

# Psycholinguistics

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# Psycholinguistics

## Week 1



# The Meaning and Scope of Psycholinguistics

Read the following poem and see how it describes the brain.

## **The Brain is Wider**

*Emily Dickinson*

The brain is wider than the sky,  
For put them side by side,  
The one the other will include  
With ease, and you beside.  
The brain is deeper than the sky,  
For, hold them blue to blue,  
The one the other will absorb  
As sponges, buckets do.  
The brain is just the weight of God,  
For lift them, pound for pound,  
And they will differ, if they do,  
As syllable from sound.

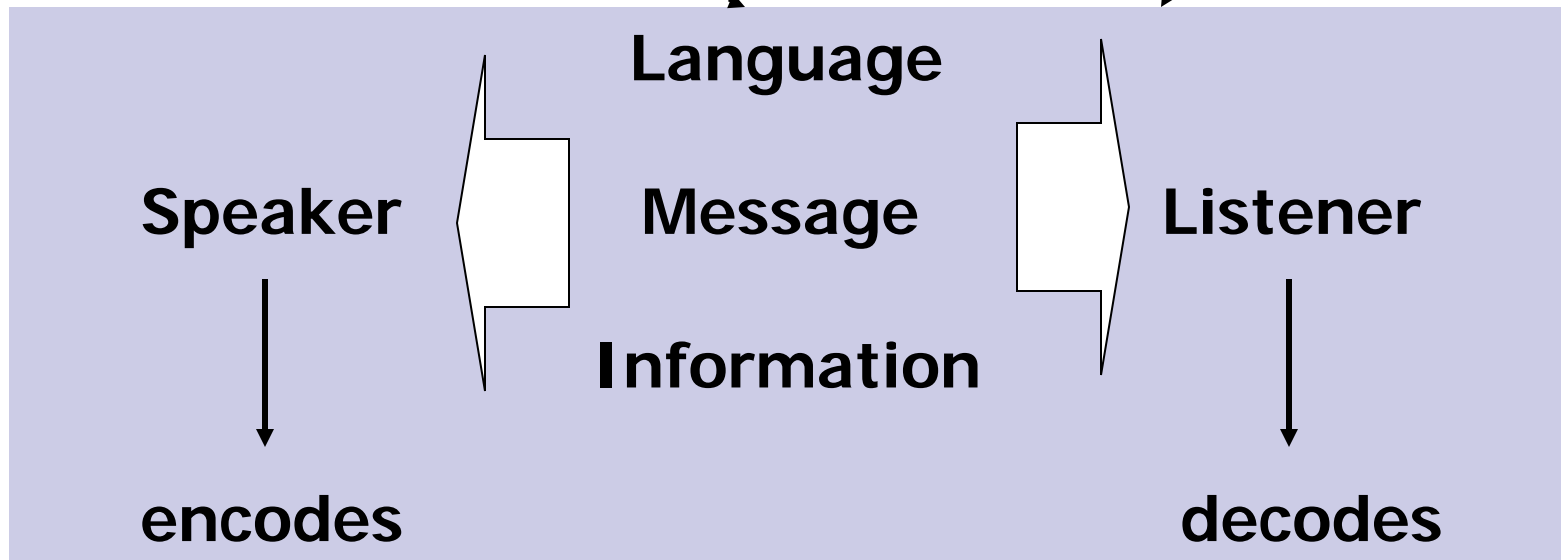
# Language as a Means of Communication

**Linguistics**

**Psycholinguistics**

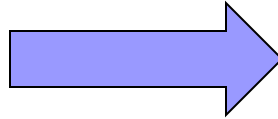
components

process



## Linguistics

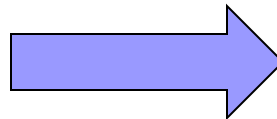
- Object: language



The structural  
components of  
a language

## Psycholinguistics

- Object: speech  
process



Language as a  
process

# The Emergence of Psycholinguistics

In 1952, the Social Science Research Council in USA

an interdisciplinary conference: three linguists and three psychologists

In 1954


the publication of Charles E. Osgood & Thomas A. Sebeok's entitled *Psycholinguistics: a Survey of Theory and Research Problems*

# Definitions

- **the psychology of language learning**

It is the study of psychological and neurobiological factors that enable humans to acquire, use, and understand language (*Psycholinguistics*, 2006). In other words, the studies done in psycholinguistics helps us to understand the psychology of how we learn and understand language, whether it is our first, second, or even third language.





- **the study of the mental processes involved in the comprehension, production, and acquisition of language**

Much psycholinguistic work has been devoted to **the learning of language by children and on speech processing and comprehension by both children and adults**. Traditional areas of research include language production, language comprehension, language acquisition, language disorders, language and thought, and neurocognition. (Encyclopedia Britannica)



- **the study of psychological states and mental activity associated with the use of language**

An important focus of psycholinguistics is the largely **unconscious application of grammatical rules that enable people to produce and comprehend intelligible sentences**. Psycholinguists investigate the relationship between language and thought, a perennial subject of debate being whether language is a function of thinking or thought a function of the use of language. However, most problems in psycholinguistics are more concrete, involving *the study of linguistic performance and language acquisition*, especially in children. The work of Noam Chomsky and other proponents of transformational grammar have had a marked influence on the field. (the Columbia Encyclopedia sixth ed)

## ■ the study of language processing

It studies how word, sentence, and discourse meaning are represented and computed in the mind. It also studies how complex words and sentences are composed in speech and how they are broken down into their constituent parts during listening and reading. In short, it seeks to understand *how language is done*.

## ■ the study of language behavior: how real (rather than ideal) people learn and use language to communicate ideas

## ■ the study of the influence of psychological factors on the development, use, and interpretation of language (Medical Dictionary)

# Sub-disciplines within Psycholinguistics

- Theoretical psycholinguistics
  - language theories related to human mental processes in using language (phonological, diction, syntax, discourse and intonation arrangement)
- Developmental psycholinguistics
  - the process of language acquisition (both L1 & L2)
- Social psycholinguistics
  - the social aspects of language, that language is a string of thought and insights

- Educational psycholinguistics
  - the educational aspects in formal education: the role of language in the teaching of reading, language proficiency
- Neuro-psycholinguistics
  - the relation between language and the brain: what happens to language input and how output is programmed and formed inside the brain
- Experimental psycholinguistics
  - the act and effect of using language
- Applied psycholinguistics
  - the application of all above subfields into other subjects

# Scope

- how language is acquired and produced by users
- how brain works on language
- language acquisition
- the difference between children language acquisition and language learning
- linguistic interference
- language development
- the role of motivation in foreign language learning

# Questions Psycholinguistics

## Answers

- What is the origin of language? How is it produced, perceived, comprehended, and remembered?
- What is the origin of thought? How is language represented in the mind?
- What is the nature of language as a verbal behavior?
- How is language acquired? How is it used for different communicative purposes?
- To what extent is language a biological growth?
- What role does habit formation play in language acquisition?
- What is the essential relation between language and information?

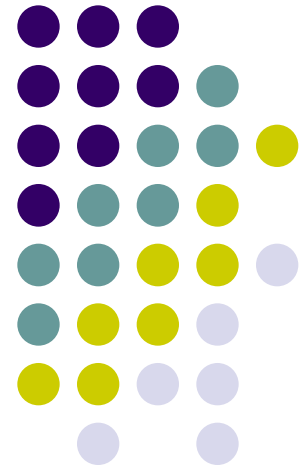
- What is the communication structure of language?
- Is language purely a stimulus-response bond or is it also a creative behavior?
- How does it go wrong?
- What role does creativity play in linguistic acquisition and production?
- How do the learning conditions of the L1 differ from those of L2?
- What kind of internalization process takes place when language is learned?
- To what extent can the language acquisition process of children all over the world be held similar?



# Psycholinguistics

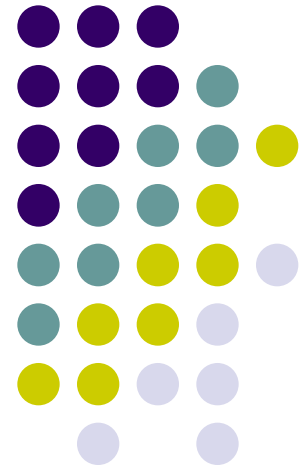
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Week 2



# Language Perception & Production

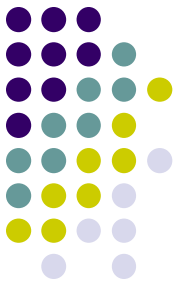
Behaviorism  
Rationalism  
Pragmatism



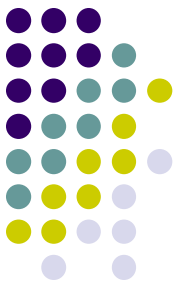


- S : **[tene cucak]**
- T : Hoooh.
- S : **[ketane cucak]**
- T : Rusak. Numpak apa kuwi?
- S : **[upa əpə kae]**
- T : Weeh, ilang. (tertawa)
- S : **[lucu]**
- T : Hmm?
- S : **[lucu le əmə]**
- T : Lucu.
- S : **[lucu le əmə]**
- T : Heeh..le omong lucu jarene.
- S : **[bab bab bab mam mam gon tetop hoo gon tetop]**

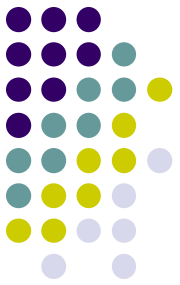
# Theoretical Background: Chomsky



- Human language must be **innate** — available to us by virtue of being human, specified somehow in our genetic makeup
  - innate properties available to all human languages (universal grammar)
- It is the aspect of creativity that differs languages
  - language is not produced by imitation only, but it is a creative behavior



- Components of the mind, including language and other systems of knowledge, are largely innately determined.
- Experience interacts with innate properties to form ‘competence’

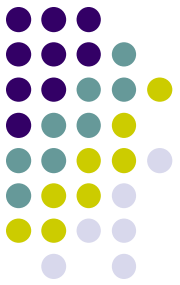


# Epistemologies

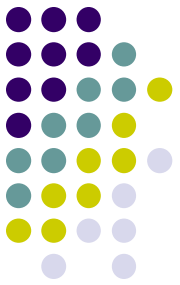
Theories of the nature of knowledge and of learning as the process of attaining such knowledge

<b>Perspective</b>	<b>Epistemology</b>	<b>Contributors</b>
Empiricism	Behavioristic	Locke; Thorndike
Rationalism	Cognitive	Descartes; Piaget
Pragmatism/ Sociohistoricism	Situative	Dewey; Mead Vygotsky

# Behaviorism

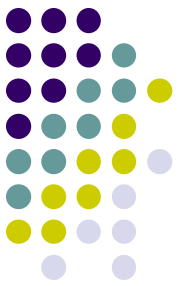


- The theory that human behavior is determined by conditioning rather than by thoughts or feelings, and that psychological disorders are best treated by altering behavior patterns
- An approach to psychology based on the proposition that behavior can be studied and explained scientifically without recourse to internal mental states
- Skinner: humans could construct linguistic stimuli that would then acquire control over their behavior in the same way that external stimuli could

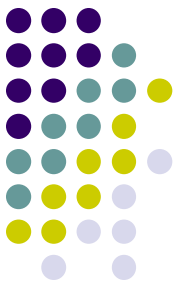


- Organisms are seen as ‘responding’ to conditions (stimuli) set by the outer environment and inner biological processes
- Believes that behind every response lies a stimulus that elicits it
  - e.g. to feel pain → groan, writhe, moan
  - to desire food → eating/hunting





- Intended as the logical doctrine to the effect that the very meanings of the words refer to the mind, its mental states and activities, are to be analyzed in behavioral terms  
every mentalistic term = behavioral term  
  
e.g. love? being unconscious?



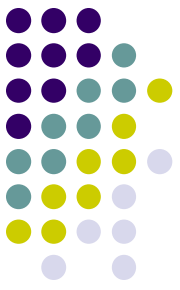
# Rationalism

- the theory that reason is the foundation of certainty in knowledge
- Reason is the chief source and test of knowledge; 'innate ideas'
- All languages resemble each other in syntax

Why?

a schema of universal grammar, deep structure or innate presettings → basis in the brain → set pattern for experience → fix the rules for the formation of meaningful sentences → readily translatable languages

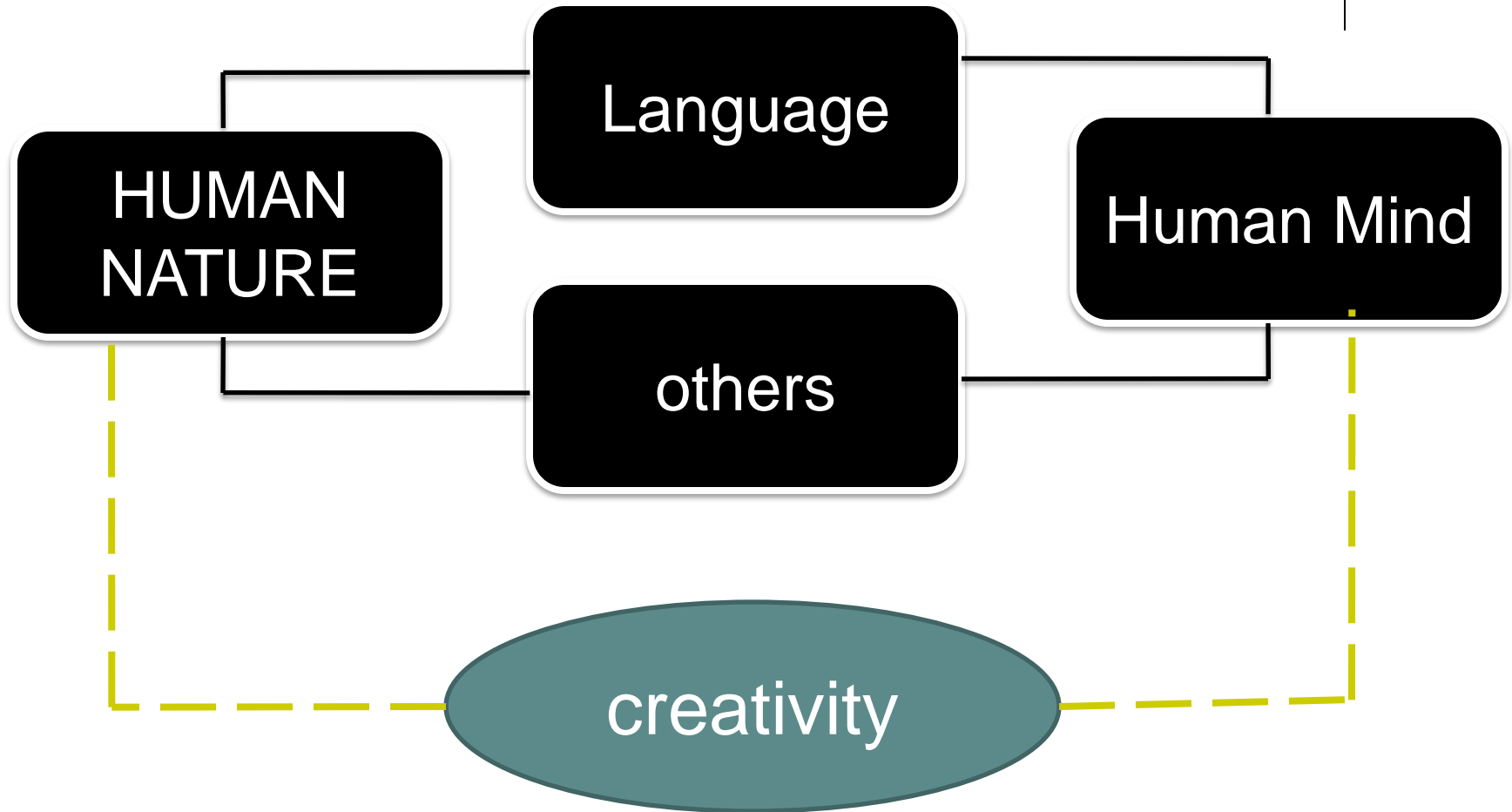
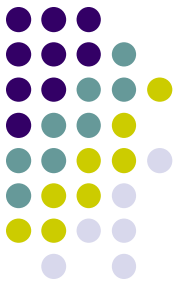
e.g. My beloved friend came to our house.

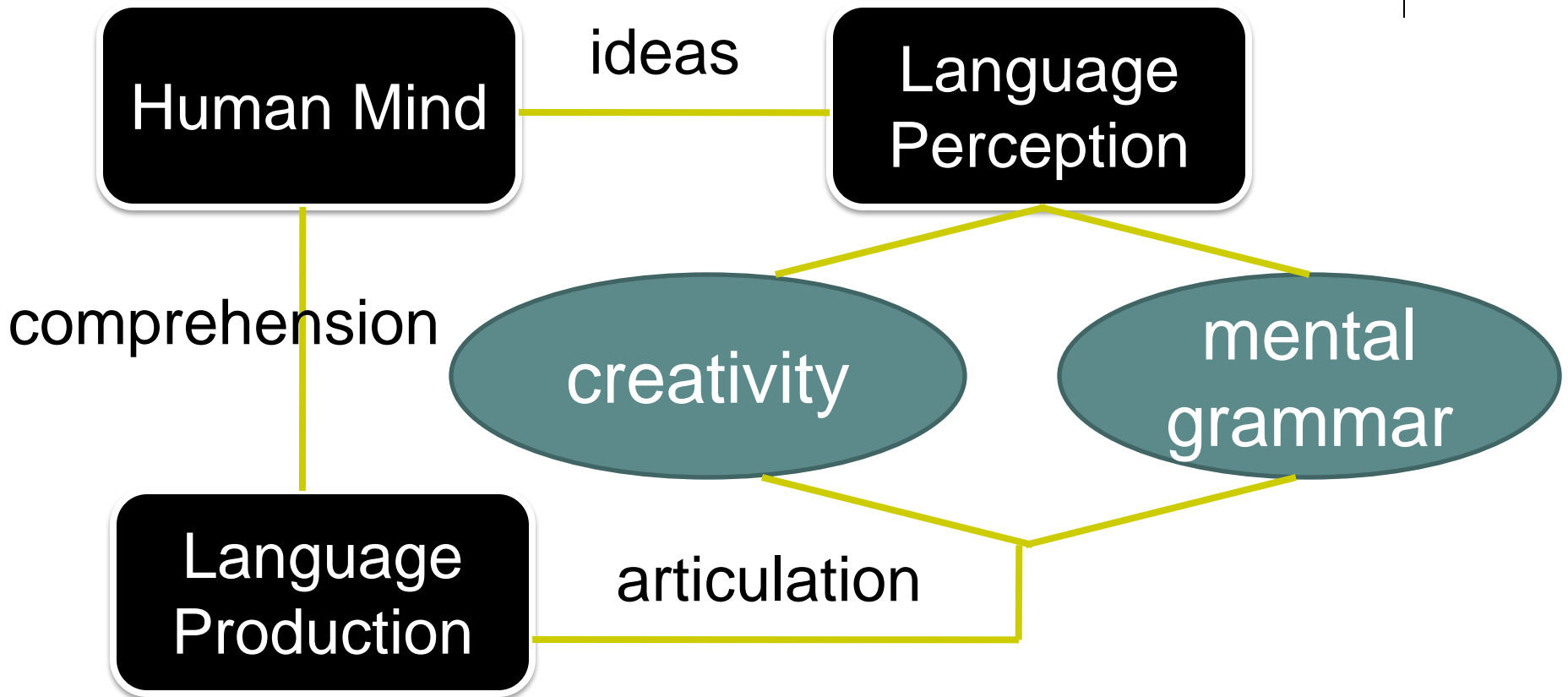
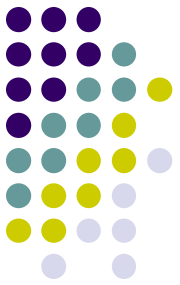


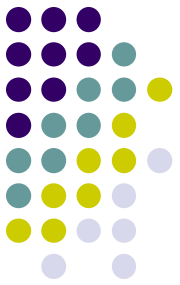
# Pragmatism

- a philosophy that evaluates assertions solely by their practical consequences and bearing on human interests
- Ideas are instruments and plans of action
- Based on the principle that the usefulness, workability and practicality of ideas, policies and proposals are the criteria of their merit
- Possession of any kind of language is a mastery of a body of techniques  
“to look for the meaning of a term one must look for its use”  
e.g. a broom? a street vendor?

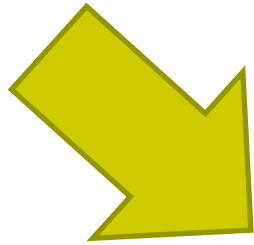
# Language Perception & Production







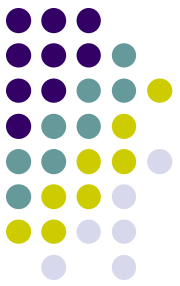
# Mental Grammar



an abstract system of unconscious knowledge about language that includes knowledge about sentence structure, word order, meaning, and sounds

e.g.        Bites the dog man.

              They live in a brown house.



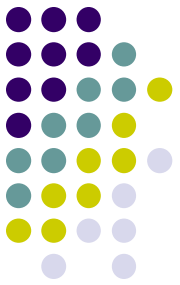
# Perception

- The process whereby sensory stimulation is translated into organized experience

**e.g.**

**“ Aku mungsuhe kancane mungsuhamu”**

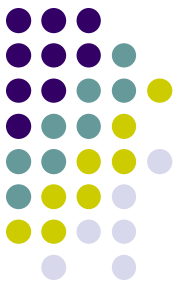
- Perceptual organization reflects innate properties of the brain
- Perception and brain functions are identical (isomorphic); to study perception = to study the brain



- the appearance of the object from a place where there is a brain (or, in lower animals, some suitable nervous structure), with sense-organs and nerves forming part of the intervening medium

e.g. The Star? tree? rabbit?





# Language Production

Imagine the situation of the following dialogues.

- First dialogue

A: Where's my briefcase?

B: *There's* your briefcase!

Person B points to the briefcase the same moment he says *There's*.

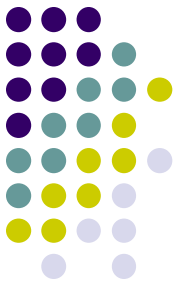
- Second dialogue

A: Where's my coat and briefcase?

B: There's your *briefcase*!

Person B points to the briefcase the same moment he says *briefcase*.

# Model for Speech Production (Level)



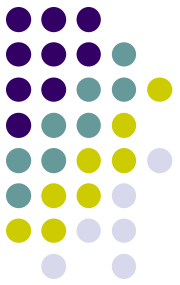
- Conceptualization
- Formulation
- Articulation
- Self-monitoring

# Conceptualization



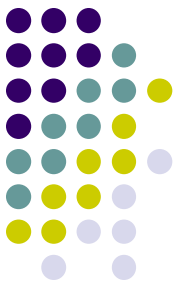
- Linguistic concepts are formed as two concurrent and parallel modes of thought.
  - *syntactic thinking*: segmented and linear, creates the strings of syllable, word, phrase, sentence
  - *imagistic thinking*: global and synthetic, tends to develop gestures to punctuate and illustrate conversation

# Formulation



- Think about this sentence:

*Rapid righting with his uninjured hand saved him from losing the contents of the capsized canoe.*

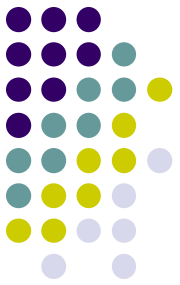


- Slips of the tongue/spoonerism

→ an actual word or phrase is created, often with a humorous twist to the meaning which was intended

e.g. the best in bread → *the breast in bed*

What is relevant to psycholinguistics is not what is being said, but how it is being said or misspoken.



- Further examples:

1. a reading list

2. big and fat

3. fill the pool

4. drop a bomb

5. sesame seed crackers

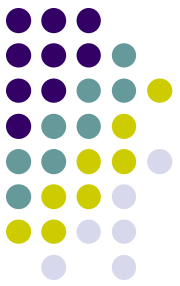
a *l*eading list

*p*ig and fat

*p*ill the *f*ool

*b*op a *d*romb

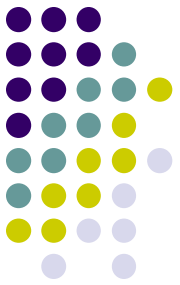
sesame street crackers



# Articulation

- The electrical impulses streaming from the brain in the form of speech are transformed into audible and comprehensible production
- Analogy in orchestra  
conceptualization? formulation? articulation?

