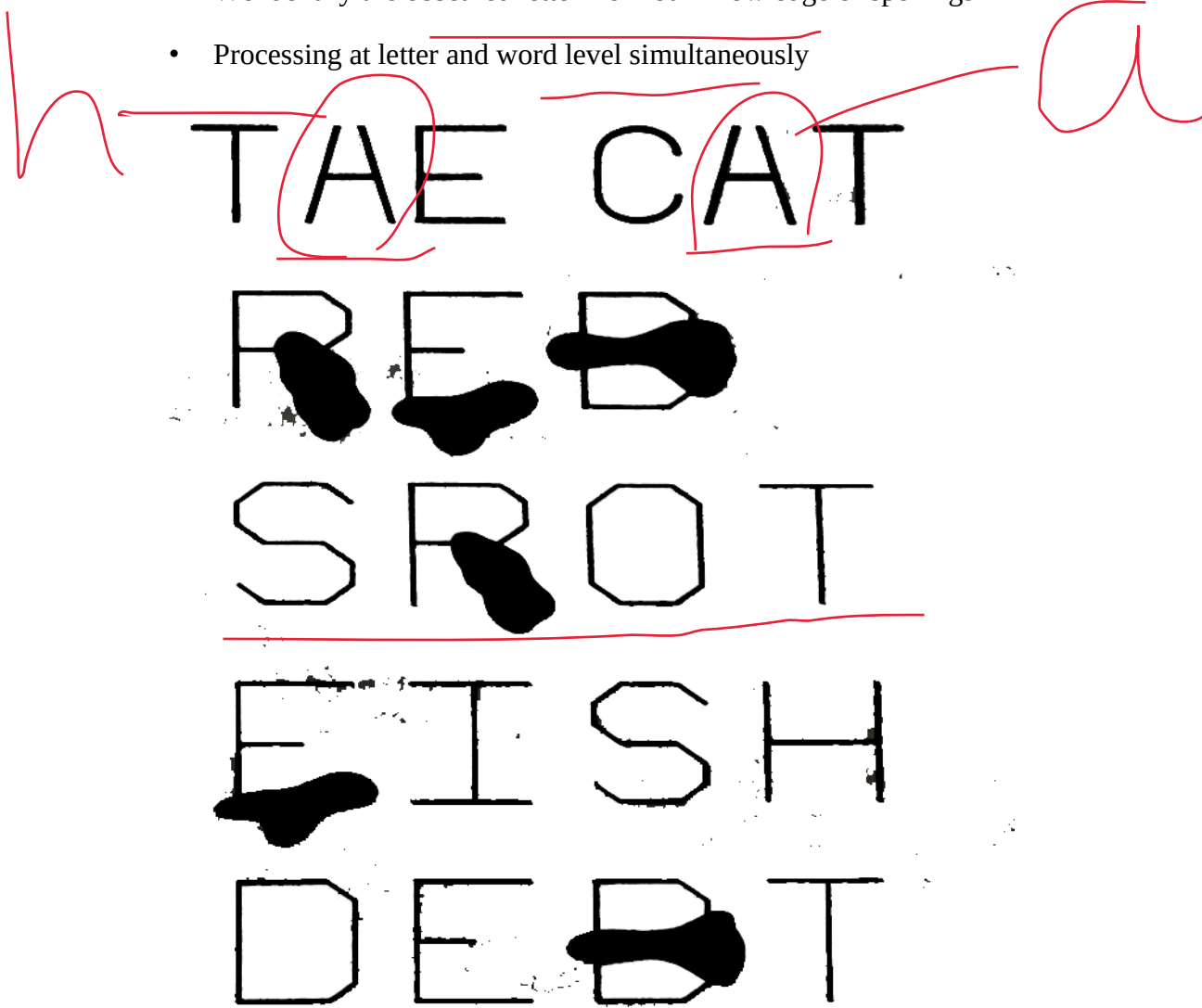
The concepts of working and long term memory provide a framework for understanding how language processing occurs.

Central issues in Language Processing

Types of language processing

- Serial processing One process is complete before going to the next
- Parallel processing All the processes occur at the same time
- Parallel distributed processing (PDP) Several processes occur and connection b/w them shows the final outcome
- Top-down processing information at the higher level may influence information at the low level
- Bottom-up processing information proceeds from the lowest level to the highest level of processing
- Interpret the middle letter as an *h* in one word but as *a* in the other despite the fact letter is physically identical in two cases.
- Use context to identify obscure letters.

- Some identified letters enable us to recognize the word as a familiar word
- We identify the obscured letter from our knowledge of spellings
- Processing at letter and word level simultaneously



To conclude, we have a number of ways of processing linguistic information. That is, language processing is determined not just by linguistic structure but jointly by that structure and by processing considerations that are independent of language.

An Example of Language Processing

- Understanding of language incrementally, word-by-word

How do people construct interpretations

- Must resolve local and global ambiguity

How do people decide upon a particular interpretation

Decisions are sometimes wrong!

- What information is used to identify we made a mistake
- How do we search for an alternative

Language Processing Example

▪ GARDEN PATH SENTENCE

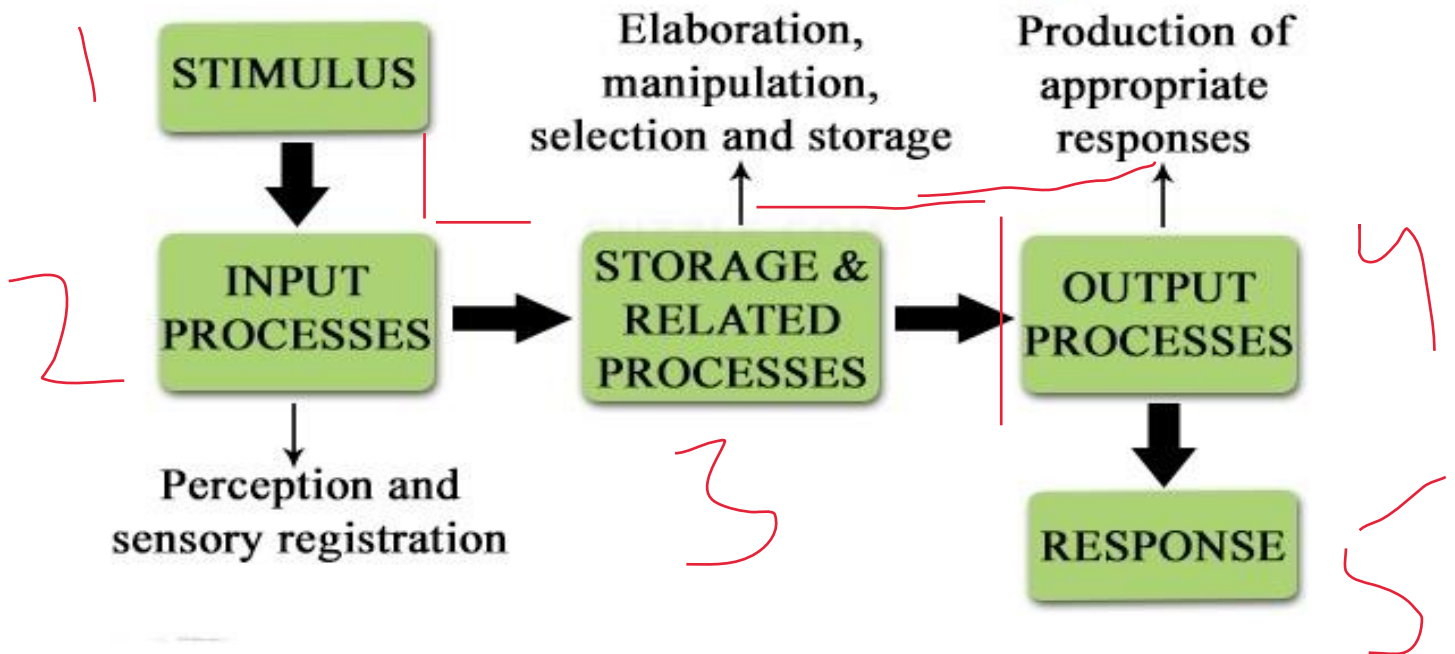
“I was afraid of Ali’s powerful *punch*, especially since it had already laid out many tougher men who had bragged they could handle that much alcohol.” (from Clark & Clark, 1977, p. 81)

- The key word here is *punch*, which can mean either an alcoholic beverage or a boxing punch.
- The subjective impression for most people at the end of the sentence is having assumed the wrong meaning and then backtracking.
- Overall, the complexity of language and the sheer amount of information processing that is taking place in just a few seconds, it is sometimes a wonder that we have any conscious awareness of these processes at all.

Development of Processing System

- One of the main themes of psycholinguistics is how children acquire language.
- To understand language acquisition, it will be helpful to understand the cognitive abilities children bring to the task of acquiring their native language.
- To what extent the information-processing system operates during the first few years of life, when most normal children acquire language.

Basic Information Processing Model



To conclude, the information processing approach characterizes thinking as the environment providing input of data, which is then transformed by our senses. The information can be stored, retrieved and transformed using “mental programs”.

Developing Working and Long Term Memory

- ❑ Development of working memory
 - Baddeley-Hitch Working Model
- ❑ Development of long term memory
 - Development of Semantic Memory
 - Development of Episodic Memory
- ❑ BADDELEY-HITCH WORKING MEMORY MODEL
- ❑ DEVELOPMENT OF LONG-TERM MEMORY
 - Development of semantic memory
 - Object permanence
 - Deferred imitation
 - Sensorimotor period and preoperational period

- Development of episodic memory
- episodic memory—that is, of understanding the world from a personal viewpoint.
- Childhood amnesia
- To conclude, children make significant advances in working memory, semantic memory, and episodic memory during the preschool period.
- All of these developments assist the acquisition of language, but these relationships are most clearly articulated for working memory.

Lesson 3

Language comprehension

Perception of Language

□ Speech perception

- Speech perception is the process by which the sounds of language are heard, interpreted and understood.
- The study of speech perception is closely linked to the fields of phonology and phonetics in linguistics and cognitive psychology and perception in psychology.
- 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.
- Hence, Research in speech perception seeks to understand how human listeners recognize speech sounds and use this information to understand spoken language.

The Structure of Speech

□ The speech structure consist of :

1. • Prosodic factors: such as stress, intonation and rate.
2. • Articulatory phonetics:

The study of speech sounds is called phonetics, and the more specific study of the pronunciation of speech sounds is called articulatory phonetics.

3. • Acoustic phonetics: Acoustic phonetics is a subfield of phonetics, which deal with acoustic aspects.

□ Prosodic factor:

- Stress, intonation, rate

□ Articulatory phonetics:

- Place of articulation

- Bilabial 1

- Alveolar 2

- Velar

- Manner of articulation

- Stop

- Fricatives

- Affricate

- glottis

□ Acoustic phonetics

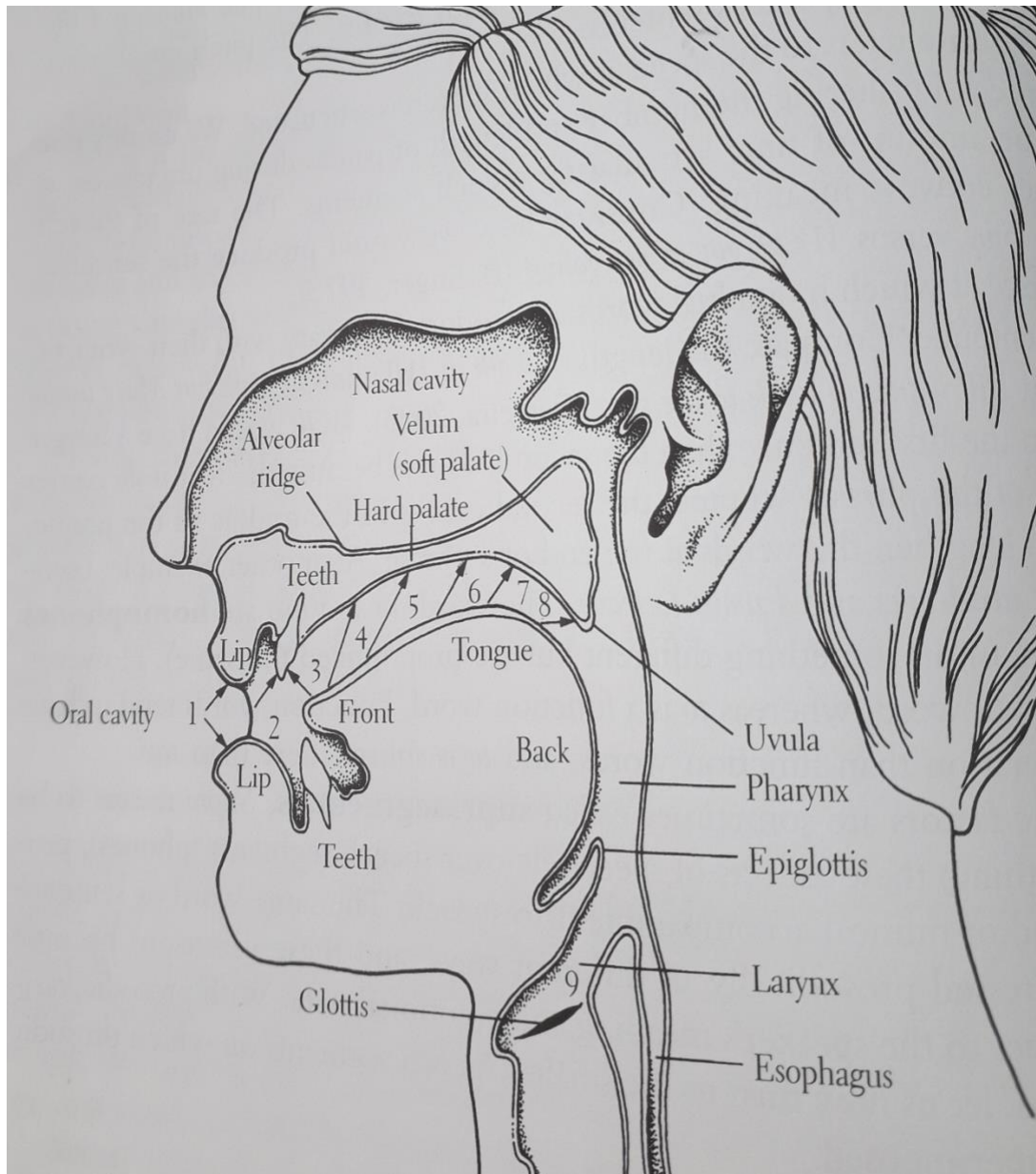
- Spectrogram

- Formant transitions

Visual representation of the spectral of the
visual frequencies of sounds as they vary with
time



- Parallel transmission
- Context conditional variation



To conclude, Speech may be described in terms of the articulatory movements needed to produce a speech sound and the acoustic properties of the sound.

Perception of Isolated Speech Segments

- ❑ Level of speech processing
 - Auditory level

- Phonetic level
- Phonological level

☐ Speech as modular system

- Lack of invariance
- Categorical perception

☐ Level of speech processing

- 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.

☐ Speech as modular system

A cognitive system is modular if it (1) is domain specific (that is, if it is dedicated to speech processing but not, say, to vision), (2) operates on a mandatory basis, (3) is fast, and (4) is unaffected by feedback.

- **Lack of invariance**

No one-to-one correspondence between acoustic cues and perceptual events has been termed the lack of invariance.

Categorical perception It occurs when items that occurs range along a continua is perceived as less or more similar to each other because of the way they categorized.

To conclude, speech may be processed at the auditory, phonetic, or phonological levels of processing. The auditory level is characteristic of the way all sounds are perceived, whereas the phonetic level is assumed to be specific to speech, and the phonological level specific to a particular language.

The Motor Theory of Speech Perception

The motor theory of speech perception is the hypothesis that people perceive spoken words by identifying the vocal tract gestures with which they are pronounced rather than by identifying the sound patterns that speech generates.

- A theory of speech perception based on the notion that perception proceeds “by reference” to production (Liberman et al., 1967).

- Listeners use implicit articulatory knowledge
- The main rationale for the motor theory is that it deals effectively with the lack of Invariance.
- Teaching students to produce sounds silently aids them in the identification of new sounds.
- The areas responsible for language perception and production are distinct and separate and
- The motor theory would expect a closer neurological link between these functions.

Hence, The motor theory of speech perception claims that we perceive speech sounds by identifying the intended phonetic gestures that may produce the sounds. In addition, the theory has implications for neurolinguistics and language acquisition in children.

Perception of Continuous Speech

- Words are perfectly intelligible in the context of fluent speech.
- Without being able to comprehend continuous speech, we would be unable to understand what others are expressing – we would be isolated.
- Our perception of continuous speech is different from our perception of individual words

❑ ROLE OF PROSODIC FACTOR IN SPEECH REGNITION

Prosodic factors provide a source of stability in perception

❑ SEMANTIC AND SYNTACTIC FACTORS IN SPEECH PERCEPTION

- Context and Speech Recognition

A word isolated from its context becomes less intelligible (Pollack & Pickett, 1964).

- Phonemic Restoration

1 It was found that the *eel was on the axle. 2 It was found that the *eel was on the shoe

- Mispronunciation detection

1. It has been suggested that students be required to preregister

Overall, Contextual information powerfully influences the perception of individual speech segments. Our perception of speech segments in continuous speech appears to be

an interaction of various levels of analysis that proceed simultaneously in the course of language processing.

Perception of Written Language

Different Writing Systems

- Orthography **Set of conventions for writing a language e.g spellings, capitalization, etc.**
- Logography **Use of logograms in writing**
- Syllabary **Written symbols that are used to represent syllables of words of language**
- Alphabet **Set of letters that represent phonemes**

LEVELS OF WRITTEN LANGUAGE PROCESSING

▪ Feature level

At the **feature level**, the stimulus is represented in terms of the physical features that comprise a letter of the alphabet. **K is encoding by a vertical line and two diagonal lines**

▪ Letter level

At the letter level, the visual stimulus is represented more abstractly as an identity separate from its physical manifestation.

▪ Word level

Finally, there is a word level of processing, in which an array of features and letters is recognized as a familiar word.

Hence, **Processing of written language exists at three main levels: the feature, letter, and word with different writing systems**

Lesson 4

Dimensions of word knowledge

Phonological Knowledge

Knowledge of phonological structure or pronunciation of word

Phonological Knowledge includes:

Phonological awareness, phonemic awareness, phonological memory & phonological access

- 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 TOT phenomenon was systematically studied for the first time by Brown and McNeill (1966), who presented definitions of infrequent words, such as sextant, and asked subjects to produce the defined word.
- Hence, Phonological development can be observed by, knowing how to use conversion rules from letters to phoneme. The phonological awareness is also reflected in the ability to rhyme, identify repetitive sound patterns, break down words to syllables, and combine syllables into sounds and words.



Phonological Knowledge: conceptual & Empirical Issues

Phonological Knowledge (Noel Burton-Roberts) addresses central questions in the foundations of phonology and locates them within their larger linguistic and philosophical context.

Key issue: is the phonological knowledge different from linguistic knowledge in general?

- Burton-Roberts, Carr and Docherty (2000) 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, and (d) Integrational or Unified.

To conclude, Phonological Knowledge is an important contribution to the most fundamental issues in phonology and the understanding of language. It will interest researchers and advanced students of phonology, linguistic theory, and philosophy of language.

Syntactic Knowledge



Syntactic knowledge is the knowledge of how words can be combined in meaningful sentences, phrases, or utterances. It involves the way that words are assembled and sentences are constructed in a particular language.

- 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

- One advantage of using syntactic categories is that we can formulate grammatical rules in terms of categories rather than lexical items.
- One class word
- Two class word
- Agrammatism

Hence, Syntax refers to the rules used to join words into meaningful sentences, sentences into coherent paragraphs, and paragraphs into longer passages.

Children's Acquisition of Syntactic Knowledge

- Children's acquisition of language is a dynamic process.
- Children master the syntax, the sentence structure of their language, through exposure and interaction with caregivers and others but, notably, with no formal tuition.
- Children babble, pass through a single and multiword stage, and then start to produce entire sentences
- Two current approaches to the problem of language acquisition are introduced.
- One theory of language acquisition follows the theory of Universal Grammar (Chomsky, 1965, 1981, 1995).
- The second approach is the usage-based account of language acquisition.
- 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

Hence, two theories detailing children's acquisition of syntactic knowledge were introduced. One assumes that children have innate knowledge. Second, the usage-based constructivist theory assumes that the child has no specialized knowledge of language or syntax.

Morphological knowledge

- Morphology deals with the smallest unit of a word that carries some meaning. This unit is called morpheme.
- Morphological awareness is essential to acquiring reading skills because it contributes to vocabulary expansion.
- Any effort to identify vocabulary size will eventually have to confront the morphology of the language (Miller, 1991).
- 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.
- Bound morpheme has two different kinds:
 - Inflectional
 - Derivational

Hence, Morphological awareness is the ability to relate to the components of a word and their function (patterns, root, structure, affixes). In other words, becoming familiar with the inner structure of words and the rules by which words are formed.

Evaluating the Effectiveness of a Morphological Awareness Intervention

Morphological awareness, defined as the awareness of morphemic structure of words and the ability to reflect on that structure, may be a valuable linguistic tool to facilitate language and literacy success for school age children with and without language and literacy deficits.

- Intervention should begin with an introduction of the concept of morphology and provision of many relevant examples.

- Goodwin and Ahn (2010) found morphological awareness instruction to be particularly effective for children with speech, language, and/or literacy deficits.
- Instruction in morphological awareness improve phonological awareness and may provide an opportunity to facilitate success in skills such as vocabulary comprehension
- A link to reading and spelling provides a functional context for students to apply their newly learned morphological awareness skills.
- To conclude, Speech-language pathologists and literacy specialists in school settings may find benefits from implementing an explicit and contextualized morphological awareness approach in the academic environment.

Semantic Knowledge

Semantic knowledge is the aspect of language knowledge that involves word meanings/vocabulary. Semantic memory refers to a portion of long-term memory that processes ideas and concepts that are not drawn from personal experience.

Sense And Reference

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

(3) The leader of the Labour party is the prime minister of Great Britain.

Semantic Networks

- Definitional Networks
- Assertional Networks
- Implicational Networks
- Executable Networks
- Learning Networks
- Hybrid Networks

To conclude, semantic is the linguistic and philosophical study of meaning, in language. A key concern is how meaning attaches to larger chunks of text, possibly as a result of the composition from smaller units of meaning.

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- Sense and Reference

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

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

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Lesson 5

Organization of the Internal Lexicon



The Concept of Semantic Network



A semantic network is a knowledge structure that depicts how concepts are related to one another and illustrates how they interconnect. Semantic networks use artificial intelligence programming to mine data, connect concepts and call attention to relationships.

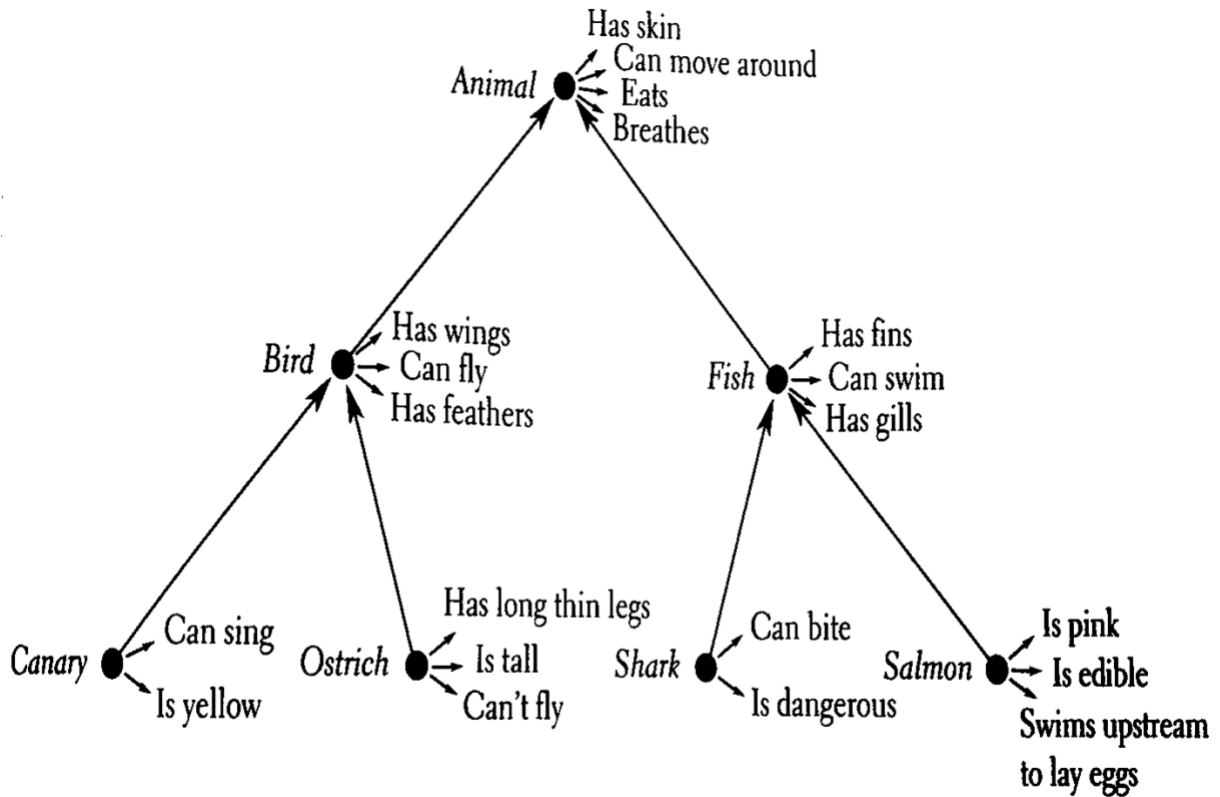
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- A definitional network
- Assertional networks
- Implicational networks
- Executable networks
- Learning networks
- Hybrid networks

Some networks were explicitly designed to implement hypotheses about human cognitive mechanisms, while others have been designed primarily for computer efficiency. Sometimes, computational issues may lead to the same conclusions as psychological evidence.