# Self-monitoring

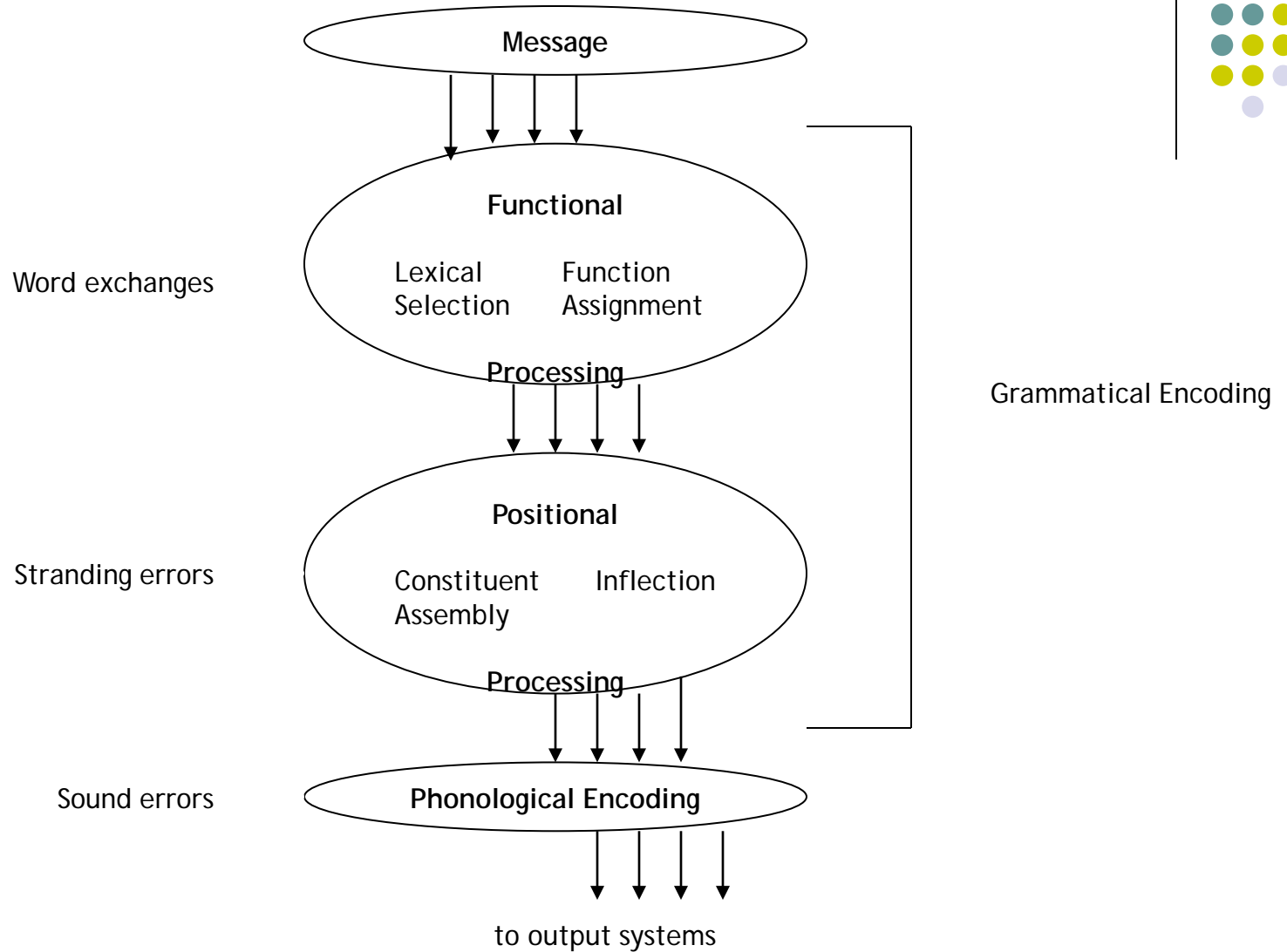
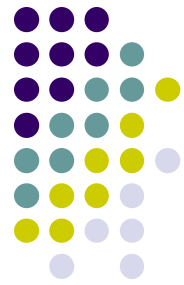


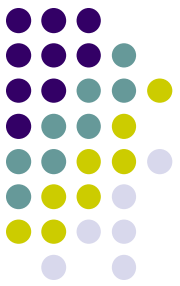
## Examples:

1. The last I *knowed* about it (I mean *knew* about it), he had left Vancouver.
2. She was so *drank* (I mean *drunk*), that we decided to drive her home.
3. I think it costs just about ... *uh* ... twenty-five dollars.



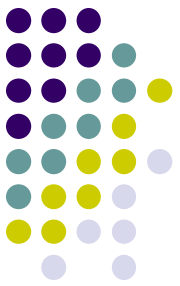
# Bock and Levelt (1994) Model of Speech Production



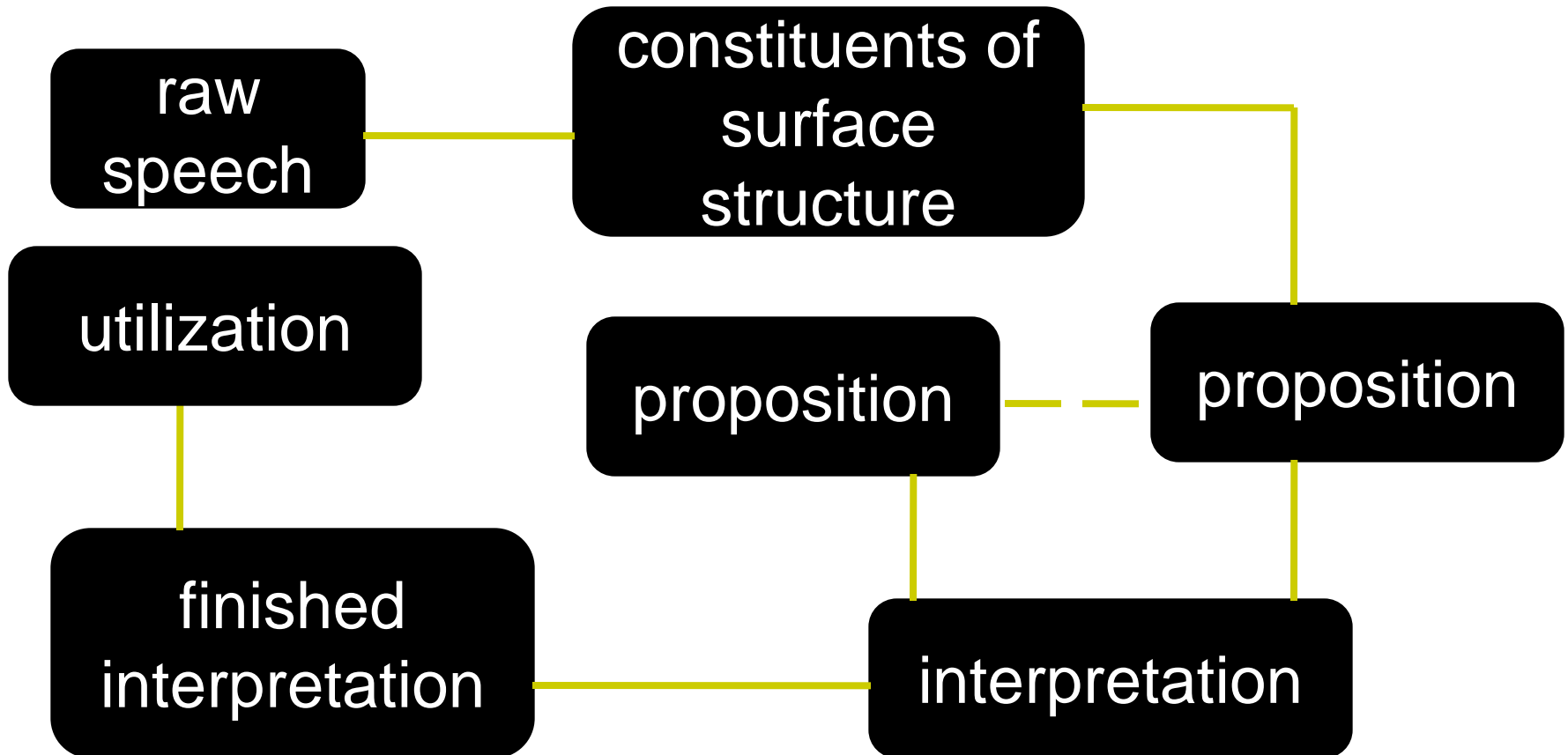


# Comprehension

- the process by which listeners come to an interpretation for a stream of speech. This is called the construction process
  - The Construction Process
- The process in which listeners use these interpretations for their intended purpose
  - The Utilization Process



# The Construction Process





# Psycholinguistics

**Week 3**



# First Language Acquisition

## How Children Learn Language

# Language Acquisition

- Language acquisition is the process by which language develops in humans.
- First language acquisition concerns the development of language in children
- Second language acquisition focuses on language development in adults.
- Historically, theories and theorists may have emphasized either nature or nurture as the most important explanatory factor for acquisition.



- Chomsky's Universal Grammar

→ children are born with a hard-wired *language acquisition device* (LAD) in their brains

→ without an innate ability for language, human infants would be incapable of learning such complete speech patterns in a natural human environment

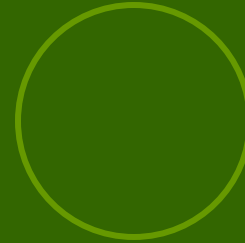
# Learning Condition of L1

- The L1 is picked up at home in the most natural situations, guided and controlled by those who are near and dear to a child,
- The learning of L1 takes place along with other aspects of biological growth such as walking
- The learning of L1 is governed by the principles of proximity, usefulness, concreteness, particularity and interest



# Factors Affecting L1 Acquisition

- Physical environment
  - the material surroundings of a child, e.g. dog, house, cat, tree, table
- Social environment
  - family and neighborhood
- Physical and economic resources
  - the economical condition of the family



- Motivation

- internal: the need for food, warmth, shelter; constant care, love and affection

- external: social interaction, self expression, creative behavior

e.g. children sometimes talk to cat, dog or dolls



- An outstanding feature of the early language learning experience is *egocentricity*
  - children only pick up language items that are absolutely essential for them
  - the earliest pronouns: I, me, my, mine

# Stages of Language Acquisition

- *Pre-babbling*

It is difficult to test children when they are first born. We can measure their interest in speech sounds by measuring their sucking rate. By doing this we have discovered that they come pre-equipped to hear phonetic contrasts even for languages not spoken around them.

→ the first cry of an infant functions as the crude starting point which makes possible all activities of the lungs and the speech organs



- *Babbling*

→ sounds produced in the first few months after birth which include sounds that do and do not occur in the language of the household.

Even deaf children babble. They seem to be testing out their vocal apparatus, and perhaps tuning the articulation to their own audition. They babble with hand gestures similar to the vocal babbling of hearing children.



- *Holophrastic*

→ refers to the one-word stage in which children produce one-word sentences (usually between 12 and 18 months)

At this stage utterances are one word long, though they often contain complex messages. Children have been shown to understand differences in word order at this stage even though they can't produce sentences with different word orders.



- *Two-word stage*

→ around the beginning of the second year; children begin to produce sentences of two words with clear syntactic and semantic relations.

Most children go through a stage where sentences seem to be limited to two words. There can be a large variety of two-word patterns, however, and the sentences continue to encode much more complex meanings.



- *Telegraphic speech*

→ utterances of children after the two-word stage when many grammatical morphemes are omitted

After the two-word stage there is an explosion in the child's capacity to form sentences, and developmental patterns are more difficult to describe. At this point it is better to simply test particular aspects and constructions from adult grammars to determine which aspects the children have acquired.



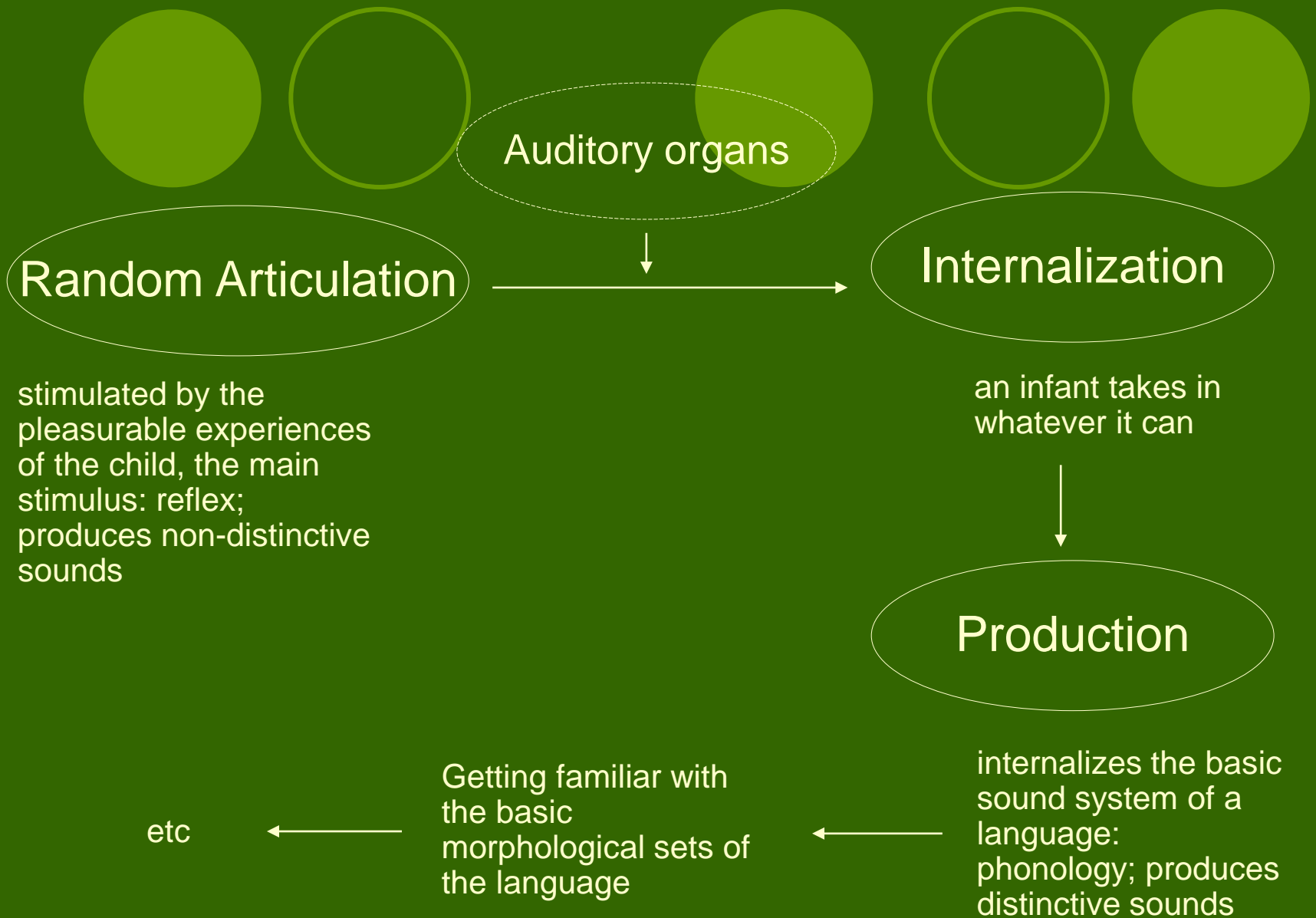
# Example





# Internalization of Linguistic System

- The entire language learning is a process of internalization of systems.
- Internalization of linguistic systems occurs at a variety of levels.
  - an infant is bombarded by the language utterances of the people around





- *mean length of utterance*
- A measure used to refer to the number of words or morphemes in a child's utterance
- More accurate measure of acquisition stage than chronological age of child



# Parentese & Baby Talk

# Parentese

- refer to the sort of speech which children receive when they are young
- Characteristics:
  - shorter syllables
  - parsing down words to phonemes
  - highly repetitive usage
  - raising pitch
  - slowing down the pace of speaking
  - simplifying the subject matter and sentence structure

# About what?

- names for relatives
- good and bad behavior
- animal names
- eating
- sleeping
- bathroom matters

# Baby Talk



- uses sounds and nonsense words
- involves the use of vocabulary and syntax that is overly simplified and reduced
- involves modification in vocabulary





# Speech & Language Milestones

0 – 7 years old children



# Pre-birth

- Auditory skills begin to develop
- Necessary for sound association

## 0 - 6 months

- Cooing and babbling;
- Continual awareness of sound (turns to sound, stops crying when spoken to);
- Uses eye gaze to indicate interest

# 7 – 12 months

- First true words appear (they are often people, or nouns);
  - Same syllable is repeated (mama, dada);
  - Child demonstrates increased understanding of daily routines.
- ## 12 months
- Child says 3-5 words;
  - Child recognizes his/her name & understands simple instructions;
  - Initiates familiar words, gestures, and sounds;
  - Child understands common objects and actions (e.g., cookie, eat, juice).

# 18 months



- Child uses about 10-20 words at age 18 months including names;
- Recognition of pictures of familiar persons, objects'
- Early 2-word combinations of words emerge;
- Needs are requested verbally such as "more, up";
- Child will point, gesture, follow simple commands, imitate simple actions, hum or sing;
- Distinguishes print from non print.

# 24 months (2 years)

- Child understands simple questions and commands;
- Identifies familiar actions/activities in pictures (i.e. "sleeping, eating");
- Follows directions to put objects "on, off, in";
- Puts two words together on average;
- Sentence length of up to three words;
- Child will refer to self by name;
- Labels pictures;
- Start to use the negative "not go";
- Final "s" is used for plurals;
- Vocabulary jumps to 300 words during the year! In fact between the ages of 2 and 4, kids may increase their vocabulary to 2 words per day;
- Children will stay with one activity about 6-7 minutes.

# 30 months (2.5 years)

- Child has about 450 word vocabulary;
- Child is able to give his/her first name;
- Child uses past tense, plurals, and combines nouns and verbs;
- Begin to identify objects from a group by their function and parts (ie. "which one has wheels?", "which one can we eat?");
- Begin to use verbs with "ing" endings (i.e. "eating");
- Early concepts such as "big, little" are identified;
- Child will use "no, not" and answer "where" questions.

# 3 years

- Child will name at least one color;
- Child will often talk during play, or when alone;
- Child can tell a basic story or idea;
- Child can use 3-4 word sentences;
- Begins to understand "not";
- Can identify items in a familiar category or group (i.e. "show me the animal");
- Child can have a vocabulary of up to 1000 words;
- Children are often able to tell their name and street.

# 4 years



- Child will follow 2-3 step commands;
- Child will ask many questions, including "who/why";
- Child talks in 4-5 word sentences;
- Understands and verbalizes spatial concepts more readily such as "on, under, next to..";
- Child will talk in the past tense correctly.





5 years

- Child defines objects by their function;
- Identifies spatial concepts such as "on, behind";
- Child uses 5-6 word sentences;
- Child understands many opposites;
- Child can use different tenses (past, present, future), and many sentence types.

# 6 – 7 years



- Child is developing phonological (sound/letter) awareness skills, and sound/word segmentation skills;
- Can generate creative sentences;
- Understands time/space concepts such as "before/after, first/second/last".

# When to be concerned?

Most children are saying simple words, such as "mama" and "dada" by age 1. But it's important to remember that children vary greatly in their speech development. Even so, a doctor would likely be concerned if a 2-year-old was not yet speaking. Children at this age can typically:

- Point to an object when it's named
- Recognize names of familiar people, objects and body parts
- Say about 50 words
- Use simple phrases by linking two words, such as "me up" (for "pick me up")
- Use simple pronouns (he, she, me) and prepositions (with, by)

A child whose speech isn't progressing should be checked by a doctor. Speech delays occur in up to 10 percent of young children. Causes include:

1. Being a twin
2. Slow development
3. Mental retardation
4. Autism
5. In addition, children living in bilingual homes may experience some speech delays as they learn to interpret and use two languages. This is normal.

# THE ACQUISITION OF PHONOLOGY, MORPHOLOGY, SYNTAX, SEMANTIC, & DISCOURSE IN CHILDREN

Week 4

# The Acquisition of Phonology

2

## Early Perception:

- By 1-2 months of age (perhaps from birth) infants have the basic sensory capabilities to discriminate speech sounds → “High-Amplitude Sucking”
- 6 months infants are able to discriminate any phonological contrast, independent of the surrounding language → “Visually reinforced head-turn”
- Between the end of their first year and the beginning of their fifth year children learn to distinguish among words that differ in only a single segment. Infant perception starts to resemble adult perception

# Order of Acquisition

3

Vowel contrasts



Consonant contrasts



Manner



Voicing in stops



Fricative contrasts

# During the Preverbal Vocalization

4

- *cooing* (2-4 months): mainly vocalic sounds, palatal, velar (resting place of tongue)
- *babbling* (rest of first year)
  - ▣ Anatomical and neuromotor factors play a critical role during this development (vocal tract length, position of tongue, velum, neuromuscular control of the tongue)
  - ▣ Increased control of laryngeal (voicing) and oral articulatory mechanisms
  - ▣ Labial and dental sounds
  - ▣ Both periodic and aperiodic sounds
  - ▣ Pitch and loudness manipulated
  - ▣ Gradually babbling starts to resemble adult-like syllables: true consonant+vowel

# During the Second Year

5

- General increase in use of true consonants
  - ▣ labials more frequent than coronals
  - ▣ coronals more frequent than velars
  - ▣ stops, nasals more common
  - ▣ fricatives less frequent – they require more precise articulatory control
- Vowels tend to be the basic “cardinal” vowels [i a u]
  - ▣ CV is the preferred syllable structure
  - ▣ Omission of word final consonant
  - ▣ Omission of fricative or liquid in cluster
  - ▣ Early words consist of 1 or 2 syllables



# Constraints on Speech Production

6

- Syllable deletion; e.g. animals [Qmz]
- Final consonant deletion; e.g. because [pikã]
- Consonant harmony; e.g. yellow [IEloU]
- Cluster reduction; e.g. pretty [pi□i], smile [sall], blocks [baks]
- Fronting of velars, palatals; e.g. cow [taU], show [soU]
- Stopping; e.g. move [mub], juice [dus]
- Gliding; e.g. love [jãv], red [wEd]

# Simplification Strategies

7

- Substitution; e.g. fis > fish
- Deletion: fish > ish
- Cluster reduction: spider > pider
- Metathesis: snow > nos
- Assimilation: dog > dod; duck > guck
- Chain shifts: truck as duck, duck as guck:  
substitution+assimilation
- Avoidance: comprehends the word but avoids it in articulation

- Phonological idioms: Child words which do not follow the pattern of sound changes attested elsewhere in the child's productions.
- Regression: a phonological idiom taking on a less mature form to become consistent with the rest of the system.