Hierarchical Network Models

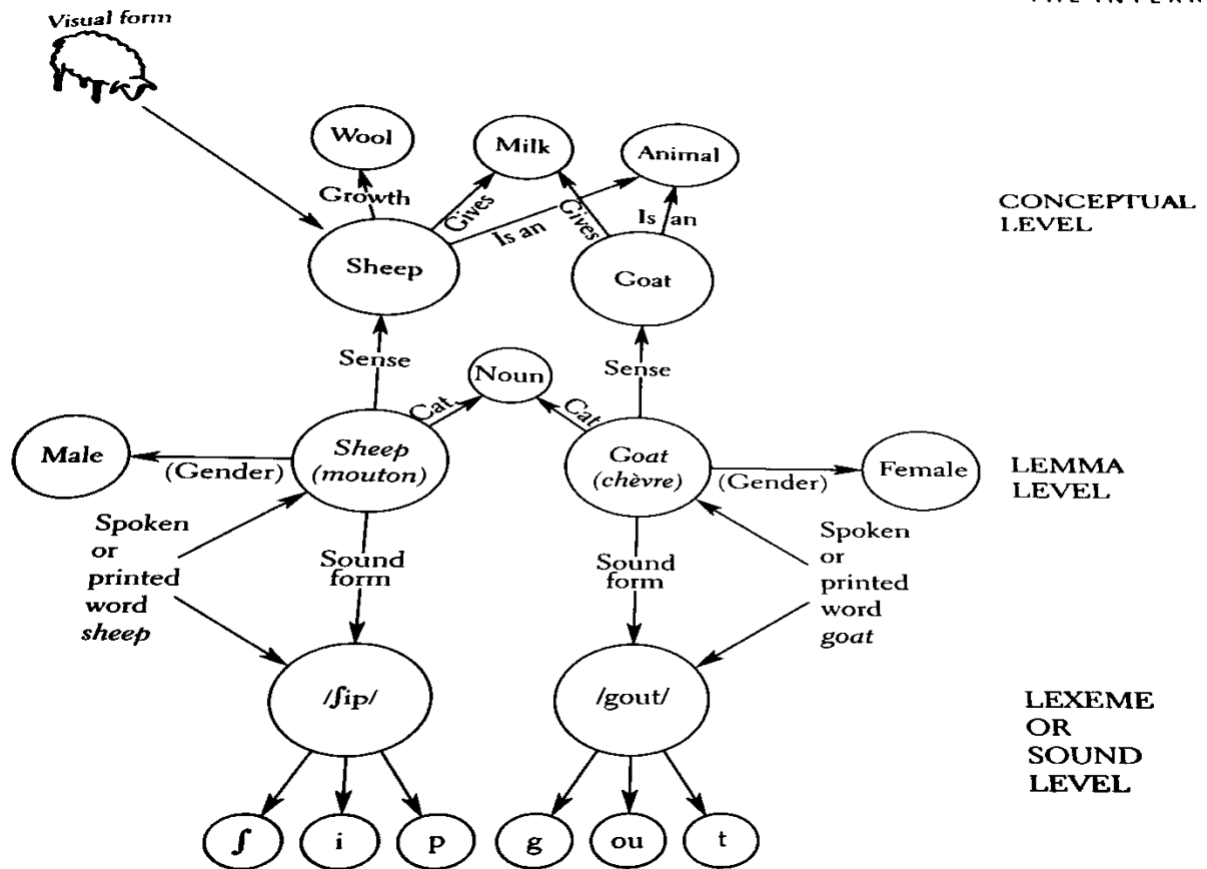
The model suggests that semantic memory is organized into 2 categories, the first being nodes which is referred to being a major concept, such as an animal or a bird. The second is a property, also referred to as being the attribute or feature of the concept such as brown or wings.



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.

Spreading Activation Model

Spreading activation models are network models that are not strictly hierarchical. Activation spreads from one node to neighboring nodes.



To conclude, Spreading activation models of the lexicon incorporate conceptual, syntactic, and phonological knowledge that appear to offer the most realistic picture currently available of the internal lexicon.

Advantages and Disadvantages of Semantic Differential Scale

Semantic Differential (SD) is a type of a rating scale designed to measure the connotative meaning of objects, events, and concepts. The connotations are used to derive the attitude towards the given object, event or concept.

The SD question scale offers a bipolar pair of adjectives btw which the respondent must choose typically a five-pointscale.

Please indicate your opinions about the 'Jolly Boys' TV show by checking one box in each row below:

	very much	some- what	neither	some- what	very much	
enjoyable	☐	☐	☐	☐	☐	boring
likeable	☐	☐	☐	☐	☐	challenging
noisy	☐	☐	☐	☐	☐	fascinating
silly	☐	☐	☐	☐	☐	ridiculous

Alternative form, using unmarked, continuous scale (with central position):

enjoyable	_____		_____	boring
likeable	_____		_____	challenging
noisy	_____		_____	fascinating
silly	_____		_____	ridiculous

Advantages

- It examines the strengths and weaknesses of a concept by having the respondent rank it between dichotomous pairs of words or phrases that could be used to describe it
- The means of the responses are then plotted as a profile or image.

Disadvantages

- Semantic differential suffers from a lack of standardization.
- The numbers of divisions on the scale are a problem.
- If too few divisions are used, the scale is crude and lacks meaning; if too many are used; the scale goes beyond the ability of most people to discriminate.

Hence, the semantic differential is today one of the most widely used scales used in the measurement of attitudes. One of the reasons is the versatility of the items.

Semantic Barriers

Semantic barriers to communication are the symbolic obstacles that distort the sent message in some other way than intended, making the message difficult to understand.

The meaning of words, signs and symbols might be different from one person to another

- Causes of Semantic Barriers in Communication
 - Homophones

For example: Words buy, by and bye. They have same pronunciation, but different meanings and spellings.

- **homonyms**

For example, the noun “bear” and the verb “bear” has different meanings but same pronunciation and spelling.

- **homographs**

For example, “The research leads to the discovery of lead”. In this sentence, both the words have the same spelling, but different pronunciation and different meanings.

To conclude semantic barriers it can be said, many words have different meanings in different situations. So, confusion arises in communication due to meaning of different signs and symbols in different cultures, causing semantic barrier.

Lecture 06

Lexical Access

Topic 1 Models of Lexical Access

How language users recognize a lexical item’s meaning is an important concept. Thus the models of lexical access attempt to explain how individuals access words and their related meanings in our minds. There are two major classes of models that detail how lexical entries are retrieved during reading and listening tasks. The first type of model is known as serial search models, whereas the second type are parallel access models.

Serial Search Models

They 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 means propose that lexical access occurs by sequentially scanning one lexical entry at a time [\[14\]](#). An example of a serial search model is Forster's (1976) autonomous search model. In contrast, the parallel access models propose that perceptual input about a word activate lexical items directly, and that multiple entries can be activated at once. That is, a number of potential candidates are activated simultaneously and the lexical item which shares the most features with the targeted stimulus is the one that is chosen [\[14\]](#). Examples of the parallel search model are Marslen-Wilson's (1987) cohort model, McClelland & Seidenberg's (1989) connectionist model and Morton's (1969) logogen model [\[14\]\[11\]](#). The factors that influence word access and lexical organization are addressed in both the serial and parallel processing models. At the present time there is a greater acceptance toward the parallel access models than the serial search models when explaining lexical access [\[14\]](#).

The Autonomous Search Model

The autonomous search model was developed by Kenneth Forster and views the word recognition process as being divided into several parts [\[23\]](#). More specifically this model upholds that lexical access is carried out in a two-stage process. Forster's (1976) model of lexical access is best illustrated by comparing the lexicon to a library. A word similar to a book can be in only one place in the lexicon and library. However, several catalogs (i.e., title, author, year) can be used to determine where the book or lexical item are located in both locations [\[14\]](#). Forster proposed three major types of access files which included: orthographic, phonological and semantic/syntactic [\[24\]](#). The first type of access file mentioned (orthographic) means that words are accessed based on their

visual features; words accessed through the phonological access file are done so through how they sound; and lastly, words retrieved using the syntactic/semantic file are done so according to their meaning. Moreover, input from any modality (visual, auditory) can only access these files one at a time. Lastly, orthographic and phonological access files contain information about the beginning parts of words (i.e., the first few letters of their spelling or first few sounds they begin with) [3]. When a word is presented either visually or phonologically, a complete perceptual representation of the word is constructed and subsequently activates in the access file based on its initial spelling or sound [14]. Once a word's location has been established based on its access files, a search for the word entry in the lexicon must still be carried out [25]. Relating this model back to the analogy of a library, lexical access is thought to occur by first locating the file in which the information is (i.e., searching for which section a book is in) and then the lexicon is searched for the actual location of the word (retrieving the book of the shelf). It should be clarified that all information of the lexical entry (i.e. its spelling, semantics, pronunciation, etc) are contained in the lexicon and not the individual access files [14].

The master lexicon is assumed to be organized into bins with the most frequent entries stored on the top of the bins. This belief further explores why high-frequency words are accessed more quickly than low-frequency words. Entries in this model are said to be searched one by one until an exact match to the perceptual representation is found; Figure 6 depicts how this process takes place. The process of lexical access proposed by Forster's model occurs in more of a step by step process (serial search) rather than a simultaneous process (parallel access) [14]. When the relevant lexical entry is found it is then cross referenced against the targeted input to ensure accuracy [14]. If the selection is deemed correct, the search is terminated. However, if the selection is deemed

incorrect a more exhaustive search is continued until the correct lexical entry is retrieved from the lexicon. Incorrect selections can comprise of either non-words which do not adhere to the rules of English grammar such as *zdkj*, or a non-word that resembles a real word such as *shure*. Several studies have revealed that individuals require more time to reject the non-words which represent a real word in comparison to words which clearly do not [14]. In short, lexical access of a word is terminated only once the correct lexical entry is located, which are scanned one at a time.

The Logogen Model

Morton (1969) proposed that words are not accessed by determining their locations in the lexicon but by being activated by a certain threshold [26]. An analogy between Morton's model and a light bulb can be made in that a word similar to a light bulb is activated when enough energy is being delivered to the source. Thus in relation to the logogen model, words are activated when its threshold has received enough energy to access the lexical entry [14].

Morton (1969) claimed that each lexical entry had its own *logogen* which tracked of the number of features a lexical entry had in common with a targeted stimulus [3]. Words are said to be at a resting level and have a zero-feature count when they are not being activated as a potential candidate of a the targeted word [14]. Morton proposed that each logogen had an individual threshold which required a particular amount of input/energy for the lexicon to access a particular lexical entry [26]. Input can be received in the form of orthographic, phonological or semantic information as individuals read or listen to language. Once all the input is received for the lexical entry candidates, the number of features for each logogen is summed up and the certain logogens reach their predetermined thresholds [14]. Among the logogens which do reach their threshold, the lexical entry which has the highest feature count thus the most similarities with the targeted word

is chosen. Once lexical access has been completed, all logogens return to their zero-feature count resting level [\[26\]](#). Logogens that have reached their threshold take longer to return to their resting level than those that have not [\[1\]](#). As depicted in Figure 7, contrary to Forster's (1976) autonomous search model, Morton's logogen model provides no separate access routes in which the lexicon is searched for lexical items. In contrast, individuals use all available input (i.e., orthographic, phonological) in order to activate logogens with similar features to the targeted word. In addition, Morton's model allows for simultaneous parallel searches of input from multiple modalities, whereas Forster's model only allows one access file to be used at a time [\[14\]](#).

Similar to Forster's model, high-frequency words are accessed more quickly than low-frequency words in the logogen model. This model asserts that the frequency effects are the result of the lower activation threshold for frequently used word. That is, it takes less activation to fire a high frequency word than a low frequency word. For example, the word bear which is used more frequently would require less input to reach its threshold than a word like anteater, see Figure 8. Priming on the other hand, is accomplished by a quick and temporal lowering of the threshold of logogens related to a prime. [\[26\]](#).

Morton's (1969) logogen model has been one of the most influential of the parallel word access models and served as the basis for all the parallel models that followed [\[14\]](#). As with any model, however, modifications were made from the original 1969 model exactly a decade later (1979). The newest version of the model asserts that separate input paths and logogens exist for words presented by reading (visually) versus listening (auditory)

The Cohort Model

Marslen-Wilson et al (1987) proposed that when individuals hear a word, its phonological neighbors also get activated. To simplify this concept refer back to Figure 5: The Spreading Activation Model. Rather than words of similar semantics being primed, the cohort model proposes that words with similar sounds are primed. The cohort model is comprised of three main stages. During stage one, also known as the access stage, the first few sounds of the target word activate all words with a similar sound. For example, in the sentence “Renee went to go buy a toy from the st-...,” *stand*, *store*, *stranger* as well as other similar phonological words would be accessed during the first stage. The set of words which become activated are known as the "cohort" [\[27\]](#). The cohort model bears similarities to Morton's (1969) logogen model in that multiple words can be activated, and the system continues searching through all activated words until it settles on a single choice. The second stage of Marslen-Wilson's (1987) model is known as the selection stage, during which all activated words are progressively eliminated thus narrowing the cohort [\[27\]](#). An activated lexical item in the cohort can be eliminated either based on inappropriate context or if a better candidate is activated. All lexical items in the cohort continue to be eliminated until a single lexical item remains, known as the integration stage. Figure 9 depicts the three stages of lexical access and elimination as described above in the cohort model.

The original cohort model asserted that an exact match between a lexical item and its phonological properties was required [\[27\]](#). However subsequent studies revealed that individuals are still able to access a correct lexical item, even if words are mispronounced or left out (i.e., if an individual yawned part way through a word) [\[14\]](#). In light of this information, the cohort model was revised and currently maintains that an exact match between a lexical item and its phonology are not

necessary for lexical access. The cohort model also accounts for frequency and non-word effects similar to Morton's logogen model [\[14\]](#). Both theories assume that context and primed words narrow the original set of activated lexical items, thus leading to a quicker recognition of targeted stimulus.

Topic 02 Variables That Influence Lexicon Access

Lexical Frequency

In visual and auditory modalities, the more frequently a lexical item is used the more quickly it is recognized [\[11\]](#). Zipf's Law (1949) developed by George Kingsley Zipf draws upon the relationship between probability of usage and frequency. Further, this law is based on the principle of least effort [\[12\]](#). The basis of the least effort principle can be outlined by the following logic: the more frequently a word is used the easier it is to process, as mentioned above. Studies have suggested that low-frequency lexical items produce longer decision times and therefore are accessed more slowly in comparison to high-frequency lexical items [\[13\]](#). As such frequency plays an important role in determining which lexical item is chosen in models of lexical access that involve competition between two items. Moreover, the frequency effect has been well attested to in studies of lexical access [\[3\]](#) [\[12\]](#) [\[13\]](#). For example, a study by Balota & Chumbly (1984) revealed that high frequency words were named more rapidly than low-frequency words [\[13\]](#).

Word Concreteness and Imagery

Words such as camera and banana are easy to imagine in our mind, whereas words such as justice and evil are more difficult to mentally picture. This issue which relates to the difficulty and ease of picturing some words in comparison to others refers to the concept of word concreteness and abstractness. Word concreteness is also known as image ability and as implied by its name, is the

ability to visualize lexical items. Concrete words are those that describe tangible nouns whereas, abstract words describe nouns which may be intangible (i.e., apple and freedom) respectively. Please see Figure 3 for further examples of concrete and abstract words. Several studies have attested to the notion that concrete lexical items such as apple are easier to imagine, while abstract words such as evil are not as easy to imagine [\[14\]](#). Moreover, studies on the word concreteness effect have revealed consistent findings that concrete lexical items have been found to be processed more accurately and quickly than abstract concepts in a variety of cognitive tasks [\[15\]](#) [\[16\]](#). These tasks include but not limited to: cognitive recall, lexical decision,

word recognition and sentence comprehension [\[15\]](#) [\[16\]](#).

More specifically, Paivio (1969) found that high-imagery words were more easily recalled in an memory test than low-imagery words [\[17\]](#). This study also found that the principle of imageability interacts with the principle of frequency in word access. In short, that high-frequency high-imagery words such as student were more accurately accessed and recalled where as low-frequency low-imagery words such as excuse were least easily accessed [\[17\]](#). Bleasdale (1987) also found that in a lexical decision task, words primed other words only when both words were of the same, for example concrete-concrete, rather than concrete-abstract. From this it was concluded that the lexicon organizes concrete and abstract words separately [\[18\]](#).

Two models have emerged in an attempt to explain the concreteness effect, one of which is the dual-coding theory and the other, the context availability theory. The latter theory supports that concrete words are activated with broader contextual verbal support and greater contextual associations in semantic memory [\[19\]](#) [\[16\]](#). The context availability theory further asserts that concrete words automatically activate more associative information in comparison to abstract

words, thus resulting in faster processing. In contrast, the dual-coding theory as proposed by Paivio (1986) upholds that concrete words result in faster processing due to access to semantic meaning [\[15\]](#) [\[16\]](#). This theory support that the meaning of concrete words is facilitated easier because concrete words have verbal and visual semantic representations, while abstract words generally have a verbal semantic representation [\[15\]](#). The superiority effect of concrete words being processed more accurately and quickly than abstract words in cognitive tasks has been attributed to three reasons. First, it is believed that abstract words lack the direct sensory referents of concrete words, therefore supporting a slower processing for abstract words. Second, there is a greater availability of contextual information for concrete words than abstract words [\[19\]](#) [\[16\]](#). Lastly, the notion that concrete words have more associative meanings than abstract words is thought to attribute to this superiority findings swayed toward concrete words [\[16\]](#).

Lexical Ambiguity

Ambiguities in spoken or written language can arise in a number of ways. For example, homophones are two words that sound the same however have two different meanings (i.e., air; heir). In light of the existence of ambiguities in language, a great deal of research has been devoted to understanding lexical ambiguity to date [\[6\]](#). The primary goal of this research is to address how readers and listeners retrieve the contextually appropriate meaning of lexical items which have multiple meanings [\[20\]](#). One key discovery that has fueled research into this topic is the understanding that words and meanings do not necessarily a one to one ratio [\[3\]](#). As most individuals have likely experienced, one meaning can be shared by numerous words and conversely, one word can share numerous meanings. To illustrate my latter example, I would like to use the phrase “tick the right box” [\[3\]](#). Without context, the reader is left wondering if right refers to the correct box or the box opposite to the left. Through examples such as the one used above it

was suggested that individuals use more cognitive resources when processing ambiguous words than words with only one meaning [\[1\]](#) [\[5\]](#). Readers and listeners often use the context of a word to disambiguate its meaning [\[7\]](#). To emphasize the importance of context and its effect on disambiguating words, studies such as one by Swinney (1979) have been conducted. In this study, experimenters provided participants with the following sentence: "The man was surprised when he found spiders and other bugs in the room" [\[5\]](#). The targeted word was bug and participants were tested to see if context had an effect on which meanings were activated; the possible answers for bug were either an insect, a spy gadget or the control word sew [\[5\]](#). The results showed that if the answer choices were given in less than 200 milliseconds after the target sentence was read, both meanings of the word were activated; but if the answer choices were given after 200 milliseconds the irrelevant meaning was suppressed [\[7\]](#). These results support that if given time to reflect on the sentence, context helps individuals disambiguate the word bug to correctly mean an insect.

Exhaustive and Selective Lexical Access

There are two major theories that examine the role of context in influencing what meanings of lexical ambiguous words are activated. The first theory known as selective access which supports that context biases the interpretation of an ambiguous word, so that only the intended meaning is accessed [\[21\]](#). In essence this view considers context to sufficiently provide enough information that only the most relevant meaning of an ambiguous word is activated. In contrast, the alternative theory claims that even with contextual cues, multiple meanings for ambiguous words are still activated; this theory is known as exhaustive access [\[21\]](#). Further, some advocates of the exhaustive access theory have argued that ambiguous words do not all simultaneously get activated, but rather the more frequently used meanings and those influenced by context are activated first. Currently,

the exhaustive access theory has more empirical support from studies than the selective access theory [\[14\]](#).

Dominant and Subordinate Meanings

As mentioned above, several studies have revealed that lexical access of ambiguous words can be dependent on context. Ambiguous words can also be subcategorized into dominant and subordinate meanings as often two meanings of a word not equally used [\[11\]](#). Thus the dominance of a meaning refers to the relative frequency each meaning of an ambiguous word is used. For example, if we were to review the word "cram", a university student would be more likely activate the dominant meaning of studying, rather than a subordinate meaning of try and squeeze something into an insufficient space. To view some examples of dominant and subordinate meanings, please see Figure 4. Furthermore, dominant and subordinate meanings can be divided into polarized and balanced ambiguous words. Polarized words are those with meanings that have a predominant meaning which is most frequently used in relation to the word. In comparison, balanced words are ambiguous words which do not have one dominant interpretation for the word (i.e. *right* can mean either correct or a direction).

Topic 03 Appraising Models of Lexical Access

A given system lexicon or lexical database is based on a *lexical information model* or a *data model* ; often the model is intuitively constructed, or based on notions taken from traditional school grammar, but scientifically motivated models are becoming available. A model of lexical information will make at least the following distinctions:

- **Lexical objects:** The basic objects (such as words) described in a lexicon. It is becoming customary in lexicography and computational linguistics to refer to the *lexical sign*, i.e. an

object associated with attributes denoting orthogonal kinds of lexical information. A second kind of lexical object is the *lexical sign class* or *archi-sign* in which similar lexical objects are grouped together, each characterized by subsets of the lexical information required to characterize specific lexical signs. These class-based generalizations may be organized in terms of *implication rules (redundancy rules)*, subsumption lattices, *type hierarchies*, or *default inheritance hierarchies*.

- **Lexical information:** In a theoretically well-founded lexicon which satisfies formal criteria of consistency and coverage criteria such as empirical completeness and soundness, types of lexical information are *orthogonal*, i.e. of different types which complement each other. These orthogonal types of lexical information are often labeled with *attribute* names, and the items of information regarded as the *values* of these attributes. Values may be complex, expressed as nested attribute-value structures. The types include orthography, pronunciation, syntactic distributional properties, meaning, and pragmatic properties of use in context (e.g. speech act type, stylistic level). See also the results of the EAGLES Working Group on Formalisms.

Lexicon models for lexical databases and system lexicons are part of the overall conceptual framework required for lexicon development. Modern approaches to lexicon development provide suitable lexical representation languages for formulating and integrating the different kinds of lexical information specified in a lexicon model and assigning them to lexical objects, and implementations for these representation languages. In recent work, the following useful distinctions are sometimes made:

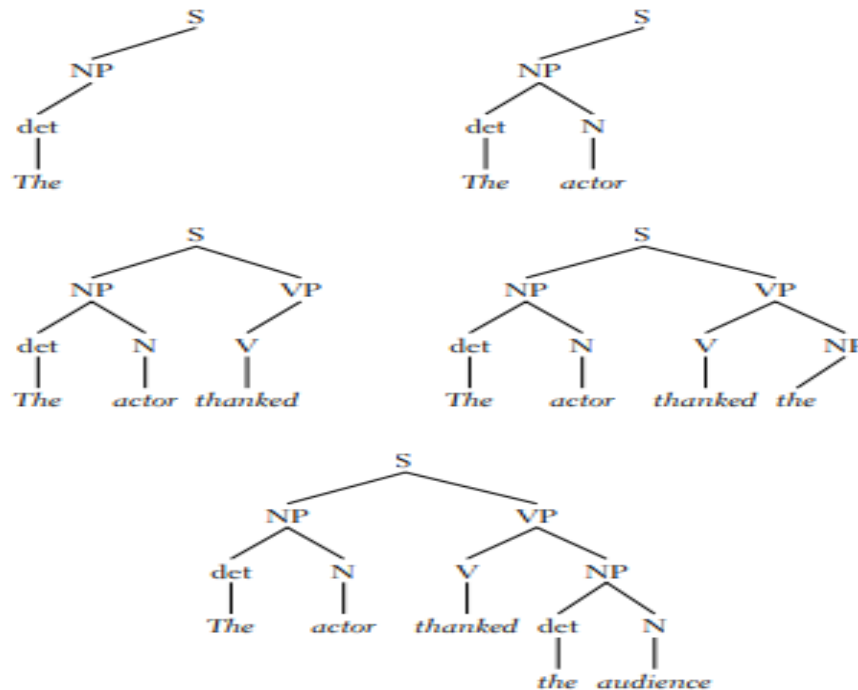
- **Lexicon Formalism:** A specially designed logic programming language such as DATR, or an algebraic formalism such as attribute-value matrices, or appropriate definitions in high level languages such as LISP or Prolog, with compiler concepts for translating these languages into conventional languages for efficient processing. Imperative languages such as C are sometimes used directly to represent smaller lexicons, or where speed of access is at a premium, but this is not a generally recommended practice.
- **Lexicon Theory:** A coherent and consistent set of expressions formulated in a well-defined formalism and interpreted with respect to a lexicon model.
 - General lexicon theory: A general theory of lexical objects and information, for instance a theory of lexical signs and their representation.
 - **Specific Lexicon Theory:** A given lexicon formulated in lexicon formalism on the basis of a lexicon model.
- **Lexicon model:** Specification of the domain denoted by a lexicon theory, conceptually independent of the theory itself (cf. the notion of a *data model* for a database). A different definition is also common: the general structure of the objects and attribute-value structures in a formal lexicon. A lexicon model specifies the following kinds of information:
 - Types of lexical object and structure of lexical entries.
 - Types of lexical information associated with lexical objects in lexical entries.
 - Relations between lexical objects and structure of the lexicon as whole *lexicon architecture*.
- **Linguistic framework:** In recent large projects such as VERBMOBIL, general linguistic frameworks such as HPSG (Head-Driven Phrase Structure Grammar) have been used.

The aspects of representation and architecture will be dealt with in a later section. The following subsections are concerned with the main kinds of lexical information required for spoken language lexical entries.

Lecture 7

Parsing

A first step in the process of understanding a sentence is to assign elements of its surface structure to linguistic categories, a procedure known as parsing. The result of parsing is an internal representation of the linguistic relationships within a sentence, usually in the form of a tree structure or phrase marker.



To conclude, parsing is a process of assigning elements of surface structure to linguistic categories. Because of limitations in processing resources, we begin to parse sentences as we see or hear each word in a sentence.

Parsing Strategies

Late Closure Strategy:

States wherever possible we prefer to attach new items to current constituent.

Minimal Attachment Strategy:

States we prefer attaching new items into the phrase marker being constructed using the fewest syntactic nodes consistent with the rules of the language.

- Example Late Closure Strategy

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

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

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

- Example Minimal Attachment Strategy

(8) Ernie kissed Marcie and her sister

(9) The city council argued the mayor's position forcefully.

(10) The city council argued the mayor's position was incorrect

Hence, 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 reanalyses of syntactic structure.

Modular Versus Interactive Models

Modular :

Parsing is performed initially by a syntactic module that is not influenced by higher-order contextual variables such as the meaning of the sentence or by general world knowledge.

Interactive:

In this model, we simultaneously use all available information in our initial parsing of a sentence—syntactic, lexical, discourse, as well as nonlinguistic, contextual information.

Examples

(11) The florist sent the flowers was very pleased.

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

(14) The performer sent the flowers was very pleased

(19) The defendant examined by the lawyer turned out to be unreliable.

(20) The evidence examined by the lawyer turned out to be unreliable



Hence, 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.

Constraint Based Model

Proposed by MacFonald in 1994

Constraint-based theories of language comprehension emphasize how people make use of the vast amount of probabilistic information available in the linguistic signal.

- Sentence processing involves immediate incorporation of all available information in creation of the final output.
- All relevant information is available immediately to the parser during reading and listening.
- Activated constraints are in competition with one another and when two constraints are equally activated ambiguity arise.
- Constraint based theory that argues several constraints are activated before the output is chosen.
- Constraint based theory, processing difficulty only arises when two or more constraints have approximately equal activation resulting in competition

In conclusion ,the constraint based theory argues all possible interpretations of sentences are activated with the most appropriate being selected, arguing the absence of reanalysis; again this is in contrast to the garden path model.

Working Memory and Comprehension

- Comprehension involves,

at some point, a consideration of syntactic, semantic, pragmatic, lexical, and extralinguistic factors.

- Baddeley's model of working memory, the executive controls attention and thus determines what information is attended and what is ignored.
- Working memory capacity is also related to individual differences in comprehension performance.
- The mechanism of suppression is a component of general comprehension skill.

- Individuals with smaller working memories were more likely to show garden path effects in sentences such as “the evidence examined by the lawyer.”
- According to the modularity view, only certain kinds of information may be available to the language processor at a given time.
- Baddely Model of Working memory and Reading Comprehension

To conclude, we know that performance on many tasks improves with practice, and many investigators contend that the amount of working memory capacity needed to perform a task decreases with practice. We do not know much of how language experience influences an individual’s language comprehension skill.

Incomplete or Inaccurate Representations

Recent research suggests that we sometimes develop incomplete or inaccurate representations of the sentences we encounter. This is more commonly the case when the sentence violates our expectations.

- Comprehenders sometimes misinterpret garden path sentences

(24) While Anna dressed the baby played in the crib

- Ferreira (2003) makes a similar point with passive sentences.

(28) The man was bitten by the dog

- The significance of incomplete or inaccurate representations is twofold.
- First, in naturalistic situations people frequently misinterpret what others are saying, for a host of reasons
- Second, studies of incomplete representations emphasize the influence of expectations in sentence comprehension.

To conclude, We use syntactic, semantic, and pragmatic knowledge to comprehend sentences. An ongoing debate is whether we use these forms of knowledge simultaneously or whether we process syntactic information first.

Lesson 8

Comprehending Figurative Language



Figurative language is language that literally means one thing but is taken to mean another.

Although we may sometimes use literal meaning as a guide to figurative meaning, we can also comprehend figurative language directly.

- The parsing mechanism we have just considered has as its output a syntactic structure of the incoming sentence

(31) George went through the roof

- 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
- Powerful communicative and conceptual tool

Hence, in figurative language, the intended meanings of the words, sentences and expressions used do not coincide with their literal meanings (Glucksberg, 2001). When speaking figuratively, speakers mean something other than what they literally say.

Types of Figurative Language

Indirect Speech Acts:

Indirect relationship between the form and the function of the utterance. The speaker does not explicitly state the intended meaning behind the utterance.

Metaphor

Describes an object or action in a way that isn't literally true, but helps explain an idea or make a comparison.

Indirect speech act

(33) It's going to be cold today. (34) I congratulate you on your award

- locutionary act
- perlocutionary effect

(35) Can you shut the door?

Metaphor

Metaphors consist of three main parts;

- Tenor

- Vehicle
- Ground

(38) Billboards are warts on the landscape.

Hence, 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.

Studies of Figurative Language Comprehension

Studies of figurative language has been focused primarily on metaphor but has recently been extended to other forms of figurative expressions like idioms. Metaphor plays a central role not only in everyday discourse but also in reflecting how people think in a broad range of domains.

Metaphor

“understanding and experiencing one kind of thing in terms of another.” (Lakoff & Johnson, 1980).

- Structural metaphor
- Orientational metaphor
- Ontological metaphor

Idioms and Idiomatic Expressions

- Pure idioms
- Semi-idioms
- Ideational idioms
- Interpersonal idioms
- Relational idioms

Hence, figurative language is no longer perceived as merely an ornament added to everyday, straightforward literal language, but is instead viewed as powerful communicative and conceptual tool.

Compare 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 the context of main theories of comprehension: the pragmatic, conceptual metaphor.

Pragmatic Theory

- According to Grice, we strive to be informative, clear, relevant, and truthful

(41) Harold was in an accident. (42) He had been drinking

- The pragmatic theory holds that we comprehend figurative language by considering the literal meaning, then rejecting it

(44) All hands are medicine. (45) Some arms are soothing

Conceptual Metaphor Theory

- Metaphors are not creative expressions but rather instantiations of underlying conceptual metaphors.
- Metaphors are accessed quickly because they instantiate conceptual metaphors

Hence, the evidence to date does not support the pragmatic theory that we comprehend figurative language by first considering and then rejecting the literal meaning. The conceptual theory appears best equipped to explain instances in which we automatically access figurative meaning.

Class Inclusion Theory

Class inclusion refers to the ability to classify objects into two or more categories simultaneously. For example, the ability to recognize that large categories such as 'cars' includes smaller sub-categories such as 'blue cars' or 'red cars' or different manufacturers.

- Metaphors are class inclusion statements

(47) My job is a jail. (48) All dogs are animals

- Literal meanings of words vary with their context

(49) The container held the apples. (50) The container held the cola

- Identifying a general term with a specific meaning, a process known as instantiation
- Metaphor are nonreversible
- Metaphor vehicles refer to abstract superordinate categories

- The treatment of figurative language emerges naturally from our understanding of how we access the internal lexicon.

Hence, 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.

Comparative Figurative Languages

Comparative figurative language is a term used to refer to any figurative language a writer uses to express a point by comparing objects to other objects. The metaphor, simile, personification, and hyperbole are all types of comparative figurative language.

Metaphor

You are my sunshine

Simile

Brave as a lion

Personification

The sun greeted me this morning

Hyperbole

You snore louder than a freight train!

Symbolism

Using an owl to represent wisdom

Hence, the different types of comparative figurative language enable us to communicate a wider range of meanings.

Lesson 9

Memory for Meaning Versus Surface Form

Memory: “process of retaining information over time” What do we remember after one exposure to a single sentence?

The processing activities devoted to even a single sentence can be quite complex, and we have reason to believe that substantial processing leads to durable retention (Craik & Lockhart, 1972).

- Researches concerning the sentence memory suggest that only the meaning of a sentence retained. E.g

(53) The window is not closed. (54) The window is closed. (55) The window is not open. (56) The window is open

- The meaning similarity of closed and not open enabled comprehenders to infer one from the other
- Fillenbaum (1966) : people drew inferences from contradictories not from contraries.
- when people listen to sentences without knowing they are to be tested on them, they primarily retain the meaning, not the surface form.

(57) When you score the results, do nothing to your correct answer but mark carefully those answers which are wrong.

Hence, our memory for sentences is a mixture of the meaning of the sentences, their wording, and the inferences we draw at the time of comprehension. Numerous studies show that meaning predominates in our retention of sentences.

Time Course of Retention and Pragmatic Factor

Studies on sentence memory have been used to support the idea that we ordinarily use the syntactic structure of a sentence to extract the underlying meaning. A study by Sachs (1967) examined the time parameters within which these processes might operate. Pragmatic factors also play a role in retaining sentence memory.

- A study by Sachs (1967) examined the types of test sentences and retention interval.
- Memory for form declined substantially with 40 syllables of retention interval (about 12.5 seconds) and even more with 80 syllables of delay. Memory for meaning was relatively durable over this time period.
- Interactional content of an utterance is an important factor in its retention under naturalistic conditions.
- It is not the syntactic or semantic aspects of high interactional statements that make them memorable but rather the pragmatic function they play in the conversational context.
- Similar factors are at work in our memory for sentences that convey politeness.

We ordinarily remember the gist of a sentence and quickly forget its surface form. An exception is pragmatically significant statements, such as insults, whose exact wording is often well remembered.

Inferences and Sentence Memory

Elaboration

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 of the new material.

- Textual inferences fall into four categories(Iza ,2000):

Lexical inference

Inferences of space and time

Extrapolative inferences

Evaluative inferences

- Inferences have been classified in two general categories:
necessary and elaborative
- Making of elaborative Inferences:

Immediate inference

Differed Inference

Inference based memory error is common and leads to false memories because we use assumptions to account for details we cannot remember. These assumptions are often bias because they come from our opinions or attitudes rather than actual memory, so they are not usually accurate.

False Recognition Errors

Memory gaps and errors refer to the incorrect recall , or complete loss, of information in the memory system for a specific detail and/or event. Memory errors may include remembering events that never occurred, or remembering them differently from the way they actually happened.

- The Deese, Roediger and McDermott (DRM) task is a false memory paradigm in which subjects are presented with lists of semantically related words (e.g., nurse, hospital, etc.) at encoding.
- In the recognition memory version of the task, subjects are asked whether they remember previously presented words, as well as related (but never presented) critical lure words ('doctor')

- DRM a 'false memory' paradigm, to be based on the activation of semantic memory networks in the brain
- Remembering the gist of experience (instead of or along with individual details) is arguably an adaptive process and this task has provided a great deal of knowledge about the constructive, adaptive nature of memory.

Roediger and McDermott assert that their results show that an individual's claim of a vivid memory for an event cannot be taken as conclusive evidence that the event actually occurred. Critics, however, have argued that the DRM paradigm does not reflect real life events because of the nature of the stimuli and the setting in which the study is conducted.

Propositions and Sentence Memory

A proposition is an idea unit; it is a statement that expresses a factual claim (Jay, 2003); it is the basic unit involved in the understanding and retention of text.

- We generally store the gist of what another person has said
- Inference that we draw are based not on purely linguistic knowledge but rather on general world knowledge
- A sentence can be represented as a proposition consisting of two or more concepts and some form of relation between them.

(60) George hit Harry. (61) Hit (George, Harry)

- If the surface structure is pragmatically significant, more attention is given to it, with consequently better retention

Propositional models can be extended naturally to discourse because the meaning representation of two one-proposition sentences is equivalent to that of one two-proposition sentence. In natural discourse, we generally recall the meaning that a sentence contributes to the overall discourse meaning.

Analysis of Propositions, Sentences and Clause Type

“Propositions correspond roughly to verbs, adjectives, adverbs, prepositions, and subordinating conjunctions (not nouns or pronouns)” (Covington, 2008, p. 2).

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”.

An Analysis of the Proposition Density, Sentence and Clause Types, and Non-Finite Verbal Usage in Two College Textbooks (DeFrancesco & Perkins 2013)

- Defines Propositional density as the number of propositions in each sentence. The young gray squirrel has a very long tail

1. *has (squirrel, tail)* 2. *young (squirrel)* 3. *gray (squirrel)*

4. *long (tail)* 5. *very (<4>)*

The proposition density of this sentence is 0.56 (5 propositions divided by the nine words contained in the sentence = 0.56). Furthermore, in numbers one to five above, 5. *very (<4>)* is *an adverb that modifies the adjective long (tail) in 4. This is the preferred method for listing the propositions in a sentence.*

- cognitive overloading, rehearsing info, transferring information

An extremely dense propositional load might pose difficulties, information is stored briefly before decaying and lost if not rehearsed.

Lecture 10

Local and Global Discourse Structures

Local Structure

The relationship between individual sentences in its discourse

Global structure

It is our knowledge of the structure corresponding to birthdays that enables us to comprehend and remember the shorter passage about the birthday.

The ways we comprehend and remember units of language larger than the sentence—that is, connected discourse. Connected discourse is coherent if its sentences can be related to one another. These relationships exist on both local and global levels.

Examples

1. Carlos arranged to take golf lessons from the local professional. His dog, a cocker spaniel, was expecting pups again. Andrea had the car washed for the big wedding. She expected Carlos to help her move into her new apartment.'

2. John bought a cake at the bake shop. The cake was chocolate with white frosting, and it read "Happy Birthday, Joan" in red letters. John was particularly pleased with the lettering. He brought it over to Greg's house, and together they worked on the rest of the details.

3. John bought a cake at the bake shop. The birthday card was signed by all of the employees. The party went on until after midnight.

A discourse is coherent if its elements are easily related to one another. At the local or microstructural level, coherence is achieved primarily through the appropriate use of cohesive ties between sentences. New sentences are easier to integrate when they have a clear relation to prior material while presenting new information.

Discourse Structure: Theory, Practice and Use

In linguistics the study of discourse refers to how sentences are used in narrative, conversation, or any other form of communication. Discourse comprehension (discourse structure) involves building meaning from extended segments of language, such as novels, news articles, conversations, textbooks, & other everyday materials

- In structural approaches, the aim is to discover the rules which, if followed, result in an acceptable or well-formed text.
- Discourse requires making inferences to connect ideas both within and across local and global discourse contexts.
- *Text content* has considerable impact on readers' comprehension, language serves as a set of processing

cues or instructions that guide construction of memory

for discourse (Gernsbacher 1990; Givon 1992)

- *Lexical cues* help to establish coherence among discourse elements. Connectives such as “because,” “however,” and “not” signal conceptual and logical relations among ideas.
- *Structural cues* are features of the organization of information within the discourse that emphasize particular elements (syntax)
- Discourse theory proposes that in our daily activities the way we speak and write is shaped by specific parameters of Discourse analysis. Factors influencing the comprehension in discourse context include text content, lexical cues and structure cues.

Cohesion Cohesion is the overall hanging togetherness of the text

- Cohesion refers to the resources within language provided by clause structures and clause complexes.
- Cohesive relations are non structural.
- Concept of cohesion is the semantic one.
- Cohesion occurs where the interpretation of some elements in the discourse are dependent on those of others.



Categories of cohesion

- **Grammatical:**

Substitution, Ellipsis, Conjunctive, Anaphoric and Cataphoric Reference

- **Lexical:**

repetition, synonymy, antonymy, hyponymy, meronymy, and collocation.

Cohesion refers to the process of presenting the text in its totality with the incorporation of Grammatical and Lexical categories for relevant discourse.

Strategies Used to Establish Coherence

Given Information

Flow of ideas from one sentence to another
without any ambiguity

Refers to information that an author or speaker assumes the reader or listener already knows

New Information

One paragraph is leading to another

New information

Is information that the comprehender is assumed to not know

Given/ New Strategy

We can use pronoun and synonyms to connect sentences

(1) identifying the given and new information in the current sentence, (2) finding an antecedent in memory for the given information, and (3) attaching the new information to this spot in memory

Direct Matching

(9) We got some beer out of the trunk. (10) The beer was warm.

Reinstating Old Information

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

The given/new strategy specifies a three-stage process of comprehending sentences in discourse: identifying the given and new information in the current sentence, finding an antecedent for the given information, and attaching the new information to the memory location defined by the antecedent.

Identifying New Topics of Discourse

Discourse Topic and Sentence Topic :

The notion of topic is used in different ways. One important distinction is the one between discourse topic (what a part of a discourse is about) and

Sentence topic (what is predicated about an entity in a sentence). (cf. van Dijk 1977).⁽¹⁾*Mr. Morgan is a careful researcher and a knowledgeable Semiticist,*

- 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.
- All of strategies of coherence share the implicit assumption that part of a target sentence should relate to earlier information
- Sometimes the information is all new and the target is meant to establish a new topic of discourse
- The new information is generally taken as an elaboration, sometimes a small detail, of the given information.
- To conclude discourse topic is the central participant or idea of a stretch of connected discourse and does incorporate Bridging and Reinstatements as effective strategies for discourse.

Role of Working Memory

Working memory is a cognitive system with a limited capacity that is responsible for temporarily holding information available for processing. Individual differences in working memory might influence how we comprehend discourse.

- The limited resources of working memory are allocated to processing certain tasks as well as to temporarily storing the results of these tasks.
- Daneman and carpenter developed a complex reading span task to examine trade-off position of tasks.
- They found a significant correlation between reading span and reading comprehension
- Individuals with smaller reading spans had smaller working memory capacity.
- Whitney and colleagues were particularly interested in the inferences that occurred during the thinking-out-loud procedure
- Difficulty in retaining so much information in working memory led low-span readers to form concrete inferences.
- Working memory capacity, of course, is not the only individual characteristic that influences discourse comprehension. Another is the background knowledge about the subject matter in the passage. When we encounter unfamiliar passages, it is more difficult to draw appropriate inferences.

Memory For Discourse

Discourse comprehension, as well as the comprehension of its components (words, phrases), involves the integration of representations of the sentence to enable coherent understanding of discourse as a whole (Perfetti & Frishkoff, 2008).

- Preserved working memory [WM] is pivotal for language processing effectiveness, being an essential tool for resolving structural and lexical ambiguity during the discourse processing and comprehension
- Short-term memory supports the online computation of discourse meaning.
- Long-term memory provides information that the individual needs to make inferences and to preserve the content of the discourse once it is comprehended
- One of the linguistic structures in which Working Memory may play an important role is in the sentences with dependency relations.
- The study of aphasic individuals has provided an opportunity to analyze the relation between discourse comprehension and WM.
- Discourse is the communicative foundation upon which humans typically manage their day-to-day tasks .Although many Persons with Aphasia (PWA) retain the ability to communicate basic wants and needs, most seek to expand their discourse repertoire to capture a greater range of communicative purposes.

Lecture No. 11

Memory for Discourse

Topic1 Surface Representations

Propositional Representations

Speakers in all languages possess abstract concepts about the sounds they articulate. In other words, they believe that they have an accurate awareness of speech sounds that they utter. Typically, though, there is a discrepancy between speakers' own ideas about the sounds in their language use, and what they are actually articulating in practice. The *underlying representation* (UR) refers to speakers' abstract concepts of their phones (language sounds), and the *surface form* (SF) refers the phones that are actually produced.

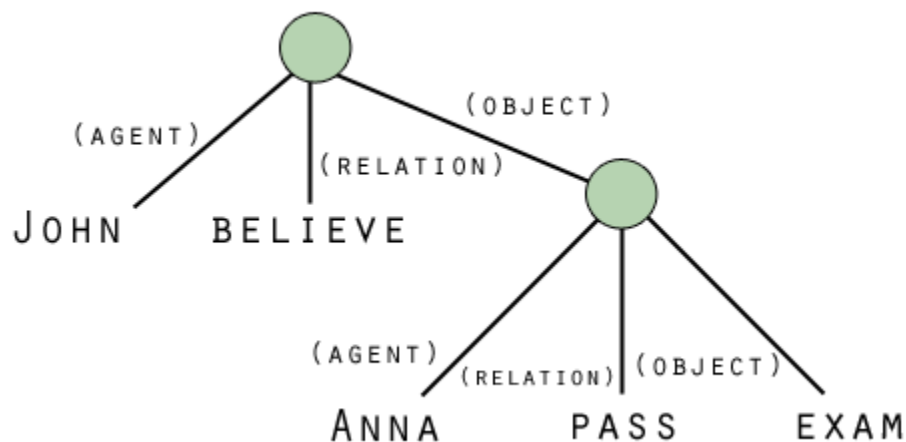
This does not at all stand to mean that UR somehow 'does not exist', nor does it entail that UR is an 'incorrect' version of SF. To clarify, the UR does exist, and it is 'correct' at the abstract level. The SF is what 'surfaces' in speech after the UR has been modified by undergoing a phonological process. Surface forms are a net result of one or more of phonological processes that occur

systematically during the last stage of language production. Phonological processes (e.g. substitution, assimilation, epenthesis) cause the alternation of phonemes based phonological environments in which they are found. Environments can exist within morphemes, syllables of word segments; they can also be phrasal and exist across word boundaries when phonological processes such as vowel harmony are at play.

<http://www.linguisticsnetwork.com/levels-of-representation/>

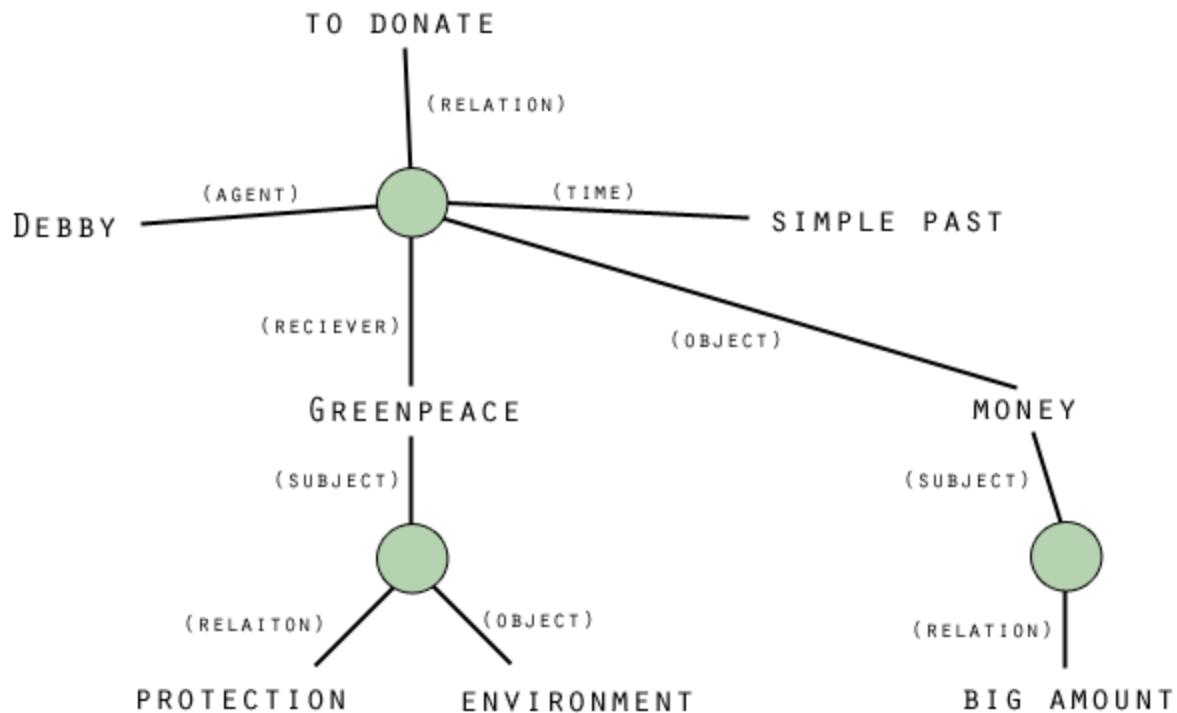
Propositional representation is the psychological theory, first developed in 1973 by Dr. Zenon Pylyshyn that mental relationships between objects are represented by symbols and not by mental images of the scene.

A propositional network describing the sentence "John believes that Anna will pass her exam" is illustrated below.



Each circle represents a single proposition, and the connections between the circles describe a network of propositions.

Another example is the sentence "Debby donated a big amount of money to Greenpeace, an organization which protects the environment", which contains the propositions "Debby donated money to Greenpeace", "The amount of money was big" and "Greenpeace protects the environment". If one or more of the propositions is false, the whole sentence is false. This is illustrated in Figure 2:



https://en.wikipedia.org/wiki/Propositional_representation

Topic2 Situational Models

Models are very often used in **psycholinguistics**. This branch of psychology, which is of course heavily influenced by linguistics, is interested in the existence of mental models, models that are supposed to exist in our minds. The concept of “mental model” was developed by the British psychologist Philip Johnson-Laird. To cut another long theory short, according to him, we build a mental model, that is, a representation of information as conveyed by the premise. When we hear a story like:

The victim was killed in a cinema watching Bambi. The suspect was on a train when the murder was committed.

the first mental model that comes to mind is one that finds the sequence illogical, because the suspect cannot have been at the same time in the cinema and on a train, so the suspect is innocent. But another mental model can explain why the suspect is really a suspect: if the suspect was not

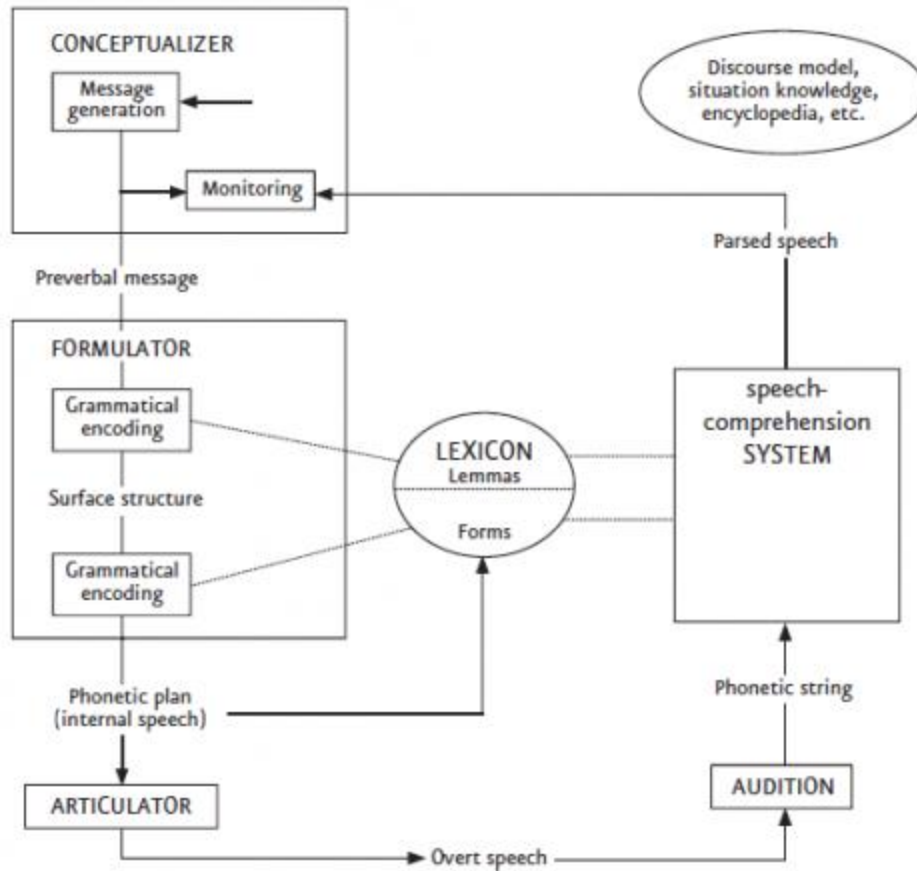
in the cinema he or she can still have committed the crime in absentia, with poison or a professional killer.

I do not intend to comment on mental models, as they fall outside the scope of my activities. I just wanted to mention them as they belong to linguistics and we're clearly dealing with models here. For further information, see Roulin (1998).

More generally, story-telling is connected with models. Again, this is not in my sphere. I'll just mention the fact that attempts have been made to find narrative superstructures (see Denhière 1984), and therefore models for narratives. Black and Bower suggest that the reader's knowledge is organized in causal schemata (1980: 349) that make up a model for story understanding. All this is connected with logical deduction and representation in narratives.

Psycho-linguistic researchers often present their ideas of how language is processed in terms of models. These models very often take the form of charts made up of boxes and arrows. One such model is presented in figure 1.

Figure 1. Levelt's model of speech production



The diagram presented here is Levelt's model of speech production. It is considered as "the most influential **model** of speech production and is based on a wide array of psycholinguistic results" (O' Grady *et al.* 1996: 459). It states that speech production begins in the Conceptualizer (in which a message is formed). The message is then given linguistic form in the Formulator. This Formulator contains grammatical and phonological processes and draws upon the lexicon (represented in the centre of the model). From the Formulator, information is passed to the Articulator, which actually produces the utterance.

Information does not flow in one direction only. Rather there is feedback so that while producing language, a speaker monitors through the comprehension system whether the utterance makes sense. This is represented as an arrow that feeds back to the Conceptualizer. Although this model might look quite complex, it is a "great simplification" of what might actually occur in the mind during language process (O' Grady *et al.* 1996: 459-460).

Again, this model is outside and beyond the scope of my activities as a grammarian. In devising such models, psycholinguists seek to discover the nature of the cognitive operations and computations that are employed when we understand and produce language. My aim is simply to present the “most influential model” used in psycholinguistics as it deals directly with our present concern, i.e., model / models in linguistics, but, as I have said before, this goes beyond my sphere as a linguist primarily interested in grammar and syntax.

Topic3 Simultaneous Investigations of All Three Levels

Five Levels of Language Analysis

Language: the set of all acceptable, well-formed sentences in the language.

Three Levels of analysis involve

Grammar: The complete set of rules that will generate or produce all of the acceptable sentences, and will not produce unacceptable sentences.

Three Levels of Grammar:

Phonology: Rules of how a language sounds, and how and when certain sounds can be combined.

Syntax: rules concerning word order

Semantics: combining separate word meanings into a sensible, meaningful whole.

Those three levels are the primary focus of linguists.

Psycholinguists are also interested in two higher levels of analysis:

Conceptual Knowledge:

Beliefs:

The following sentences show the importance of adding these two levels of analysis.

John and Mary saw the mountains while flying to California

Questions like "Who saw the mountains?"

"What did John and Mary see? "

Can be easily answered with the first three levels of analysis.

However, to answer the question "Who(what) was flying ?" Draws on conceptual knowledge and beliefs about the probability that mountains.

Assessing Language Fluency

One key difference first raised by Chomsky is the distinction between:

Language Competence: the basic knowledge of language and its rules that fluent speakers have.

Language Performance: the actual language behavior a speaker generates.

Language performance typically underestimates true language competence,

We can usually understand more language than we will produce.

Language performance frequently suffers from *dysfluencies*, irregularities and errors in language production.

<http://homepages.rpi.edu/~verwyc/LANGUAGE.htm>

Lecture 12

Schemata

A schema (plural: schemata) is a structure in semantic memory that specifies the general or expected arrangement of a body of information.

- 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.
- Activation of appropriate schemata
- It appears that comprehension and memory are poor when we do not have a schema that corresponds to the story that is unfolding, because it is nearly impossible to see the significance of the events being described.
- Reconstruction of schema-specific details
- Comprehenders who read a passage with one or two appropriate titles tended to emphasize different details in their recall.
- According to the general notion about schemata: We have difficulty understanding passages when we do not have or cannot activate the appropriate schemata, and we tend to pay greater attention to parts of a story that are central to the schema under which we are operating.

Genres

Genre refers to the type and structure of language typically used for a particular purpose in a particular context. Genre is a directional, patterned, continuous, and purpose-oriented activity.