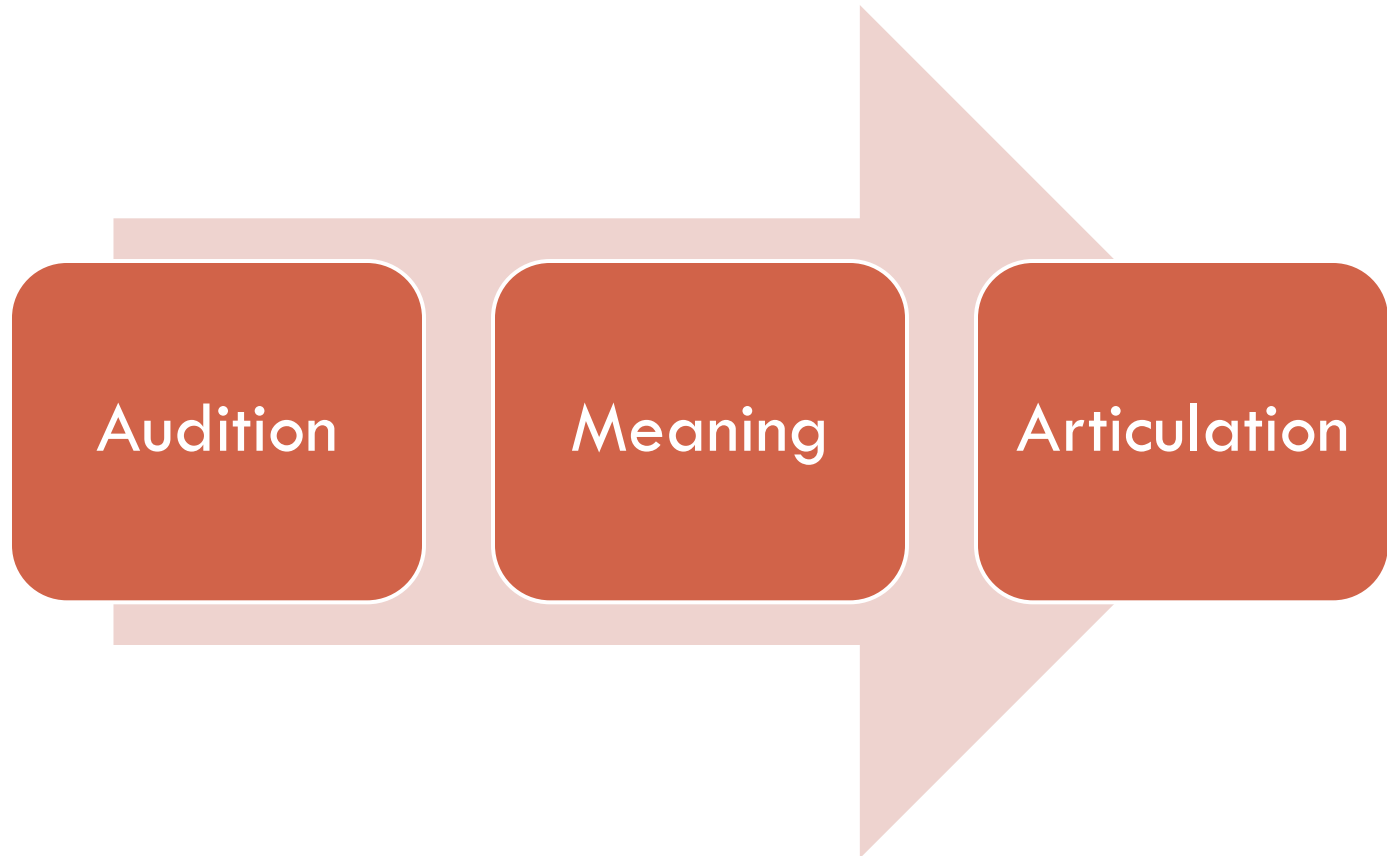
# Individual Variations in Acquiring Phonology

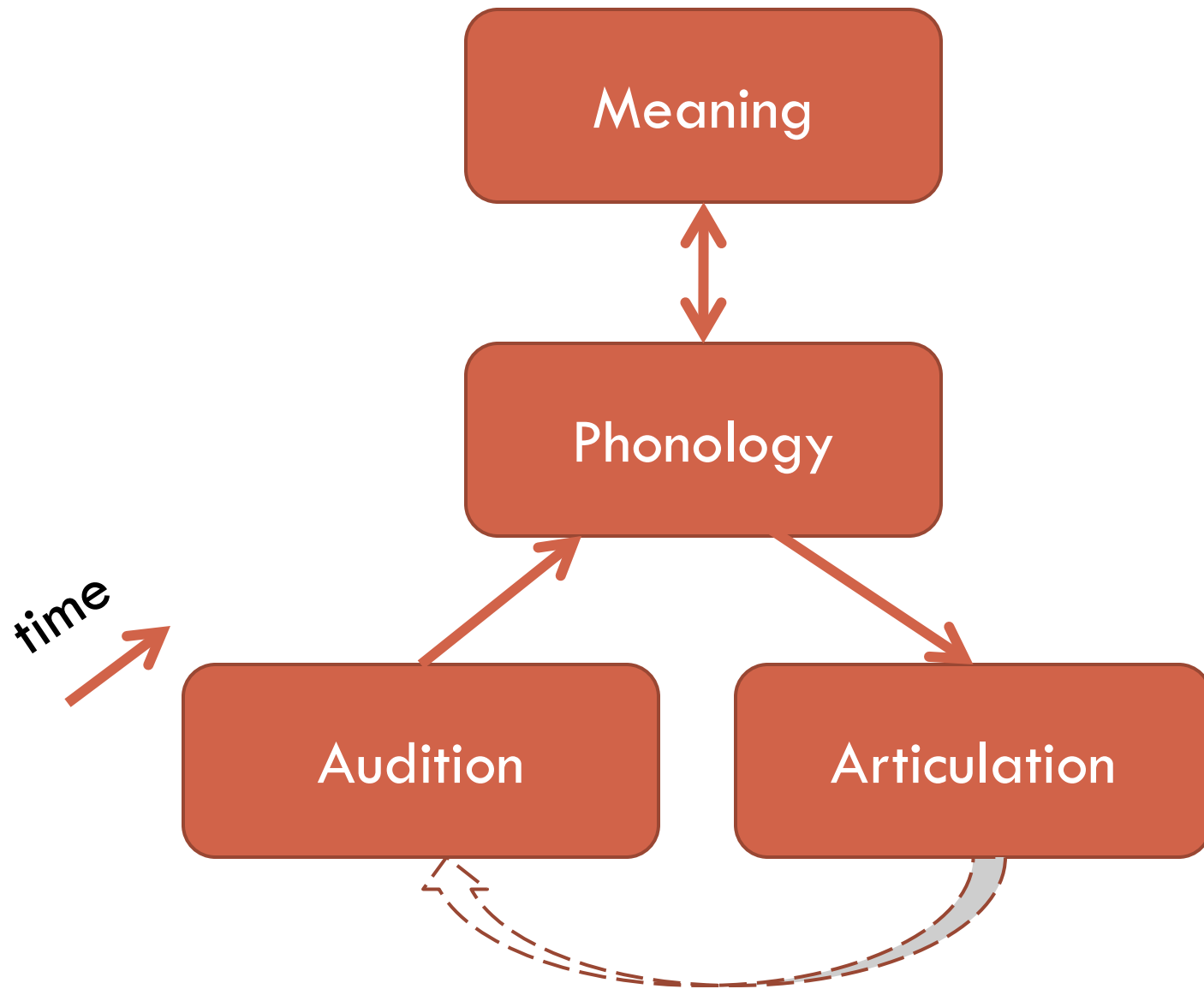
9

- Whether the child's earliest productions are segmentally detailed or whether they are better described as maintaining the suprasegmental pattern of the ambient language at the expense of phonological accuracy
- Whether they avoid words which they cannot produce and as a result give relatively accurate renditions of the words they do produce, or whether they attempt many words, resulting in substantial deviations from the adult forms.

# Perception & Production of Words

10





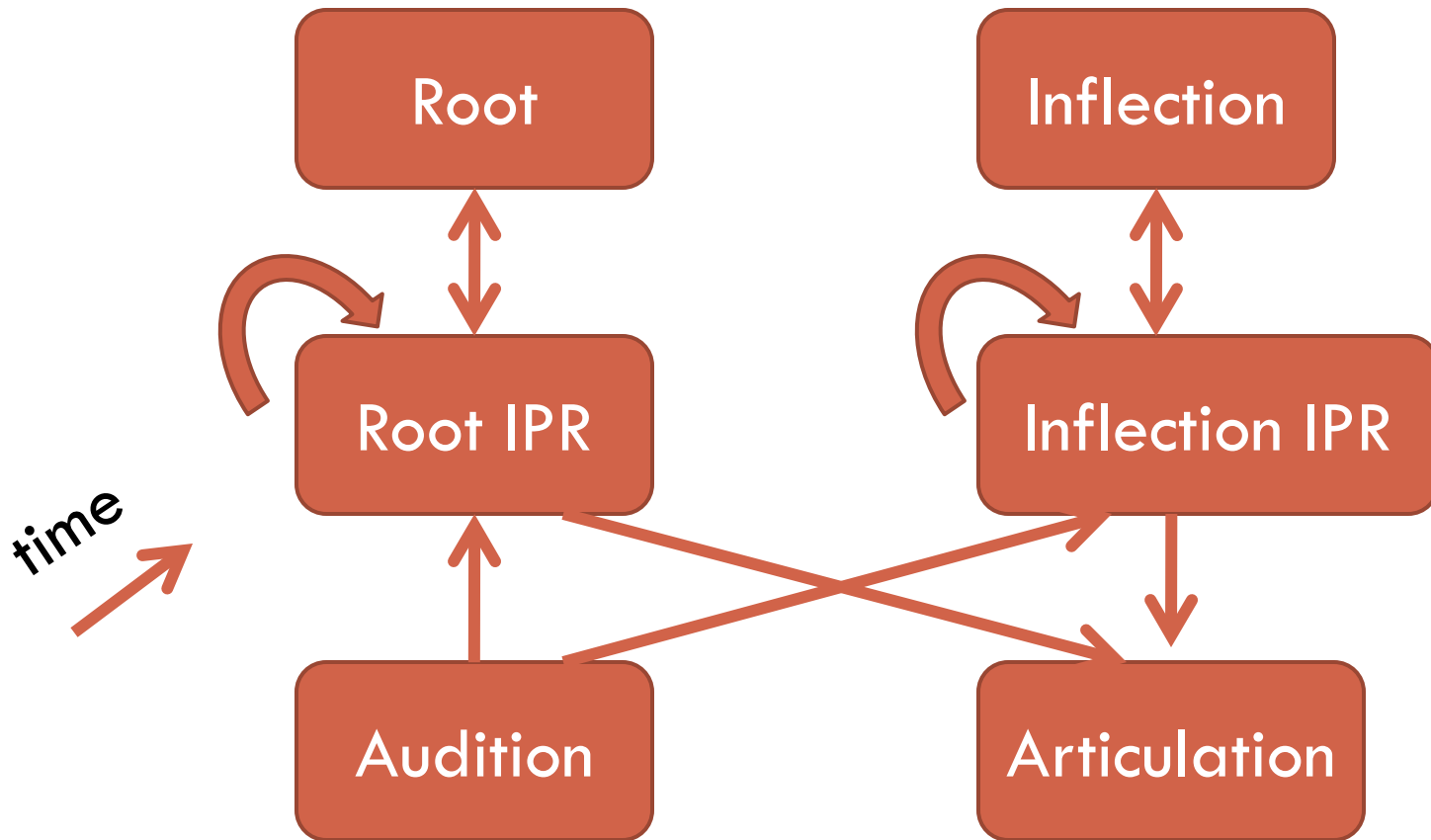
# The Acquisition of Morphology

12

- Word comprehension: mapping auditory form onto meanings (the concept of ‘here & now’ in parentese)
- Children start to show knowledge of morphophonemic rules around age 4.
- In English, children also “regularize” irregular forms

# Modular Connectionist Network for the Acquisition of Morphology

13



IPR: intermediate phonological representation



# Lexicon Acquired

14

- The principle of 'here and now'
- Content words before function words  
→ nouns > verbs > adjectives
- Basic level category: generic nouns
- Overextension vs underextension

# Strategies for Acquiring Lexicon

15

- Reference: everything has referents
- Object scope: the concept of bicycle
- Extendability: black cat? white cat?
- Categorial scope: hyponymy
- Novel name/nameless category: putting new words in the mental lexicon
- Conventionality: use of familiar words

# The Acquisition of Syntax

16

- The stage of child language where it progresses from mere concatenation of lexical items to adult language
- Child acquires morphosyntax – syntax & grammatical morphemes

# Learning a grammatical morpheme

17

- How does it sound? (including allomorphs)
- Where is it likely to occur in a sentence? (distribution)
- What is it used for? (syntactic function)

# Stages in Acquiring Syntax

18

Noun compounding  
(preschool)



Agentive suffix *-er* (8)



Instrumental suffix *-er*;  
adjectival *-y* (9-11)



Adverbial *-ly* (12-17)

# The Acquisition of Semantics & Pragmatics

19

- Communicative intents: egocentricism
- Discourse Organization (in Conversation)
  - ▣ Competence, maxims, rules
  - ▣ Speech acts
  - ▣ Conversational routines: opening, turn taking, closing
  - ▣ Conversational Exchange: Adjacency Pair, Question and Answer, Complex exchanges
  - ▣ Interactive Speech : Turn Taking, Simultaneous talk and Interruption

# Psycholinguistics





# Language and Communication

Animal Communication  
Wild Children and Language



# Animal Communication

- **Animal communication** is any behavior on the part of one animal that has an effect on the current or future behavior of another animal.
- The study of animal communication → **zoosemiotics**
- Animal communication is a rapidly growing field, and even in the 21st century so far, many prior understandings related to diverse fields such as personal symbolic name use, animal emotions, animal culture and learning, and even sexual conduct, long thought to be well understood, have been revolutionized.

# Intraspecies vs Interspecies Communication

- The sender and receiver of a communication may be of the same species or of different species.
- The majority of animal communication is intraspecies (between two or more individuals of the same species).
- However, there are some important instances of interspecies communication (between two or more individuals of different species).

What is this bird doing?  
With whom does he communicate?




# Interspecies Communication

- Prey to Predator
- Predator to Prey
- Symbiotic Species

# Prey to Predator

- **warning coloration:** species such as wasps that are capable of harming potential predators are often brightly colored, and this modifies the behavior of the predator, who either instinctively or as the result of experience will avoid attacking such an animal. Hoverflies are colored in the same way as wasps, and although they are unable to sting, the strong avoidance of wasps by predators gives the hoverfly some protection.
- **mimicry**
- canines such as wolves and coyotes may adopt an aggressive posture, such as **growling with their teeth bared**, to indicate they will fight if necessary
- rattlesnakes use their well-known **rattle** to warn potential predators of their poisonous bite.

- 
- Sometimes, a behavioral change and warning coloration will be combined, as in certain species of amphibians which have a **brightly colored belly**, but on which the rest of their body is colored to blend in with their surroundings. When confronted with a potential threat, they show their belly, indicating that they are poisonous in some way.
  - A more controversial example of prey to predator communication is **stotting**, a highly noticeable form of running shown by some antelopes such as Thomson's gazelle. In the presence of a predator; it has been argued that this demonstrates to the predator that the particular prey individual is fit and healthy and therefore not worth pursuing.

# Predator to Prey

- Some predators communicate to prey in ways that *change their behavior and make them easier to catch*, in effect deceiving them. A well-known example is the angler fish, which has a fleshy growth protruding from its forehead and dangling in front of its jaws; smaller fish try to take the lure, and in so doing are perfectly placed for the angler fish to eat them.

# Symbiotic Species

- Interspecies communication also occurs in various kinds of mutualism and symbiosis. For example, in the cleaner fish/grouper system, groupers signal their availability for cleaning by adopting a particular posture at a cleaning station.



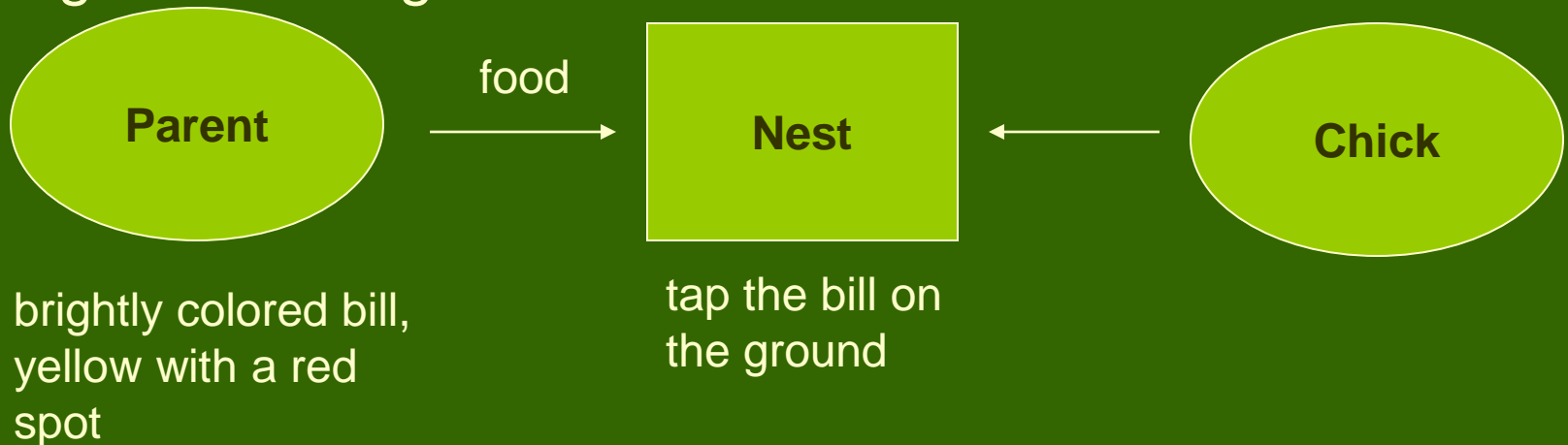
# Intraspecies Communication

- Forms of Communication
- Functions of Communication
- Evolution of Communication


# Forms of Communication

- The best known forms of communication involve *the display of distinctive body parts, or distinctive bodily movements*

e.g. the Herring Gull



- Accidental swallowing of pieces of brightly colored plastic or glass is a common cause of mortality among gull chicks).

- 
- Another important form of communication is *bird song*, usually performed mainly by males, though in some species the sexes sing in alternation (this is called duetting and serves mainly purposes of strengthening pair-bonding and repelling competitors).
  - Bird song is just the best known case of vocal communication; other instances include the warning cries of many monkeys, the territorial calls of gibbons, and the mating calls of many species of frog.



- **olfactory communication**

e.g.

- Many mammals → glands that generate distinctive and long-lasting smells, and have corresponding behaviors that leave these smells in places where they have been.

- Bees carry with them a pouch of material from the hive which they release as they reenter, the smell of which indicates if they are a part of the hive and grants their safe entry.

# Functions of Communication

- ***agonistic interaction***: everything to do with contests and aggression between individuals. Many species have distinctive threat displays that are made during competition over food, mates or territory; much bird song functions in this way.
- ***courtship rituals***: signals made by members of one sex to attract or maintain the attention of potential mate, or to cement a pair bond.
- ***food-related signals***: many animals make "food calls" that attract a mate, or offspring, or members of a social group generally to a food source. Perhaps the most elaborate food-related signal is the dance language of honeybees studied by Karl von Frisch.



- ***alarm calls***: signals made in the presence of a threat from a predator, allowing all members of a social group (and often members of other species) to run for cover, become immobile, or gather into a group to reduce the risk of attack.
- ***metacommunications***: signals that modify the meaning of subsequent signals. The best known example is the *play face* in dogs, which signals that a subsequent aggressive signal is part of a play fight rather than a serious aggressive episode.

# Evolution of Communication

- By comparing related species within groups, it is found that movements and body parts that in the primitive forms had no communicative function could be "captured" in a context where communication would be functional for one or both partners, and could evolve into a more elaborate, specialized form.
- The early ethologists assumed that communication occurred for the good of the species as a whole, but this would require a process of group selection which is believed to be mathematically impossible in the evolution of sexually reproducing animals.

# Interpretation of animal communication

- It is important to note that while many gestures and actions have common, stereotypical meanings, researchers regularly seem to find that animal communication is often more complex and subtle than previously believed, and that the same gesture may have multiple distinct meanings depending on context and other behaviors. So generalizations such as "X means Y" are *often*, but not *always* accurate.  
e.g. dog's tail wag



# Animal Communication and Human Behavior

- Ethologists have argued that facial gestures such as smiling, grimacing, and the *eye-brow flash* on greeting are universal human communicative signals that can be related to corresponding signals in other primates.
- Humans also often seek to mimic animals' communicative signals in order to interact with the animals. For example, cats have a mild affiliative response involving closing their eyes; humans often close their eyes towards a pet cat to establish a tolerant relationship. Stroking, petting and rubbing pet animals are all actions that probably work through their natural patterns of interspecies communication.

# Animal Communication and Linguistics

- Human languages are characterized for having a ***double articulation***. It means that complex linguistic expressions can be broken down in meaningful elements (such as morphemes and words), which in turn are composed of smallest meaningless phonetic elements, or phonemes. Animal signals, however, do not exhibit this dual structure.
- In general, animal utterances are responses to external stimuli, and do not refer to matters removed in time and space. Matters of relevance at a distance, such as distant food sources, tend to be indicated to other individuals by body language instead, for example wolf activity before a hunt, or the information conveyed in honeybee dance language.

- Human language is largely learned culturally, while animal communication systems are known largely by instinct.
- In contrast to human language, animal communication systems are usually not able to express conceptual generalizations.
- Human languages combine elements to produce new messages (a property known as *creativity*). One factor in this is that much human language growth is based upon conceptual ideas and hypothetical structures, both being far greater capabilities in humans than animals. This appears far less common in animal communication systems.



# Wild Children & Language

# Wild?

- A **feral child** (feral, i.e. "wild" or undomesticated)
  - a human child who, from a very young age, has lived in isolation from human contact and has remained unaware of human social behavior, and unexposed to language.
  - also includes children who have been purposely kept apart from human society, e.g. kept in a room in solitary confinement.
- How do they learn language??

# Language Acquisition in the Wild

- Quite obviously, feral, isolated and confined children who entered isolation before they could learn to talk never learned human language while in the wild, since they had nobody to teach them. They cannot spontaneously learn language.

- What many feral children do learn is to mimic animal sounds, and especially the sounds of their host families. Those that have lived with wolves are often reported as barking or whining, and those that have lived wild on their own are sometimes adept at recognizing and imitating the sounds of many different birds.
- What makes feral children particularly interesting to scientists researching the **critical period hypothesis** is whether or not they learn to speak after their return to human society.

# The Critical Period Hypothesis

- contends that the ability to learn a language is limited to the years before puberty after which, as a result of neurological changes in the brain, the ability is lost
- unless they are exposed to language in the early years of life, humans lose *much* of their innate ability to learn a language, and especially its grammatical system.



# What Language to Teach?

- Since language acquisition is so difficult for feral children who've missed out on the critical period, some attempts have been made to teach children sign language. However, sign language is a language in its own right and requires the same neurological development.

# After Returning to Civilization

- The ability of feral children to learn language on their return to human society is very varied.
- Some children acquire normal language ability, but only if found before the onset of puberty. E.g. Isabelle → in two years she covered the stages of learning that usually take six years.
- Some also learnt to speak normally, but it is assumed that they could speak before their period of isolation.

# Famous Examples



- List
- Romanian Dog-Boy
- Ugandan Monkey-Boy

# Human Language VS Animal Communication

Charles F. Hockett (1974)

# Facts about Human Language

- Human is capable of producing brand new sentences never before uttered in the history of the universe  
→ mental grammar
- Children develop complex grammars rapidly and without formal instruction and grow up to give consistent interpretations to novel sentence constructions that they have never before encountered  
→ universal grammar

# Design Features of Language

## Vocal-auditory channel

- Human communication utilizes sounds produced by a vocal system and received by an auditory system.
- The system leaves the rest of the body free to engage in other activities
- E.g. people also talk in the dark

# Sounds are transmitted in all directions

- The auditory system with two ears make it possible to detect and locate the source of the sounds with precision.
- Important for survival

# Transitory

- Sounds are heard and they rapidly disappear, allowing successive exchanges



# Interchangeable

- Senders of sounds can also act as receivers and vice versa.

# Total Feedback

- The senders of sound signals can also hear the sounds they are sending, so they can adjust or change the signals.

# Specialization

- The biological power of language signals is small but the result or consequence can be immense.
- The signals are produced solely for the purpose of communication.

# Semanticity

- The sound signals are meaningful.
- The series of sounds are assigned with meaning.

# Arbitrariness

- There is no necessary connection between the form of the signal and the thing being referred to.
- Onomatopoeic words?

# Convention

- The system and the meanings are conventional – agreed upon by the speech community

# Discreteness

- The sounds that make up the signal can be separated.
- Sentences can be parsed into phrases, phrases into words, words into morphemes, morphemes into phonemes.

# Displacement

- Human beings can communicate about things, activities, and ideas that are not tied to a certain place or time.
- They even talk about things that do not exist.



# Productivity

- The system is open for new inventions and development.
- New words, terminologies, expressions are coined or created.

# Socialization

- Or *Traditional Transmission*
- Human language is not something inborn.
- Human beings learn their first language through a process of socialization in a teaching-learning environment.

# Duality of Patterning

- The order of sounds that make up a signal may be changed to form a new word because they consist of phonological elements (phonemes) that do not carry meaning.
- E.g. *tap, pat, apt*

# Prevarication

- A message may be a truth or a lie or nonsensical.
- Human beings can lie and negate.
- The negation occurs only in verbal language

# Reflexivity

- Human language can be used to talk about itself.
- Parts of speech are correctly used unconsciously.
- E.g. *run* is a verb, *room* is a noun

# The system can be learned

- A speaker can learn another language and use it.
- It is possible to translate from one language to another.

# Which is the most important?

- Vocal-auditory channel
- Sounds transmission
- Transitory
- Interchangeable
- Total feedback
- Specialization
- Semanticity
- Arbitrariness
- Convention
- Discreteness
- Displacement
- Productivity
- Socialization
- Duality of patterning
- Prevarication
- Reflexivity
- The system can be learned

# Assignment

Do you agree or disagree with the following quote?  
Why?