- Genre is a type of discourse that has a characteristic structure.
- Genres are important because they provide us with general expectations about the way information will be arranged. News articles, journal articles
- Narrative discourse 

Typically, stories begin with the introduction of characters and setting.

- Expository discourse

In which the goal of the writer is not to tell a story but rather to convey information about the subject matter

Genre is a distinctive part of culture that has purpose and steps, as well as language features which has relationship to the purpose, steps, and the distinctive culture.

The definitions should be interpreted by referring to the social and cultural context in which the context exists.

Events presents in sequence

Narrative Discourse Processing

Story grammars

- schemata in semantic memory that identifies the typical or expected arrangement of events in a story

In view of story grammar, narrative consist of setting, episodes and ending

Psychological validity of story grammars

- Episodes are processed as chunks
- Reading times were longer at the beginning and the ends of episodes
- Beginnings, attempts, and outcomes are recalled better and goals and endings.
- Participants prefer to emphasize the objective aspects

Cross-cultural investigations

- Certain schemata are culturally in variant
- Studies of comprehension and recall of stories provide support for a specific type of schema, the story grammar. We tend to store the episodes of a story in separate chunks in memory, and we use the ends of episodes as cues to summarize the episode as a whole.

Inaccessibility of Knowledge

- While the knowledge needed to make an inference may be available in semantic memory, it may not be equally accessible in all contexts.
- Less accessible knowledge is less likely to be used during text comprehension because such information takes longer to retrieve (Glucksberg et al., 1993)
- Obscurely written
- when knowledge was not activated, comprehension was severely impaired
- Anomalous suspense – when a reader participates in a narrative world in such a fashion that the knowledge critical to sustaining suspense is not immediately accessible.
- (34) Charles Lindbergh was the first solo pilot to cross the Atlantic (35) Charles Lindbergh intended to fly airplane to Europe.
- Expectation of uniqueness

- Readers not only have expectations but also preferences, and that both responses guide their comprehension efforts. e.g. the director and cameraman were ready to shoot close-ups when suddenly the actress fell from the 14th story
- Given the inconsistency between two retrieval attempts, there must be knowledge that is stored but is not retrieved at a particular moment . While Tulving and Pearlstone (1966) conceptualized the availability versus accessibility distinction in an event memory paradigm, this distinction also holds for knowledge.

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.

Determining the Main Points from the author's point of view requires sophisticated comprehension strategies.

- 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.
- (36) A problem of vital concern is the prevention of oil spills from supertankers.

(37) Prevention is needed of oil spills from supertankers.

- Signals improved the immediate retention performance of readers whose comprehension was otherwise poor but did not affect the retention of good comprehenders.
- To conclude, Reder and Anderson (1980) eliminated many of the details from the passage and found that retention was better when the material was presented in a condensed version. Giora (1993) found that analogies in text did not facilitate comprehension and may actually impair recall.

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 proposition into broader thematic statement.
- Tailoring comprehension activities to tests
- Memory researchers have established that retention is best when we study material in a manner similar to the way we must encode it at the time of a test.
- Most strategies for improving discourse performance work some but not all the time. Their success often depends on whether they are appropriate for a particular test.
- For Building Global Structure, we need to consider what aspect of performance is being measured, what we will be asked to do with information before the comprehension strategy is decided that makes sense. To say that the presence of a consistent outline alone improved discourse performance is not appropriate

Lecture 13

Therapeutic Discourse



Sign language is a language that uses the conventional system of manual, facial, and other body movements as the means of communication.

Sign language is used for facilitating communication among deaf people or severely dysfunctional non-verbal people in the world.

- Language based on speech compared to language based on signs
- Complete and incomplete sign language
- Speed of signing and speaking sentences is comparable
- Dialects and foreign accents in sign language
- Dialects and foreign accents in sign language

Gestures of hearing people are signs but do not form a language

- Gestures using arms, head, torso
- Facial gestures
- Gestures with speech

- Hence, a sign language is a true language because the language system allows a signer to comprehend and produce an indefinitely large number of grammatical sentences in signs. This can be accomplished with a limited number of signs (vocabulary) and a system (syntax and semantics).

Speech-based Sign Languages

- Sign languages use the parts of human body in three dimensional space as the physical means of communication. Speech-based sign language represent spoken words and the order of the words or morpheme as they appear in ordinary spoken language.
- Finger spelling: letter by letter
- Morpheme by morpheme (MnM) sign languages: ‘Signing Exact English’ and ‘Seeing Essential English’

Advantages of MnM systems

1. Learner simultaneously acquires the morphology and syntax
2. Easier for an adult hearing person to learn an MnM than an ISL.

Serious disadvantages

1. Children do not learn MnM easily.
2. MnM is not preferred by the deaf community.

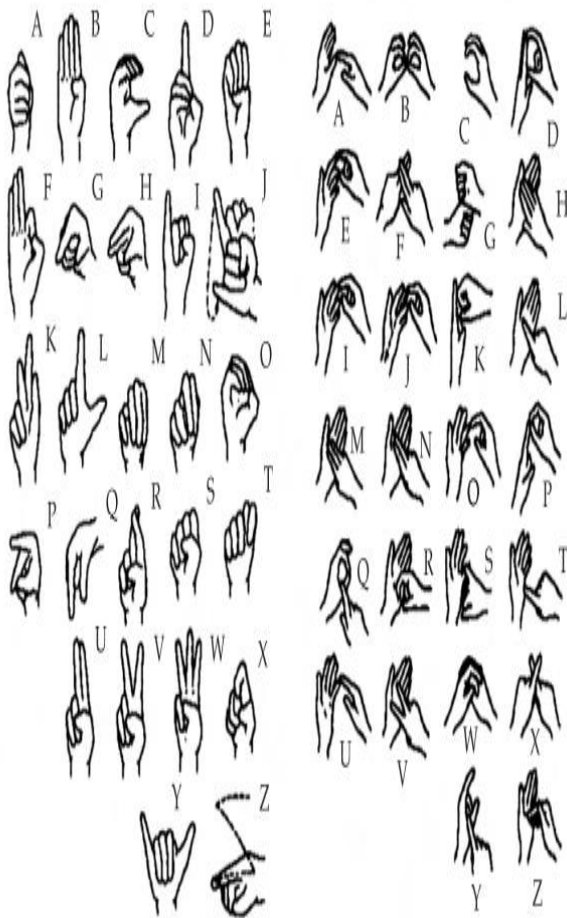


Figure 2.2 One-handed and two-handed signs

Sign languages use hand, face, or other body movements in a three dimensional space as a physical means of communication. Principally, there are two types of sign language: one that relates to ordinary speech-based language and one that is independent of ordinary language.

Basic Grammatical Concepts

Linguists have attempted to identify those grammatical features that appear in all languages. Four pervasive properties are duality of patterning, morphology, phrase structure, and linguistic productivity.

Language differ in a host of way and English language has strict syntactic rules as compared to other languages.

- Duality of Patterning

A small number of meaningless elements on one hand and a large number of meaningful elements on the other hand

- Morphology

Forms of the meaning Free morphemes Bound morphemes

- Phrase structure

Phrase structure constituents of a sentence

- Linguistic Productivity

Ability to create and comprehend novel utterances. We produce new sentences always in terms of referents and often in terms of forms. We store rules for creating sentences instead of storing sentences.

Hence , Four basic grammatical concepts are duality of patterning, morphology, phrase structure, and linguistic productivity.

Insights from Sign Language

- Differences Between Signed and Spoken Languages Arbitrariness: There is no intrinsic relationship between the set of sounds and the object to which the sounds refer.

Iconicity: signs resembling the objects or activities to which they refer. Sign language possesses a high degree of iconicity. Simultaneous & sequential structure: spoken language is largely sequential in nature while sign language can be organized spatially more than temporally.

- Similarities Between Signed and Spoken Languages

Duality of patterning: hand configuration, place of articulation, and movement

Morphology: ASL has a rich morphological system. productivity: sign embedding occurs in ASL.

Phrase structure: ASL has SVO patterns

Insights from sign languages are primarily concerned with the differences and the similarities between the sign and spoken languages. The major factors include arbitrariness, simultaneous & sequential structure and duality of patterning.

Transformational Grammar

Transformational grammar was an influential theory of grammar formulated by Chomsky in the late 1950s (Chomsky, 1957, 1965). Language and Grammar From a linguistic perspective, a grammar is a description of a person's linguistic knowledge. Grammar: A formal device with a finite set of rules that generates the sentences in the language.

- Evaluation of Grammars: observational adequacy, descriptive adequacy, explanatory adequacy
- Deep structure: the underlying structure of a sentence that conveys the meaning of a sentence
- Surface structure: –the superficial arrangement of constituents and reflects the order in which the words are pronounced .
- Three arguments for usefulness of distinction: deep-structure ambiguity , underlying structure , active vs. passive

Transformational Rules: applied to the deep structure and the intermediate structures, ultimately generating the surface structure of the sentence

- Transformational Rules Examples: particle-movement transformation blocked with pronoun , passive transformation
- Transformational grammar assumes that sentences have a deep structure and a surface structure. The deep structure is derived by a series of phrase-structure rules, and the surface structure is derived from the deep structure by a series of transformational rules.

Issues in Grammatical Theory

- Several controversies exist within grammatical theory, including whether grammatical rules are psychologically real, the role of syntax in grammar, and whether knowledge of language is innate.
- Psychological Reality of Grammar Belief: Structure and rules of transformational grammar were psychologically real. Assumption: Surface structure was the starting point for comprehension and the deep structure was the ending point.
- **Derivational Theory of Complexity (DTC): The distance between surface and deep structure would be an accurate index of the psychological complexity.**
- Early studies: Negative sentences were more difficult to comprehend.
- Later Studies: Affirmative were more difficult to comprehend.
- The Centrality of Syntax : Chomsky (1995) –syntactic structure is the heart of our linguistic knowledge. It's controversial.
- lexical functional grammar/psychologically realistic grammar
- Is Language Innate? Evidence: Deaf children invented hands gestures that are similar to ASL (American Sign Language)

- Is Language Innate? Parameter: a grammatical feature that can be set to any of several values. example: null-subject parameter »English is a subject language »Italian is a null subject language
- The issues include the difficulty in comprehending negative sentences, whether our grammatical knowledge is better described in structural or lexical terms and finally, whether our linguistic knowledge may be innate.

Lecture 14

Production of Speech and Language

Introduction of Production of Speech and Language

Speech production is the process of turning the intent to say a word into articulated speech, using the brain and vocal instruments. Language production is the production of spoken or written language. Speech production is not the same as language production since language can also be produced manually by signs.

Stages of Language production

1. Planning

Language production consists of several interdependent processes

A speaker must select the individual words also known as lexical item to represent that message. This process is called lexical selection.

2. Grammatical Information

Grammatical information is then used in the next step of language production, grammatical encoding

3. Phonological Encoding

The mental representation of the words to be spoken is transformed into a sequence of speech sounds to be pronounced.

Language production is an intrinsically more difficult subject to study than comprehension, because although speech is observable, the ideas that lead to production are more difficult to define.

Slips of Tongue

imp

A speech error, commonly referred to as a slip of the tongue or misspeaking, is a deviation (conscious or unconscious) from the apparently intended form of an utterance.

- Intended utterances are rearranged between other words or sounds.
- A sound error occurs when the sounds in words close by are exchanged.
- A morpheme error occurs when morphemes, which are the smallest meaningful units in language, are switched in words close by.
- Slips of the tongue can be either conscious or unconscious.
- Speech errors are made on an occasional basis by all speakers.
- They occur more often when speakers are nervous, tired, anxious or intoxicated.
- Slips of the tongue are a normal and common occurrence.
- It seems probable that errors are more likely to occur below the level of consciousness. Most research, however, has focused less on the factors that may influence the frequency of speech errors than on the nature of the errors themselves.

Types of Error Speech

- Speech errors fall into one of eight categories: exchanges, substitutions, additions, deletions, anticipations, perseverations, blends, and shifts.

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).

Normal speech contains a large number of slips of tongue, though these mostly pass unnoticed. The errors fall into patterns, and it is possible to draw conclusions from them about the underlying mechanisms involved.

Common Properties of Speech Error

Spontaneous speech errors (slips of the tongue), although infrequent, reveal planning units in the production of speech. Slips tend to occur in highly regular patterns.

- Elements that interact with one another tend to come from similar linguistic environments

(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).

- Second, elements that interact with one another tend to be similar to one another

(5) Sesame Street crackers (sesame seed crackers)

- Third, even when slips produce novel linguistic items, they are generally consistent with the phonological rules of the language
- Finally, speech errors reveal consistent stress patterns.

- To sum up , with regard to common properties, speech errors are hardly random; in fact, they occur in highly regular patterns. Elements of interaction and consistency of phonological rules with linguistic items are the main features of the properties.

Explanations of Speech Errors

- Speech errors have long been a source of amusement for many, a source of frustration for some, and more recently a source of serious study in the field of psychology. Although these errors are good for a laugh now and then, they prove to be of much greater value to the field of linguistics.
- Speech errors are providing linguists with insight into the mechanisms behind speech production.
- Early estimates suggested upwards of 10 000 different speech errors are committed in the English language.
- A preliminary finding from error observations is that errors occur mainly within the same level of speech production rather than between levels of production.
- Examples of errors
- "optimal number→ moptimal number“
- reading list→leading list“
- *person+people=perple*
- *specific→ pacific*
- *thunder and lightning→lunder and thightning*
- Speech errors from both spontaneous speech as well as laboratory studies have provided researchers with a body of data about the production of language and analyze the phenomena of tongue slips that involves just one level of planning, with other levels being unaffected.

Differences in Freudian and Psycholinguistics Explanation

- The psycholinguistic approach: Assume that “the mechanics of slips can be studied linguistically without reference to their motivation.” (Boomer and Laver, 1968)
- Freudian approach: Held that speech errors “arise from the concurrent action - or perhaps rather, the opposing action - of two different intentions”

- The Freudian Explanation : One intriguing idea is that speakers have more than one idea in mind at a time
- (6) I don't want to run the risk of ruining what is a lovely recession (reception).
- (7) Last night my grandmother lied (died).
- All speech errors were caused by the intrusion of repressed ideas
- Psycholinguistics Explanation:
 - Linguistic units such as phonetic features, phonemes, and morphemes constitute planning units during the production of an utterance.
 - We produce utterances by a series of stages, each devoted to a different level of linguistic analysis
 - Various hypotheses concerning the basis for speech errors have been proposed. Although a Freudian type of explanation may apply to some speech errors, more recent thinking has focused on the psycholinguistic processes underlying speech errors.

Lecture 15

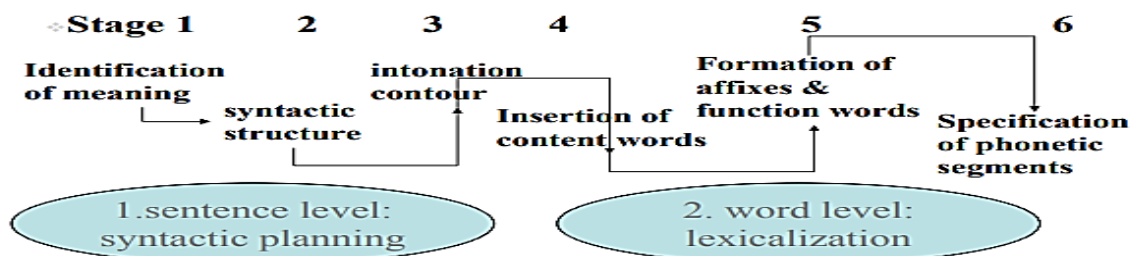
Formulating Linguistic Planning

Serial Models of Linguistic Planning

Serial models of speech production present the process as a series of sequential stages or modules, with earlier stages comprising of the large units (i.e. sentences and phrases), and later stage comprising of their smaller unit constituents (i.e. distinct features like voicing, phonemes, morphemes, syllables).

Serial models of linguistic planning

❖ Fromkin's model of Speech Production



She already bagged two packs (packed two bags)

Serial models assume that we begin with the overall idea of an utterance, followed by syntactic organization, content words, morphemes, and phonology.

Independence of Planning Unit

Theories of speech production differ in their claims about the representation and manipulation of features and segments in planning utterances. According to featural theories, phonological segments are represented by nothing but their features.

Theories of speech production differ in their claims about the representation and manipulation of features and segments in planning utterances. According to featural theories, phonological segments are represented by nothing but their features.

- The vast majority of speech errors contain mistakes at only one level of planning.

(9) singing sewer machine (Singer sewing machine)

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

- Some errors involve the breakup of consonant clusters, such as frish gotto (fish grotto) and blake fruid (brake fluid).
- Fromkin (1971) found a case in which a speaker who intended to say clear blue sky came out with glear plue sky.
- Shattuck-Hufnagel and Klatt (1979), however, argue that these types of errors are extremely rare.
- The overall evidence for the view that these stages exist as independent planning units is relatively strong.

Editing Processes

In addition to the stages of planning, 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.

- Laboratory-induced speech errors
- Phonological bias technique

- ball doze
- bash door
- bean deck
- bell dark
- darn bore
- RESPOND
- Lexical bias effect
 - big dutch
 - bang doll
 - bill deal
 - bark dog
 - dart board RESPOND

Results suggest that during speech we sometimes develop more than a single speech plan and that when this occurs the two plans may compete for production which is why certain types of errors may be understood as evidence of an editing process

Freud's View of Slips of Tongue

A Freudian slip, also called parapraxis, is an error in speech, memory, or physical action that is interpreted as occurring due to the interference of an unconscious subdued wish or internal train of thought. The concept is part of classical psychoanalysis

- Ideas that are “on our mind” tend to influence the kinds of speech errors we make
- errors reveal unconscious thoughts, beliefs, or wishes.
- "Two factors seem to play a part in bringing to consciousness the substitutive names..."
- *"Besides the simple forgetting of proper names there is another forgetting which is motivated by repression,"*
- Wegner developed what he referred to as a theory of ironic process to explain why suppressing certain thoughts can be so difficult.

- To conclude, according to Freud, unacceptable thoughts or beliefs are withheld from conscious awareness, and these slip help reveal what is hidden in the unconscious. Although the nature of Freud's plans differs from those discussed by other researchers, the process involved may actually be rather similar.

Parallel Models of Linguistic Planning

An alternative to the serial models advanced by Fromkin and Garrett are parallel models that assume that multiple levels of processing take place simultaneously during the course of language production.

- Dell (1986): Semantic, syntactic, morphological and phonological representations work in parallel.
- Lexical bias effect
- Lexical bias effect is based on backward spreading, which takes time
- Phonemic similarity effect- the tendency for intruding phonemes to be phonemically similar.
- Thus, parallel models assume that 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.

The Role of Agreement

Agreement happens when a word changes form depending on the other words to which it relates. For example, in Standard English, one may say *I am* or *he is*, but not "I is" or "he am". This is because the grammar of the language requires that the verb and its subject agree in *person*.

Bock and Cutting (1992) examined agreement errors as a function of the material that intervened between the head noun and the verb.

(15) The report of the destructive fires were accurate. (16) The report that they controlled the fires were printed in the paper.

Agreement poses a problem for most current production models . e.g. "The largest of them is red"

There are nouns that do not carry the plural morpheme but nonetheless agree with the plural forms of verbs e.g. "the personnel are very busy this time of year".

Eberhard et al. (2005) state "Agreement is not only syntactic, not only semantic, and not only pragmatic, but all of these things at once" (p. 531).

So, the Agreement means that sentence parts match. Subjects must agree with verbs, and pronouns must agree with antecedents. Singular subjects need singular verbs; plural subjects need plural verbs.

Lecture 16

Implementing Linguistic Plans

Articulating

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.

- Three Systems of Muscles: respiratory, laryngeal, supralaryngeal.
- The respiratory system regulates the flow of air from the lungs to the vocal tract.
- The laryngeal system consists of the vocal cords or vocal folds, which are two bands of muscular tissue in the larynx that can be set into vibration.
- The supralaryngeal system consists of structures that lie above the larynx, including the tongue, lips, teeth, jaw, and velum.
- Motor Control of Speech
- Anticipatory coarticulation
- Perseveratory coarticulation
- The production of speech is a complex process. Motor commands from the brain specify the target locations for the articulators in the vocal tract. However, coarticulation indicates that the process of specifying targets is not context-free but, rather based on the preceding and following phonetic context.

Planning and Production Cycles Articulating

Speech production is a process that begins when the talker formulates the message in his/her mind to transmit to the listener via speech. (Rabiner & Juang 1993). Several studies have converged on the conclusion that we alternate between planning speech and implementing our plans.

- We express a portion of our intended message, pause to plan the next portion, articulate that portion, pause again, and so on

- During lectures humanists used more filled pauses (such as uh, ah, or um) than social scientists or natural scientists.
- Gestures that accompany speech may help speakers formulate coherent speech by facilitating the retrieval of elusive words from the internal lexicon.
- Griffin's study suggests that speakers begin sentences without knowing how they will finish them.
- Speakers took longer to begin to speak when the first noun was one syllable (such as wig) rather than multisyllabic (such as windmill).

To conclude, speaker monologues reveal an alternation between fluent speech and hesitation pauses.

- Pauses are related to various linguistic variables and appear to reflect linguistic planning within the sentence.

Self-Monitoring

Self-monitoring is the ability to both observe and evaluate one's behavior. we spontaneously interrupt our speech and correct ourselves. These corrections are referred to as self-repairs.

According to Levelt (1983), self-repairs have a characteristic structure that consists of three parts.

Self-Interruptions : Nooteboom (1980) examined a corpus of 648 speech errors

Nooteboom suggests that the timing of self-interruption after detection of an error is based on two competing forces.

Levelt (1983) used a somewhat different procedure.

(17) We can go straight on to the ye-, to the orange node. (18) Straight on to green—to red.

(19) And from green left to pink—er from blue left to pink.

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.

Editing Expressions

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.

Editing Expressions:

(20) I saw ... uh ... 12 people at the party. (21) I saw ... oh ... 12 people at the party. (22) Bill hit him—hit Sam, that is. (23) I am trying to lease, or rather, sublease, my apartment. (24) I really like to—I mean, hate to—get up in the morning.

Self-repairs:

Instant repairs---retracing back to a single troublesome word. (25) Again left to the same blank crossing point—white crossing point.

Anticipatory retracings— retraces prior to the error. (26) And left to the purple crossing point—to the red crossing point.

Fresh starts— drops the original syntactic structure and just starts over. (27) From yellow down to brown—no—that's red.

We edit and correct our utterances when we err. The form and timing of self-corrections occur in systematic ways. Both the use of editing expressions and the linguistic structure of the repair itself appear to facilitate listener comprehension.

Insights from Sign Language

Slips of the Hand: Errors occur in signing that strongly resemble those found with speech.

Independence of Parameters: speech errors suggest that these are independent planning units because errors ordinarily occur at only one level of planning at a time.

Sick

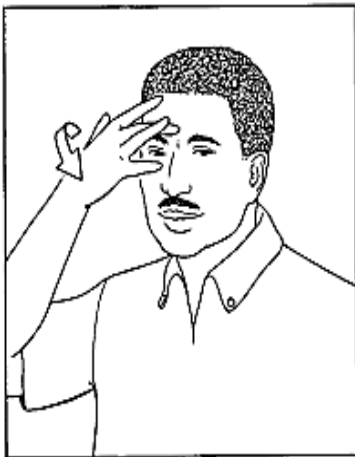
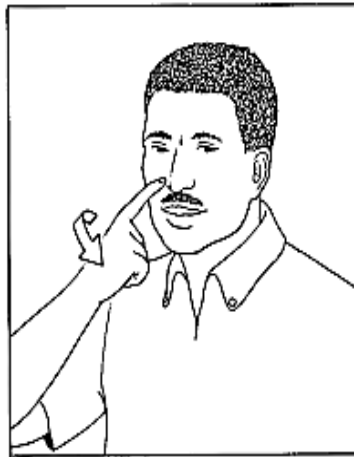
Hand configuration: hand toward signer

Place of articulation: at forehead , Movement: with twist of wrist

Bored

Hand configuration: straight index finger with hand toward signer

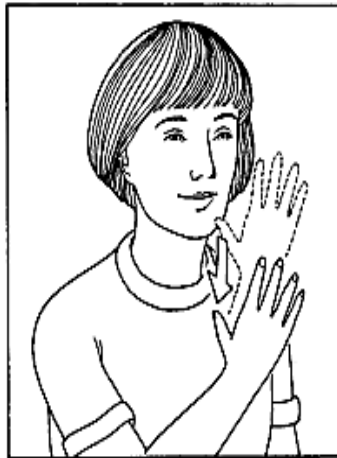
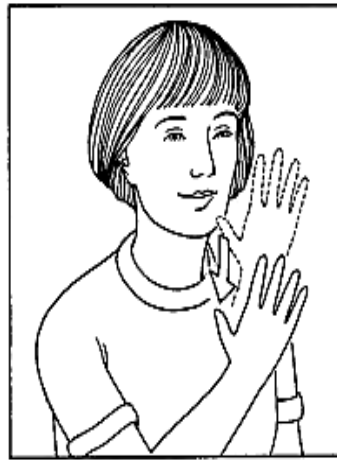
Place of articulation: at nose , Movement: with twist of wrist

*Sick**Bored**Error**Error*

Morpheme Structure

Constraints: One final aspect of signing errors concerns whether they obey constraints of morpheme structure that are part of the grammar of ASL. With speech, we have found that errors follow phonological rules.

The correct sign for deaf includes a hand configuration in which the index finger is extended; the contacting region is the tip of the extended finger. In the error, the hand configuration of woman, an open palm, is substituted for the index finger.

*Deaf**Woman**Error**Woman*

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.

Production Rate

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.

- In 1972, Bellugi and Fischer studied three bilingual individuals fluent in ASL and English in three different ways: (1) using ASL (2) using spoken language (3) using ASL and spoken language simultaneously.
- More time was spent in pausing in speech than in sign.
- Difference in production time reflects the fact that sign words involve much larger muscles than spoken words.

- The number of seconds taken to express a proposition was highly similar for the two languages (about 1.5 seconds).
- Rates of production were made in the two modes such as speakers and signers (Grosjean, 1979).
- A normal rates of production, signers spent more of their production time in articulation than speakers .
- Studies of production rate, reveal differences between the two modes, speakers achieve differences in speech rate by varying the number of pauses whereas signers vary the duration of signed segments and both the duration and number of pauses.

Lecture 17

The Structure of Conversation

Conversation is a form of oral discourse.

Every conversation has a topic development phase which is framed by opening and closing phrase. In between these two phases there are some moves: topic initiation, topic maintenance and topic change.

- The rules of proper conversation vary with the culture
- Comparison of four forms of discourse

Debates:

Topics specified in advance and rules specifying who can speak at a given time and for how long.

Ceremonies:

The topic is specified in advance but not the length of time any given speaker may take.

Meetings:

Meetings are typically less formal than either ceremonies or debates.

Conversations:

Conversations are the least formal of these four types of oral discourse.

Conversation follows a proper structure that consists of participants, opening and closing stages.

The roles that participants assume influence the topics that may be discussed as well as the interpretation given to conversational acts.

Opening Conversations

A conversation opener is an introduction used to begin a conversation. Different situations may call for different openers (e.g. approaching a stranger on the street versus meeting them at a more structured gathering of people with like interests).

Only one person speaks at a time

there is considerable individual variation in the number of turns a given speaker will take and the length of each turn.

the number of possibilities for opening conversations is infinite. E.g.

(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?).

Conversation openers serve to get the listener's attention and often lead to stock replies.

Like all text, conversations have both a beginning and an end. These are also sign-posted by the speaker(s).

Closing Conversations

Conversations do not just end, rather they must be closed, through an elaborate ritual. One must take into account the fact that conversation endings involve inherent face threats.