***“It’s about as likely that an ape will prove to have a language ability as that there is an island somewhere with a species of flightless birds waiting for human beings to teach them to fly.”  
(Chomsky, On the Nature of Language)***



The background features several large, flowing, abstract shapes in shades of purple, green, and blue. Interspersed among these are numerous small, yellow, triangular shapes that resemble sun rays or decorative accents.

# Sign Language, Written Language & the Deaf

Week 7



# Oral vs Written Language

## Oral Communication

- Dynamic form of transfer
- More effective in expressing meaning to the audience
- Uses words with fewer syllables, shorter sentences, and self-referencing pronouns


## Written Communication

- Static form of transfer
- More precise
- Sophisticated and intricate



# Sign Language?

- any means of communication through bodily movements, especially of the hands and arms, used when spoken communication is impossible or not desirable
- employs a delicately nuanced combination of coded manual signals reinforced by facial expression and perhaps augmented by words spelled out in a manual alphabet
- Used to bridge the gap between communicators, one of whom has hearing impairment

- 
- a language which uses manual communication instead of sound to convey meaning - simultaneously combining hand-shapes, orientation and movement of the hands, arms or body, and facial expressions to fluidly express a speaker's thoughts
  - sign languages develop in deaf communities, which can include interpreters and friends and families of deaf people as well as people who are deaf or hard of hearing themselves



# Language Barrier?

- When people using different sign languages meet, communication is significantly easier than when people of different spoken languages meet. Sign language in this respect gives access to an international deaf community.




# American Sign Language

- a complete, complex language that employs signs made with the hands and other movements, including facial expressions and postures of the body
- the first language of many deaf North Americans, and one of several communication options available to deaf people
- the fourth most commonly used language in the United States

# Is Sign Language the Same?

- No one form of sign language is universal

BSL  $\neq$  ASL  $\neq$  FSL



# Compare with Spoken Language?

- In spoken language, the different sounds created by words and tones of voice (intonation) are the most important devices used to communicate
- In sign language, sight is the most useful tool a deaf person has to communicate and receive information



- 
- ASL is completely separate from English

e.g. in asking question:

English → using a particular tone

ASL → tilting body forward, raising eyebrows & widening eyes

# Linguistics of Sign

**H O L M E**

**H**andshape/Handform

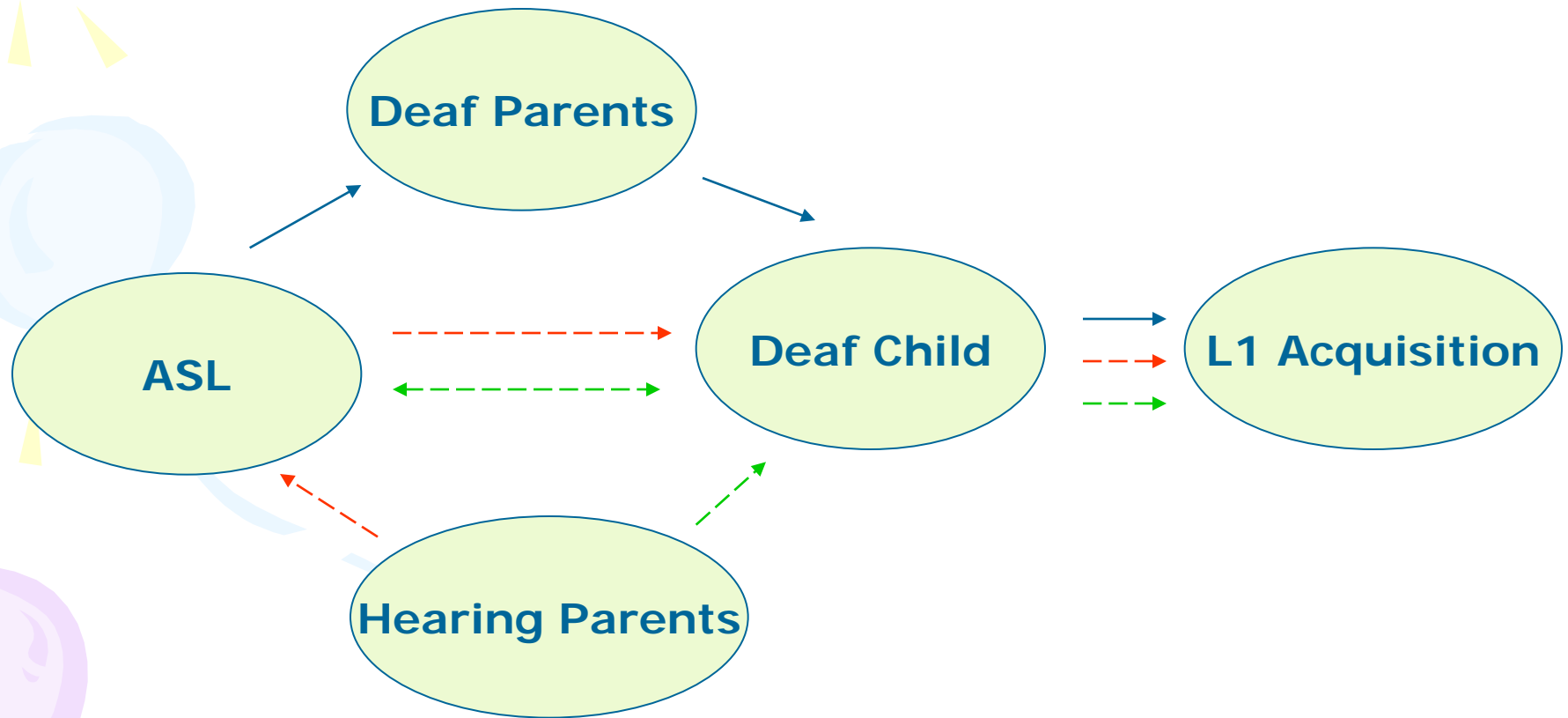
**O**rientation/Palm Orientation

**L**ocation/Place of Articulation

**M**ovement

**E**xpression

# Why Emphasizing Early Language Learning?



# How do the deaf learn written language?

- initially associating the speech sounds with the environmental experiences
- discovering the meaning of the written vocabulary items and then induce the syntactic relations that pertain to those items, just as hearing people do with speech

# A number of Distinct Advantages to the Written Language Approach:

- 1) The learning medium is appropriate
- 2) Written language knowledge need not be acquired by the instructor
- 3) Instruction can begin early
- 4) All hearing-impaired children can benefit
- 5) Written language acquisition is compatible with other approaches
- 6) Written language knowledge can facilitate speech
- 7) Written language can raise intellectuality

# The differences between oral, sign and written language

Types of lang.	Oral language	Sign language	Written language
Attributes			
Means of transmission	sounds	signs, gestures	verbal signs (writing)
Users	hearing people	hearing impaired people	all people
Complexity	++	+	+++



**Look at the following verbal signs**



HOOKER ST







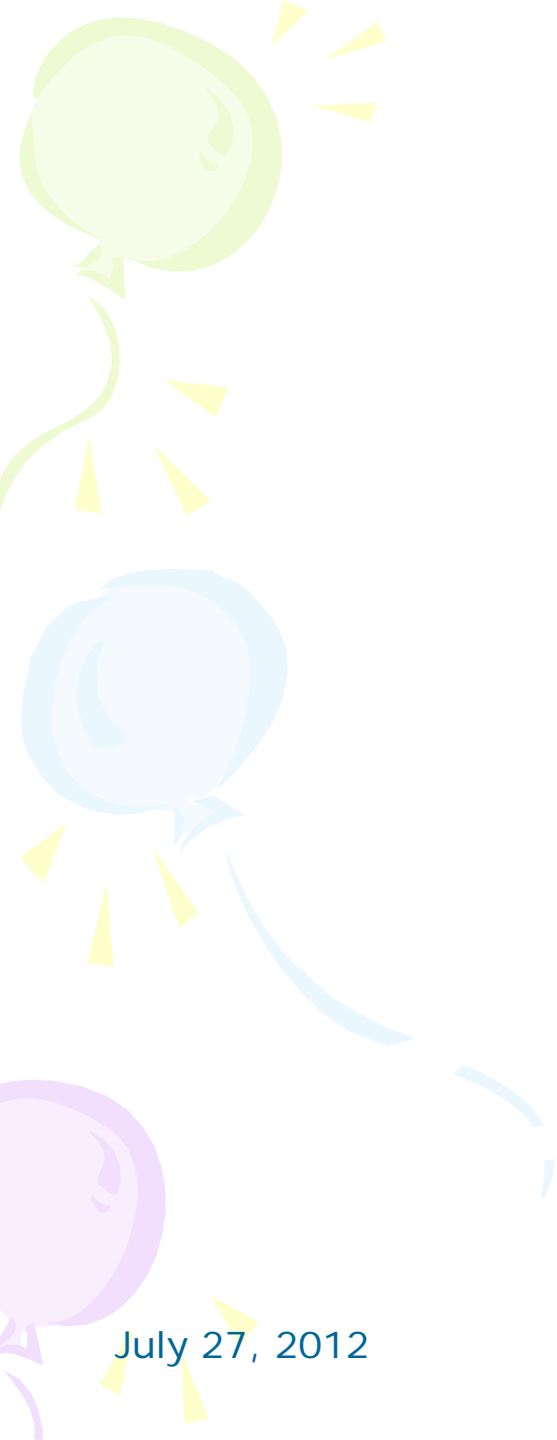


July 27, 2012

[psycholing/ts/2009](http://psycholing/ts/2009)

19





# Review

July 27, 2012

psycholing/ts/2009

21

# Psycholinguistics

Week 8

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# Linguistic Competence & Performance

and their relation to Language Learning



# Review

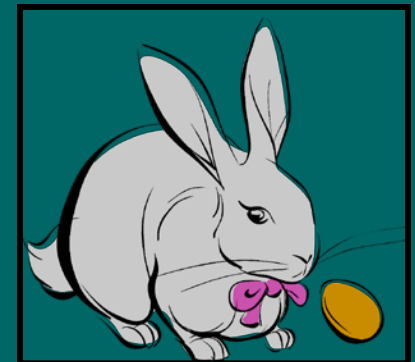
- Stages in L1 acquisition

pre-babbling → babbling → holophrastic  
→ two word stage → telegraphic speech

Mother  
*doll*



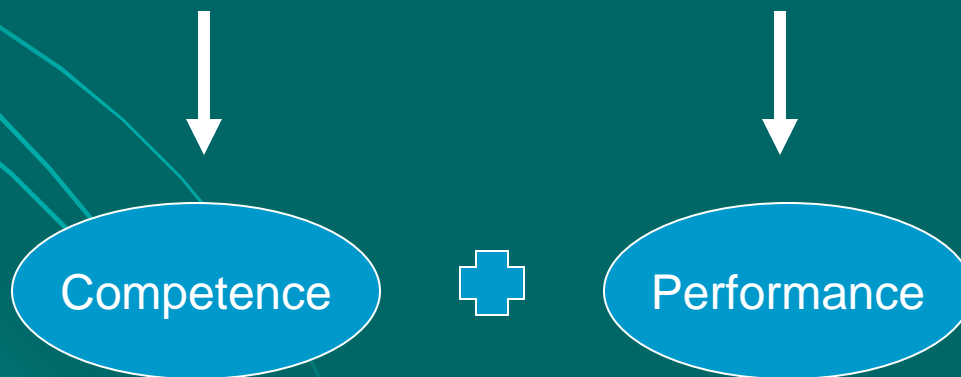
Baby  
*da*





# Children's Interaction

- Children's interaction development with the world outside involves both the verbal and non-verbal aspects  
→ language and experience



# Essence of Linguistic Competence

- Linguistic Competence
  - the speaker's ability to comprehend and produce a language in accordance to the norms of the language he is using/acquiring
- Language competence develops through language use.
- Proficiency: development of language competence through language use.
- Basic language use skills:
  - Speaking, listening, reading and writing

# Redefining Language Competence

- Organizational Competence

- Grammatical Competence
- Textual Competence

- Pragmatic Competence

- Illocutionary Competence
- Sociolinguistic Competence

- Grammatical competence (Unconscious knowledge of possible grammatical structures in an idealized speaker)
  - What eats John?
  - What does John eat?
- Performance (Actual production and comprehension of language in specific instances of language use)
  - Whe..When are you coming?
  - I don't... well uhm, maybe tomorrow.

# Experience

- Verbal/linguistic experience
- Non-verbal/paralinguistic experience

→ Even before a child is in the position to utter the units of his language, his contacts with the world outside assume specified roles in the formation of linguistic competence

→ pre-verbal experience

# Pre-Verbal Experience

- Forms the earliest elements of the babies' linguistic competence
- Much before the first word or utterance is produced, the child manifest patterns of behavior
  - the result of an intrinsic cognitive modification (linguistic competence)
- e.g.
  - Most children looked at their parents with lots of expression on their face and readiness for verbal utterance when the doorbell rang.

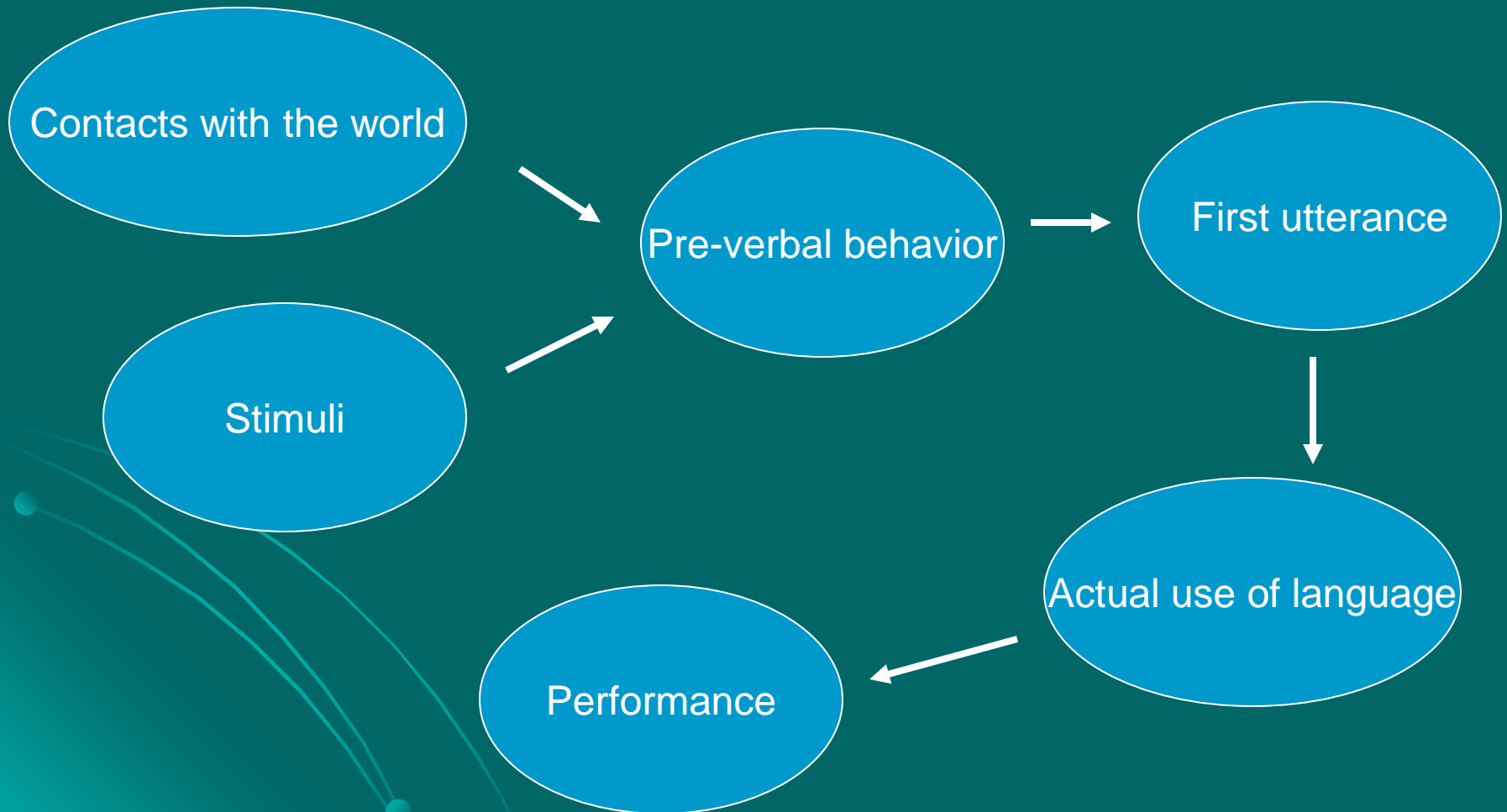
- The child at a very early age receives stimuli from the social and physical environment, and in reacting to these stimuli he reveals the working of the rudimentary cognitive structure

e.g.

- When the parents utter the word 'doll', the child lifts a doll and points it towards the parents as if he is saying: *Take, here is the doll or Mummy, do you want the doll?*

→ the result of elementary comprehension of adult language

# The Formation of Linguistic Competence






# Linguistic Performance

- The actual use of language in all its manifestation: listening, reading, speaking, writing.
- Competence → the possession of a specific language ability
- Performance → the actual operation of linguistic competence in terms of the four basic skills of language

# Important Notes

- It is the development and possession of the language skills rather than knowledge of the aspects of language which results in the acquisition of linguistic competence.
- Intellectual or cognitive possession of the aspects of language → the result of the individual mastery of the language skills



It is possible for an individual to have an intellectual possession of the knowledge of the aspects of a given language without the ability to speak, write or read the language

- The essence of performance consists in the actual use of the language in any of the four basic skills.

→ competence is actualized in a set of operation in the performance

# Linguistic Competence: a Process of Development

- Competence begins taking shape at the earliest phase of a child's pre-verbal behavior
  - several months after birth
- Some surveys have been conducted to study the pre-verbal behavior pattern of children between the age of 5 – 15 months

# Results

- Children made very primitive and rudimentary attempts to communicate with the adults even at the age of as early as 5 months  
→ the pattern of behavior is expected to be voluntary
- Attempts made are not only to get their intention fulfilled but also to call the attention of the parents and others  
→ by means of articulations which belong only to the random articulation category to the stage of distinctive sound production

- The behavior patterns vary very much; there is a definite progress in:
  - communicational ability
  - motor ability
  - explicitness of behavior
  - clarity and force of articulation
  - greater response to adults demands (result of greater comprehension)

- increase in the number of nonsense units with definite semantic content
- increase in the number of gesticulation which accompanied any utterance
- increase of the vowel and consonant sounds
- increase in the number of noun phrases

- Progressively responding to the requests of adults with increase both in the intensity of the intonation and facial expressions that accompanied the utterance while the responses were made



# Conclusion

- Linguistic competence is a progressively emerging factor that is difficult or almost impossible to mark its beginning
- Linguistic competence goes deeper than and far beyond the earliest complete utterance in the structure of the language
  - it has its deep pre-verbal roots in comprehension
- Language acquisition = the development of linguistic competence

# Language Errors

- The most usual errors made by children under the age of three: the use of plurals and past tenses

↓  
using -ed in analogues manner

goed, spitted

↓  
generalizing -s

mans, oxes

boys, girls, toys

# Find and Explain

1. Why don't you eat faster, son? I am eating spoon, Mum.
2. Look he climbing up the tree.
3. My hairs gone white.
4. She spitted my begs.
5. Uncle drinking cigar.
6. That glass broke, daddy.
7. Please, be sittted, sir.
8. She is seeing at me.
9. I ran him ahead.
10. Daddy rubbing the table.

# Sentence Processing

Journalists say that when a dog bites a man that is not news, but when a man bites a dog that is news.

# Sentence Processing

Syntactic Level

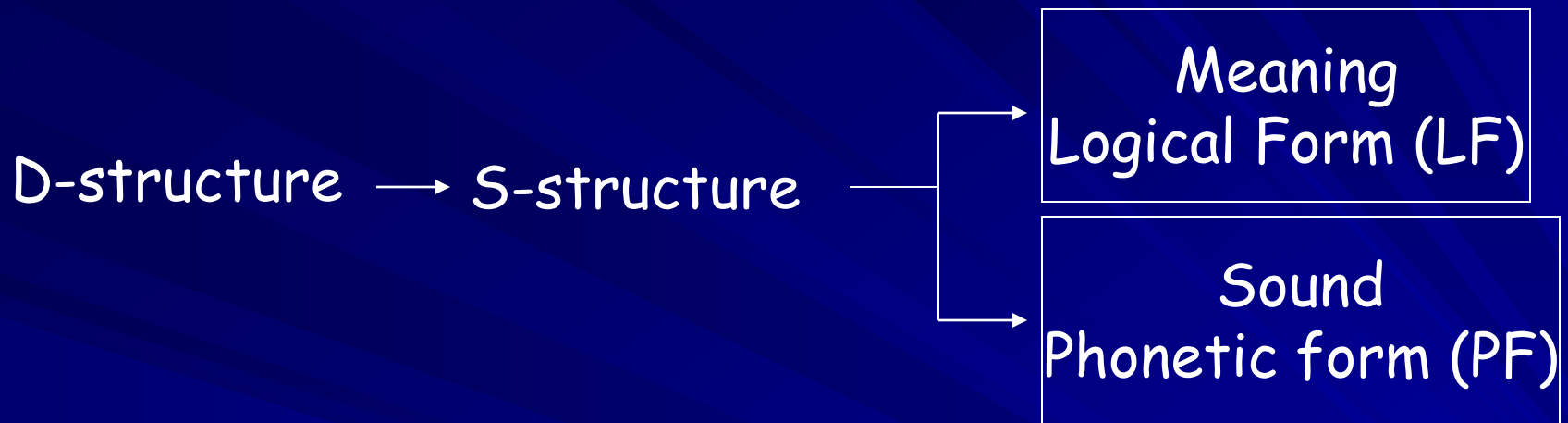
Semantic Level

Pragmatic Level

# Syntactic Level

Chomsky:

- Sentence production  
Meaning → [syntax + ?] → Sound
- Sentence understanding  
Sound → [Syntax + ?] → Meaning



How would linguists and psycholinguists view the following set of sentences?

1. The dog catches a ball.
2. Dog catch ball.
3. Catches dog a ball the.



# Semantic Level

- refers to the meanings of individual content words and their relations in sentences
- semantic factors can also manipulate in the degree to which the content words in a clause can be integrated (French, 1981):
  1. The little baby drank the milk. - Well integrated.
  2. The aunt saw the door and left. - Poorly integrated.
  3. My tasty owner spilled the captain madly. - Anomalous.

- The sentences varied also in syntactic complexity as in:

1. The boy hit the ball. - Simple
2. The boy hit the ball and ran. - Compound
3. After hitting his sister, the bother cried. - Complex
4. The ate fat grass green cattle the. - Scrambled

- French (1981) presented such sentences word by word in rapid serial visual presentation (RSVP):

~ At a slow speed, fourteen words per sec.

~ At a fast speed, twenty words per sec.

# Pragmatic Level

- involves the use of context (situational or linguistic - preceding or following sentences, discourse topic) and knowledge of the world
- sentence comprehension depends partly on the plausibility of the event that it describes:
  1. **A plausible sentence:** a highly likely event in which the agent and the patient play typical roles for a given action or verb  
e.g. The mother feeds her baby milk.
  2. **An implausible sentence:** a highly unlikely event  
e.g. The baby feeds its mother milk
  3. **A neutral sentence:** depicts an event in which the agent and the patient can exchange their roles  
e.g. The baby smiles at the mother.

- A grammatical judgment requires only superficial processing of a sentence.

e.g. The patient was treated by the doctor.

- Normal adults may rely on plausibility when the sentence structure is unusually complex, as are centered-embedded sentences:

1. The cat that the dog that the man stroked bit miaowed.
2. The boy whom the girl whom the man kissed saw left.
3. The man that the cat that the dog stroked bit miaowed.

See page 125 for the processes of sentence production

## *Models of Sentence Production*

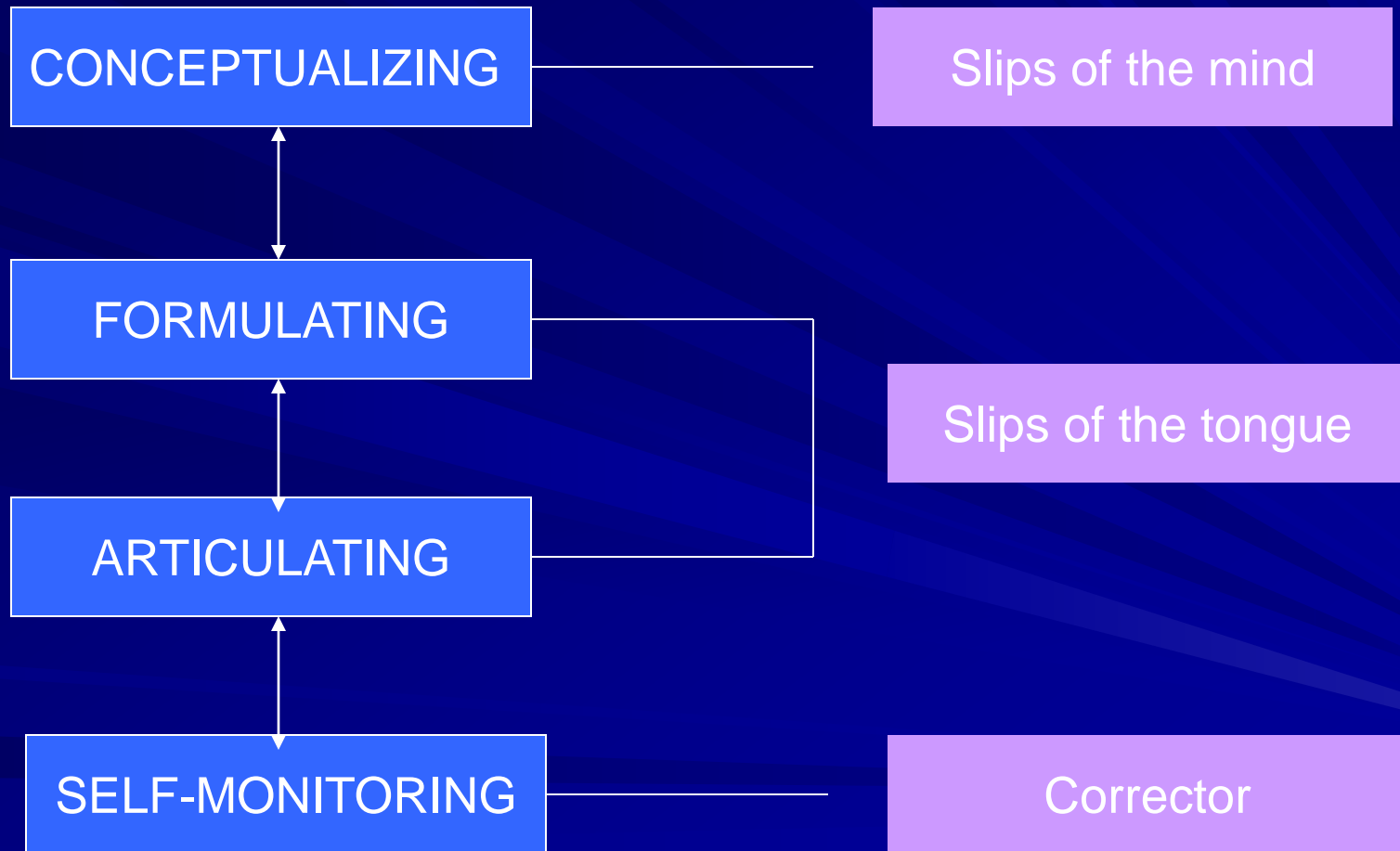
- There are two models of sentence production:
  1. The top-down serial production model.

Sentence production involved several levels:

    - a. Conceiving a message.
    - b. Formulating a syntactic frame.
    - c. Selecting content words
    - d. Specifying phonetic shapes.
    - e. Instructing the articulators.
  2. The parallel model.
    - the message, syntactic, and lexical modules are acting asynchronously in parallel in cascade.

# Speech Errors & Slips of the Tongue

# From thought to speech or written text





# Tongue twisters

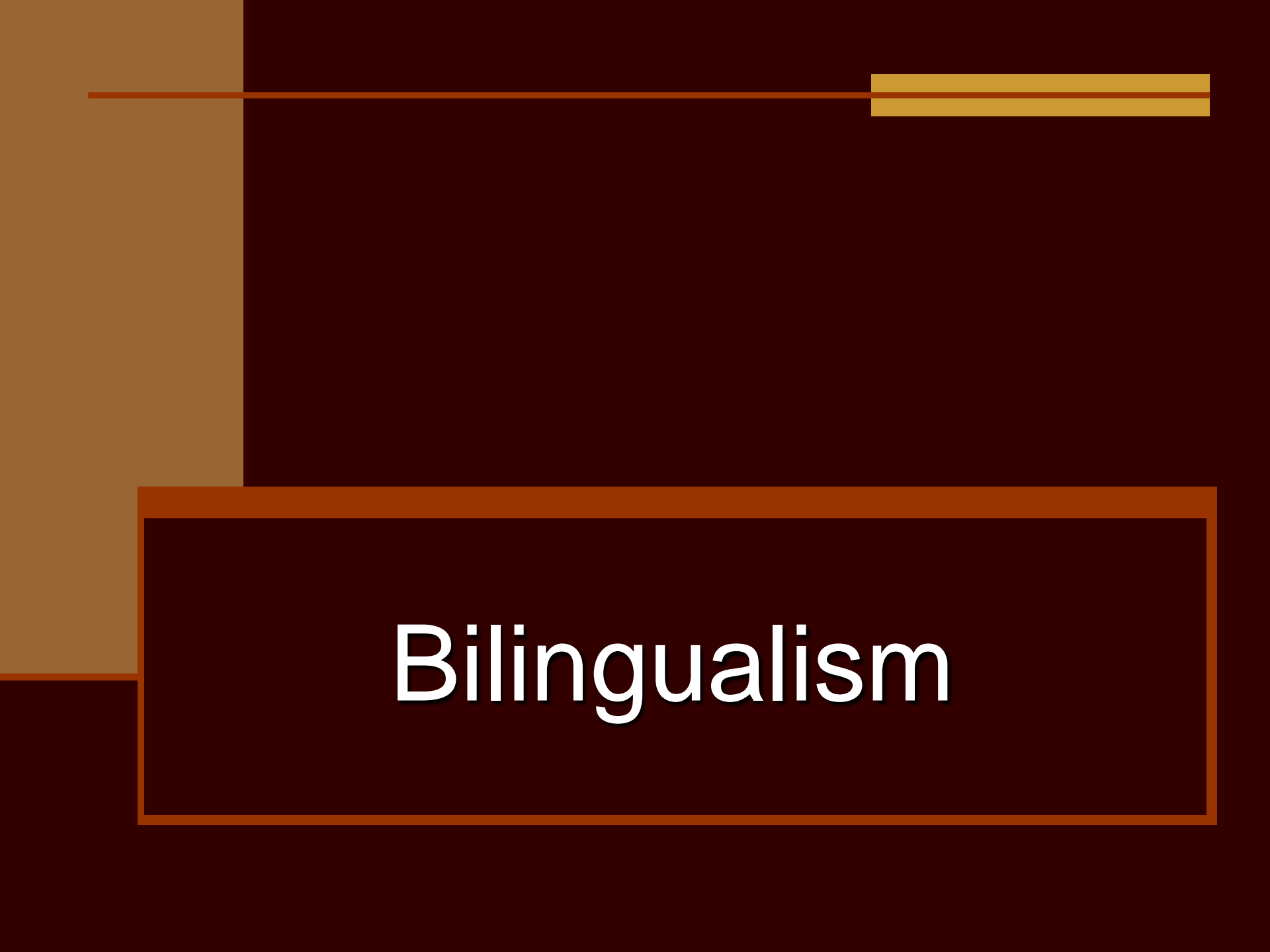
Ask a friend to read the following 3 times rapidly and repeat 3 times from memory.

- The balloon had no gun and could get the ballet.
- From the belly a gun will not get me a ballot.

# Types of Slips of the Tongue

- Anticipation → using a language element (like a phoneme, or perhaps an entire word) before it is appropriate; e.g. "a wonderful world" -- "a wonderful world".
- Perseveration → using a language element that was appropriate earlier in a sentence but is no longer appropriate; e.g. he pulled a pantrum
- Substitution → substituting one language element for another. e.g. "morphines" -- "morphemes"
- Transposition/exchange/shift → switching the positions of two language elements; e.g. "butterfly" -- "flutterby" ; fancy getting your model renosed

- Malapropism → replacing one word with another, similar-sounding word; e.g. "the very pineapple of politeness" -- "the very pinnacle of politeness."
- Insertion or Deletion → adding to or removing sound from a word or series of words; e.g. "mischievious" -- "mischievous", "breakfas'es" -- "breakfasts."
- blend → blending two different words into one by taking the syllables only; e.g. "beginu"



# Bilingualism

# Bilingual & Multilingual

- Bilingualism: The study of those who speak two or more languages, when and where they speak each, and the effect of one language on the other (Chaika; p.25)
- Bilingualism: How two or more languages are acquired or learned (Steinberg; p.329)
- Bilingual: A person who knows more than one realization of language in the same modality (the same sound or sign) or two languages based on different modalities (Steinberg; p.242)

# Being multilingual?

---

- Interest strongly to other foreign languages
- Growing up in a multilingual community
- The children of multilingual-parents or expatriate
  
- Early bilinguals
  - those who have acquired their languages before about age 6
- Late bilinguals
  - those who have learned their languages in adolescence

# Factors of Multilingual Occurrence

---

- Migration
  - new society = new language
- Religion
  - learning the language of the scripture
- Geography
  - trading
- History
  - colonialism
- The society relationship
  - different tribes = different language

# Types of Bilingualism

## ■ Coordinate bilingualism

→ someone who learns two or more languages in different places

→ a child who learns a foreign language at the school in the origin society

## ■ Compound bilingualism

→ someone who learns two or more languages in one place at the same time

→ a child who grows up in multilingual family



# Simultaneous acquisition

- 1. Speakers of the different languages use only one language each when talking to the child.**  
e.g. :Mother speaks only German while father speaks only Indonesian.
- 2. Speakers use two different languages while speaking to the child.**  
e.g.: Mother and father use both German and Indonesian.

# Sequential acquisition

---

- Parents speak one language and the community at large speaks another.

e.g.: A couple of Jakarta come to Bantul, they speak Indonesian with their child. At the age of 4, their child will speak Javanese with his playmates and speak Indonesian at home with parents.

# Multilingual Behavior

---

- Code-switching
- Code-mixing
- Interfering
- Translating

# Transfer Effects

- The greater the similarity between two languages in terms of their syntax, vocabulary, and sound system, the more rapid one acquire those two languages.
- The better knowledge and proper environment will facilitate acquisition of the other language.
- Double trouble phenomenon  
When a multilingual who can speak France and Japanese while he is a native English try to use France, his Japanese unexpectedly come to mind.

# Negative Effects

---

- ✎ Bilingualism caused retardation in language development.
- ✎ More stutterers among bilinguals than among monolinguals.
- ✎ Extensive use of two languages may subtly alter a bilingual's phonetic, semantic, and syntactic structure and behavior.
- ✎ The bilinguals were slower and less accurate than the monolinguals in every condition.

# Positive Effects

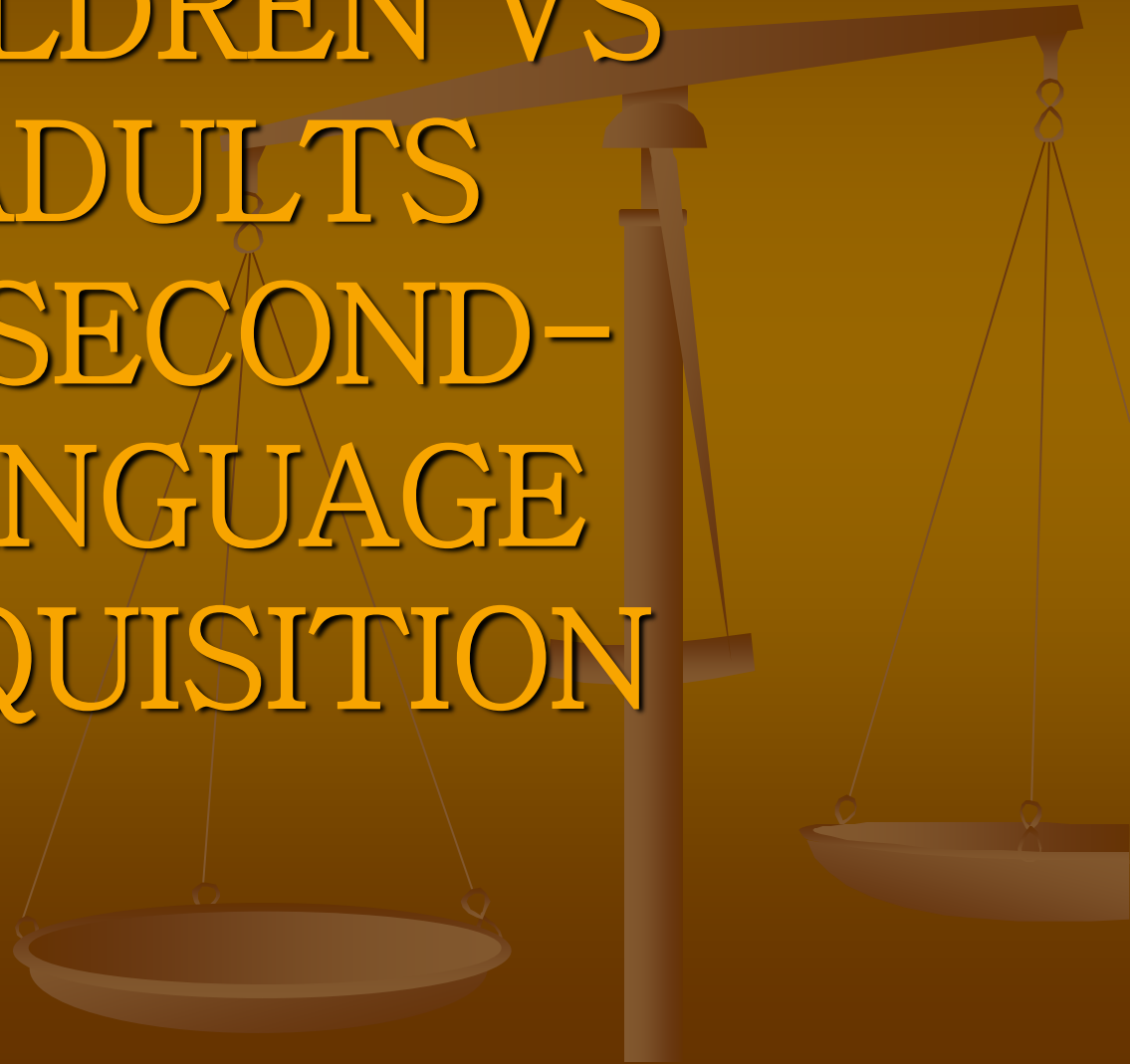
- ✎ Parents of the children may have in some way affected the outcome.
- ✎ It enables people to communicate with members of other cultures.
- ✎ Further cooperation and understanding among nations and peoples.
- ✎ The children were raised either monolingually or bilingually by their parents under the guidance of the researchers.
- ✎ The bilinguals to be superior to the monolinguals.
- ✎ This can add to the cognitive flexibility of the child .

# What experts say...

---

- Taylor: Bilinguals may experience a slight disadvantage in language-processing speed over monolinguals, but this disadvantage is far outweighed by the advantages of being able to function in two languages.
- Steinberg: There is no evidence that early bilingualism will harm the intellectual or cognitive development of the child in any way.

CHILDREN VS  
ADULTS  
IN SECOND-  
LANGUAGE  
ACQUISITION

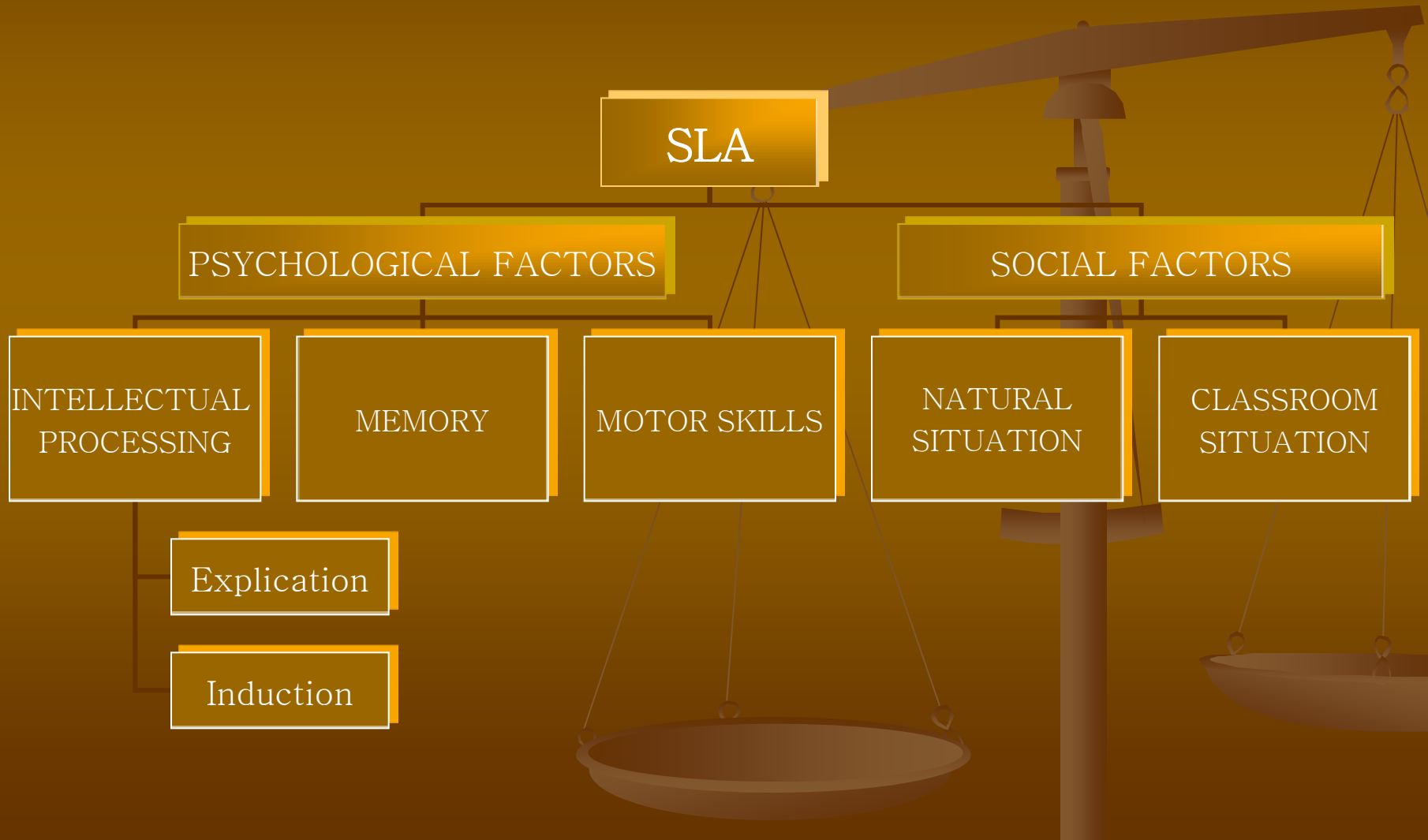




# CHILDREN VS ADULTS



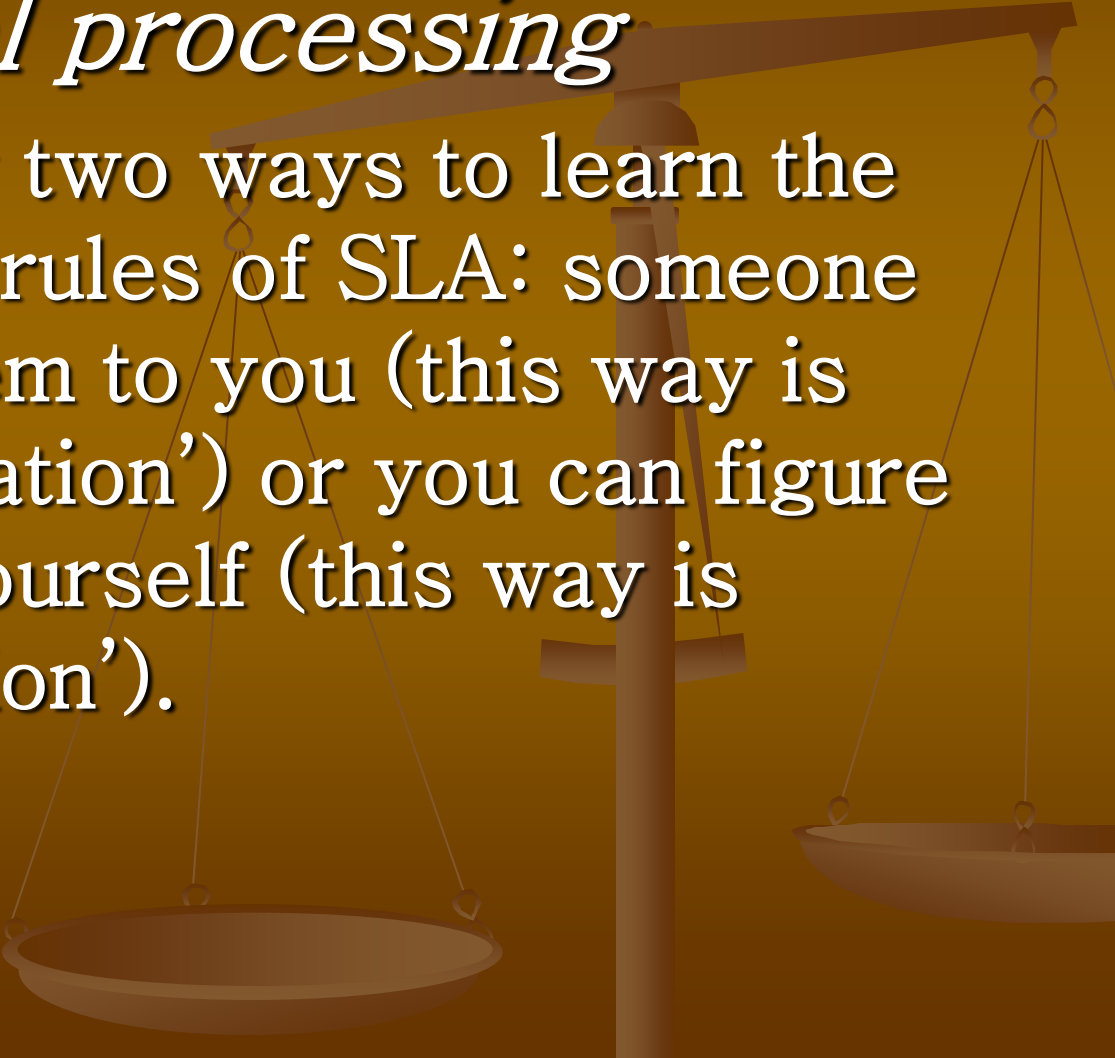
# Factors involved in Second Language Acquisition



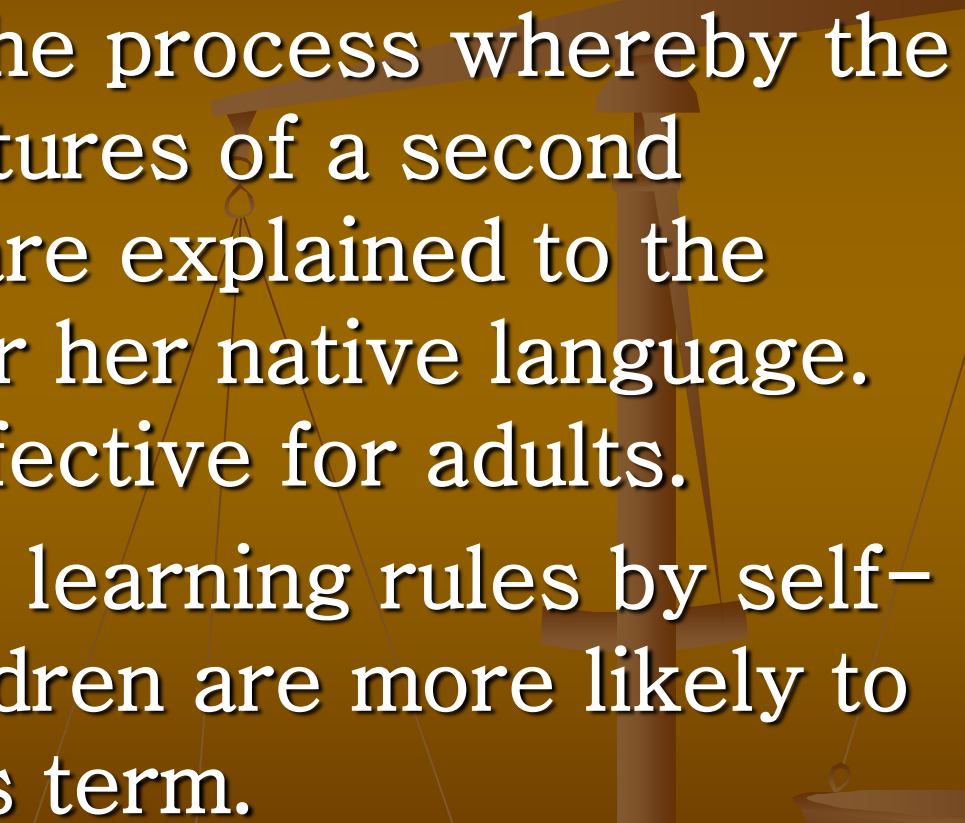
# Psychological factors

## ☺ *Intellectual processing*

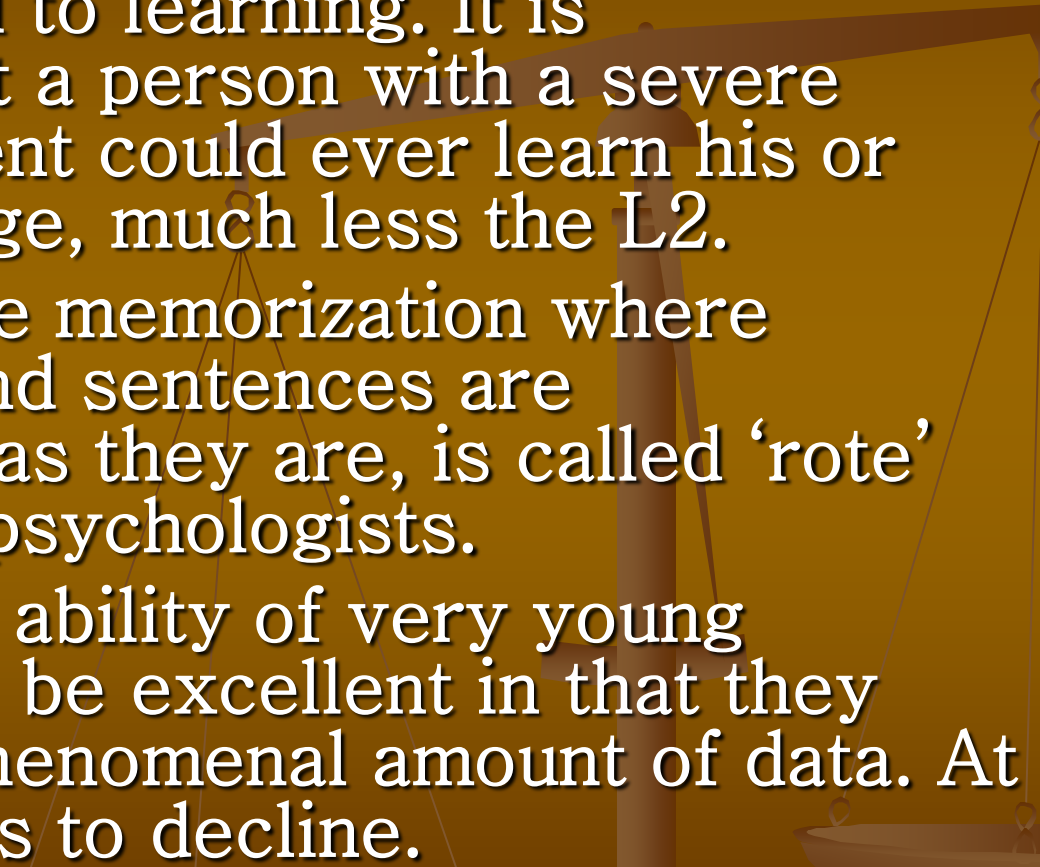
There are only two ways to learn the structures and rules of SLA: someone can explain them to you (this way is termed 'Explication') or you can figure them out for yourself (this way is termed 'Induction').