Albert and Kessler (1978), list ways to end conversations:

- Summarizing the content
- Justifying ending contact
- expressing pleasure

- Making reference to the ongoing relationship
- Planning for future contact

Closing moves form a sequence, with the items occurring in the order indicated earlier.

Use of closing sequences was reciprocal.

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

Moving to end a conversation may be interpreted to mean that one does not wish for the conversation to continue. This in turn risks the implication that the company of the other is not being enjoyed, which then could imply that the interlocutor is boring, for example, or annoying.

Taking Turns

Turn-taking is a type of organization in conversation and

Discourse where participants speak one at a time in alternating turns. In practice, it involves processes for constructing contributions, responding to previous comments, and transitioning to a different speaker, using a variety of linguistic and non-linguistic cues.

Sacks and colleagues (1974), turn taking during conversations operates by three implicit rules.

Turn-yielding signal: as the display of one or more of six behavioral cues that appear to indicate a willingness to conclude one's turn. (1) a drop of pitch (2) a drawl on the final syllable or final stressed syllable of a final clause (3) the termination of hand gestures (4) the use of stereotyped expressions (5) a drop in loudness (6) completion of a grammatical clause.

Attempt-suppressing signal: the continued use of hand gestures in conjunction with one or more of the turn-yielding cues.

Face-to-face encounters enable us to attend to all of these nonverbal behaviors.

Turn-taking has been described as a process which obtain a distribution of talk across two participants. The time gap between one person stopping and the other starting being just a few fractions of a second, yet the co-ordination is achieved with some rapidity and turns are appropriated in orderly fashion.

Negotiating Topics of Conversations

It is not enough, however, merely to take turns with others in conversation. As Grice (1975) 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.

- Topics in conversation can be defined in terms of the intersection of propositions across sentences (Schank, 1977).

Speaker A says, John bought a red car in Baltimore yesterday

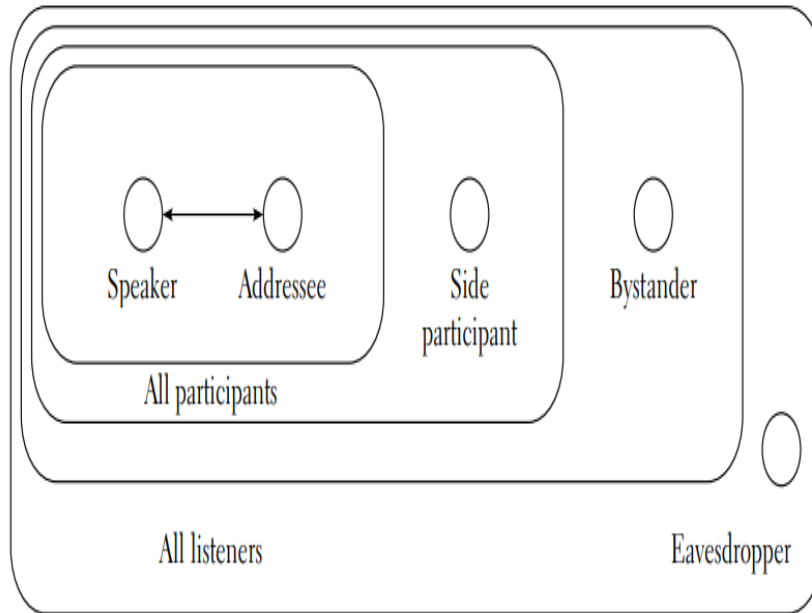
- Numerous propositions are being advanced: John bought a car, the car is red, John bought it in Baltimore, and John bought it yesterday.
- Only conversations, not individual sentences or even speaker turns, have topics.
- Noncommittal statements are common when there are lulls in a conversation.
- Any statement provides multiple opportunities for topic shifts
- Polanyi (1989) has analyzed conversational storytelling and has found that it differs in interesting ways from conversational discourse in general.
- Conversations differ from other forms of speech interactions in the number of people and the degree to which topics, turn lengths, and turn orders are specified in advance. Thus, unlike debates, conversations operate without a rigid set of explicit rules.

Identifying Participants and Nonparticipants

During conversations, speakers establish their and others' participant roles (who participates in the conversation and in what capacity)

- We resort to a variety of strategies when dealing with overhearers, including disclosure, concealment, and indifference
- We resort to a variety of strategies in private conversations to conceal our meaning from eavesdroppers, including referring to personal events (for example, the event we talked about yesterday)

Different roles in conversation



Conversations often take place in a context in which various types of nonparticipants are also present.

The roles of the participants during social interaction are particularly important for understanding spoken discourse. While these roles might be fixed in some social settings (e.g. lectures), most conversational settings allow for shifting of roles.

Lecture 18

Conversational Participants

Friends and Acquaintances

A friend is a person you care deeply about and with whom you share a connection whereas acquaintance is a person you have been introduced to incorporate life in most of the time with whom you have to work. An acquaintance is someone you know, but you only have a minor level of relationship with.

- Common Ground: Culturally based, such as cultural values, commonly held beliefs, or culturally prescribed roles
- Other types of common ground are more personal
- Common ground may influence conversational processes
- Friends have a great deal more common ground than acquaintances.
- Friends obviously have a greater degree of common ground than acquaintances
- Friends used more implicit openings (for instance, *Hi. It's me*, as opposed to *Good day. It's Malcolm Ritteridge.*)
- Acquaintances were generally similar to strangers

We have examined the effects of two types of participants on conversational interaction. With regard to friends versus acquaintances, some differences emerged in the way in which conversations are closed. As Friends were more likely to use informal ways, and Acquaintances were more likely to use formalities.

Gender Differences in Conversation

A research in investigating how men and women converse with one another and each other found that Some of principles (taking turns, for instance) may operate somewhat differently in male– female conversations than in same gender conversations.

- Overlaps: periods of simultaneous speech during the last word of the speaker's projected closing
- Interruptions: as periods of simultaneous speech more than one word before the speaker's projected completion point.
- Minimal responses: such as uh-huh and um-hmm
- Zimmerman and West (1975) found that 96% of the interruptions were by male speakers and concluded that men deny equal status to women as conversational partners.
- women's speech contains more linguistic expressions of uncertainty than men's speech does. (tag questions)
- Fishman (1978) analyzed conversations of male and female couples and found that women used more questions, attention-getting devices
- **Conversational settings shape conversational processes.** Some studies of gender differences reveal that males speak more and interrupt more than females.

Recent Work on Interpreting Conversational Strategies

More recent works have examined the interpreting of conversational strategies by males and females and highlighted differences.

The roles that participants assume influence the topics that may be discussed as well as the interpretation given to conversational acts.

- McMullen, Vernon, and Murton (1995) found that there were no differences in the use of questions between men and women in the intimate couples
- Kollock, Blumstein, and Schwartz (1985) studies of couples show that either power was shared equally or one partner had more power.
- Tannen (1990) suggests that men and women come to mixed-gender conversations with different assumptions and expectations and that these differences often lead to miscommunication.
- women who use more tentative language when discussing conversational topics are more likely to influence men's opinions (Carli, 1990).
- Men took more turns than women in conversational settings

Hence, Recent researches indicate that there appear to be some areas of difference, such as the difference in amount or type of interruptions in men and women, although even this difference has been questioned recently and will certainly continue to be discussed.

Conversational Settings

Personal Settings: A free exchange of turns takes place among the two or more participants.

Institutional Settings: Institutional settings the “participants engage in speech exchanges that resemble ordinary conversation, but are limited by institutional rules”.

Conversation also varies with the social setting. Speech in institutional settings adheres to rules other than those typically found in personal settings.

Therapeutic Discourse

Therapeutic discourse is the talk in interaction between clinician and client that aims to improve the mental health of a client.

The major milestone was Labov and Fanshel's book *Therapeutic Discourse* (1977) in which they analyze a single, 15-minute long segment of psychotherapy interaction using speech act theory.

Three main tasks of therapy:



- First, the therapist listens carefully as the client reports experiences, issues, and concerns.
- Second, the therapist interprets the client's experiences and symptoms.
- Grossen and Apothe'loz (1996) discuss how therapists transform clients' discourse into a problem by means of a process of reformulation.
- In addition to bringing some clarity to the therapeutic process, reformulation also provides a different perspective on the client's issues.
- Third, the therapist collaborates with the client regarding potential courses of action.

Thus, Therapeutic discourse is special for two reasons, first, the therapist is the authority on the interpretation of emotional experiences, the client is the authority on the experiences themselves. Second, even when the therapist maintains authority over the client, it is done in a more gentle way.

Other Forms of Institutional Discourse

Institutional discourse – communication within the established social institutions of the society. In some linguistic works the notion of “institutional discourse” is understood as the discourse produced in social institutions that presuppose communication as a constituent part of their organization”

- Most institutional settings identify a particular individual (therapist, judge, academic adviser, physician, and so on) as the authority figure.
- Judges, by contrast, are not as timid.
- Physicians probably occupy an intermediate position on a continuum of how strictly or loosely institutional authority is wielded
- Heath (1992) has observed, the diagnosis is a pivotal point in the consultation between patient and physician.
- Physicians tend to distribute more of their time on identifying symptoms and recommending treatment than on discussing their diagnosis.

Institutional discourse, although it may resemble ordinary conversation, incorporates specialized rules of discourse . Thus, to speak effectively in institutional settings one must master the general rules but also rules that are specific to particular conversational settings.

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.

▪ The Social Context of Preverbal Infants

Speech to Children Prior to Birth: Anecdotal evidence from mothers-to-be has suggested that children in mother's womb hear their mothers' speech and may respond to it.

Speech to Children in the First Year of Life

- Child-directed speech (also called baby talk and motherese) differs in many ways from the speech adults direct to other adults.
- Mothers also use speech that directs attention to particular aspects of their messages.
- Another aspect of the early speech behavior of caregivers is that they encourage infants to participate in conversations.

Prelinguistic communication refers to a period prior to language and prepares child to communicate in a more purposeful manner in later years.

Prelinguistic Gestures

Children's construction of language emerges from their understanding of communication prior to language. Their comprehension and production of gestures reveal a basic understanding of communication processes.

- Development of Communicative Intent: The major criteria to reveal intent (1) waiting, (2) persistence, and (3) development of alternative plans.

At about 8 months of age, infants become more purposeful in their behavior

- Beginning of Intentional Communication: two communicative acts: assertions (or declaratives), the use of an object as a means of obtaining adult attention; and requests (or imperatives), the use of adults as means to an object.
- Communicative Competence and Early Comprehension:

communicative competence—knowing how to use gestures and words to show off objects, make assertions, make requests, and the like—figure into the child's prelinguistic gestures and early speech acts.

The speech of the children by the age of about 8 months is not well developed .

They utilize gestures in flexible ways to communicate their needs to their caregivers and their communicative knowledge influences how they interpret the speech of others.

Early Phonology

Children's acquisition of the sound system of their language does not occur in isolation of the communicative processes rather, children come to the task of learning phonology with some knowledge of how to communicate in nonverbal ways.

- Development of speech perception
 - Categorical Perception in Infancy: categorical perception refers to the inability to perceive sounds any better than we can identify them.

Adult listeners perform very well (different phonemic categories) but very poorly (same phonemic category). Infants are born with the ability to perceive a number of phonemic distinctions (not relevant to their native language)

- Development of speech production:
 - Babbling(4 month), reduplicated babbling (around 4 to 6 month), variegated babbling (around 11 10 12 month)
 - Babbling is thought to be a form of play in which various sounds are practiced and mastered before they are used in communicative ways.
 - The child's mastery of the sound system of the language proceeds largely independently of communication processes. Sound and meaning merge with the development of the first words, at about 1 year of age.

Early Words on Lexical Development

Lexical development refers to changes that occur in vocabulary knowledge over childhood, and how children of different ages assign meanings to words, and how these meanings change in response to various experiences.

Early Words: Many of their early words consist of nominals that refer to concrete aspects of their environment.

Fast Mapping: Children appear to be able to acquire new words rather rapidly, a process called Fast Mapping

Overextensions : The process of learning what objects in the world various words refer to.

Underextensions: In which children use a word in a more restrictive way than adult usage.

The Role of Adult Speech: When a child's speech is incorrect, the caregiver has an opportunity to provide the correct name referred as original word game.

There is no one-to-one association between a word and its referent.

Ostensive Definitions

Thus, Children show rapid gains in lexical development during the second year of life. Most of their early words refer to concrete aspects of the immediate environment. Adult naming practices appear to facilitate lexical development by emphasizing whole objects over parts of objects.

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.

Measures of Syntactic Growth: It necessary to construct an index of the child's language progress to facilitate comparison of children at the same level of language development.

Mean length of utterances in morphemes (MLU):

- **Brown divided language development into five MLU-defined stages.**
- **Stage I, consisting mainly of one- and two-word utterances, lasts until an MLU of 1.75.**
- **Stages II to V correspond to upper-limit MLUs of 2.25, 2.75, 3.5, and 4.0, respectively.**
- **Brown (1973a) has indicated that these MLU-defined stages provide a global view of what aspects of language the child is currently mastering.**
- **Most research into children's grammatical development has focused on Brown's first two stages. In fact, it is generally agreed that MLU loses its value as an index of language development beyond about 4.0 (Tager-Flusberg, 1993).**
-

Emergence of Grammatical Categories

Children begin to put words together in systematic ways, preferring some words to others and some orders to others. A substantial amount of research has been devoted to

identifying the nature of the child's grammatical system when multiword utterances begin to be produced.

The Structure of Early Utterances:

- when children first put words together, they tend to combine content words and leave out function words
- Second, as children put words together, particular words are put in particular positions in the sentence.

Interpretations of Early Multiword Utterances:

- The syntactic description does not appear to fit children's utterances, at least not in the earliest stages.
- Brown (1973) has claimed that these early utterances are expressing semantic relations.
- Braine (1976) has advocated the positional approach. He has suggested that although some of children's early sentences may correspond to semantic properties.
- Researchers generally agree that children know more than they are able to express, but there is a difference of opinion as to whether this knowledge is best characterized as syntactic, semantic, or merely positional.

Lesson 20

Later Grammar

Syntactic grammar

Children's grammatical development in the late preschool years includes the acquisition of grammatical morphemes and complex syntactic structures.

□ Grammatical Morphemes

Grammatical morphemes are conspicuously absent in children's early word combinations.

- Brown and Cazden (1973a, 1968) looked closely at the linguistic and nonlinguistic context of child utterances.
- It might be expected that the frequency of exposure would be correlated with the ease of acquisition.
- Moerk (1980, 1981) found a relationship between frequency and order of acquisition.

- Brown also investigated the relationship between linguistic complexity and order of acquisition.
- Brown predicted that the plural would be acquired before the third person regular, which would in turn be acquired before the auxiliary.
- Later Syntactic Development

Children acquire grammatical morphemes gradually, over a period of years. During this time, their sentences get longer and more complex. Some of the changes in sentence length reflect the fact that children are now able to express agent, action, and object in a single sentence.

Negation: Klima and Bellugi (1966) found that negatives come in a series of stages. (2) No wipe finger (4) Doggie no bite. (5) Doggie doesn't bite. (6) Doggie does bite.

Questions: English has several types of questions.

(8) Can your baby walk? (9) Your baby can walk? (10) Why won't you let me go? (11) Where I should put it?

Passive Sentences: Maratsos (1974) found that children about 3 to 3.5 years understood the passive voice but that children from 3.5 to 4 years had difficulty with it.

(15) The cat was chased by the dog.

Complex Sentences: Fiess (1980) studied children's acquisition of and and found that acquisition was related to semantic factors. (16) Jill loved rock and Sally loved jazz. (18) Maybe you can carry that and I can carry this.

Children acquire grammatical morphemes gradually throughout the preschool years. Complex syntactic constructions such as negatives, questions, and relative clauses are also developed during the preschool years.

Cross-linguistics Differences in Later Grammar

Many child language investigators have looked into the question of how well the acquisition of English compares with the acquisition of other languages. Now studies have been done not just of many languages but of many types of languages, due in large part to the work of Slobin, who has pulled together cross-linguistic studies in a multivolume work.

- Cross-linguistic studies enable us to explore both universal and particular aspects of language.
- Children's acquisition of certain expressions related to location seems to be universal.

- Italian children have a larger number of social words, including proper nouns and social routines, than American children (Caselli et al, 1995).
- Greater cross-linguistic differences are found in later grammar.
- Berman suggests that the relative structural simplicity of questions in Hebrew may explain this difference.
- Other languages with relatively simple means of expressing questions, such as Mandarin, also show precocious development (Erbaugh, 1992).
- Cross-linguistic studies support a distinction we saw earlier between conceptual complexity and formal complexity. Thus, Ease of acquisition appears to be related to the formal and conceptual complexity of the construction, along with certain processing limitations in the child.

Metalinguistic Discourse

Metalinguistic awareness refers to the ability to objectify language as a process as well as an artifact. The concept of metalinguistic awareness is helpful in explaining the execution and transfer of linguistic knowledge across languages (e.g. code switching as well as translation among bilinguals)

- Metalinguistic skills are almost surely acquired later than the corresponding “primary” skills that provide the raw data for linguistic analysis.
- Researchers have attempted to identify the child’s grammatical system for expressing meanings by examining the types of utterances children make at various ages.
- young children have some metalinguistic skills.
- Osherson and Markman (1975) found that although preschool children understand that the names of objects may change, they believe that when they do, the properties of the object cling to the name when it is transferred.
- Research on children’s awareness of phonological units found that Children younger than 6 years were baffled by the task.
- Linguistic awareness has a significant impact on several aspects of language. To communicate effectively with a diverse group of people, a speaker must learn to select words that are appropriate to the situation and the listener. This ability is related to the speaker’s metalinguistic ability to analyze words and their communicative effects.

Discourse Processes in Children

Two aspects are considered in children's discourse skills. First, we look at children's conversational skills and their ability to relate their linguistic goals to those of their conversational participants. Then we look at their narrative skills—their ability to tell a coherent story.

Conversational Skills:

- The most fundamental rule of conversation is that we take turns.
- Before children are able to do much with others' speech, they behave as if they are aware of a conversational requirement to make one's speech relevant (Keenan, 1974).
- Another important conversational skill is the ability to adapt one's speech to the listener.
- Referential communication task

Narrative skills:

- The most common way to examine children's narrative skills is to ask them to relate a personal story.
- Even very young children can use cohesive devices to connect successive sentences in their narratives.
- Children's skills as conversationalists and narrators grow during the preschool years. As they enter school, children are able to communicate in flexible ways.

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.

- The classroom environment contains a wealth of verbal interaction.
- Language of the classroom is decontextualized.
- One form of discourse that enables teachers to assess. Student learning is the initiation-reply-evaluation sequence.
- One final aspect of classroom discourse is the teacher's inability to attend to every child at the same time.

Acquiring classroom skills:

- Research has examined how children use requests for information and action during group reading assignments.

- Wilkinson and Calculator (1982) also found individual differences in peer group interactions.
- teachers' interactions with students are related to teachers' perceptions of students' communication skills.

Final term

Lesson 21

Contexts of Childhood Bilingualism

Bilingualism (or more generally: Multilingualism) is the phenomenon of speaking and understanding two or more languages. The term can refer to individuals (individual bilingualism) as well as to an entire society (social bilingualism). The meaning and definition of bilingualism varies tremendously from situation to situation.

- 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.
- Most commonly, children learn two languages simultaneously when they are born into a community that is bilingual.
- Another situation that leads to simultaneous bilingualism is when a child's family speaks two languages in the home.
- Sequential bilingualism also occurs in a variety of different circumstances.

Thus, it is a fluctuating system in children and adults whereby use of and proficiency in two languages may change depending on the opportunities to use the languages and exposure to other users of the languages. It is a dynamic and fluid process across a number of domains, including experience, tasks, topics, and time.

Bilingual First-Language Acquisitions

Because Bilingualism is the norm in many countries, younger children are often regarded as more effective language learners as compared to adults especially in acquiring two or more languages simultaneously.

Points for acquiring first language

Course of Development: De Houwer (1990) defines simultaneous bilingual acquisition as children being exposed to two languages on a regular basis (such as hearing both languages every day) from birth on.

Rate of Development: Studies of the rate of monolingual and bilingual language development have been somewhat mixed.

Interference: Another issue is the extent to which two languages acquired simultaneously tend to interfere with one another.

Gathercole (2002a, 2002b) found that bilingual

children lagged behind monolinguals in various syntactic measures, including the mass/count noun distinction and grammatical gender.

To conclude in the words of Hoff (2001) that it is certainly possible for children to learn two languages simultaneously but that it is perhaps an overstatement to state that it is just as easy for children to acquire two languages as it is to acquire a single language.

Second Language Acquisitions

Second language acquisition, or SLA, has two meanings. In a general it is a term to describe learning a second language. More specifically, it is the name of the theory of the process by which we acquire or pick up a second language.

Boundaries of child second-language acquisition are somewhat arbitrary.

The concept of language transfer is the central theme in SLA.

The primary factor driving SLA appears to be the language input that learners receive.

Input hypothesis developed by linguist Stephen Krashen. **Acquisition of 2nd lang. Is same as first one**

Cognitive approaches to SLA research deal with the processes in the brain that underpin language acquisition.

Sociocultural approaches reject the notion that SLA is a purely psychological phenomenon, and attempt to explain it in a social context.

Critical period hypothesis **It is the decline of second language skills**

Individuals may also lose a language through a process called second-language attrition. 

To sum up, The term *acquisition* was originally used to emphasize the non-conscious nature of the learning process, but in recent years *learning* and *acquisition* have become largely synonymous &

SLA refers to what learners do in acquiring second language.

Metalinguistic Awareness

Metalinguistic awareness can also be defined as the ability to reflect on the use of language. As metalinguistic awareness grows, children begin to recognize that statements may have a literal meaning and an implied meaning.

- If children learn two languages, they learn two ways of referring to objects in their environment.
- Bilingual children are in general more attentive to language than monolingual children.
- Ricciardelli (1992) studied syntactic awareness and found only bilinguals who had high levels of proficiency in both Italian and English outperformed monolinguals.
- Studies of word awareness have also found advantages for bilingual children.
- Phonological awareness and word recognition in Spanish predicted word recognition in English, thus indicating cross-language transfer.
- Degree of transfer of phonological awareness and reading skills depends upon the similarities of the two languages.

To conclude, metalinguistics awareness deals with the ability of a person to reflect on and consciously ponder about oral and written language and how it is used. It is evident among bilingual as reflection of handling structures of more than one language.

Cognitive control

Cognitive control refers to processes that allow information processing and behavior to vary adaptively from moment to moment depending on current goals, rather than remaining rigid and inflexible.

- Monolinguals' and bilinguals' performance was compared on two nonlinguistic tasks: a stroop task and a simon task.
- No conflict was present between perceptual dimensions of the same stimulus.
- Conflict was created when the irrelevant stimulus dimension overlapped with the response dimension.
- In bilinguals, differences would emerge between the stroop and simon tasks.
- Stimulus–stimulus inhibition is likely to be recruited for bilingual language comprehension as well as production processes.
- In addition to comprehension, cross-linguistic conflict is also likely to arise during bilingual language production.

To conclude, cognitive control is a cognitive consequence of bilingualism and the ability to selectively attend to some stimuli and ignore other. Although it is the main component of cognition, yet there is not sufficient knowledge about how all these function are coordinated.

Problem Solving and Creativity

The process of creative problem-solving usually begins with defining the problem. This may lead to finding a simple non-creative solution, a textbook solution, or discovering prior solutions developed by other individuals. If the discovered solution is sufficient, the process may then be abandoned.

- Bilingualism led to cognitive impairment.
- “‘Balanced Bilinguals’”— that is, that their level of fluency in French and English was comparable.
- Contrary to previous results, Bilingual children performed better than the monolingual children on both verbal and nonverbal measures.
- Bilingual children with proficiency in only one language showed no creativity advantage over monolingual children.
- Hakuta and Diaz found that nonverbal intelligence was positively related to degree of bilingualism.
- Improvement in proficiency preceded the improvement in intelligence, suggesting that language proficiency caused cognitive improvement rather than the other way around.

Considerable research indicates that bilingual children show greater Metalinguistic awareness than monolingual children. Although it was once thought that bilingualism led to cognitive impairment, there is now evidence that bilingual children perform better on certain problem-solving and creativity tasks than do monolingual children.

Lesson 22

Introduction of Process of Language Acquisition

Acquisition is carried out in the first years of childhood and leads to unconscious knowledge of one's native language which is practically indelible.

Which can't be removed

Various stages of the first language acquisition

1. Pre- production or the first sound:

This stage can be called the silent period

Individual perceive and use language for communication purposes

It has nothing to do with intentions

2. Babbling or early production:

This period starts around from six months to eight.

It can be learnt socially

3. First word or speech emergent:

This period lasts from nine months to eighteen months.

4. The two word or beginning fluency:

This period usually starts from eighteen months to twenty four months.

5. From telegraph to infinity (intermediate fluency and advanced fluency):

This period usually starts from twenty four months to infinity

To conclude, **Language acquisition** is the process whereby children learn their native language. It consists of *abstracting* structural information from the language they hear around them and *internalising* this information for later use.

Feral and Isolated Children

A **feral child** is a child who from a very young age was taken away from civilization and

Isolated Children have similar issues as feral children do, inability to communicate or function socially in societies when they are rescued from their conditions.

- Wild Boy (victor) had no speech , came to attention of Itard and got language training and behavior modification.
- Victor had other problems with language (a gestural communication system that interfered with the language training).
- Another problem was Victor's understanding of words.
- Victor's language progress was poor
- **Isolated children are those who grow up with extremely limited human contact like Genie (with no social skills)**
- After being placed in a program of language remediation, Genie began to show some language gains, but her development was uneven.
- **A puzzling aspect of Genie's language development was that she appeared to process language in the right hemisphere.**

Thus, it is clear from these two instances that the overall prognosis for acquiring language after prolonged isolation from other humans is quite bleak. Given the extreme circumstances of their early years, it is perhaps remarkable that they were able to do as well as they did.

The Critical Period Hypothesis

The **critical period hypothesis** states that the first few years of life is the crucial time in which an individual can acquire a first language if presented with adequate stimuli. If language input does not occur until after this time, the individual will never achieve a full command of language—especially grammatical systems.



Devid singleton

- Older learners of a second language rarely achieve the native-like fluency that younger learners display, despite often progressing faster than children in the initial stages.
- Certain linguistic aspects appear to be more affected by the age of the learner than others.
- Singleton & Lengyel (1995) reports that there is no critical period for learning vocabulary in a second language because vocabulary is learned consciously using declarative memory.
- The critical period hypothesis in SLA follows a "use it then lose it" approach, which dictates that as a person ages, excess neural circuitry used during L1 learning is essentially broken down.

There is much debate over the timing of the critical period with respect to SLA, with estimates ranging between 2 and 13 years of age. These estimates tend to vary depending on what component of the language learning process a researcher considers.

Critical Period Effects in Second Language Learning

Critical period:

- Ability to acquire language biologically linked to the age
- Ideal time span to acquire language
- After this time span: further language acquisition becomes more difficult
- Native like mastery of grammatical structure cannot be fully achieved
- Johnson and Newport (1989) who examined native speakers of Korean and Chinese with the series of grammatical and ungrammatical sentences.
- The results showed an advantage of early arrivals over later arrivals.
- They also correlated age of arrival and scores on the grammatical test.
- Age-related decline in second language acquisition is gradual or abrupt.
- Younger and older learners differ in cognitive development.
- A study by Snow and Hoefnagel-Hohle (1978) found that adolescents did best, followed by adults, followed by children.

So, at the present time, 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.

Motherese

Motherese, also called Parentese, Baby talk, Caretaker speech, Infant-directed speech (IDS), Child-directed speech (CDS), is defined as a term used in the study of child language acquisition for the way mothers often talk to their young children.

- CDS is a clear and simplified strategy for communicating to younger children, used not only by adults but also by older children.
- Three types of modifications occur to adult-directed speech in the production of CDS: 1 linguistic modifications, particularly prosody, 2 modifications to attention-gaining strategies, 3 modifications to the interactions between parents and infants
- The younger the child, the more exaggerated the adult's CDS is.
- Research indicates that infants do not play a passive role in this interaction, but engage interactively, and are attracted to people who engage in CDS.

Studies have shown that from birth, infants prefer to listen to CDS, which is more effective than regular speech in getting and holding an infant's attention. Some researchers believe that CDS is an important part of the emotional bonding process between the parents and their child, and helps the infants learn the language.

Some Characteristics of Adult Speech to Children

Speech directed toward infants and young children displays special characteristics, such as heightened pitch, exaggerated intonation, and increased repetition of words and clauses, that differ from the speech adults use with one another.

- Motherese promotes infants' processing of speech
- Syntactic Features: Concerning with the syntactic features, there are some characteristics that parentese has
 - 1) Shorter MLU(MeanLengthofUtterance): MLU is a productivity in children
 - 2) Fewer Verb Forms and Modifiers
 - 3) Fewer Subordinate Clauses per Utterance
 - 4) More Verb less Sentences
- The discourse features found in the utterances of adults to children are:
 - 1) More Interrogatives and Imperatives

Seven mean length

measure of linguistic

2) More Fluent and Intelligible Speech

3) More Repetitions

When speaking to their children, adults modify their language so that children will understand it easier. The benefits of these modification are that young children can develop more vocabulary, understand abstract concepts easier, learn grammar naturally, and understand conversation routines.

Lecture 23

Cognitive Processes

Cognition is "the mental action or process of acquiring knowledge and understanding through thought and experience. It encompasses processes such as attention, memory and evaluation, comprehension and production of language. Cognitive processes use existing knowledge and generate new knowledge.

- Human cognition is conscious and unconscious, concrete or abstract, as well as intuitive (like knowledge of a language) and conceptual (like a model of a language).
- Piaget's theory of cognitive development: Piaget is known for studying the stages children pass through during cognitive development.
- Sensorimotor stage Infancy (0–2 years)
- Pre-operational stage Toddler and Early Childhood (2–7 years)
- Concrete operational stage Elementary and Early Adolescence (7–12 years)
- Formal operational stage Adolescence and Adulthood (12 years and on)

So, cognitive processes are a function of the brain, a cognitive theory will not necessarily make reference to the brain or to biological processes (compare neuro cognitive). It may purely describe behavior in terms of information flow or function.

Operating Principles

Operating principles are children's preferred ways of taking in (or operating on) information.

Principles of language

Development bring together the research on language development and offer implications for practice to promote L2 learning.

Principle 1: Children Learn What They Hear Most

Principle 2: Children Learn Words for Things and Events That Interest Them

Principle 3: Interactive and Responsive Rather Than Passive Contexts Promote Language Learning

Principle 4: Children Learn Words Best in Meaningful Contexts

Principle 5: Children Need to Hear Diverse Examples of Words and Language Structures

Principle 6: Vocabulary and Grammatical Development Are Reciprocal Processes

To sum up, putting these principles into practice will increase language

Competences of ESL children and will thus put them on the path to greater academic success

From preschool & beyond.

Sensorimotor Schemata

A sensorimotor schema is a psychological construct which gathers together the perceptions and associated actions, schemas available to a young infant are biological and very limited and initially consist of reflexes. The schema represents knowledge generalized from all the experiences.

The first 2 years as the sensorimotor period of development.

Sub- stages of sensorimotor schemata

Reflexes (0-1 month): The child understands the environment purely through inborn reflexes.

Primary Circular Reactions (1-4 months): This substage involves coordinating sensation and new schemas.

Secondary Circular Reactions (4-8 months): The child becomes more focused on the world.

Coordination of Reactions (8-12 months): The child starts to show clearly intentional actions.

Tertiary Circular Reactions (12-18 months): Children begin a period of trial-and-error experimentation

Early Representational Thought (18-24 months): Children begin to develop symbols

To conclude, Sensorimotor schemata are ways of organizing the world that emerge in the first two years of life. As children interact with their environments, they go through an astonishing amount of cognitive growth in a relatively short period of time.

Whole Object Bias and Taxonomic Bias

As children are exposed to adult words for objects, many referents are possible for these words (Quine, 1960). It seems unlikely that children explore every possible meaning of a given word, given what we have learned about the speed of lexical acquisition. Whole object bias and taxonomic are cognitive constraints a child use in development.

whole object bias:

- When children encounter a new label, they prefer to attach the label to the entire object rather than to part of the object.
- Even in cases where color or a dynamic activity are made salient to children, they will still interpret the new word as a label for whole objects (Markman, 1991).

Taxonomic Bias:

- Children will assume that the object label is a taxonomic category rather than a name for an individual dog
- Children focus on thematic relations between objects when categorizing.
- The new word is assumed to refer to other objects within the same taxonomic category.
- To conclude, Word learning biases are certain biases or assumptions that allow children to quickly rule out unlikely alternatives. When a child learns a new word they must decide whether the word refers to the whole object, part of the object, its substance, color or texture.
- These biases are important for children with limited processing abilities if they are to be successful in word learning.

Mutual Exclusivity Bias

Mutual exclusivity is a word learning constraint that involves the tendency to assign one label/name, and in turn avoid assigning a second label, to a single object. This assumption is typically first seen in the early stages of word learning by toddlers, but it is not limited to young childhood.

- Child who knows the name of a particular object will then generally reject applying a second name to that object.
- Mutual exclusivity might influence the infant's decision about the reference of a new word.
- The bias might cause an infant to change the extension of a familiar word.
- Mutual exclusivity might influence word generalization.

- Some studies have found positive correlations between children's use of mutual exclusivity and their learned vocabulary, while others have found the opposite.
- Halberda (2003) was one of the first studies to examine the limiting role of age on children's exhibition of mutual exclusivity.

To conclude, considerable evidence suggests that constraints guide children's acquisition of lexical items. There is a continued debate regarding the best way to characterize these constraints.

Impairments of Language and Cognition

A cognitive-linguistic impairment can often result from a right brain injury. This does not directly affect the language area of the brain, but can affect attention, memory, problem solving and interpretive language, which in turn affect communicative abilities.

- A close relationship exists between language and cognition (individuals with down syndrome)
- Some individuals display cognitive skills that are advanced relative to the individual's linguistic skills.
- Mentally retarded children produce appropriate however Genie (socially isolated child) expressed grammatically rudimentary.
- Cognition is sufficient for language
- The failure to find syntactic delays in individuals with Williams syndrome is not consistent with the notion that cognition is necessary for language.
- Cromer (1993) discusses a case of an adolescent with what has been called chatterbox syndrome, a condition in which an individual talks continuously.
- It has been observed that in certain individuals there are dissociations between language and cognition and cognitive development, although it is generally associated with language development, may not be either necessary nor sufficient for it.

Lecture 24

The Language Bioprogram Hypothesis

One version of how innate processes operate in child language has been called the language bioprogram hypothesis by Bickerton (1981, 1999). Bickerton's claim, is that we, as children, have an innate grammar that is available biologically if our language input is insufficient to acquire the language of our community.

Pidgins and Creoles:

- A pidgin is “an auxiliary language that arises when speakers of several mutually unintelligible languages are in close contact” (Bickerton, 1984, p. 173).
- A creole occurs when the children of these immigrants acquire a pidgin as their native language.
- Bickerton (1983) examined the language of immigrants who moved to Hawaii and that of their children.
- The speech of pidgin speakers was rudimentary.
- In many cases, there was no recognizable syntax
- Some speakers used one word order and others another
- Complex sentences were absent in pidgin

Thus, creole languages are largely invented by children and show fundamental similarities, which derive from a biological program for language. The structures of Hawaiian Pidgin and Hawaiian Creole are contrasted, and evidence is provided to show that the latter derived from the former in a single generation

The Language Bioprogram

Unlike pidgins, the creoles resembled the structural rules of other languages. From these observations, Bickerton (1983, 1984) concludes that children have an innate grammar that, in the absence of proper environmental input, serves as the child's language system. He calls this system the Language Bioprogram.

Children's creoles was based on their access to English, the language of the plantation owners (Bickerton, 1984).

Linguistic features not attributable to English could be derived from the original native languages of the parents.

Language development in congenitally deaf children by Goldin-Meadow and her colleagues found that these children invented homesign.

when linguistic input is minimal, deaf children may create a gestural language that is similar in many respects to normal children's language.

preemption principle: “If you hear people using a form different from the one you are using, and do not hear anyone using your form, abandon yours and use theirs”

To conclude, studies of creole language suggest that we have a linguistic backup system, the language bioprogram, which springs into action when language input is limited.

Parameter setting

Parameters is a framework within generative linguistics in which the syntax of a natural language is described in accordance with general principles (i.e. abstract rules or grammars) and specific parameters (i.e. markers, switches) that for particular languages are either turned on or off.

- According to Chomsky (1981), children are born with the knowledge of the parameters and their possible settings.
- **Head Parameter:** Each phrase in the language has one element that is most essential, which is called the head.

the man with the bow tie

- English is a head-first language, In contrast, in Japanese the heads appear last rather than first.

Watashi wa nihonjin desu (I Japanese am)

- Another parameter is the null-subject parameter (sometimes called the prodrop parameter).

(11) Play it. (12) Eating cereal.

- Hyams assumes that as children are exposed to examples of well-formed English sentences, they adjust this parameter to the subject setting.

To sum up, the bioprogram may be thought of as a specific instance of the general concept of parameter setting. Some evidence has been presented that child learners have initial preferences in the parameter settings, although this point has been disputed.

The Subset Principle

Whenever there are two competing grammars generating languages of which one is a proper subset of the other, the learning strategy of the child is to select the less inclusive one.

- English is a very strict word-order language, Russian allows a small set of admissible orders, and the aborigine language Warlpiri allows an almost total scrambling of word order within a clause.
- Children must induce this system from the evidence presented to them.
- The subset principle allows for some testable developmental prediction. If fixed word order is the default value, then children all over the world should begin their linguistic careers by producing utterances that adhere to strict word order.
- If, instead, children use free word order as the default value, then overgeneration would occur in English.

Thus, Children learning fixed-word-order languages generally stick to the orders used by their parents. Children learning free-word-order languages appear to use only some of the permissible orders of their language, at least in certain circumstances.

The Issues of Negative Evidence

At the grammatical level, positive evidence is evidence that a particular utterance is grammatical in the language that the child is learning; negative evidence is evidence that a particular utterance is ungrammatical.

- Children receive negative evidence when someone indicates that a particular utterance is ungrammatical
- Pinker (1990) argues that it would be very difficult to acquire a language from positive evidence alone.
- Parents do not provide sufficient negative evidence to enable a child to learn a language.
- Brown and Hanlon conclude that there was not “even a shred of evidence that approval and disapproval are contingent on syntactic correctness”
- There are some subtle cues in parental responses to child speech that might assist children in acquiring language.

Although negative evidence is present and may assist language development, but it is not necessary. The contrast between the poverty of the stimulus and the robustness of the child’s language remains the most sound justification for innate mechanisms.

Objections to Innate Mechanisms

Studies of pidgins and creoles suggest the presence of an innate backup grammar. Researchers studying parameters have attempted to specify what kinds of linguistic information must be innately present before children can take advantage of the language they receive from their environment.

- Children of Nicaraguan Sign Language developed robust drive to communicate.
- Jackendoff (2002) response on “robust drive”
- Gopnik (1990) first reported evidence of a family in which a language disorder is based on a single dominant gene.
- Affected members of the family performed significantly worse than unaffected members not only on a series of language tests but also on nonverbal intelligence tests.
- Pinker (1999) acknowledges that the brains of impaired family members are abnormal in more than one area, but some have intelligence scores in the normal range.

- **Specific language impairment (SLI)**- leaves nonverbal cognitive skills more or less normal.

To conclude, though objections to innate language mechanism are not overruled, most of the studies converge on the conclusion that some innate linguistic must be present in order for children to acquire language as successfully as most children do.

Lecture 25

Broca's Aphasia

Aphasia is the inability to understand speech or to produce fluent and coherent speech. Expressive aphasia, also known as Broca's aphasia is a type of aphasia characterized by a lack of fluency of speech, usually with preserved language comprehension.

- A person with expressive aphasia will exhibit effortful speech.
- The speech of a person with expressive aphasia contains mostly content words such as nouns, verbs, and some adjectives.
- Self-monitoring is typically well preserved in patients with Broca's aphasia.
- Word comprehension is preserved, allowing patients to have functional receptive language skills.
- People with expressive aphasia can understand speech and read better than they can produce speech and write.
- Severity of expressive aphasia varies among patients.
- The most common cause of expressive aphasia is stroke.

To conclude, Broca's aphasia is a aphasia of language production which occurs due to damage in the left hemisphere of brain.

Wernicke's and Conduction Aphasia

- Carl Wernicke discovered a different form of aphasia. Wernicke's aphasia results from damage to a region in the left temporal lobe near the auditory cortex. This region is now called Wernicke's area.
- A third major type of aphasia is conduction aphasia, which is a disturbance of repetition.
- Wernicke's aphasia, also known as receptive aphasia, in which individuals have difficulty understanding written and spoken language. Common symptoms seen in patients with Wernicke's aphasia:
 - Impaired Comprehension

- Poor Word Retrieval
- Fluent Speech
- Production of Jargon
- Awareness
- In Conduction aphasia, Patients will display frequent errors during spontaneous speech such as substituting sounds
- Speech will often contain paraphasic errors: phonemes and syllables will be dropped or transposed (e.g "snowball" → "snowall“.

Thus, Wernicke's aphasia is associated with deficits in comprehension and semantic organization. Conduction aphasia results from dissociation of an intact Broca's area from an intact Wernicke's area and leads to a deficit in repetition.

Other Aphasias

Other Aphasias include:

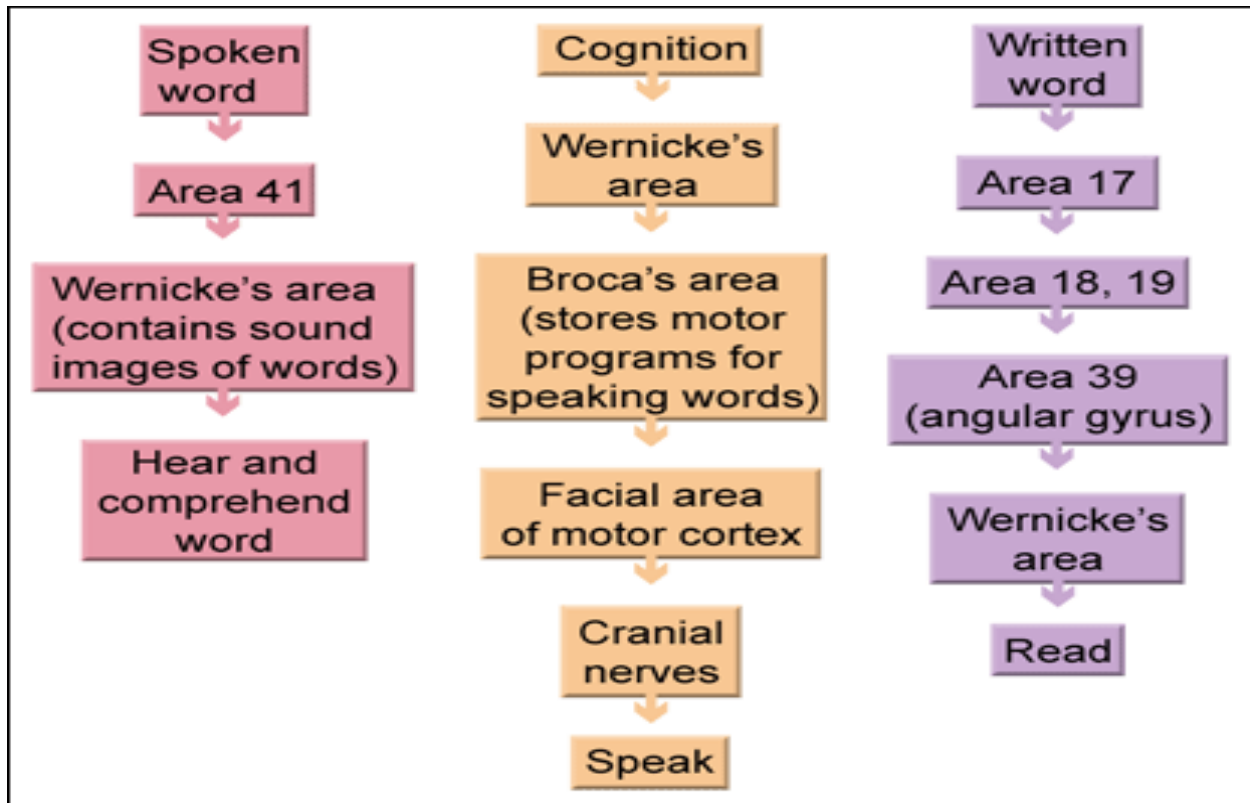
- Pure word deafness
- Disruption of inputs to Wernicke's area results in an inability to understand speech.
- Corpus Callosum: The corpus callosum connects the left side of the brain to the right side, each side being known as a hemisphere.
- Alexia: Pure alexia refers to the inability to read

To sum up, Goodglass (1993) has pointed out, most aphasic patients are impaired in many aspects of language, so that what distinguishes one type from another is the relative impairment in various linguistic functions.

Geschwind's Models of Language Processing

The Wernicke-Geschwind model is an early model for understanding how speech is produced in humans.

There are two main functions that the Wernicke-Geschwind model explores: comprehension and responding to the written word and comprehension and responding to spoken language.



To conclude, the Wernicke-Geschwind model is a historical model developed to understand the pathway in the brain responsible for auditory and visual cognition and speech responding.

Experimental Studies of Aphasia

Let us now look at psycholinguistic research that has clarified the role of syntactic and semantic processes in various aphasias. The traditional view has been that Broca's or Agrammatic aphasia is a production deficit and Wernicke's a comprehension deficit.

- Underlying language representation is intact with Broca's patients but they have difficulty putting appropriately formulated linguistic messages into words.

(1) The book that the girl is reading is yellow (2) The horse that the bear is kicking is brown.

- The results suggest that both groups suffer from subtle syntactic deficits in comprehension that are revealed once semantic cues are eliminated.

(5) The gymnast loved the professor from the northwestern city who complained about the bad coffee.

- Broca's patients are unable to activate words quickly enough to use them in normal comprehension.

(6) It was the girl who chased the boy. (7) It was the boy whom the girl chased.

Thus, Broca's patients resort to a simple strategy resulting in performance on sentences, presumably due to their inability to rapidly analyze the syntactic structure. In case of Wernicke's aphasia the ability to grasp the meaning of spoken words & sentences is impaired, while the ease of producing connected speech is not affected.

Implications for Understanding Normal Language Processing

How well does aphasic language illuminate normal language? One way to approach the issue is to examine whether the distinctions we were compelled to draw when discussing normal language are the same ones that we observe in aphasic cases.

- A major distinction in the study of normal language processing is between comprehending language and producing it.
- Agrammatic patients have a selective deficit in accessing closed-class words.
- Category-specific dissociations in which they selectively lose the ability to grasp certain types of words but understand and use other word categories.

(8) The experienced soldiers warned about the dangers before the midnight raid. (9) The experienced soldiers warned about the dangers conducted the midnight raid.

- Another intriguing aspect of aphasic language is the sparing of comprehension of axial commands in individuals with Wernicke's aphasia.

To conclude, there is still much more to learn about language in individuals with various forms of aphasia. What we have learned to date is that some aspects of aphasic language do not fit into psycholinguistic theories, as currently construed.

Lecture 26

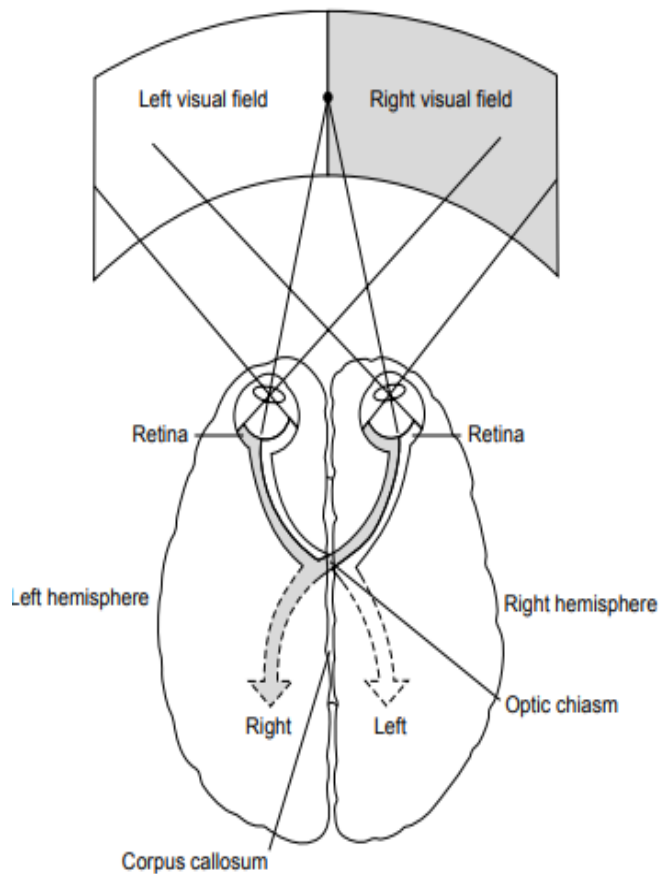
Split-Brain Research

Split-brain is a term to describe the result when the Corpus Callosum connecting the two hemispheres of the brain is severed to some degree.

It is an association of symptoms produced by disruption of or interference with the connection between the hemispheres of the brain.

- The nervous system in humans is predominantly contralateral.
- When a stimulus is presented to the left visual field, the right hemisphere (RH) of a split-brain patient becomes aware of the stimulus.
- Certain aspects of language are better represented in the (RH) than others.
- Relative to the (LH), the (RH) also shows phonetic deficits.
- Split-brain patients have also shown that (RH), deficient in language production.

Anatomical details of the two hemispheres



Thus, studies of split-brain patients clarify the respective roles of the left and right hemispheres in the use of language.

Lateralization in Normal Brains

The human brain is divided into two hemispheres - left and right hemispheres. Lateralization of brain function means that there are certain mental processes that are mainly specialized to one side or the other.

- Visual field task: used with split-brain patients
- Dichotic listening task: involves the simultaneous presentation of different stimuli to the two ears
- The anatomical details of the auditory system are similar to, but somewhat more complex than, those of the visual system.
- Kimura proposes that the contralateral pathways are stronger than the ipsilateral connections
- The distinction between linguistic and nonverbal stimuli is unsatisfactory as a basis for predicting which hemisphere will control processing.

- Sometimes right-ear advantages fail to occur with speech stimuli on dichotic tasks.
- LH prefers to process information in a relational manner, whereas the RH uses a holistic mode of processing.

To conclude, most mental functions are distributed across the hemispheres but there are specific processes that are specialized to one hemisphere.

Contributions of the Right Hemisphere

The right hemisphere (RH) has some talents in the linguistic realm. Normal individuals use the skills of both hemispheres to comprehend and produce language, so we need to examine some of the ways that the two hemispheres interact during language use.

- Right hemisphere is better prepared than the left to appreciate some of the pragmatic aspects of language.
- Ability of individuals with RH brain damage to interpret conversational remarks (Kaplan et al, 1990).
- Individuals with RH damage were as adept as control subjects in interpreting the literally true sentences, but were poorer at identifying the pragmatic intent of literally false utterances.
- Comprehension of humorous material by individuals with right- or left-hemisphere damage (Bihrlé et al, 1986).
- Bihrlé and her colleagues conclude that the RH is adept at detecting surprise, whereas the LH is better at preserving coherence.
- Interpretations on word meaning (Chiarello, et al 1991)

Chiarello (1991) concludes that “a consideration of the available neuropsychological data leads one to the view that processes subserved by each of the two cerebral hemispheres are necessary for the proper interpretation of words in context.

Aphasia in Children and Hemispherectomy Studies

- Basser (1962), found that if brain damage occurred prior to the onset of speech, speech is often delayed in rate but normal in pattern; children go through the normal stages of language development but proceed more slowly.
- The development of lateralization from examining the results of a surgical operation known as a hemispherectomy
- Basser (1962) reported that brain damage that is sustained after the onset of speech produces different results.

- Lateralization is not present at birth, but later scholars have not been persuaded for several reasons.
- Studies of recovery from aphasia may tell us more about the brain's capacity for reorganization than about the development of hemisphere differences.
- Hemispherectomy Studies: When the left hemisphere is removed at an early age, before the onset of speech, it appears that there are no major language deficits.
- The RH is less skilled at syntactic analysis than the left hemisphere
- Left hemispherectomies after the onset of speech lead to more significant language deficits.

To sum up, studies suggest that the ability of the right hemisphere to compensate for the loss of the left hemisphere may continue at a later period of development than previously believed. The exact circumstances under which the right hemisphere might compensate remains an area of continued study.

Behavioral and Psychological Studies

Some studies have applied behavioral techniques such as dichotic listening to children with normal development and provided the clearest picture of the development of lateralization to date.

- Kimura was one of the first to report that children as young as 4 to 6 years could produce adult like right-ear advantages on the dichotic task.
- In addition, studies of very young infants have found right-ear advantages for speech as well.
- Molfese and Betz (1988) have demonstrated that infants between 1 week and 1 month of age showed greater-amplitude evoked potential responses from the right hemisphere in response to speech stimuli.
- On balance, results from dichotic listening, evoked potential, and anatomical studies converge on the conclusion that lateralization is present at birth.
- To conclude, behavioral and psychological studies have been applied to child with normal development by using dichotic listening and conclude that lateralization is present at birth.

Development of Lateralization& Lateralization in Other Species

Lateralization is not limited to humans or even to primates. Japanese macaque monkeys show lateralization of species-specific vocalizations, and anatomical arrangements in songbirds are analogous to those in humans. This evidence suggests that human lateralization for speech is part of a larger evolutionary pattern.

- The study on perception of vocalizations in Japanese macaque monkeys showed better performance when the vocalizations were given to the right ear.
- Human lateralization of speech is part of a larger pattern in which a number of species show lateralization on the left half of the brain for important, species-specific sounds.
- Nottebohm (1970) has pointed out that three basic developmental sequences may be observed with young birds.
- Nottebohm (1970) has found a number of analogs to human speech in this third type of songbird.
- Nottebohm (1970) has found that the left half of the brain is more intimately involved than the right half in the songs of chaffinches.

To conclude, human lateralization of speech is not an isolated event among animals and that the brain mechanisms underlying speech may have evolved in ways that are analogous to how similar structures in other species have evolved.

Lecture 27

Evolution of Language

Evolution of language is the gradual change in human language over time. It involves the origin and divergence of languages and language families, and can be considered analogous to biological evolution, although it does not necessarily occur through the same mechanisms.

- Approaches to the origin of language according to some underlying assumptions:
 - Continuity theories
 - Discontinuity theories
 - Some theories see language mostly as an innate faculty
 - Other theories regard language as a mainly cultural system
- A single chance mutation occurred in one individual in the order of 100,000 years ago, installing the language faculty in "perfect" or "near-perfect" form (Chomsky, 1996).
- Those who see language as a socially learned tool of communication, see it developing from the cognitively controlled aspects of primate communication.
- some scholars view the emergence of language as the consequence of some kind of social transformation.

To conclude, the human language is a phenomenon of gradual change over the period of time. Further, in the process, it involved the origin of language and divergences of some languages families.

Communication in Present-Day Primates

Primates communicate to satisfy their biological and social needs, such as avoiding predators, interacting with other group members, or maintaining cohesion during travel. e.g, chimpanzees sometimes bristle hair during conflicts, which makes them appear bigger and more dangerous and conveys their willingness to escalate .