# Explication & Induction

- ✓ Explication is the process whereby the rules and structures of a second language (L2) are explained to the learner in his or her native language. This term is effective for adults.
  - ✓ Induction is the learning rules by self-discovery. Children are more likely to learn L2 by this term.
- 

# ☺ *Memory*

- Memory is crucial to learning. It is inconceivable that a person with a severe memory impairment could ever learn his or her native language, much less the L2.
  - The kind of simple memorization where words, phrases and sentences are remembered just as they are, is called 'rote' memorization by psychologists.
  - The rote memory ability of very young children seems to be excellent in that they easily absorb a phenomenal amount of data. At some age it begins to decline.
- 

## ☺ *Motor skills*

- Good pronunciation, which is related to the ability to control the organs of speech such as jaws, lips, tongue, vocal cords, etc., is clearly an essential part of learning a foreign language.
- Evidence shows that the particular motor skill of speech pronunciation is best developed at a younger age.

# Social factors

## ☺ *Natural situations*

A natural situation for L2 learning is one where the second language is experienced in a situation that is similar to that in which the native language is learned.

e.g.: an English speaking 4-year-old girl from London who goes to Indonesia with her parents. Through playing with Indonesian children, she soon learns Bahasa Indonesia

## ☺ *Classroom situations*

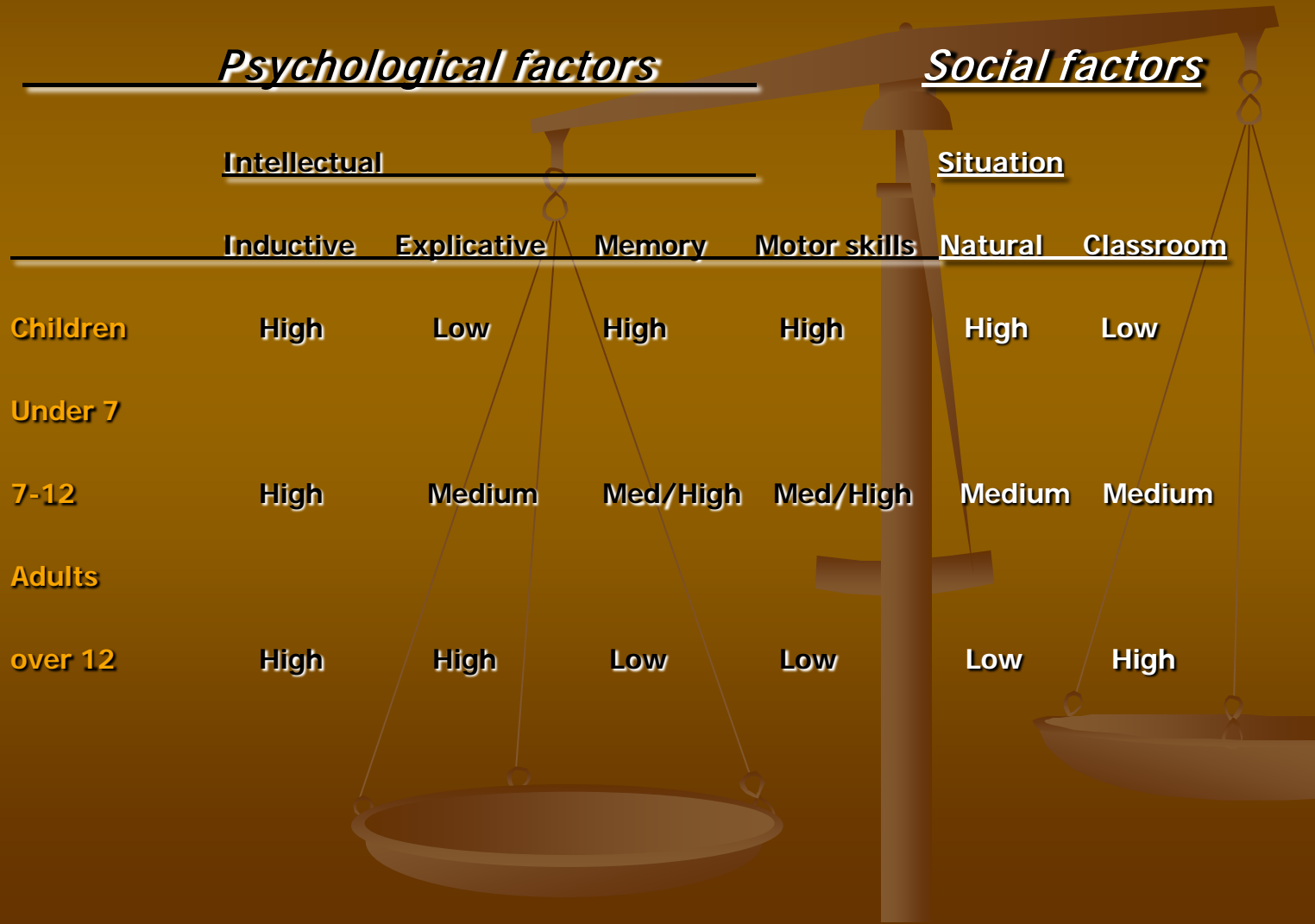
The classroom for L2 learning is a planned, or some might say, an artificially constructed, situation. Physically, there is a room, with the teacher and the students inside, which is arranged so that it is isolated from the rest of life.

Whether the classroom is in a school that is in the community where the L2 is spoken is a matter of some importance.

e.g.: Indonesian learning English in a classroom in London (ESL) will have beneficial language experiences outside of the classroom that Indonesian learning English in a classroom in Jakarta (EFL) will not.

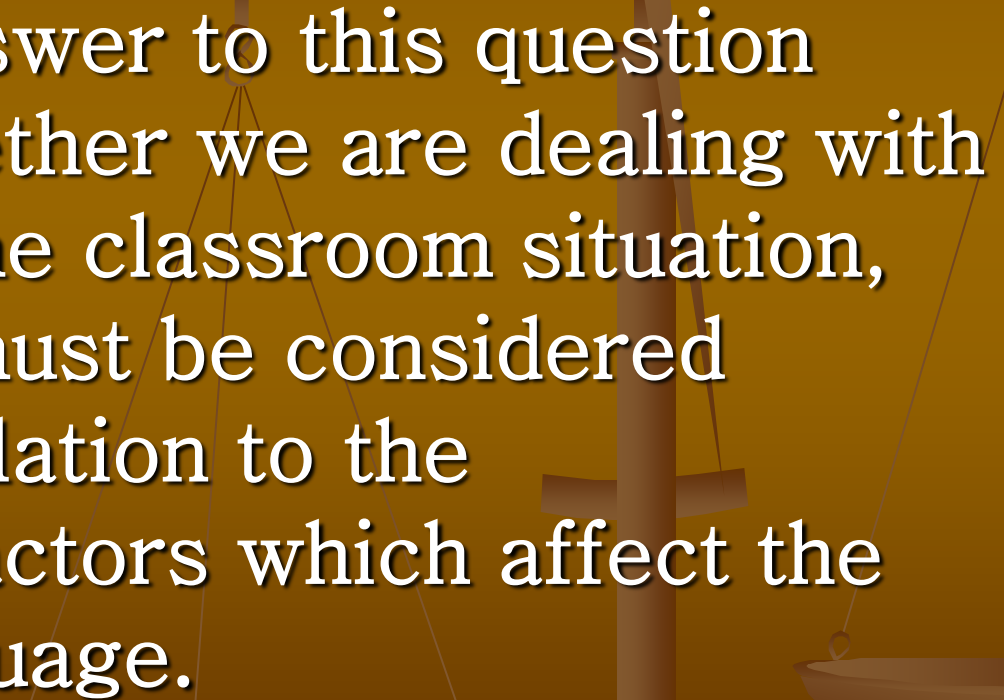


# Psychological and social factors affecting second language learning for children and adults



# Who is better? (Children vs Adults)

Because the answer to this question depends on whether we are dealing with the natural or the classroom situation, each situation must be considered separately in relation to the psychological factors which affect the learning of language.

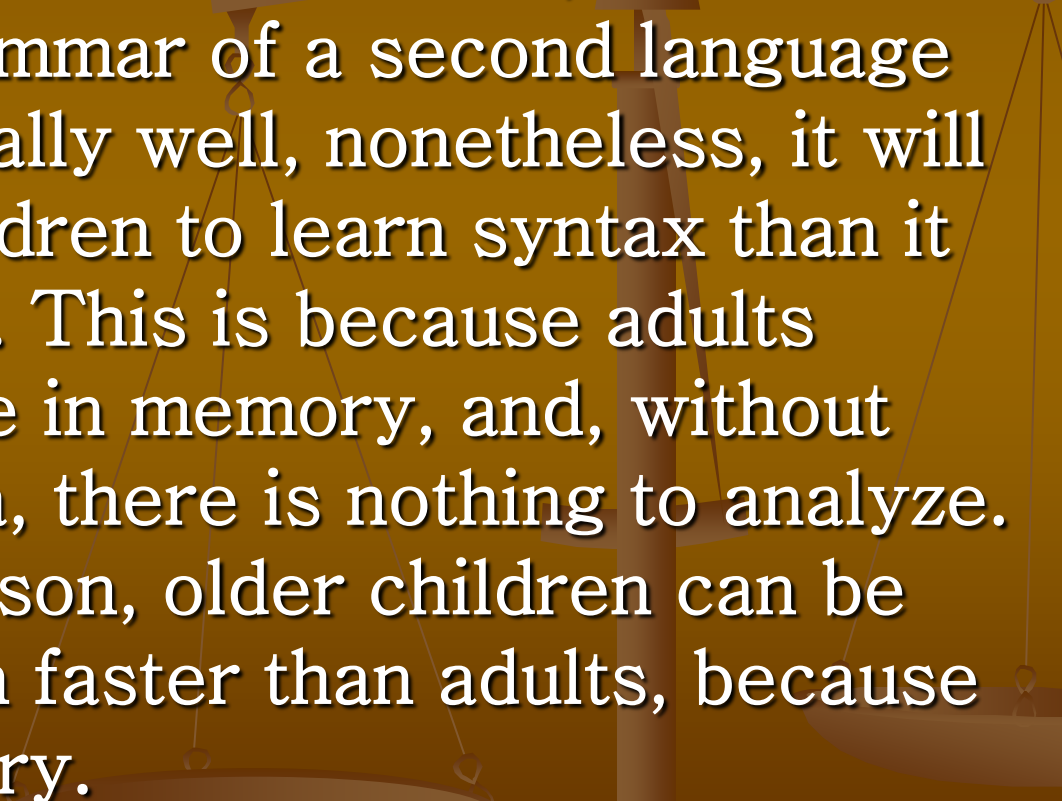


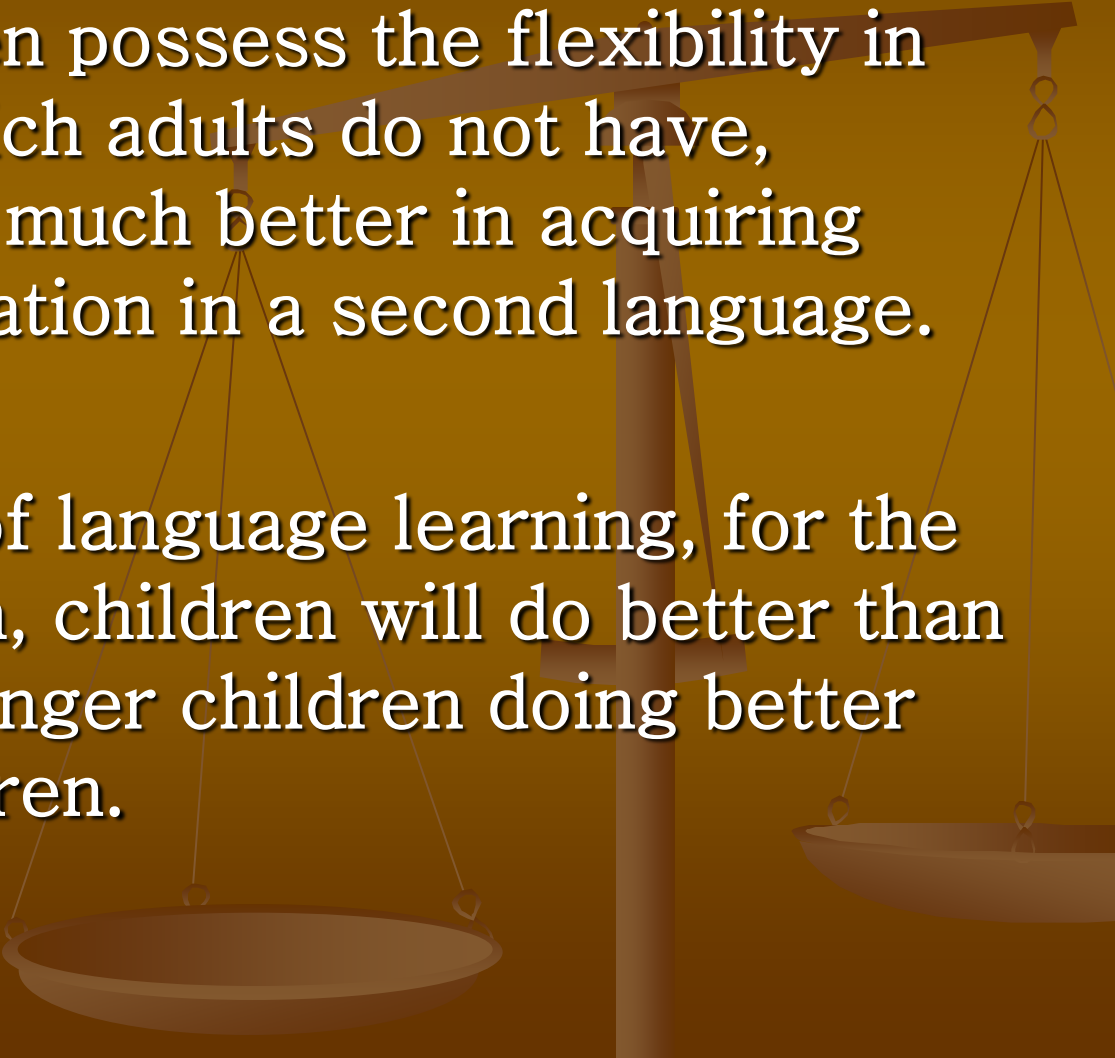
# The natural situation



In the natural situation, *younger children will do best.*

- ✓ The natural situation is more favourable to children because adults undergo a marked decline in the quality and quantity of the social interaction conducive to good language learning.

- 
- ✓ Psychologically, while both children and adults have optimal powers of induction, and are able to induce the grammar of a second language more or less equally well, nonetheless, it will be easier for children to learn syntax than it will be for adults. This is because adults undergo a decline in memory, and, without remembered data, there is nothing to analyze. For the same reason, older children can be expected to learn faster than adults, because of a better memory.

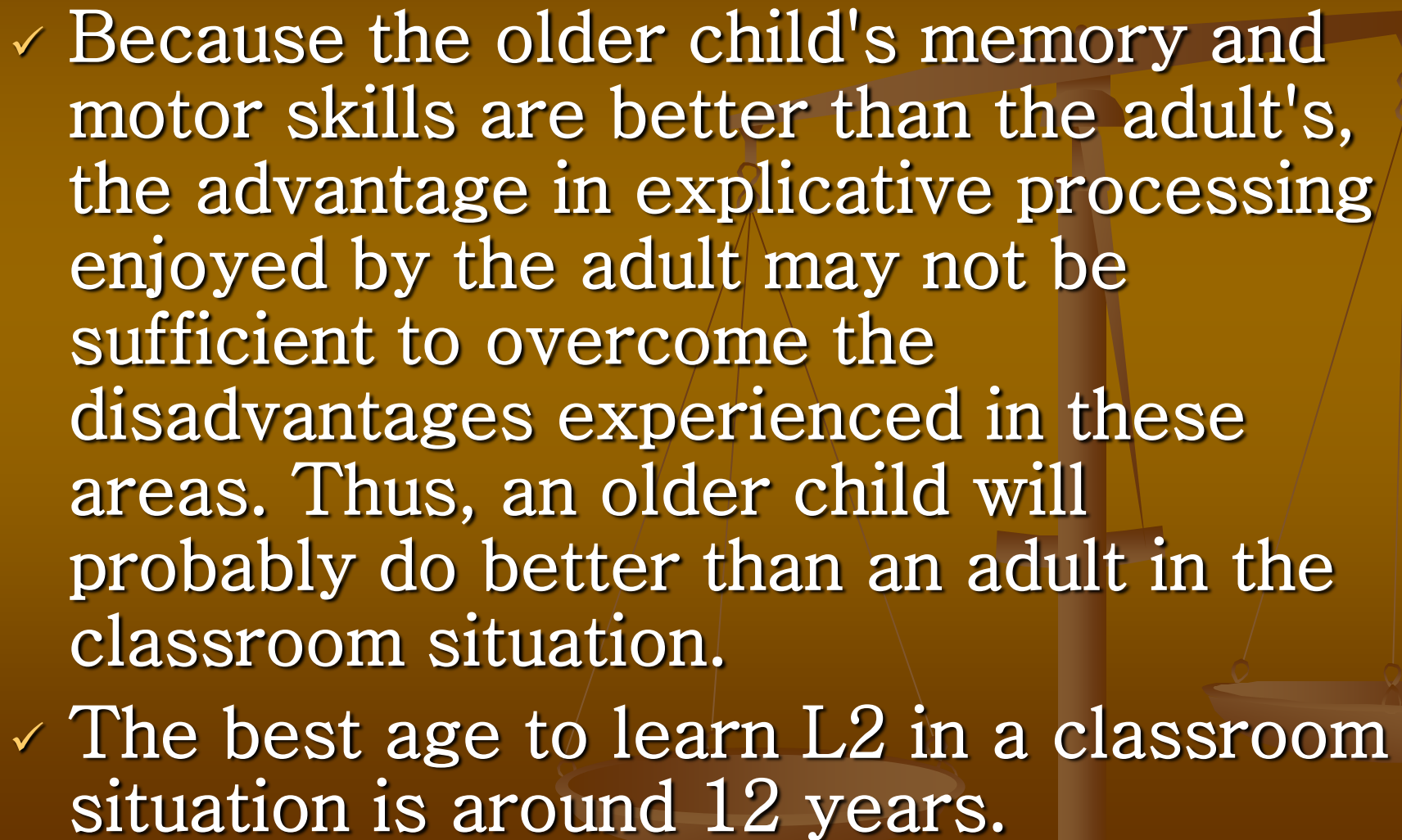
- 
- ✓ Because children possess the flexibility in motor skills which adults do not have, children will do much better in acquiring native pronunciation in a second language.

In all respects of language learning, for the natural situation, children will do better than adults, with younger children doing better than older children.

# The classroom situation

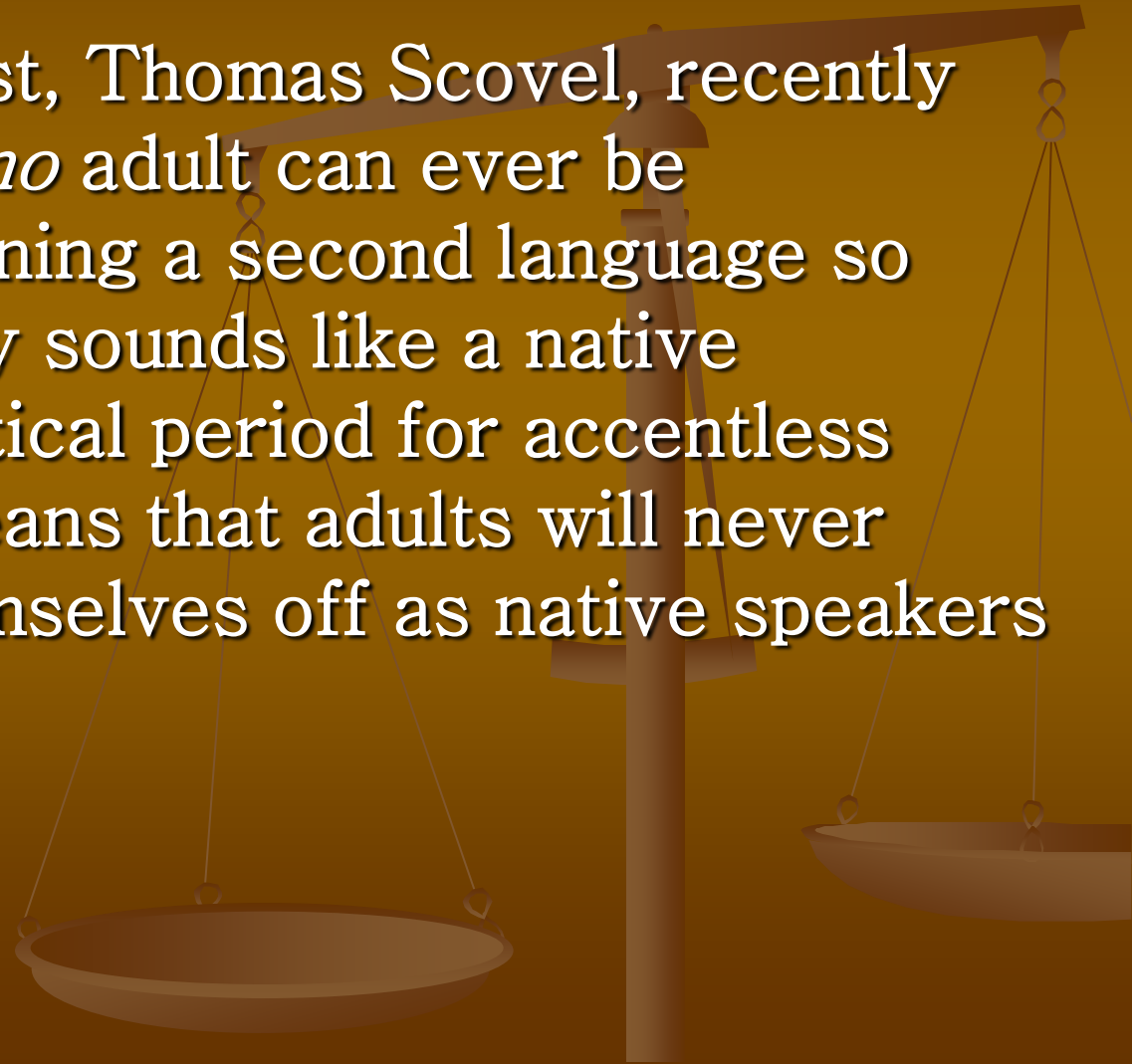
In the classroom situation, *adults will do better than young children.*

- ✓ Not only are adults better in explicative processing but, simply put, they know how to be students. They have sufficient maturity to meet the rigours of a formal learning environment, where concentration, attention and even the ability to sit still for a long time, all play a role in learning.

- 
- ✓ Because the older child's memory and motor skills are better than the adult's, the advantage in explicative processing enjoyed by the adult may not be sufficient to overcome the disadvantages experienced in these areas. Thus, an older child will probably do better than an adult in the classroom situation.
  - ✓ The best age to learn L2 in a classroom situation is around 12 years.

# Critical Age

- ✓ One psycholinguist, Thomas Scovel, recently has claimed that *no* adult can ever be successful in learning a second language so well that one truly sounds like a native speaker. ‘The critical period for accentless speech simply means that adults will never learn to pass themselves off as native speakers phonologically...’

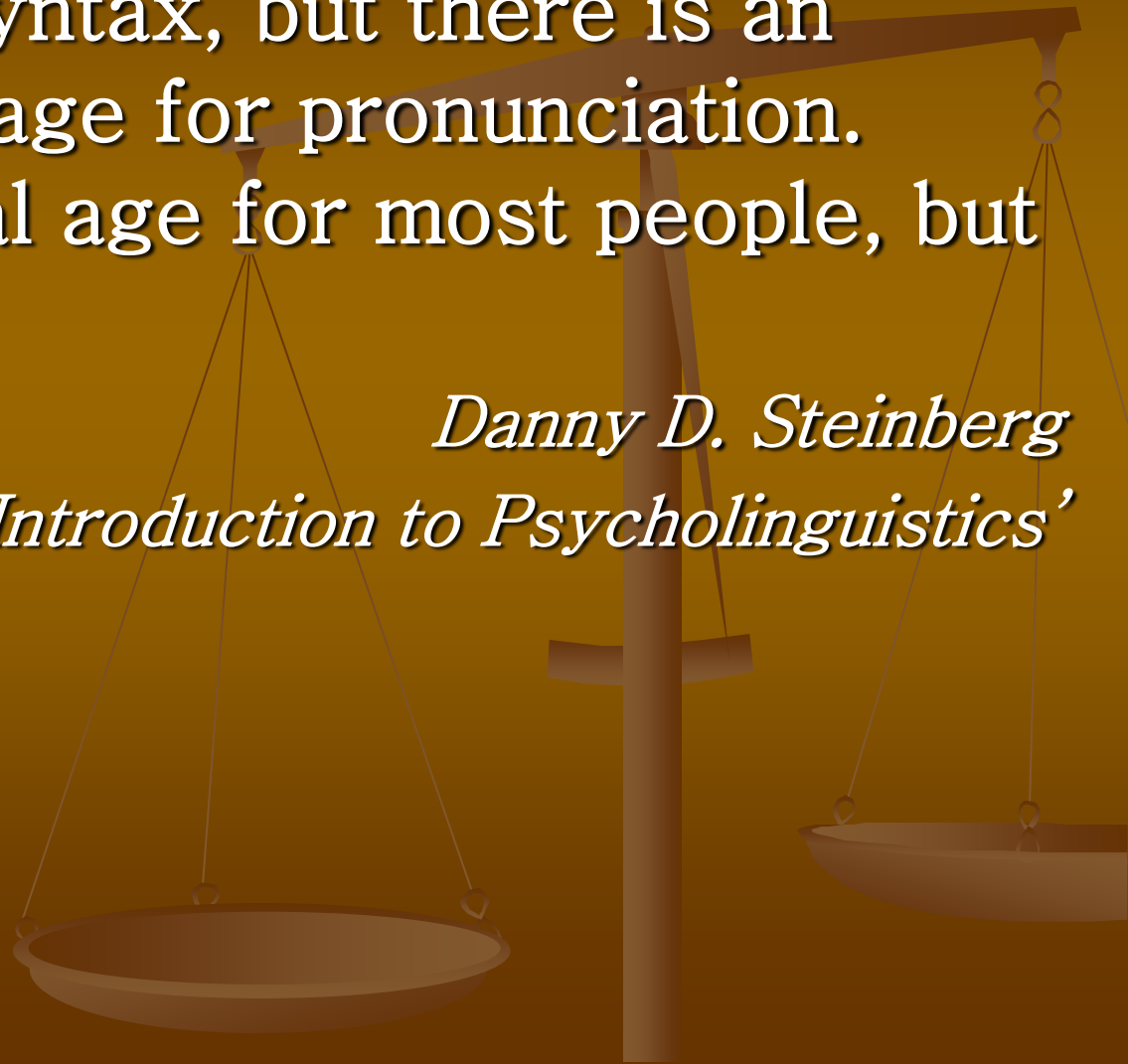




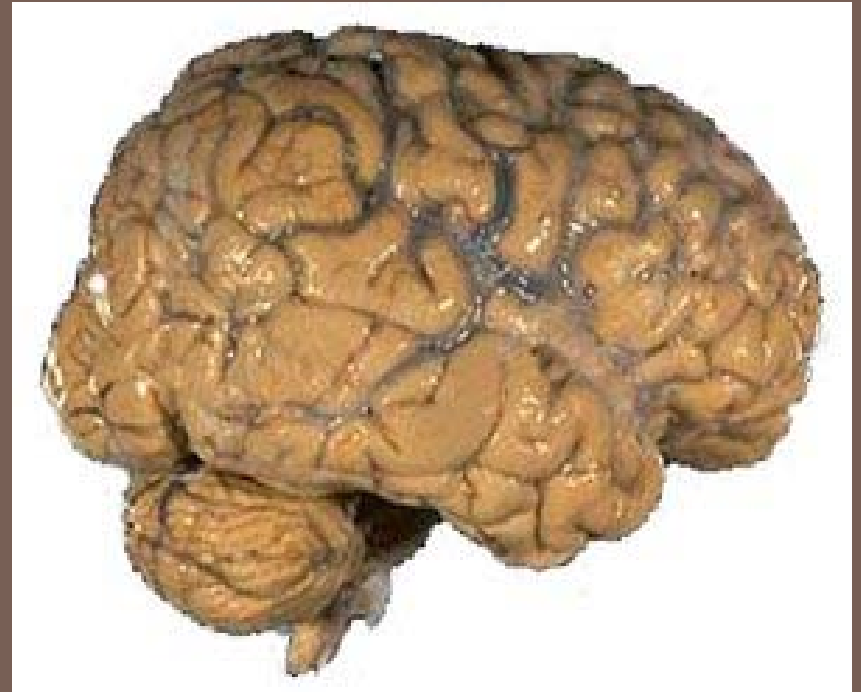
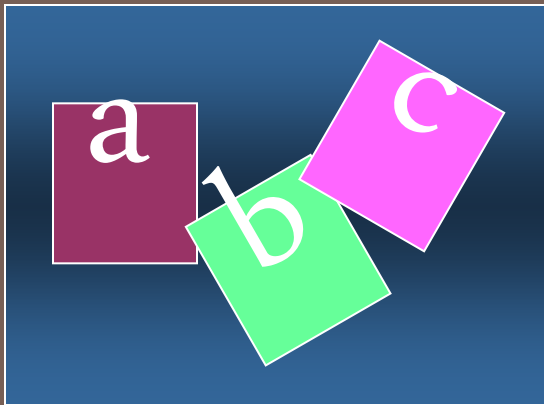
In second language acquisition there is no critical age for syntax, but there is an absolute critical age for pronunciation. There is a critical age for most people, but not for all.

*Danny D. Steinberg*

*The writer of 'An Introduction to Psycholinguistics'*



# PSYCHOLINGUISTICS



## LANGUAGE AND THE BRAIN

July 27, 2012

What do you think about this photo?



# This?

3



July 27, 2012

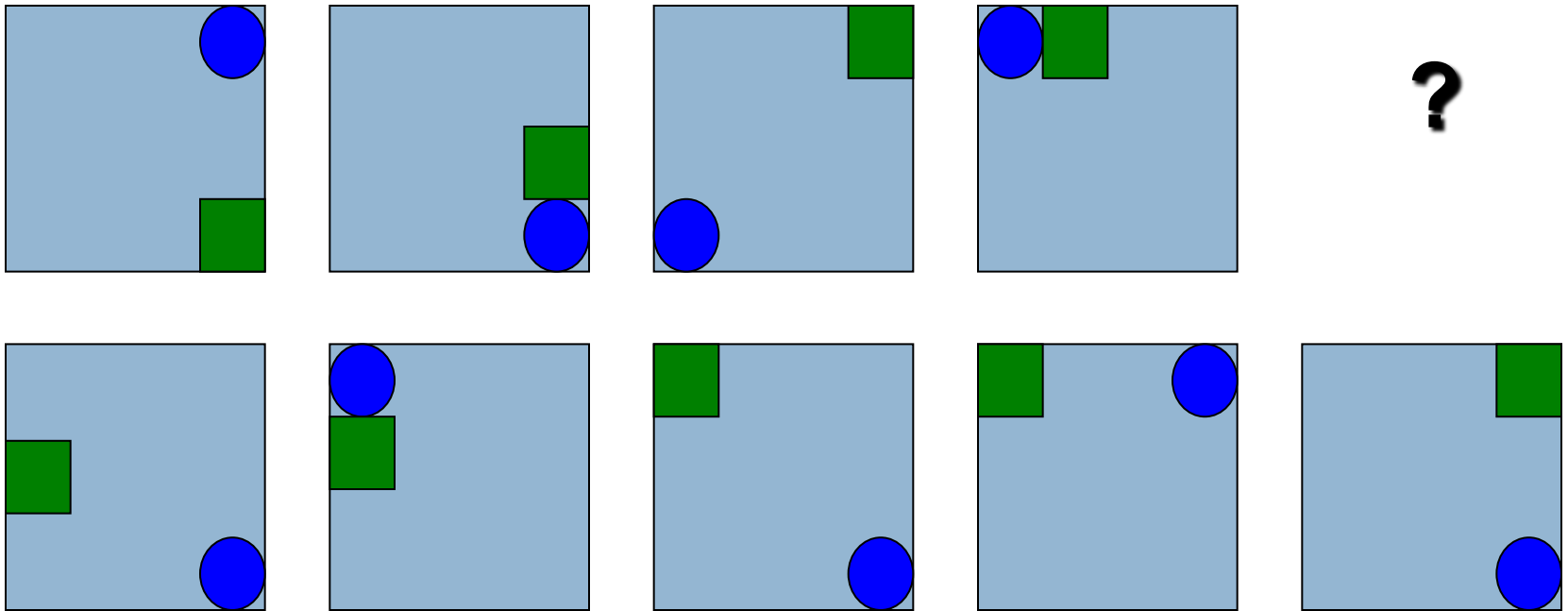
# How many fish are there?

4



July 27, 2012

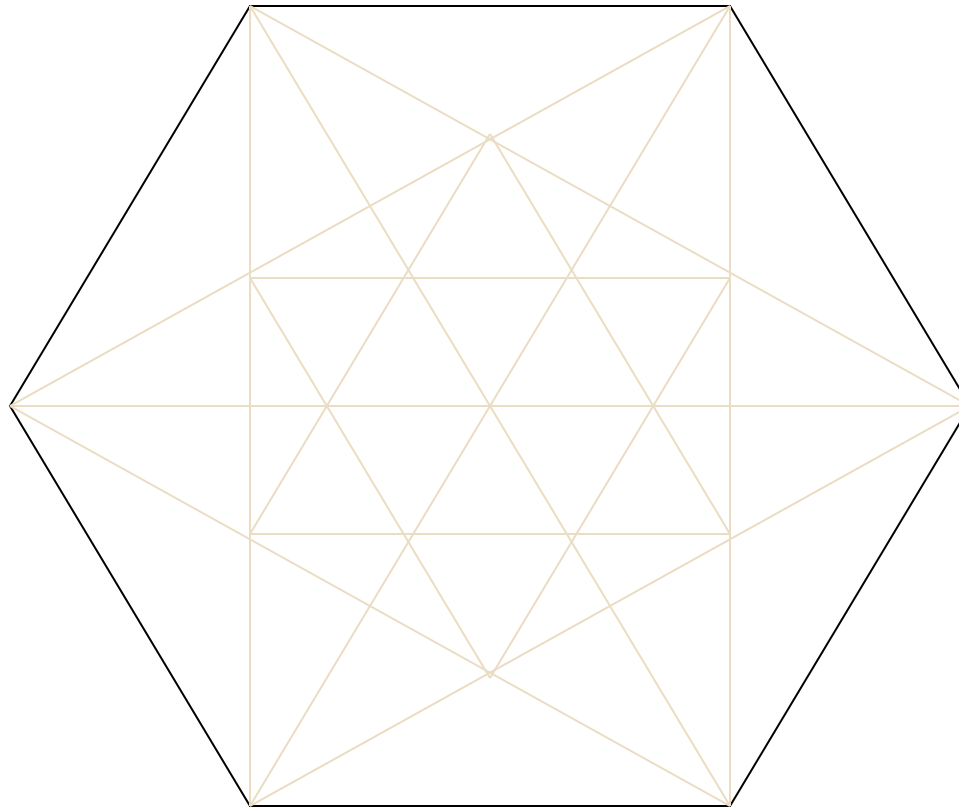
Choose the figure that completes the series!



How do you complete the series? Recalling memories? Thinking of new possibilities?

# How many triangles are there?

6



July 27, 2012

# The Human Brain

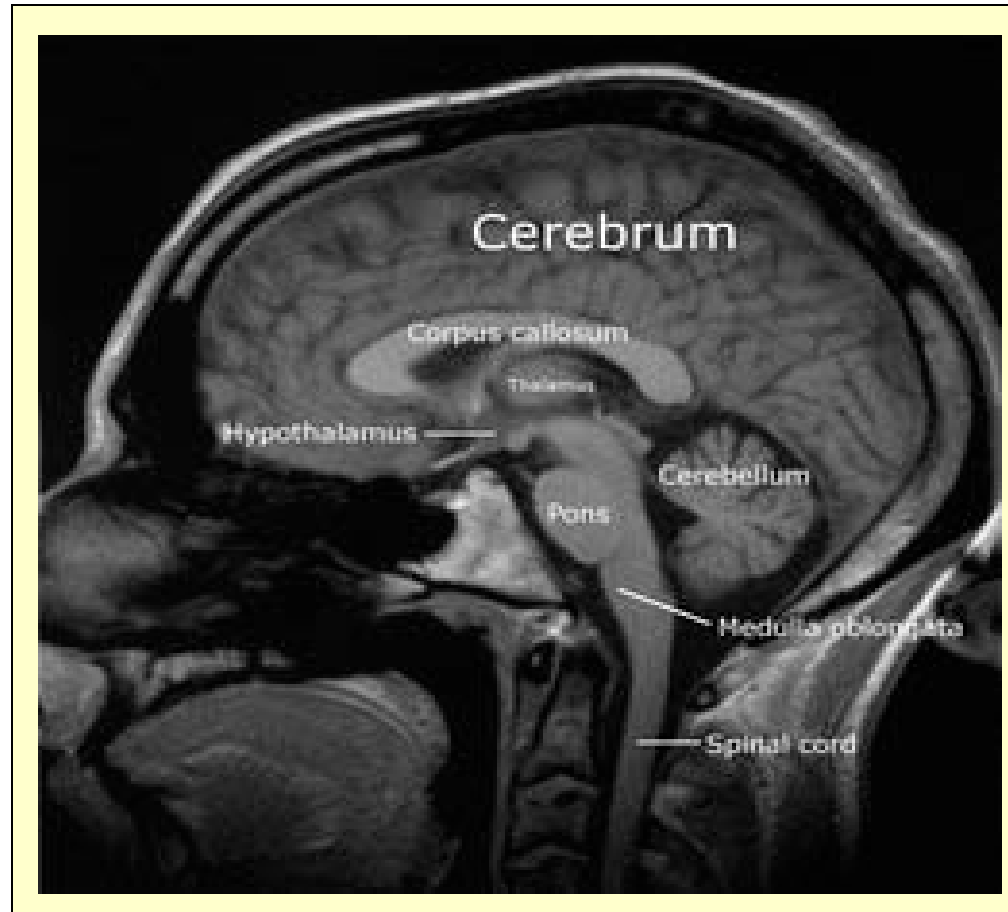
7

- Composed of nerve cells (neurons) that are the basic information processing units of the nervous system.
- Contains about 10 billion neurons that are organized into networks of almost unimaginable complexity  
→ each neuron can be directly linked with up to 10,000 other neurons
- Weight: about 1400 grams, pinkish-white matter
- The study: neurolinguistics



# The Anatomy of the Brain

8



July 27, 2012

# The Cerebral Hemispheres

9

- The left hemisphere
    - controls the right side of the body
    - excel in analytic tasks (arithmetic)
  - The right hemisphere
    - controls the left side of the body
    - excel in tasks which require overall appreciation of complex patterns (recognizing faces, melodies)
- e.g. people suffer damage to one hemisphere of the brain (stroke/accident) → paralysis on the opposite side of the body

# Substructures in the Hemispheres

10

- Hindbrain (Occipital Lobe)
- Midbrain (Temporal Lobe)
- Forebrain (Frontal Lobe)
- Cerebrum (Parietal Lobe)
- Cerebellum

# The Hindbrain (Occipital Lobe)

11

- Medulla oblongata
  - transmits all signals between the spinal cord and the higher parts of the brain
  - governs such autonomic functions as heartbeat and respiration
- Pons
  - made up of tracts connecting the spinal cord with higher brain levels
  - contains cell groups that transfer information from the cerebrum to the cerebellum

# The Midbrain (Temporal Lobe)

12

- the main center of sensory integration in fish and amphibians,
- plays a major integration role in reptiles and birds
- serving primarily as a connecting link between the hindbrain and the forebrain

# Cerebellum ('the little brain')

13

- controls balance and coordination by smoothing out the actions of muscle groups

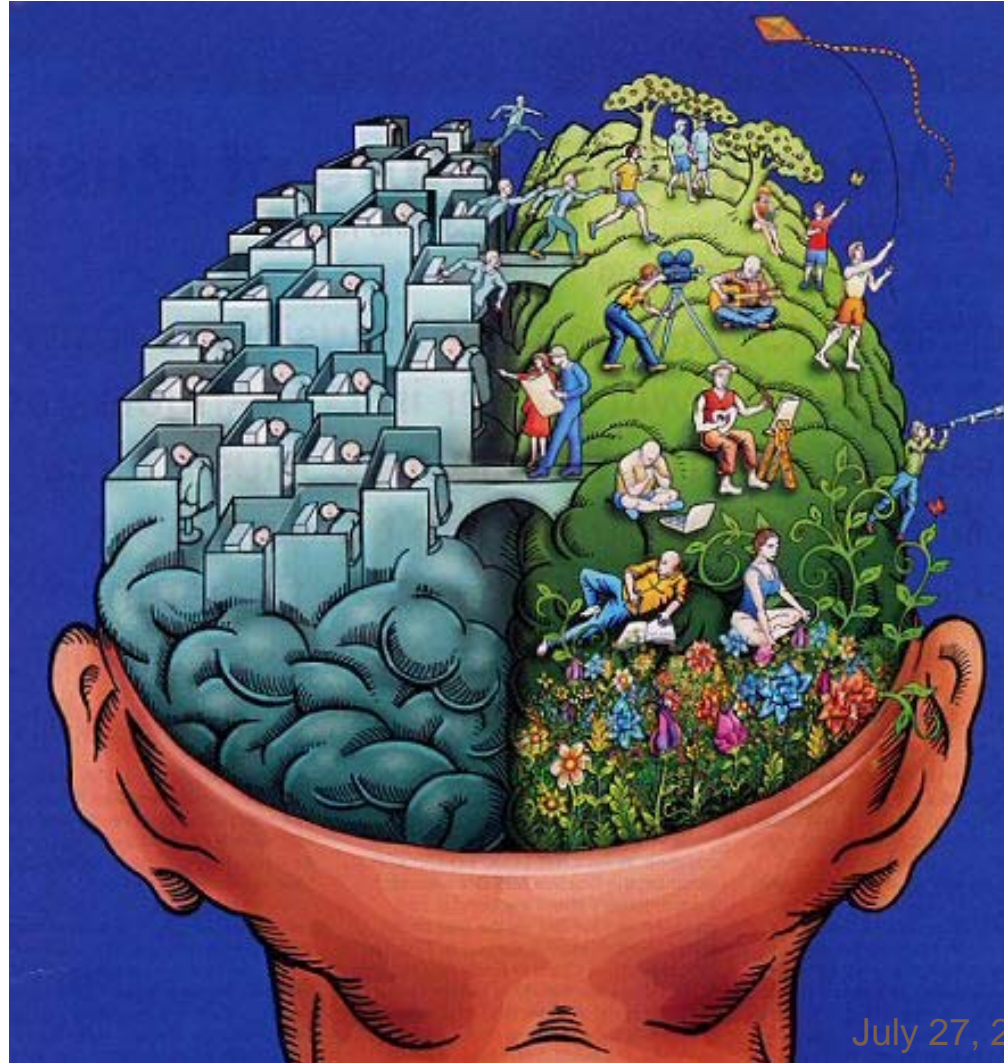
# The Forebrain (Frontal Lobe)

14

- Includes the cerebral hemispheres and the diencephalon, which contains the thalamus and hypothalamus
  - thalamus: the main relay centre between the medulla and the cerebrum
  - hypothalamus: an important control center for sex drive, pleasure, pain, hunger, thirst, blood pressure, body temperature, and other visceral functions

# Whole Brain Thinking

15



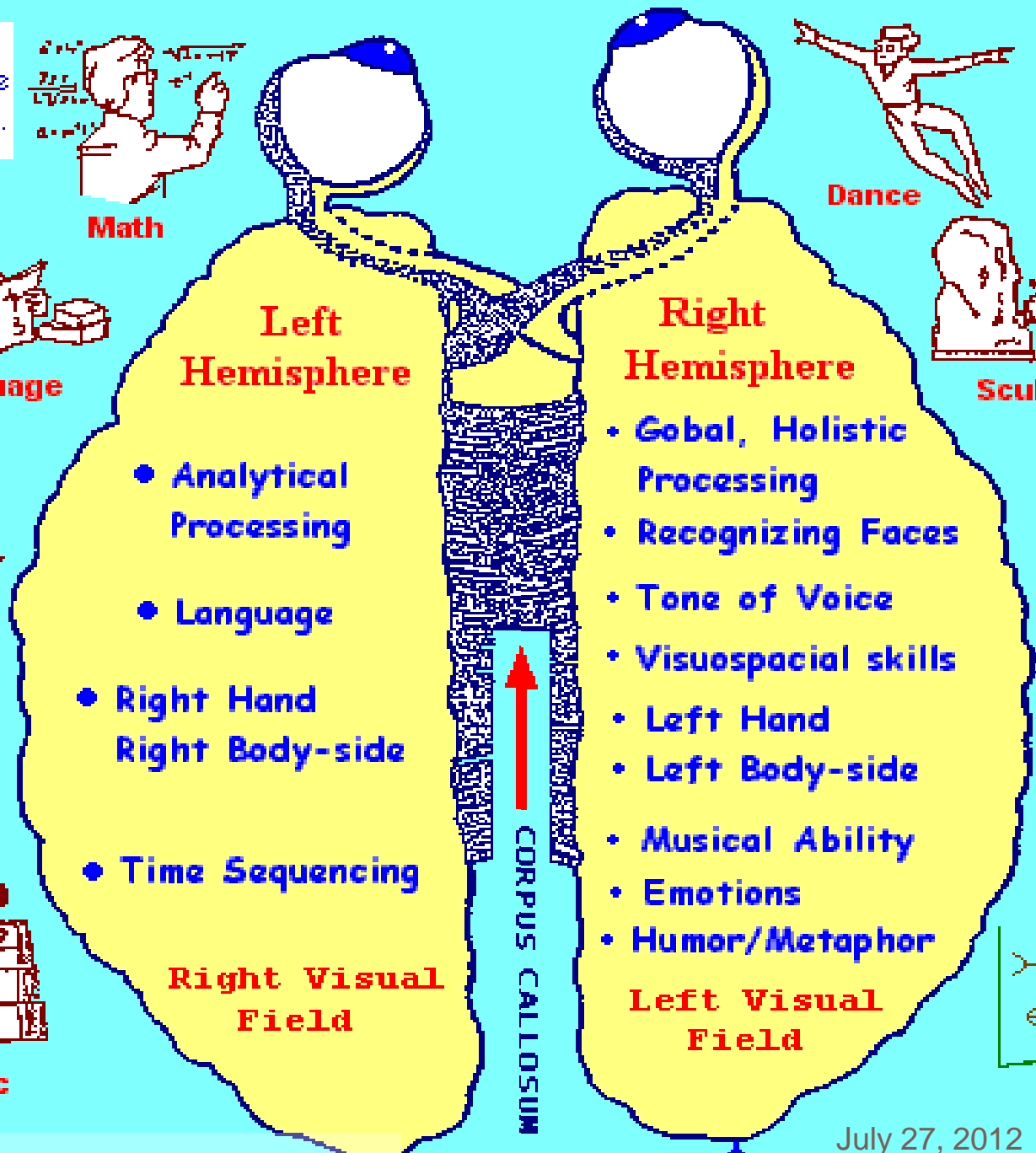
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Modern voice originates in the left hemisphere.