- Animal communication systems are both interesting and impressive, but very limited in what they are able to express.
- Communication properties Human versus Animals
- Displacement: Human language can talk about things that aren't happening here or now. Other animals react only to stimuli in the present.
- Duality of patterning: Distinctive sounds, called phonemes, are arbitrary and have no meaning.
- Cultural Transmission: Human language is culturally transmitted, or taught. Other animals communicate largely with signs they are born knowing.
- Creativity: New words can be invented easily by humans, but animals have to evolve in order for their signs to change.

Hence, Primates use a range of different signals, to communicate that satisfy their biological and social needs.

Teaching Language to Non-Human Primates

Some researchers have tried to teach apes to use language. Because of the structure of their vocal organs, apes can't say words, but they can communicate using signs or computers. Using these means, apes can make requests, respond to questions, and follow instructions.

- Teaching language to other primates divided into three groups.
- In the first group, attempt made to teach speech to chimpanzees.
- A second group involved programs in which the communication system was not clearly defined in linguistic terms.
- A third group (to teach them American Sign Language).

- The conditions under which Washoe was trained to use ASL are similar to those of children learning language.
- Washoe mastered at least a rudimentary understanding of the semantics of individual lexical items (19) Roger tickle Washoe (20) Washoe tickle Roger.
- The Gardners found better syntactic performance when Washoe was given a task in which she had to respond to wh-questions.

(21) Who are you? (22) Where is the box? (23) When is dinner?

For now, it is obvious that although chimpanzees are bright and perhaps possess the strongest linguistic skills of any nonhuman primates, their linguistic accomplishments to date appear to fall short of language as we ordinarily use the term.

The Continuity Debate

Communication skills of nonhuman primates, studied either in the wild or in the laboratory, fall well short of the full range of human language. In the wild, nonhuman primates display signals that have meaning, but the signals fail to achieve some of the defining characteristics of language. Moreover, the system of communication is very limited.

- Human language is qualitatively different than the communication systems of nonhuman primates.
- Darwinian theory is based on the concept of continuity, the notion that evolutionary changes are quantitative rather than qualitative.
- Some prominent theorists have argued that language evolved very rapidly, in a single step.
- Pinker and Bloom argue that a language that is qualitatively different than animal communication may have evolved by the process of natural selection.
- Evolutionary theory assumes that there is genetic variation between individuals in a species.
- The intermediate steps that led to the evolution of language do not have obvious survival value.

It is impossible to know exactly how language evolved, and undoubtedly we need to explore further many aspects of a natural selection account. But the conclusion that natural selection cannot account for language requires further exploration.

Gesture and Speech as Possible Evolutionary Sequences

Natural language, as Pinker and Bloom have argued, is compatible with the Darwinian concept of natural selection. We still need to identify the sequence of events that led to language as we know it today. No one is quite sure exactly what happened, but there have been some interesting conjectures that lead to testable predictions.

- Spoken language developed quite recently in our evolutionary history.
- In evolutionary terms, speech may be an example of exaptation.
- A functionally modern human vocal tract may have emerged only 125,000 to 150,000 years ago (Lieberman, 1991; 1998).
- These findings imply that speech is a relatively recent evolutionary development.
- Our brain increased substantially in size much earlier, perhaps as far back as 2 to 3 million years ago.
- Language evolved first in the gestural mode and that speech developed much more recently.
- Gestural language may be more easily acquired than a spoken language, and thus may be closer to the origins of language.
- So, the studies of the evolution of language have examined gestures, brain specialization, and vocal tract specialization in nonhuman primates. Fossil records of vocal tract anatomy suggest that the capacity for speech is a recent evolutionary development.

Brain Size and Social Cognition as Possible Evolutionary Sequences

The finding that brain size increased prior to vocal tract changes helps us pin down the sequence of evolutionary events but also raises an issue. Why did brain size increase? That is, what selective pressures led to this development? Dunbar (1993, 1998) has pointed out, brain size has costs as well as benefits.

- Dunbar (1998) suggests that brain size may have increased in relation to group size.
- Dunbar claims that language evolved to meet this need, by enabling one member of the species to communicate with many members of the group simultaneously
- Social group size correlates very closely with the size of the neocortex in primates (Dunbar, 1992).
- As group size increased, social cognition—the ability to understand other people—became more important.
- Theory of mind, which refers to the ability to view another as an intentional being.
- With regard to our evolutionary ancestors, the social cognition hypothesis is that language evolved as a bonding device.

Dunbar's view provides an interesting and plausible explanation of why language evolved. According to his view social pressure is the driving force behind language evolution and large brains lead to more capable interpretations of intentions and inferences.

Lecture 28

The Whorf Hypothesis

The notion that language shapes thought patterns is commonly referred to as the Whorf hypothesis, although it is also called the Sapir-Whorf hypothesis, to acknowledge the role of Whorf's mentor.

- It is Whorf's view that the linguistic patterns themselves determine what the individual perceives in this world and how he thinks about it.
- Principle of relativity which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar.
- In the Indo-European languages substantives, adjectives and verbs appear as basic grammatical units, a sentence being essentially a combination of these parts.
- Indian languages, such as Nootka or Hopi do not have parts of speech or separate subject and predicate.
- Self-evident distinction between past, present and future does not exist in the Hopi language.
- Hence, the Whorf hypothesis states that our language shapes the way we think about the world.

Linguistic Determinism and Relativity

Linguistic determinism refers to the notion that a language determines certain nonlinguistic cognitive processes. Linguistic relativity refers to the claim that the cognitive processes that are determined are different for different languages.

- Linguistic Determination and Relativity, first introduced by Edward Sapir and expanded by his student Benjamin Lee Whorf, the Sapir-Whorf Hypothesis.
- Linguistic determinism is the idea that language and its structures limit and determine human knowledge or thought, as well as thought processes such as categorization, memory, and perception.

- Different languages represent different ways of thinking about the world around us. This view has come to be called linguistic relativity.
- One practical consequence of linguistic relativity: direct translation between languages isn't always possible.

To conclude, Whorf hypothesis states that our language shapes the way we think about the world. This hypothesis consists of two parts: Linguistic determinism which states that languages determines cognitive processes, and linguistic relativity states that the resulting thought processes vary from language to language.

Some Whorfian Examples: Lexical Examples

Whorf provided a number of examples designed to show that linguistic determinism and relativity were valid concepts. They can be broadly organized into lexical and grammatical examples.

Lexical Examples:

Differentiation: refers to the number of words in a given domain (e.g , colors, birds, fruits, and so on) in a lexicon.

Languages differ in the domains that are most differentiated.

Whorf noted that in the American Indian language of Hopi, just one word covers everything that flies except birds.

Whorf suggested that there is no “natural” way to carve up reality; different languages do it in quite different ways.

The number of words in a lexicon varies with how one defines the word.

Languages differ in the degree to which they differentiate various lexical domains does not seem to be at issue.

So, Whorf's example is a evidence of linguistic determinism, of the power of words to influence thought processes. He believes that when we encounter a word on regular basis , it does affect our thought pattern.

Grammatical Examples

Whorf provided a number of examples designed to show that linguistic determinism and relativity were valid concepts Although some of Whorf's lexical examples, on Eskimo, have

generated a considerable amount of discussion, it appears that he was more interested in the grammatical differences among languages.

- In English, we come to respect the difference between nouns and verbs as a fundamental distinction.
- Another example of grammatical diversity concerns the extent to which a language uses word order or morphology to signal meaning.
- Some of the grammatical distinctions that are found in other languages do appear to be semantically significant.
- Whorf believed that grammatical distinctions such as these exert an effect on not just the way individuals think but also their overall world view.
- In English, there is a distinction between what Whorf called individual nouns (more commonly called count nouns) and mass nouns.
- In contrast, in Hopi, there are no mass nouns.
- So, Whorf's has provided number of examples to show the grammatical differences among languages. His examples clearly show the concepts of linguistic determinism and linguistic relativity.

Criticism on Whorf Hypothesis

- While linguists generally agree that linguistic relativism, can be shown to be true to some extent, there are criticisms of the stronger form of the Sapir-Whorf Hypothesis, also known as linguistic determinism.
- Another point of criticism is problem of translatability

Three main arguments on Whorf Hypothesis:

- The grammatical structure is the first one, since the syntactic system of a language and the perceptual system of the speakers of that language do not have the kind of interdependent relationship that the Sapir-Whorf Hypothesis claimed to have.
- The second one goes to the translation, as there is no real translation.
- The last one belongs to the process of second language acquisition. According to the hypothesis, languages have different conceptual systems, if it is true, then someone who speaks one language will be unable to learn another language because he lacks the right conceptual system.
- To sum up, the Sapir-Whorf hypothesis has strong as well as weak points. It is quite plausible that language influences the way of thinking, but the hypothesis exaggerates the decisive role of language and ignores the social and culture factors of language.
- It also fails to answer the issue of translatability.

Sapir-Whorf Hypothesis: Limitations and Possibilities

- The Sapir-Whorf hypothesis concludes that our language determines how we experience the world we are living in and how we experience that experience as a whole. The language a person speaks affects his thoughts and perspectives on the world.
- Language in Mind: Advances in the Study of Language and Thought (2003) gives three ideas on language and thought concepts. a. Language as a lens b. Language as a tool kit c. Language as a category maker.
- Some studies conclude that Sapir-Whorf hypothesis being significant, but not being applicable to all situations.
- People's views of the world might depend upon their cultural norms, beliefs and perceptions.
- Last but not the least would be the issue of the experiment itself. When one tries to study how people use language, without biasing them, he uses language to explain the study and conduct the experiments.
- Sapir and Whorf state that language and thought are two closely related terms. Generally, now, researchers come to a conclusion that the Sapir-Whorf hypothesis has some truth; yet, the extent of truth in the hypothesis is unsolved or yet to be solved.

Lecture 29

Theories on Culture and Language

Theory 1: Speech is Essential for Thought

Speech is essential for thought: We must learn how to speak aloud, otherwise we cannot develop thinking. Proponents: (a) Thought is a kind of behaviour, speech, which originates from speech production (b) Thought develops as a kind of speech - By speaking aloud, you start to speak sub vocally or make internal articulations.

- Why is speech production not necessary in order to think? Inadequacies of the theory
 - 1) *Children having no speech production can comprehend and think.*
 - 2) *Speech comprehension, which implies thought, develops from speech production in normal children*
 - 3) *Simultaneously speaking aloud while thinking about something different.*
 - 4) *Telling a lie*
 - 5) *Meaning and thought occur without behaviour*

6) *Interpreting between languages can be done*

All of these 6 objections to the theory show that speech production is not necessary for thought.

Theory 2: Language is Essential for Thought

We must learn language, how to produce or understand speech, otherwise we cannot develop thinking. Proponents:

- a) The language system, with its rule or vocabulary, is necessary for thought.
- b) Thought was derived from speech production.
- c) Thought is supposed to be language-specific and not universal.

Inadequacies of the theory:

1) *Deaf persons without language can think.*

- If one holds that language is the basis for thought, then these deaf children do not think and that they were merely robots.

2) *Multilingual are whole persons.*

- According to this theory, if multilingual have more than one thought process (one for each language), such persons would not be able to think coherently or would have separate thought intelligences/ personalities.

3) *Intelligent animal behavior occurs without language.*

- Thought must have some basis other than language. The following examples can prove this statement.

So , according to this theory , We must learn language, how to produce or understand speech, otherwise we cannot develop thinking.

Theory 3: Language Determines or Shapes our

Perception of Nature

Language determines or shapes our perception of nature : The learning of language will determine or influence the way we perceive the physical world, visually, auditorily .

Proponent:

- One's knowledge of vocabulary or syntax influences one's perception and understanding of nature.

Inadequacies of the theory:

- 1) Perception, interest and need determine vocabulary.

2) Colour and snow vocabulary

- Colour words

- Snow words

3) *Hopi 'Time' and Chinese 'Counterfactuals'*

- Hopi people and time

- The Chinese language and 'counterfactuals'

4) *Lack of vocabulary does not indicate lack of concept*

5) *Knowledge overrides literal word meanings.*

6) *Multilingual's view of nature*

All of these 6 objections to the theory, it clearly shows that there is no foundation to the claim that vocabulary affects our view of nature.

Theory 4: Language Determines or Shapes our

Cultural world View

Proponents of theory:

a) Even if language is somewhat distinct from thought, nevertheless, knowing a language will itself condition and influence one's cultural, social beliefs or views of the world.

b) Language does provide a view of culture and society and an outlook on the world.

Inadequacies of The Theory:

1) *Same language yet different world views.*

2) *Different languages yet similar world views.*

3) *Same language but world view changes over time.*

4) *One language can describe many different world views*

5) *Multilingual's world view.*

So, according to this theory, the learning of language will determine or influence the way we understand our culture and the world.

Erroneous Beliefs Underlying the Four Theories

Discarding the anti-Mentalist position of some of the Behaviourist theorists who would treat thought as some sort of speech or behaviour, there are certain erroneous beliefs which might have been held by the other non-Behaviourist theorists that led them to invalid conclusions.

We will consider three such mistaken beliefs:

(1) Their analysis of language is adequate: The most serious deficiency in the theorizing of Whorf, Sapir, Korzybski, Skinner, von Humboldt, and others concerns the assumption that the directly observable words or the structure of a sentence represent all of the semantic or thought elements of that sentence.

(2) The meaning of words is linguistic in origin: there is no necessary relationship between the sound of a word and its meaning.

(3) There are primitive languages and primitive human intelligence: all languages are of similar complexity, with each having similar basic forms and operations.

So, once one learns the premises that a people hold, their behaviour and statements that were previously thought to be strange or illogical immediately become rational.

The Best Theory: Thought is Independent of Language

The relationship between language and thought is essentially the one that was advocated by the philosopher John Locke. It is that thought is independent of language, that language is dependent on thought, and that the function of language is to provide a means for the expression and communication of thought.

- **Thought is independent of language :**

The thought system in the mind of the child develops over time as input stimuli of the world

- The development of thought precedes the development of language:

Through speech understanding the child develops a grammar and finds a means through speech production to provide meaningful speech.

- The notion of ‘thinking in language’ is a fallacy:

Sound forms of words come to one’s awareness while one is thinking.

The connections from particular thought to mental language and then physical speech are mainly automatic.

Concerning the relation of language John Locke concludes: The Comfort and Advantage of Society, not being to be had without Communication of Thoughts, it was necessary, that Man should find out some external visible Signs, whereof those invisible Ideas, which his Thoughts are made up of, might be made known to others.

Lecture 30

Lexical Influences on Cognition

Testing the Whorf Hypothesis

Experimental tests of the Whorf hypothesis fall into two groups: those that examine the lexical level and those test the grammatical level. Before looking at these studies, however, let us consider what is needed to test the linguistic relativity hypothesis.

- Differences in language determine differences in thinking must, at the outset, define the three key terms.
- First, we need to define what we mean by “differences in language.”
- Second, we need to define “differences in thinking” in a satisfactory manner.
- Whorf was especially interested in those aspects of thinking that indicated a habitual mode of thought.
- Finally, we need to clarify what is meant by saying that languages “determine” thought.
- The presence of linguistic categories creates cognitive categories.
- Presence of linguistic categories influences the ease with which various cognitive operations are performed.
- Hence, Psychological studies of the Whorf hypothesis have examined whether lexical and grammatical differences between languages influence various nonlinguistic cognitive processes.

Color Terms

At the lexical level, much work has been done on words for color. This is, in part, due to the fact that languages differ tremendously in their differentiation of the color domain. Some languages, such as English, have many color terms, and others have as few as two.

- Codability: A concept that has figured in much of the research on color cognition is codability.
- If one’s language does not have a specific word for the occasion, the speaker can still make the reference but will need to do so by some combination of words.
- Zipf ’s law: The relationship between frequency and length is captured in what is called Zipf ’s law.
- The more frequently a word is used in a language, the shorter the word (measured either in phonemes or syllables).

- Brown and Lenneberg (1954) examined the 24 different colors & found that colors that evoked long names were named with hesitation, with disagreement from one person to another, and with inconsistency from one time to another.
- So, the studies of color terms have not provided strong support for the Whorf hypothesis. Other studies of the lexicon are more consistent with the hypothesis.

Cross-linguistics Studies

The results of color term studies suggest that the presence of a brief verbal expression in a language influences certain cognitive processes. However, to evaluate the notion of linguistic determinism, we need to study the effects of color terms in different languages.

- The number of color terms in a language varied quite a bit from language to language, there was an underlying order
- Every language has a small number of basic color terms.
- Each language draws its basic color terms from the following list of 11 names: white, black, red, yellow, green, blue, brown, purple, pink, orange, and gray.
- Focal colors are more perceptually salient than nonfocal colors and that this salience, in turn, influences the codability and memorability of a color.
- Rosch tested Dani found that although Americans performed better on the whole, both groups' memory for focal colors was better than for nonfocal colors.
- The focal colors used by Heider were more perceptually discriminable than the nonfocal colors.
- On balance, these results suggest that under some circumstances the manner in which we perceive and remember colors is related to the linguistic terms we use to refer to them. Thus, the color domain appears to provide support for the weak version of linguistic relativity.

Number Terms

Another set of studies is relevant to how the lexicon may influence thought processes: How morphological differences in number names between Asian languages (Chinese, Korean etc) and English may influence children's conceptualization of numbers and ultimately their mathematics achievement.

- In English, the system of naming numbers is relatively complex.
- Asian languages such as Chinese are more regular.
- The greater regularity of Asian languages suggests that children might have an easier time acquiring number names than their English-speaking counterparts.

- Miura distinguished three approaches to the task.
- Japanese children were more than twice as likely as U.S. children to use canonical approaches on the first trial.
- The range of numbers between 11 and 99 shows the greatest differences.
- Chinese speakers pronounce numbers more quickly than English speakers.
- The studies concluded that the way that languages represent numbers influences mathematical thinking. The language one learns play an important role in mathematics education.
- Miura stresses that the way one thinks about numbers is fundamentally different in Chinese versus English.

Object Terms

Recent research in how infants learn names pertaining to objects is also relevant here.

Conceptual categories related to object names are constructed at the time when we learn a language, not before. If so, it is then expected to see different kinds of early object terms in children acquiring different languages.

- An infant's environment is filled with objects (Fulkerson et.al)
- categorization and word learning are not isolated abilities
- link between object naming and object categorization.
- Compared to English, Korean uses fewer nouns and permits noun ellipsis, particularly when it is contextually obvious what is being referred to.
- Gopnik and Choi found that compared to English children, Korean children were delayed in categorization tasks and the naming explosion.
- In contrast, the English speakers were superior in categorization and the naming spurt.
- Thus, it appears that the prevalence of nouns and verbs in speech given to children (as well as the way they are used) may influence the timing of certain cognitive achievements.

Spatial Terms

Children's early word meanings are neither simply labels for existing concepts (the cognitive view) or constructed entirely because language requires (the Whorf hypothesis). Rather, they result from the interaction of existing cognitive development and the semantic categories of the input language.

- English and Korean differ substantially.

- English-speaking children distinguished between putting things into containers and putting them onto surfaces, but paid no attention to whether the object fit the container tightly or loosely.
- The Korean learners, in contrast, distinguished between tight and loose containment.
- Acquiring the semantics of Korean influences Korean infants' conceptualization of the world.
- Absolute terms refer to the location of an object in space irrespective of the location of a person (e.g., north/south).
- Relative terms indicate the relationship between an object in space and a person (for example, in front of me, to the left of her).
- Intrinsic terms refer to objects in relation to various object coordinates (such as behind the house, at the tip of the post).
- We often use spatial metaphors to talk about time. We say we are ahead of schedule or behind schedule, looking forward to the future, and so on.
- Hence, Korean and English differ in spatial terms, and children acquiring these languages appear to carve up reality in different ways. Languages also differ in the spatial frames of reference. These frames of reference influence performance on nonlinguistic spatial tasks.

Lecture 31

Grammatical Influences on Cognition

Grammatical Influences on Cognition: Studies of Subjunctive

Subjunctive & Counterfactual reasoning.

A. H. Bloom (1981) the differences between how Chinese and English speakers reason.

Particularly interested in counterfactual reasoning, which is the ability to reason about an event that is contrary to fact.

- The English language has the subjunctive mood

(2) If John had come earlier, they would have arrived at the movies on time.

- Chinese does not have a specific form, such as the subjunctive, to express a counterfactual meaning.

(3) If the Hong Kong government were to pass a law requiring that all citizens born outside of Hong Kong make weekly reports of their activities to the police, how would you react?

(4) If I am the U.S. president, then I will think before I speak.

- Bloom predicted that Chinese speakers would make more errors in counterfactual reasoning than English speakers.
- Bloom concludes that the presence or absence of explicit marking of the counterfactual in one's language influences the facility with which one uses this mode of thought.
- To conclude, Lucy (1992b) suggests that counterfactual reasoning is more specialized than habitual because it is probably more accessible to those with higher levels of education. It thus remains to be seen whether Whorfian effects can be observed when more habitual forms of thought are assessed.

The Development of Subjunctive and Complex-Syntactic

For many foreign-language (FL) learners of Spanish, one of the most unique grammatical constructs of the Spanish language is the subjunctive. The subjunctive is not highly productive in English, and so students have almost no L1 models with which to formulate hypotheses about its use in Spanish.

- The Development of Subjunctive Abilities in L1 and Bilingual Contexts: Preschool children employ a lexical-cue strategy: that is, they use subjunctive forms with lexical phenomena that appear most frequently with the subjunctive (e.g., After *querer que* and *para que*).
- Bilingualism: Institutional prohibitions on the use of Spanish in public fora (e.g., In public schools) contributed to a delay in many bilinguals' syntactic development, which may, in turn, have hindered the development of subjunctive abilities.
- Internal and External Factors Affecting FL Subjunctive Development: The research investigating internal factors indicates that many classroom contexts do not promote the sort of automatized (or proceduralized) subjunctive knowledge.
- To conclude, the subjunctive research show that learners do not acquire skills and knowledge for this construct in isolation of other aspects of their IL development, and that certain internal and external factors play important role subjunctive & syntactic development.

Grammatical Marking of Form

Traditional grammars refer to grammatical forms as “parts of speech.” e.g. the grammatical form of the word *dog* is noun, of the word *bite* is verb, and of the word *tiny* is adjective. *Grammatical form* also includes the internal structure of words, phrases, and clauses. Presence of a grammatical distinction in a language may increase cognitive processes.

- A study by Carroll and Casagrande (1958) compared Navaho and English. They observed that in Navaho, the form of the verb for handling an object varies with the form or shape of the object.
- Carroll and Casagrande (1958) used an object triads test, in which the child had to pick which of two objects, of three presented, went best together.
- The Navaho children did group the objects on the basis of form at an earlier age than the English-speaking children.
- Carroll and Casagrande (1958) also tested English-speaking children in a Boston suburb and discovered that they performed similarly to the Navaho children.

- To conclude, the grammatical distinctions in a language may influence cognitive processes.
- The observations from the suburban children suggest that even if grammatical categories determine qualities of thought, they are not the only determinants.

Grammatical Marking of Objects and Substances

Languages also differ in their grammatical distinctions of objects and substances.

Count nouns refer to objects , while mass nouns refer to substances.

In English objects such as horse, candles and chairs are referred to as count nouns and smoke, air, water as mass nouns.

No importance of distinction in Japanese.

- In Japanese, all inanimate nouns are treated like English mass nouns
- A study tested the Whorf's hypothesis found that children were quite capable of distinguishing between objects and substances
- The Japanese children treated substances as material, and the American children showed a weaker tendency to do the same
- Conceptual distinction is supported by the presence of the count –mass grammatical distinction
- Noun phrases may be distinguished by the presence or absence of the semantic features of animacy and discreteness
- Lucy (1992a) has hypothesized two cognitive consequences of these linguistic differences

To sum up, we have seen examples of English and some other languages on grammatical marking of objects and substances, thus, grammatical distinction of objects and substances is varied among Languages.

Grammatical Marking of Gender

A system of grammatical gender: every noun was treated as either masculine, feminine or neuter, existed in Old English.

Preference now is for gender-neutral language. English marks grammatical gender only in singular personal pronouns (for example, he, she, it). In contrast, other languages have much more extensive gender systems.

Spanish nouns that refer to males end in -o (as in hermano or brother, and gato or male cat & females end in -a (hermana)

young children may use grammatical gender as a basis for classification at least some of the time.

The French gender system is similar to Spanish.

The form of the determiner or article depends upon its syntactic or grammatical role in a sentence, The man scratched the cat (Der Mann kratzt die Katze)

The two-category gender system in Spanish and French may be more easily acquired by children and then extended to inanimate objects.

People's thinking about objects is influenced by the seemingly arbitrary assignment of a noun to be masculine or feminine in one's native language.

So, in English we find grammatical gender only in singular personal pronouns, on the other hand, gender system is very extensive in other languages.

Final observations

How shall we think of all of these results? The Whorf hypothesis is clearly enjoying a resurgence. Although earlier studies found negative or inconclusive results, more recent studies have generally been supportive of the concept of linguistic relativity.

- Both Sapir and Whorf agreed that it is our culture that determines our language
- Problem- discerning exactly what the hypothesis is stating.
- Problem of measurement requirement of human thought.
- Study of language in "real world."
- Another problem with the hypothesis is that languages and linguistic concepts are highly translatable.
- Sapir-Whorf hypothesis is Whorf's lack of empirical support for his linguistic insights.
- Since its inception, the Sapir-Whorf hypothesis has caused controversy and generated research in a variety of disciplines including linguistics, psychology, philosophy, anthropology, and education.

Lecture 32

Neurolinguistics and Disorders

Neurolinguistics and Disorders:

Disorder of Syntax

Syntactic disorder is Problems with sequencing words in order.

Syntactic deficits are common in language disorders and have always been at the focus of research on language disorders.

- Syntactic deficits a Broca's aphasia an acquired language disorder caused by strokes affecting left frontal regions.

- The core symptoms of Boca's aphasia is an agrammatic spontaneous speech production.
- The dichotomy between intact lexical-semantic and impaired syntactic abilities in Boca's aphasia and spared syntactic but affected lexical-semantic capabilities in wernicke's aphasia.
- Children with specific language impairments display severe problems in acquiring inflectional morphology, verb movement and complex syntactic constructions.
- The genetic basis underlying the specific syntactic deficits observed in syndrome, ultimately uncovering those aspects of language capacity that are genetically specified in our species.
- So, the investigation of language deficits certainly merits some research efforts on syntactic disorder. Further research also aims to advance syntactic theory by taking into account language impaired individuals.

Aphasia to Neurolinguistics

Neurolinguistics is the branch of linguistics that analyzes the language impairments that follow brain damage in terms of the principles of language structure and aphasia is an acquired language disorder subsequent to brain damage in the left hemisphere.

- The most common cause of aphasia is a *cerebral vascular accident* (CVA) commonly referred to as a *stroke*.
- Aphasia following traumatic events is non-progressive in contrast to aphasia arising from brain tumor, some types of infection, or language disturbances.
- Primary progressive aphasia based on inclusion and exclusion criteria.
- Aphasia involves one or more of the building blocks of language.
- The degree of impairment varies across modalities, with written language often, but not always, more affected than spoken language.
- At the most severe end of the spectrum, a person with aphasia may be unable to communicate.
- So, the descriptions of different clusters of language deficits have led to the notion of syndromes. Despite great variations in the condition, patterns of language deficits associated with different areas of brain damage have been influential in understanding language-brain relationships which is called neurolinguistics.

Reading and Writing Disorders

Reading disorders and writing disorders can occur alone but are often present together. Spelling impairment can affect both reading and writing; there is a bidirectional relationship between spelling and word reading such that difficulty or progress in one area can influence performance in the other area.

Reading Disorders: Reading and language-based learning disabilities are commonly called dyslexia.

Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read.

Examples of specific types of reading disorders include:

Word decoding: People who have difficulty sounding out written words; matching the letters to sounds to be able to read a word.

Lack of fluency: People who lack fluency have difficulty reading quickly, accurately, and with proper expression (if reading aloud).

Poor reading comprehension: People with poor reading comprehension have trouble understanding what they read.

Writing Disorders:

- Dysgraphia is a writing disorder. It is a condition of impaired letter writing by hand.
- It is not a developmental motor disorder, but rather related to orthographic coding in working memory.
- Dysgraphia commonly occurs with dyslexia and is a relate condition.
- Hence, Reading disorders and writing disorders have bidirectional relationship as they are presented together and both influence each other in difficulty area as well as performance area.

Phonological and Surface Dyslexia

Phonological Dyslexia:

The term “phonological dyslexia” refers to a symptom pattern of difficulty with decoding and connecting sounds to symbols.

Surface Dyslexia:

Surface is a subtype of dyslexia characterized by a difficulty in the lexical access of word meanings.

- **Surface Dyslexia:**

- Patients with surface dyslexia of disorder cannot recognize a word as a whole due to the damage of the left parietal or temporal lobe.
- Individuals with surface dyslexia rely on pronunciation rules.
- The dual route theory of reading proposes that skilled readers utilize two mechanisms when converting written language to spoken language: the direct, lexical pathway and the indirect, non-lexical pathway.

- **Phonological Dyslexia:**

- Individuals with that form of dyslexia typically have difficulty sounding out unfamiliar words and do poorly on tests of non-word reading.
- Hence, surface dyslexia makes hard to remember whole words by sight. And Phonological dyslexia is a disorder of reading characterized by impairment in nonword reading ability.

Dyslexia

Dyslexia is characterized by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities.

- In a person with dyslexia, the brain processes written material differently
- Symptoms:
 - Difficulty in learning to read
 - Milestones reached later
 - Delayed speech development
 - Spelling
 - Speech problems
- Treatment: Psychological testing: This helps teachers develop a better-targeted program for the child.
- Guidance and support: Counseling can help minimize any negative impact on self-esteem.
- On-going evaluation: developing their coping strategies and identify areas where more support is needed.

- So, Dyslexia is a condition that makes it hard to learn to read and learn. It happens when there is a problem with the way the brain processes graphic symbols.

Lecture 33

First language Acquisition

Definition

First Language Acquisition is touted by linguist as the process of acquiring a language via exposure whilst young. First language is defined as the primary language -not necessarily mother tongue- which the speaker first acquires and use on a constant basis. According to Lennenberg (1967) the language that one picks up during the critical period will generally be the person's first language. The Canadian census agrees that the first language that one acquires during childhood is the first language.

A second language, however, can be a related language or a totally different one from the first language. Language acquisition is a cognitive process (reasoning, perception, judgment and memory) of "acquiring" a language. It is usually done subconsciously, with the mind slowly structuring the template to mold the language into shape. Language learning however, means a person is trying to learn the language consciously through practice, training, or experience.

Amongst the most prominent theories of language acquisition that has been put forward by linguists is the:

Cognitive Development Theory

Humanistic Approach (Abraham Maslow, Carl Rogers)

Behaviorist Theory

Behaviorist Theory for Second Language Learning

The Innateness Hypothesis

The Critical Period Hypothesis

Issues in First Language Acquisition

The English language is one of the most popular languages to learn, perhaps the most spoken language around the world is English, and many people choose to learn the language simply to place them in a better position to secure work, or communicate more effectively with more people from around the globe. English might be a popular language to learn, but this doesn't necessarily mean it is a simple language to master, there are many challenges people face when learning English and if you are aware of these beforehand you stand a much greater chance of mastering the language.

Listening

Remember that when you're having a conversation, you're only talking about 50% the time – the other 50% is spent listening to the other person speak. If you don't understand what the other person is saying, it's difficult to reply.

Here are two simple solutions to this problem:

First, practice some listening EVERY DAY. All you need is 10-15 minutes per day to develop your listening skills. You can get free English podcasts on different websites and listen to them while driving, taking public transportation, exercising, or doing housework.

Next, memorize these phrases that you can use in conversation when you don't understand something:

- I beg your pardon?
- I'm sorry, I didn't understand that.
- Could you repeat that, please?
- Could you say that again, please?

Vocabulary

Is often a challenge, particularly when it comes to verb variations and understanding which tense should be used in various situations. English has one of the biggest vocabularies of all languages, and it can be very confusing for non-English speakers to master. Using vocabulary inaccurately is incredibly noticeable to anyone who's first language is English, though it doesn't often change the meaning of your text, it does weaken it.

Grammar

Grammar Grammatically, English can be a very difficult language to learn. There are more grammatical nuances in English than languages such as French or Spanish, and learning to be proficient in grammar is something that even native English speakers struggle with. For example, many people have issues understanding past and present tense (played and plays) in English, which can be rather confusing at times. Without a doubt, the best way to internalize English grammar is to read as much English text as possible.

Pronunciation

English words can be difficult to pronounce – and when speaking English, you have to consider not only the pronunciation of the individual words, but also the connection between the words in the sentence. There’s also the “rhythm” and intonation of the sentence to consider – and sometimes your mouth gets confused!

There are two things that can help you improve your English pronunciation. One way is to take a pronunciation course. Another way to improve English pronunciation is to keep practicing your listening. The more you listen to English, the more your pronunciation will naturally get closer and closer to native pronunciation.

A good way to practice is to get an audio sample with transcript. Listen to one or two sentences (while reading the transcript), then pause the audio and try to repeat the sentences exactly as the person said them.

Lecture 34

Age and Acquisition

Children vs. Adults in Second-Language Learning

Speaking a second language is an important skill for all people, both young and old. It has long been believed that children are better able to learn a second language. In actuality, it is not that children learn language better than adults, but that adults and children learn language differently. By understanding these differences and making adjustments to the learning process, all people can acquire a second language, no matter their age.

Processing Differences

Proficiency Differences

Pronunciation

Aging and Learning Ability

Learning Methods

The Critical Period Hypothesis

The critical period hypothesis says that there is a period of growth in which full native competence is possible when acquiring a language. This period is from early childhood to adolescence. The critical period hypothesis has implications for teachers and learning programmes, but it is not universally accepted. Acquisition theories say that adults do not acquire languages as well as children because of external and internal factors, not because of a lack of ability.

Example

Older learners rarely achieve a near-native accent. Many people suggest this is due to them being beyond the critical period.

In the classroom

A problem arising from the differences between younger learners and adults is that adults believe that they cannot learn languages well. Teachers can help learners with this belief in various ways, for example, by talking about the learning process and learning styles, helping set realistic goals, choosing suitable methodologies, and addressing the emotional needs of the adult learner.

Interference between First and Second Languages

L1 is a speaker's first language. L2 is the second, L3 the third etc.

Example

A learner whose L1 is Spanish may find Portuguese and Italian easy languages to learn because of a fairly close connection between the languages.

In the classroom

L1 **interference** - where a speaker uses language forms and structures from their first language in language they are learning - is an area many teachers are concerned with. In a mono-lingual class where the teacher also speaks the L1, it is easier to identify **interference** and address it, often discussing it explicitly with learners.

‘L1 interference’ has been replaced by ‘language transfer’. Language transfer (Thornbury 2006) is the effect that one language – particularly the first language – has on another. Transfer can occur at all levels: pronunciation, vocabulary, grammar and discourse. Interference was seen as something negative, whereas transfer may also be positive, especially if the L1 and L2 share many features in common.

Lecture 35

Children vs. Adults in Second-Language Learning

Age and Language Learning

What exactly is the relationship between age and language learning? There are numerous myths and misconceptions about the relative abilities or inabilities of language learners of different ages. Do children learn language faster? Is it impossible for adults to achieve fluency? In a word - no. These and other common beliefs are simply not true. Children do not necessarily learn faster than adults and, in fact, adults may learn more efficiently. Furthermore, there is no loss of language ability or language learning ability over time. Age is not a detriment to language learning, and by all accounts, learning a second (or third etc) language actually keeps the older language learners mind active. People of all ages can benefit from learning languages.

The following two reports were sponsored by the US Department of Education and show the effect of age and language learning from two different perspectives. The Older Language Learner shows some of the myths surrounding adult language learners, and Myths and Misconceptions about Second Language Learning shows the same from the perspective of working with children. These reports were produced mainly for teachers and educators, but they clearly show that people of any age can be accomplished language learners, particularly self-motivated adults. In addition, they show how learning style and different learning methods can have a powerful impact on our success rate as language learners.

Basic Psychological Factors Affecting Second-Language Learning

Following are the few Factors that Influence Language Learning for Kids

Motivation

Support at Home

Prior Linguistic Knowledge

Learning Environment

Teaching Strategies

Social Situations Affecting Second-Language Learning

Two factors involved in second-language acquisition are:

1. Psychological: here we shall consider: intellectual processing, memory, and motor skills, finally Motivation and Attitude. We will further explain it.
2. Social: the type of situation, setting, and interactions which an individual experiences can affect the learning of a second language

Social situations affecting second-language learning: there are many social situations in which a second language is learned:

The natural situation:

A natural situation for second-language learning is one where the second language is experienced in a situation that is similar to that in which the native language is learned.

The classroom situation: the classroom for second-learning is planned situation. As we all know, physically, there is isolated from the rest of social life.

Lecture 36

Language, Learning, and Teaching

Learners' Characteristics

Three learner characteristics have consistently been found to be consequential for language learning: motivation, anxiety, and beliefs about language learning.

Motivation

Motivation involves both the reasons that learners have for learning a language as well as the intensity of their feelings. For example, some learners only study the language because of a language requirement, while others expect to use the language in their future career. In addition to having different reasons for language learning, people who hope to use the language for career purposes probably have a stronger motivation than those people who simply hope to pass a language requirement.

Anxiety

Anxiety includes uncomfortable feelings when learning or using the new language. Several studies have found that approximately 1/3 of American foreign language learners experience anxiety in response to language learning (Horwitz, Tallon, and Luo, 2009). Most anxious language learners feel uncomfortable when speaking or listening to the new language, but some language learners also find writing or even reading to be anxiety-provoking.

Learner Beliefs

Beliefs about language learning are important because they influence how students approach language learning and the language learning strategies that they choose to use. Many language learners, for example, think that they are too old to learn a foreign language well.

Age and Acquisition

Is there an optimal age for second language acquisition? Everybody agrees that age is a crucial factor in language learning. However to which extent age is an important factor still remains an open question. A plethora of elements can influence language learning: biological factors, mother tongue, and intelligence, learning surroundings, emotions, motivation and last but not least: the age factor.

Lenneberg's critical period hypothesis (1967) suggests that there is a biologically determined period of life when language can be acquired more easily. Beyond this time a language is more difficult to acquire. According to Lenneberg, bilingual language acquisition can only happen during the critical period (age 2 to puberty). The critical period hypothesis is associated with neurophysiological mechanisms suggesting that in late bilinguals the early and the late acquired languages are represented in spatially separated parts of the brain (Broca's area). In early bilinguals, however, a similar activation in Broca's area takes place for both languages. This loss of the brain's plasticity explains why adults may need more time and effort compared to children in second language learning.

Instructional Variables

The instructional factors that teachers should consider in meeting individual needs are much the same for various groups of students. These factors are discussed in the following sections.

Meaningful Reading and Writing Tasks

In recent years the criteria for effective instruction have undergone a dramatic shift from emphasis on drill and practice to emphasis on meaningful tasks of reading and writing. The focus of instruction should be on ways to help students integrate new knowledge with existing knowledge to construct meaning (Roehler & Duffy, 1991). Good readers spend the majority of their time engaged in meaning-making activities such as silent reading and peer discussions (Allington, 1983). It is important for the tasks that students do to require thinking (Marx & Walsh, 1988). For example, choosing the correct response to a literal detail question requires significantly less thinking than summarizing the important events in a story.

Expectation Level

Research indicates that children in remedial and compensatory programs spend the majority of their time completing low-level tasks (Anderson & Pellicer, 1990; Allington & McGill-Franzen, 1989). Not only does this pattern reflect lower expectations, but students do not develop the higher levels of academic functioning necessary to achieve success in later years (Clifford, 1990).

While gifted students are academically advanced, they also need special provisions to meet their individual needs. Like all learners, their potential is affected by the quality of instruction and the learning experiences provided (Tuttle, 1991).

Students' Strengths

Successfully meeting individual needs is dependent upon knowing what an individual is already able to do and linking what is already known with what remains to be learned (Chall & Curtis, 1991; Eisenhart & Cutts-Dougherty, 1991). By helping students bridge the gap between their current abilities and the intended goal, teachers are providing scaffolds of support for learning (Rosenshine & Meister, 1992).

Schools of Thought in Second Language Acquisition

Following are the main:

1. Functionalism
2. Structuralism
3. Generativism
4. Cognitivism

Lecture 37

Learning Style

Left- and Right-Brain Dominance

Researchers have demonstrated that right-brain/left-brain theory is a myth, yet its popularity persists. Why? Unfortunately, many people are likely unaware that the theory is outdated. Unfortunately, the idea seems to have taken on a mind of its own within popular culture. From magazine articles to books to online quizzes, you are probably bound to see information suggested that you can unleash the power of your mind if you just discover which side of your brain is stronger or more dominant.

Today, students might continue to learn about the theory as a point of historical interest – to understand how our ideas about how the brain works have evolved and changed over time as researchers have learned more about how the brain operates.

While over-generalized and overstated by popular psychology and self-help texts, understanding your strengths and weaknesses in certain areas can help you develop better ways to learn and

study. For example, students who have a difficult time following verbal instructions (often cited as a right-brain characteristic) might benefit from writing down directions and developing better organizational skills. The important thing to remember if you take one of the many left brain/right brain quizzes that you will likely encounter online is that they are entirely for fun and you shouldn't place much stock in your results.

Reflectivity and Impulsivity

Reflectivity and impulsivity are polar ends of a spectrum in a third and very substantial cognitive style. Studies in this domain began in the early 1960s with several researchers, such as Jerome Kagan. One of the methods for testing this cognitive style involves administration of the Matching Familiar Figures Test, which requires subjects to view a picture of an object and then attempt to match the object when presented with the same object in a group of similar objects. The test is then scored according to the time required to identify the objects and the accuracy of identification.

The reflectivity-impulsivity continuum is hypothesized dimension of cognitive style relating to the notion of cognitive tempo. It reflects the observation that some people are more impulsive than others while processing information and can reach judgments more quickly (if not necessarily correctly) than others who are more reflective and take their time before reaching conclusions and acting.

Visual, Auditory, and Kinesthetic Styles

Learners use all three modalities to receive and learn new information and experiences. However, according to the VAK (Visual, Auditory, and Kinesthetic) or modality theory, one or two of these receiving styles is normally dominant. This dominant style defines the best way for a person to learn new information by filtering what is to be learned. This style may not always be the same for some tasks. The learner may prefer one style of learning for one task, and a combination of others for a different task.

According to the VAK theorists, we need to present information using all three styles. This allows all learners the opportunity to become involved, no matter what their preferred style may be.

Lecture 38

Learning Strategies

Communication Strategies

- Knowing and reaching out to key audiences/stakeholders.
- Recognizing communications opportunities.
- Developing and conveying key messages.
- Providing useful, relevant information to groups or individuals.
- Making use of resources provided by NASP and/or your state.
- Coordinating with colleagues within NASP and/or your state.
- Encouraging fellow school psychologists to be active communicators.

Avoidance Strategies

When speaking or writing an L2, the learner is often found to try to avoid using difficult words or structures, and use some simpler words or structures instead. This phenomenon in L2 learning/acquisition is termed 'avoidance behaviour' first brought to light by Schachter (1974). According to Kleinmann (1977, 1978), avoidance behaviour is a strategy that the L2 learner may resort to when, with the knowledge of a target language word or structure, he/she perceives that it is difficult to produce. To investigate whether the L2 learner adopts avoidance strategy, why he/she adopts this strategy and how this strategy affects performance in an L2 is momentous since both the L2 forms consistently avoided by the learner and those actually produced by him/her are two important aspects of a developmental manifestation of interlanguage from avoidance to nonavoidance (Liao and Fukuya 2004). It is evident that avoidance behaviour exists in and has some sort of influence on L2 performance. Schachter (1974) conducted a study with some native speakers of Japanese, Chinese, Arabian and Persian learners of English as a foreign

language. The investigation reveals that the difficulty of relative clauses for Chinese and Japanese learners manifests itself not in the number of errors committed by these two groups of learners, but in the number of relative clauses produced.

Compensatory Strategies

Compensation strategies are communication strategies used by learners to compensate for limitations in their language. Different kinds of learners have preferences for different kinds of learning strategies, for example female learners tend to prefer social and affective strategies and monolingual learners may favour compensation strategies.

Example

Guessing the meaning when you don't understand and using gestures are examples of compensation strategies.

In the classroom

Miming games and definition activities such as crosswords are two ways to help learners practise compensation strategies.

Lecture 39

Strategies-Based Instruction

Identifying Learners' Styles and Strategies

The term “learning styles” speaks to the understanding that every student learns differently. Technically, an individual’s learning style refers to the preferential way in which the student absorbs, processes, comprehends and retains information. For example, when learning how to build a clock, some students understand the process by following verbal instructions, while others have to physically manipulate the clock themselves. This notion of individualized learning styles has gained widespread recognition in education theory and classroom management strategy. Individual learning styles depend on cognitive, emotional and environmental factors, as well as one’s prior experience. In other words: everyone’s different. It is important for educators

to understand the differences in their students' learning styles, so that they can implement best practice strategies into their daily activities, curriculum and assessments. Many degree programs, specifically higher level ones like a doctorate of education, integrate different learning styles and educational obstacles directly into program curriculum.

Incorporating SBI into the language Classroom

Language-learning strategies are defined as 'techniques or devices a learner may use to acquire knowledge' (Rubin, 1975, p. 43), which are 'consciously chosen by learners for the purpose of regulating their own learning' (Griffith, 2007, p. 2), 'behaving as former steps or techniques students employ to improve their progress in internalizing, storing, retrieving, and using the L2' (Oxford, 1990, p. 175). A teaching model based on language strategies is defined by Ze-sheng (2008, p. 1) as:

'a learner-centred approach that has two major components: firstly, students are explicitly taught how, when, and why strategies can be used to facilitate language learning and language use tasks; secondly, strategies are integrated into everyday class materials, and may be explicitly or implicitly embedded into the language tasks'.

Stimulating Strategic Action beyond the Classroom

Children's experience of enjoyment in the outdoors is widely reported (Millward and Whey 1997). Millward, A. and Whey, R. 1997. Facilitating play on housing estates, London: Chartered Institute of Housing and Joseph Rowntree Foundation. [Google Scholar]; Armitage 2001. Armitage, M. 2001. "The ins and outs of school playground play: Children's use of 'play places'". In *Play today in the primary school playground: Life, learning and creativity*, Edited by: Bishop, J. C. and Curtis, M. 37–58. Buckingham, UK: Open University Press. [Google Scholar]; Waite and Rea 2007. Waite, S. and Davis, B. 2007. "The contribution of free play and structured activities in Forest School to learning beyond cognition: An English case". In *Learning beyond cognition*, Edited by: Ravn, B. and Kryger, N. 257–274. Copenhagen: the Danish University of Education. [Google Scholar]). Policy for learning outside the classroom in England has recently been set out in the *Learning Outside the Classroom Manifesto* (DfES 2006). Department for Education and Skills (DfES). 2006. *Learning outside the classroom manifesto*, Nottingham, UK: DfES. [Google Scholar]) and benefits such as physical

(Pellegrini and Smith 1998Pellegrini, A. D. and Smith, P. K.1998. Physical activity play: The nature and function of a neglected area of play. *Child Development*, 69(3): 577–598.[Crossref], [PubMed], [Web of Science®], , [Google Scholar]) and emotional and social well being (Perry 2001Perry, J. 2001. *Outdoor play: Teaching strategies with young children*, New York: Teachers College Press. [Google Scholar]) are claimed. Learning outdoors is an expectation within the early years foundation stage for children from birth to five (DfES 2007Department for Education and Skills (DfES). 2007. *The early years foundation stage: Setting the standards for learning, development and care for children from birth to five*, London: DfES. [Google Scholar]) but Rickinson et al. (2004Rickinson, M., Dillon, J., Teamey, K., Morris, M., Choi, M. Y., Sanders, D. and Benefield, P. 2004. *A review of research on outdoor learning*, Shrewsbury, , UK: Fields Study Council. [Google Scholar]) argue that there is a lack of consensus about what ‘outdoor education’ comprises. One current debate is whether learning outdoors is or should be of the same kind as that more usually encountered inside (Rea 2008Rea, T. 2008. *Alternative visions of learning: Children's learning experiences in the outdoors*. Association, 2http://www.educationstudies.org.uk/materials/vol_1_issue_2_rea_final.pdf [Google Scholar]), thereby providing a seamless experience for children (DfES 2007Department for Education and Skills (DfES). 2007. *The early years foundation stage: Setting the standards for learning, development and care for children from birth to five*, London: DfES. [Google Scholar]). However, Edgington (2002Edgington, M. 2002. *The great outdoors*, London: Early Education. [Google Scholar]) suggests that the sheer scale of the outdoors necessarily changes the sort of learning experiences children have. Furthermore, part of the allure of the outdoors may lie in the departure from the familiar context of the classroom and traditional forms of learning (Broderick and Pearce 2001Broderick, A. and Pearce, G. 2001. Indoor adventure training: A dramaturgical approach to management development. *Journal of Organisational Change Management*, 14(3): 239–252. [Google Scholar]; Rea 2008Rea, T. 2008. Certainly Waite and Davis (2007Waite, S. 2007. ‘Memories are made of this’: Some reflections on outdoor learning and recall. *Education 3–13*, 35(4): 333–347.[Taylor & Francis Online], [Google Scholar]) noted how free play and child-initiated exploration of the natural environment appeared to engage children to a greater extent than adult-led activities in Forest School. The children demonstrated high levels of involvement, which are considered to signal that deep learning is taking place (Pascal and Bertram 1997Pascal, C. and Bertram, T. 1997. *Effective early learning: Case studies in*

improvement, London: Hodder and Stoughton. [Google Scholar]). There are indications, therefore, that learning is affected by the outdoor context, but does being outside necessarily change the pedagogy employed in that context to one which incorporates greater choice and enjoyment for learners.

Lecture 40

Affective Factors in Second Language Acquisition

Affective Factors in Second Language Acquisition self-Esteem

Self-esteem is a term used in psychology to reflect a person's overall evaluation or appraisal of his or her own worth. Self-esteem encompasses beliefs (for example, "I am competent" or "I am incompetent" and emotions such as triumph, despair, pride and shame. A person's self-esteem may be reflected in their behavior, such as in assertiveness, shyness, confidence or caution. Self-esteem can apply specifically to a particular dimension (for example, "I believe I am a good writer, and feel proud of that in particular" or have global extent (for example, "I believe I am a good person, and feel proud of myself in general").

Attribution Theory and Self Efficacy

Attribution theory is probably the most influential contemporary theory with implications for academic motivation. It incorporates behavior modification in the sense that it emphasizes the idea that learners are strongly motivated by the pleasant outcome of being able to feel good about themselves. It incorporates self-efficacy theory in the sense that it emphasizes that learners' current self-perceptions will strongly influence the ways in which they will interpret the success or failure of their current efforts and hence their future tendency to perform these same behaviors.

According to attribution theory, the explanations that people tend to explain success or failure can be analyzed in terms of three sets of characteristics.

First

The cause of the success or failure may be internal or external. That is, we may succeed or fail because of factors that we believe have their origin within us or because of factors that originate in our environment.

Second

The cause of the success or failure may be either stable or unstable. If the we believe cause is stable, then the outcome is to be the same if we perform the same behavior on another occasion. If it is unstable, the outcome is to be different one another occasion.

Third

The cause of the success or failure may be either controllable or uncontrollable. !controllable factor is one which we believe we ourselves can alter if we wish to do so. The uncontrollable factor is one that we do not believe we can easily alter. Here are four factors related to attribution theory that influence motivation in education ability, difficulty, and effort.

Ability

Is a relatively internal and stable factor over which the learner does not exercise much direct control.

Task Difficulty

Is an external and stable factor that is largely beyond the learner's control.

Effort

Is an internal and unstable factor over which the learner can exercise a great deal of control.

Luck

Is an external and unstable factor over which the learner exercises very little control.

Willingness to Communicate

Inhibition is closely related to self-esteem: the weaker the self-esteem; the stronger the inhibition to protect the weak ego. Ehrman (1993) suggests that students with thick, perfectionist boundaries find language learning more difficult than those learners with thin boundaries who favour attitudes of openness and the tolerance of ambiguity. As Brown (1994) noted, language learning implies a great deal of self-exposure as it necessarily involves making mistakes. Due to the defence mechanisms outlined above, these mistakes can be experienced as threats to the self. It can be argued that the students arrive at the classroom with those defences already built and that little can be done to remove them. However, classroom experience shows that the teacher's attitude towards mistakes can reinforce these barriers creating, in the long run, learning blocks, or the self-fulfilling prophecy: "I can't do it. I 'm not good at it. "

Risk Taking

Linguists defined risk-taking as an ability of being eager to try out new information intelligently regardless of embarrassment in linguistics. Risk-taking is one of the important parts in learning second language. Because of a strong intention of achieving success on learning something they yearn for mastering, language learners are willing to absorb new knowledge from their teacher spontaneously but how to interact with teacher? The easiest manner is to take the risk. Although it may be impulsive and too awkward to make a mistake, a good learner should require this characteristic to succeed in Second Language Acquisition. According to Brown, “interaction requires the risk of failing to produce intended meaning, of failing to interpret intended meaning, of being laughed at, of being shunned or rejected. The rewards, of course, are great and worth the risks” (2001, p. 166). In other words, risk-taking is a crucial interactive process to learn a language in the ESL/EFL classroom. Therefore, if a language learner interacts with the teacher automatically, he/she can acquire a foreign language without any difficulty.

Anxiety

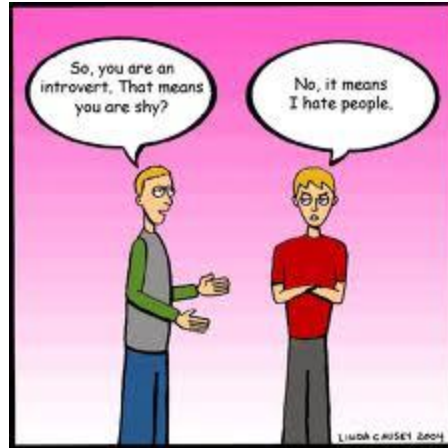
As learners we have all encountered this feeling, which is no doubt closely linked with self-esteem and inhibition. Any task that involves a certain degree of challenge can expose the learner to feelings of self-doubt, uneasiness or fear. Behind these emotions lies the question: shall I succeed? As second language learning is a highly demanding task, it is very likely to raise anxiety in the learner. Anxiety can be considered a negative factor in language learning, and several teaching methodologies in modern approaches indicate that anxiety should be kept as low as possible.

Empathy

Empathy, the ability to put oneself in another’s shoes, is also predicted to be relevant to acquisition in that the empathic person may be the one who is able to identify more easily with speakers of a target language and thus accept their input as intake for language acquisition (lowered affective filter).

Extroversion

Another level of learning styles depends on whether a person is an extrovert learner or an introvert learner. Extroverts are very social, can often read others, enjoy being part of a group and often work well with others. Extroverts enjoy participating in lively, thought provoking discussions. They may often speak just to fill the silence, are interested in trying new things, and focus on the outer world.



Introvert learners work better alone, are very self-motivated and prefer solitary activities. They often march to the beat of a different drum. Introverted learners prefer to process ideas by thinking to themselves. They will speak only when they have processed an idea, rehearsed it, and prepared themselves to share the information. When they are forced to comment before completely processing, they often feel pushed and feel they have said something unproductive. Introvert learners often have the ability to understand their own feelings, motivations and moods. They focus on the inner world of ideas and are often quietly thinking through problems when you think you are being ignored.