Ancient Bicameral God/voice originated in the right hemisphere.

16



Math

Dance

**Left Hemisphere**

**Right Hemisphere**

Sculpture

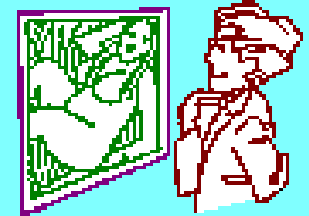
Language

- Analytical Processing

- Global, Holistic Processing



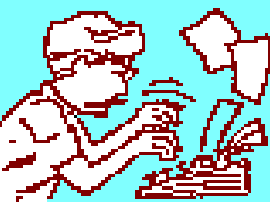
Science



Art Appreciation

- Language

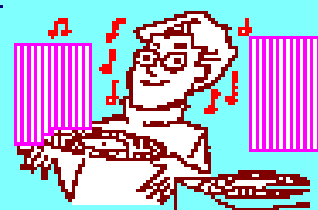
- Tone of Voice
- Visuospatial skills



Writing

- Right Hand
- Right Body-side

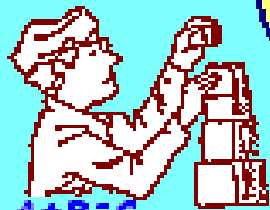
- Left Hand
- Left Body-side



Music Appreciation

- Time Sequencing

- Musical Ability
- Emotions
- Humor/Metaphor

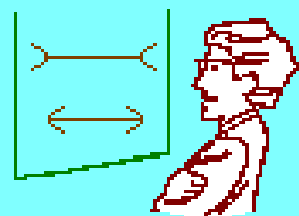


A+B=C

Logic

Right Visual Field

Left Visual Field



Perception

CORPUS CALLOSUM

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Right-left brain function

# Brain Functions

17

Reading ability; sensation of pain, temperature, touch, pressure, taste

Planning, prediction, speech, discrete movements of the body

**Parietal Lobe**

**Frontal Lobe**

**Occipital Lobe**

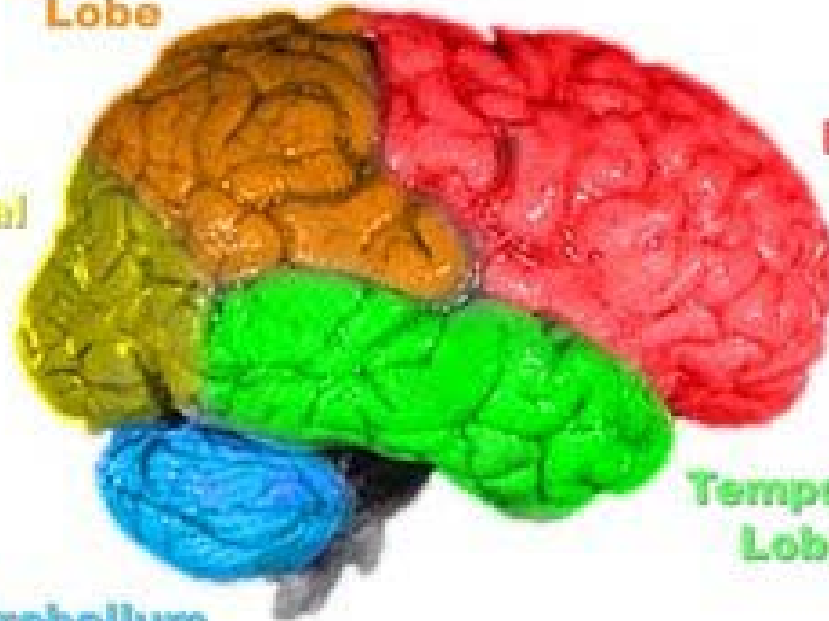
**Temporal Lobe**

**Cerebellum**

Visual processing

Balance, coordination

Audition, memory processing, sensory integration



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# Language Processing in the Brain: Right-Handed

18

- Involves both hemispheres
- Right-handed people
  - have language represented in the left hemisphere (left *lateralized* for language)
  - losing left hemisphere = losing most of linguistic competence (the ability to speak & process complex syntactic patterns)
- The right hemisphere
  - responsible for whatever language processing ability remains

How many 'f' are in the following?

19

A flea and a fly in a flue  
Were imprisoned, so what could they do?  
Said the flea: 'Let us fly'.  
Said the fly: 'Let us flee'.  
So they flew through a flaw in the flue.

July 27, 2012

- Ali : “Father, did not you tell me that it is cowardly to strike anyone smaller than yourself?”
- Father : “Yes, my son.”
- Ali : “Then I wish you would write and tell the teacher. I don’t believe he knows about it.”

# The Right Cerebral Hemisphere

21

- Right-handed people who suffer damage to the right cerebral hemisphere exhibit difficulty in understanding jokes and metaphors in daily conversation  
e.g. *He was wearing a loud tie.*
- Frequently misunderstand people because they cannot use loudness and intonation as cues to whether a speaker is angry, excited, or merely joking
- Has a distinct role to play in normal language use

# Left-handed People

22

- Few left-handers have a mirror image representation for language (language localization in the right hemisphere)
- Tend to show significant language representation in both hemispheres
  - generally less lateralized for language

# Language Processing : the Left Hemisphere

23

- Broca's area: speech production  
→ if damaged: non-fluent speech and difficulty in processing complex syntactic patterns
- Wernicke's area: language comprehension  
→ if damaged: comprehension disturbances
- Angular gyrus: reading  
→ if damaged: reading impairment



# Listening?

24

- Recall that each hemisphere is primarily wired to the opposite side of the body
- Most of the input to the right ear goes to the left hemisphere of the brain

Which do you process better:

- Holding telephone receiver to the right ear or the left one?

# REA (Right Ear Advantage)

25

- The right ear
  - words, numbers, and Morse codes
- The left ear
  - the perception of melodies and environmental sounds (e.g. bird songs)

Mind trap



# Language Disorders

Caused by Brain Damage

# What is it?

- a language disorder that results from damage to portions of the brain that are responsible for language
  - for most people, these are parts of the left side (hemisphere) of the brain
- usually occurs suddenly, often as the result of a stroke or head injury, but it may also develop slowly, as in the case of a brain tumor
- impairs both the expression and understanding of language as well as reading and writing
- may co-occur with speech disorders such as dysarthria or apraxia of speech, which also result from brain damage.

# Symptoms

- inability to comprehend speech
- inability to read (alexia)
- inability to write (agraphia)
- inability to speak, without muscle paralysis
- inability to form words
- inability to name objects (anomia)
- poor enunciation
- excessive creation and use of personal neologisms (jargon aphasia)
- inability to repeat a phrase
- persistent repetition of phrases
- other language impairment

# Who has Aphasia?

- anyone can acquire aphasia, but most people who have aphasia are in their middle to late years
- Men and women are equally affected
- approximately 80,000 individuals acquire aphasia each year
- about one million persons in the United States currently have aphasia

# What causes Aphasia?

- caused by damage to one or more of the language areas of the brain
- Many times, the cause of the brain injury is a stroke. A stroke occurs when, for some reason, blood is unable to reach a part of the brain. Brain cells die when they do not receive their normal supply of blood, which carries oxygen and important nutrients.
- Other causes of brain injury are severe blows to the head, brain tumors, brain infections, and other conditions of the brain



# Broca's Aphasia

- Non fluent aphasia
- Damage to the frontal lobe
- Individuals frequently speak in short, meaningful phrases produced with great effort, often omit small words (is, and, the etc)

e.g. Walk dog

→ I will take the dog for a walk.

→ You take the dog for a walk.

→ The dog walked out of the yard.

- Individuals with Broca's aphasia are able to understand the speech of others to varying degrees
  - often aware of their difficulties and can become easily frustrated by their speaking problems
- Often have right-sided weakness or paralysis of the arm and leg because the frontal lobe is also important for body movement

- Expressive aphasia
  - difficulty in conveying thoughts through speech or writing
  - knows what he wants to say, but cannot find the words he needs

# Wernicke's Aphasia

- Damage to the temporal lobe
- Individuals speak in long sentences that have no meaning, add unnecessary words, and even create new “words”
- Known as receptive aphasia
  - difficulty in understanding spoken or written language
  - hear the voice or see the print but cannot make sense of the words

e.g. You know that smoodle pinkered and that I want to get him round and take care of him like you want before.

→ The dog needs to go out so I will take him for a walk.

- Individuals usually have great difficulty in understanding speech and often unaware of their mistakes.
- Usually have no body weakness because their brain injury is not near the parts of the brain that control movement

# Global Aphasia

- Results from damage to extensive portions of the language areas of the brain
- Individuals have severe communication difficulties and may be extremely limited in their ability to speak or comprehend language
- Lose almost all language function, both comprehension and expression
- Cannot speak or understand speech, nor write or read

# Anomia (Amnesia Aphasia)

- Essentially a difficulty with naming particular objects, people, places or events
- Usually because of an accident that hits the maxillary breasts
- The sufferer may have difficulties naming certain words, linked by their grammatical type (e.g. difficulty naming verbs and not nouns) or by their semantic category (e.g. difficulty naming words relating to photography but nothing else) or a more general naming difficulty
- Sufferers are usually aware and it is comparable to a 'tip of the tongue' sensation experienced by most people.



# Other Types of Aphasia

- **Pure Word Deafness** (all understanding impaired, but expressive channels intact)
- **Conduction Aphasia** (speech, writing and silent reading intact, but repetition, reading aloud and dictation impaired)
- **Apraxia** (now considered a separate disorder in itself)
- **Transcortical Motor Aphasia** (Understanding of speech, writing, repetition and reading intact, but impaired voluntary speech and writing)
- **Transcortical Sensory Aphasia**, (Impaired comprehension of speech and writing, but writing, reading aloud and speech spared)

# How is it diagnosed?

- usually first recognized by the physician who treats the individual for his or her brain injury (a neurologist)
- The physician typically performs tests that require the individual to follow commands, answer questions, name objects, and converse
- If the physician suspects aphasia, the individual is often referred to a speech-language pathologist, who performs a comprehensive examination of the person's ability to understand, speak, read, and write.

# How is it treated?

## Spontaneous recovery

- an individual recovers from aphasia without treatment
- occurs following a transient ischemic attack (TIA)  
= a stroke in which the blood flow to the brain is temporarily interrupted but quickly restored
- language ability may return in a few hours/days

## Speech language therapy

- recovery continues over a 2-year period
- Some of the factors that influence the amount of improvement include the cause of the brain damage, the area of the brain that was damaged, the extent of the brain injury, the age and health of the individual, handedness, and educational level
- individual & group therapy

# Family Involvement

- Simplify language by using short, uncomplicated sentences.
- Repeat the content words or write down key words to clarify meaning as needed.
- Maintain a natural conversational manner appropriate for an adult.
- Minimize distractions, such as a blaring radio, whenever possible.
- Include the person with aphasia in conversations.

- Ask for and value the opinion of the person with aphasia, especially regarding family matters.
- Encourage any type of communication, whether it is speech, gesture, pointing, or drawing.
- Avoid correcting the individual's speech.
- Allow the individual plenty of time to talk.
- Help the individual become involved outside the home. Seek out support groups such as stroke clubs.

# Dyslexia

# What is it?

- characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities
- These difficulties typically result from a deficit in the phonological component of language in relation to other cognitive abilities
- problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge



- reading is the primary problem, some definitions of dyslexia also include difficulties with: Writing, Spelling, Listening, Speaking, Math
- the problem in reading is not the result of emotional problems, lack of motivation, poor teaching, mental retardation, or vision or hearing deficits
- Dyslexia is a persistent, lifelong condition. There's no cure for it, but there are ways to approach learning and be successful

- Although kids with dyslexia have language processing and learning difficulties in common, the symptoms and severity can be quite different
- Kids learn some academic skills at a level lower than others their same age and intellectual peers, but they can do other things quite well. They may be talented in the arts, skilled in technology, or adept with spatial relationships

# Facts about Dyslexia

- not limited to reversing the order of letters in reading or writing or a visual perception deficit that involves reading letters or words backwards or upside down, as is often implied in popular culture
- dyslexia stems from a deficit in processing the phonological form of speech
  - reading problems in dyslexia stem from difficulty decomposing spoken words into discrete phonemes
    - e.g. CAT → [k], [æ], and [t]
- As a result, affected individuals have difficulty associating these sounds with the visual letters that make up written words
  - phonological awareness can improve reading scores in children with reading difficulties

# Dyslexia: Age 6-11

- has difficulty pronouncing words, may reverse or substitute parts of words
- Has difficulty carrying out a sequence of directions
- Doesn't hear fine differences in words; e.g., writes "pin" for "pen"
- Has problems stating thoughts in an organized way
- Confuses the order of letters in words
- Doesn't recognize words previously learned
- Spells a word several different ways; doesn't recognize the correct version
- Has poor reading comprehension

# Age 12-adult

- Has difficulty remembering what he just read
- Has difficulty concentrating when reading or writing
- Is unable to tell important information from unimportant details
- Spells poorly; misspelling is not phonetic
- Has problems taking notes accurately
- Has difficulty organizing and completing written projects

# Dysgraphia

# What is it?

- a difficulty to write coherently
- People with dysgraphia often can write, and may have a higher than average IQ, but lack co-ordination, and may find other fine motor tasks such as tying shoes difficult (It often does not affect all fine motor skills)
- They can also lack basic spelling skills (having difficulties with p,q,b,d), and often will write the wrong word when trying to formulate thoughts (on paper)

- In children, the disorder generally emerges when they are first introduced to writing. They make inappropriately sized and spaced letters, or write wrong or misspelled words despite thorough instruction
- Children with the disorder may have other learning disabilities; however, they usually have no social or other academic problems. Cases of dysgraphia in adults generally occur after some neurological trauma or it might be diagnosed in a person with Autism



# Types of Dysgraphia

- Dyslexic dysgraphia
  - spontaneously written work is illegible, copied work is fairly good, and spelling is bad
- Motor dysgraphia
  - is due to deficient fine motor skills, poor dexterity, poor muscle tone, and/or unspecified motor clumsiness
  - written work is poor to illegible, even if copied by sight from another document
  - Letter formation may be acceptable in very short samples of writing, but this requires extreme effort and an unreasonable amount of time to accomplish, and cannot be sustained for a significant length of time

- Spatial dysgraphia
  - due to a defect in the understanding of space
  - has illegible spontaneously written work, illegible copied work, normal spelling

# Symptoms

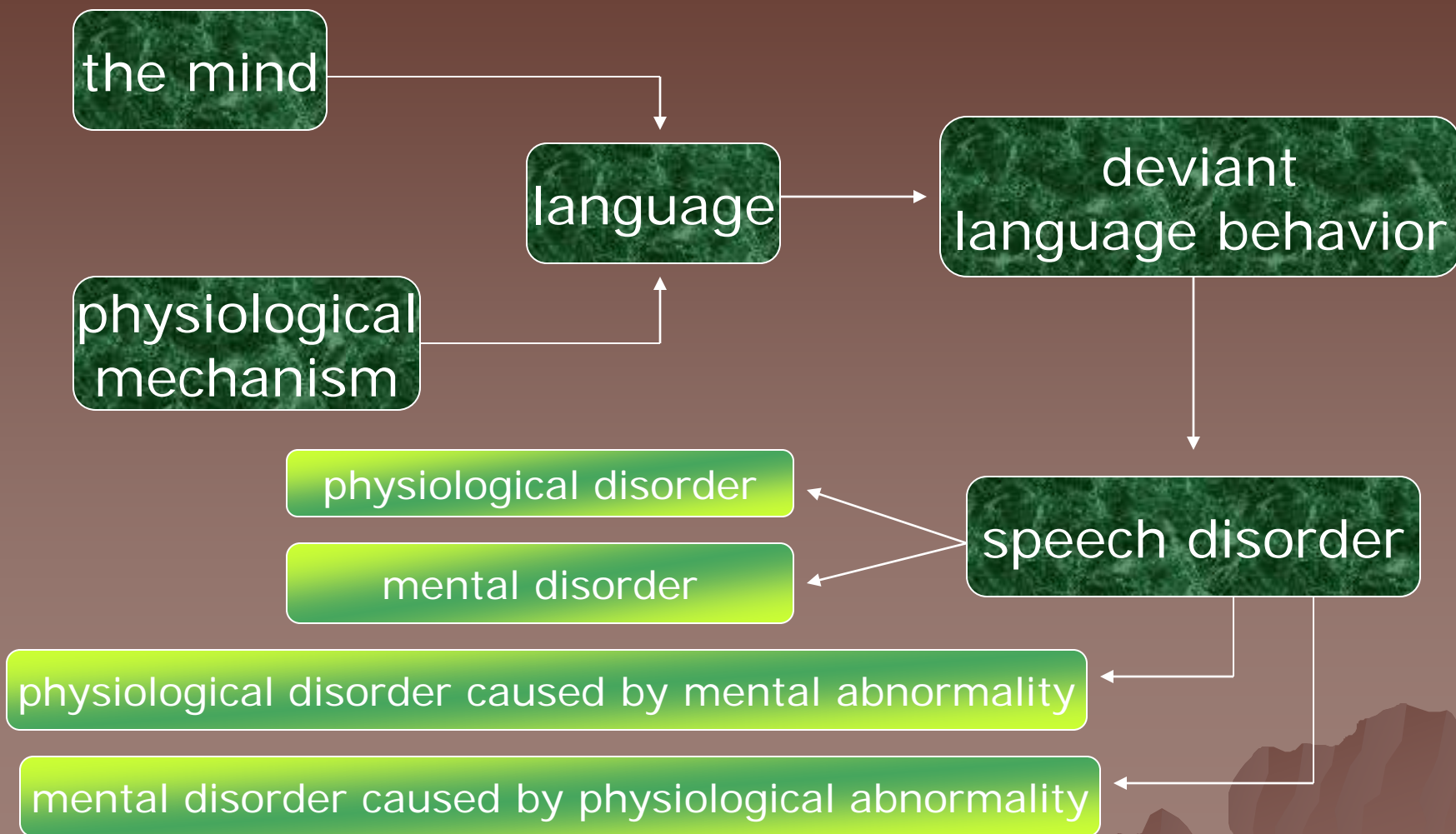
- A mixture of upper/lower case letters
- irregular letter sizes and shapes
- unfinished letters, struggle to use writing as a communications tool
- odd writing grip, many spelling mistakes (sometimes)
- pain when writing
- decreased or increased speed of writing and copying
- talks to self while writing, and general illegibility
- Reluctance or refusal to complete writing tasks

# Psycholinguistics

## Week 10

# Deviant Language Behavior

# Physiological and Psychological Background



# Physiological Abnormalities

## defects of the central nervous system

Total loss of language function or partial impairment: *aphasia*

## defects of vocal mechanism

Results only in the impairment of speech production

Lungs: labored, impaired speech; vocal cords: infected → speech disorder; tongue: paralysis → complete loss of speech

## defects of the auditory mechanism

Partial/total deafness, gesticulation is the only possible means of ordinary communication

# Study the following sentences.

1. Doggy going vely kean.
2. That chicor is broke.
3. Please, sit up the chair.
4. We'll sit on the dable for food.
5. Moob the chair out.
6. Daddy coming to home lately.
7. You don't dok fastly.
8. I have so much clothes.
9. Do you wunted me to see?
10. You are not habby at me.



# Deviant Pronunciation

- ◆ Children below the school-going age
  - diphthongs and consonants
  - able to manipulate the tongue the way required by particular sound
  - e.g. substituting [l], [r], [s] → [w], [d], [t]
- ◆ The nature of deviation
  - some children are able to use the same consonant later in one position which they were unable to use in another
  - e.g. [s] → they could say 'sun' but not 'blouse'

# Physiogenic Disorder

- ◆ Disorders that affect speech mostly stem from brain abnormalities
  - brain infection
  - brain tumors
  - head injuries
  - metabolic disturbance
  - glands etc

# Psychogenic/Mental Disorder

- ◆ Abnormalities that stem directly from the mind
  1. Traumatic reactions to war & catastrophe
  2. Chronic situational stress
  3. Psychoneurotic disorder (phobias)
  4. Psycho-physiological disorder
  5. Psychotic disorder (schizophrenic & paranoid)

# The Effects of Psychogenic Disorder

- ◆ Impairment/loss of speech activity
- ◆ Lack of conceptual organization
- ◆ Lack of comprehension
- ◆ Loss of memory
- ◆ Impairment of audition
- ◆ Impairment of visual functions
- ◆ Disorder of sensory-motor function

# Deviant Language Behavior

- ◆ Language deviations result from:
  - ✓ physiological disorder, excluding those of the brain
  - ✓ brain disorder of organizational and functional origins
  - ✓ psychoneurotic disorder from shocks and traumatic experience
  - ✓ psycho-physiological disorder from chronic emotional tension
  - ✓ psychotic disorder of insanity type

# Language Deviation of Children

1. Delayed manifestation of speech
  - mental retardation, aphasia, deafness, defects in the vocal organs
  - what about in normal children?
    - ◆ Sociological factors, e.g. the attitude of the parents
    - ◆ The child's relations with the rest of the children of the family
    - ◆ Lack of sufficient motivation as related to type of personality he tends to develop
    - ◆ Isolation from which several children suffer in the hands of parents both of whom are employed
    - ◆ Slight personality disorders caused by biological/sociological backgrounds

## 2. Defects in articulation

→ affect the consonants more than vowels as producing consonants needs more articulation

- ◆ Lack of parental attention in making proper corrections on time
- ◆ Parents reinforcement of the child's wrong use of sounds by always repeating such forms for pleasure
- ◆ Isolation, where the child mostly grow up on his own without occasions for contrasting his language with those of other children

e.g.

1. The pencil is nod here.
2. Mama is coogging now.
3. Doont talk to me.
4. My kair's gone long.
5. You can bold it up.

### 3. Syntactic deviations

- displacement of nouns and verbs
- use of nouns without placing the required articles
- use of transitive verbs without objects, etc
- ✓ This is considered as language disorder only when such mistakes are prolonged beyond the age when they ought to disappear



#### 4. Semantic defects

→ the organization of meanings in the formation of sentences

#### 5. Fragmentation of sentences

→ producing sentences in broken, unrelated units of words

# Analyze the following cases.

1. Zalfa, a 3 year old girl, likes talking to herself a lot. She has good pronunciation, no defects in articulation. What is really happening?
2. She also likes substituting the initial letter of every word into [h]. Why? How to overcome this?

No final exam.

Thank You