

Psycholinguistics

Lecture 1.


What is psycholinguistics?

Psycholinguistics is the study of the psychological and neurobiological factors that enable humans to acquire, use, comprehend and produce language.

“The use of language and speech as a window to the nature and structure of the human mind is called psycholinguistics”. Thomas Scovel.

Introspection

- **Introspection** is the examination of one's own conscious thoughts and feelings. In psychology the process of introspection relies exclusively on observation of one's mental state, while in a spiritual context it may refer to the examination of one's soul. Introspection is closely related to human ***self-reflection*** and is contrasted with ***external observation***.
- Introspection generally provides a privileged access to our own mental states, not mediated by other sources of knowledge, so that individual experience of the mind is unique. Introspection can determine any number of mental states including: sensory, bodily, cognitive, emotional and so forth.




Human self-reflection is the capacity of humans to exercise introspection and the willingness to learn more about their fundamental nature, purpose and essence.

Observation is the active acquisition of information from a primary source. In living beings, observation employs the senses. In science, observation can also involve the recording of data via the use of instruments.

The main questions of psycholinguistics:

- How are language and speech *acquired*?
- How are language and speech *produced*?
- How are language and speech *comprehended*?
- How are language and speech *lost*?

	Diachronic	Synchronic
Synthesis	acquisition	production
Analysis	dissolution	comprehension

- 
- **Diachronically** *acquisition* and *dissolution* are the beginning and the end of speech in an individual human being: the former requires the skills of putting a new language together, while the latter reflects the unintentional process of a language falling apart.
 - **Synchronically** *production* and *comprehension* can be considered as comparable psycholinguistic tasks: the former involves the synthesis of language structures; the latter involves their analysis.

Acquisition of language: the main stages in the period of childhood

- **Crying** is a direct precursor to both language and speech. It is a kind of language without speech. As an infant matures, crying helps him learn how to produce linguistic sounds. During the first few weeks, crying is largely an autonomic response to noxious stimuli, triggered by the autonomic nervous system as a primary reflex.

It is spontaneous reaction, unaffected by intentional control from the voluntary nervous system, which eventually evolves as the mover and shaper of most human behavior.





Crying initially is completely **iconic**: there is a direct and transparent link between the physical sound and its communicative intent. For example, the hungrier a baby becomes, the louder and the longer the crying.

In the first month or two of the child's development, crying becomes differentiated and more **symbolic**: it is not directly related to needs or sense of discomfort, but a baby may cry to elicit attention.




The next stages is **coo** (it appears at about two months of age): making soft gurgling sounds, seemingly to express satisfaction.

It is difficult to surmise whether the coos and gurgles of a just-fed baby reinforce the mother's contentment in caring it, or the mother's sounds of comfort reinforce the child's attempt to mimic the contentment it perceives.

The next stage is **babbling** (appears about six months old): bursting out in strings of consonant-vowel syllable clusters. Some psycholinguists distinguish between:

- **Marginal babbling** – an early stage similar to cooing where infants produce a few consonants.
- **Canonical babbling** (emerges at around eight months) – the child's vocalization narrow down to syllables that begin to approximate the syllables of the caretaker's language.





It is important to note, when infants begin to babble consonants at the canonical stage, they do not necessarily produce only the consonants of their mother tongue.

Babbling is not evidence that children are starting to acquire the segmental sounds of their mother tongue. But recent psycholinguistic research supports earlier assumption that children are beginning to learn the suprasegmental sounds of their mother tongue at this stage (musical pitch, rhythm and stress).

- Eight-month-old babies reared in English-speaking families begin to babble with English-sounding melody; those who are brought up in Chinese-speaking homes begin to babble with the tones and melodies of Chinese.
- Babbling is the first psycholinguistic stage where we have strong evidence that infants are influenced by all those many months exposure to their mother tongue.



First words

At about one year a child crosses the linguistic Rubicon – he / she starts using words. This process begins from **idiomorphs** or words which are invented when they first understand that certain sounds have a unique reference. These idiomorphs often do not coincide with the corresponding words from the mother tongue. As usual, these idiomorphs connected with everyday objects and things that can be manipulated by the child.

Once the first words are acquired, there is an exponential growth in vocabulary development, which only begins to taper at about age of six, when the average child has a recognition vocabulary of about 14 000 words.

Grammar

The first stage of grammar is **holophrastic stage**, i.e. the use of single words as skeletal sentences:


Milk (= *It is milk.*)

Milk! (= *I want to drink milk!*)

Milk? (= *Do you want to drink milk?*)

The use of words as sentences is highly contextualized, i.e. depends on intonation, gesticulation and context. In the same manner adults may use single words in the function of sentences.

“Holophrastic speech is the bridge which transports the child from the primitive land of cries, words, and names into the brave new world of phrases, clauses and sentences” (Thomas Scovel).



In accordance with investigations of Transformational-Generative grammar school (founded by Avram Noam Chomsky), children progress through different stages of grammatical development, measured largely by the average number of words occurring per utterance.

All children begin to create sentences after the holophrastic stage, first with two words, and subsequently with more. The many studies conducted of the early two-word stage reveal that children demonstrate a surprising amount of grammatical precocity:

- Certain words tend to be used initially or finally;
- Some words may be rotated between first and second position;
- Other words may be used to fill in the slot either after or before so-called pivots.

Children used two-word sentences consistently by the time of two years old.

The results of experiences conducted by American Sign Language (ASL).

Two-word utterance by a human child:

It ball	See ball	Get ball	There ball	Want baby
It doll	See doll	Get doll	There doll	Want do

Four-word phrases by a chimp (“Nim” is the chimp’s name):

Eat drink eat drink	Eat Nim Eat Nim	Banana me banana me
Banana Nim banana Nim	Grape eat Nim eat	Banana me eat banana



In contrast to the chimp, the human child displays:

- Very little repetition
- A sense of syntax
- Two-word sentences is introduced by a pivot word like “it” or “want”

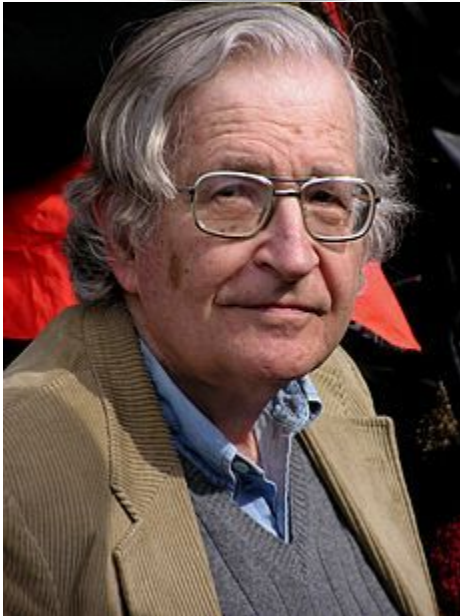
The child has a simple set of rules which are very powerful: they generate a large number of diverse utterance.

Chimp’s “grammar” is unable to provide rules which can be used to describe many different sentences.

“Human language uses finite resources to create infinite utterance”
(G. Leibnitz)

Innateness


In the mentioned experience the chimp was constantly “bombarded” with signs and rewarded and reinforced to use the language signs. Human children also receive an enormous amount of linguistic input on any given day, they are infrequently rewarded just for speaking up, indeed they are sometimes encouraged to be “seen but not heard”. There are even cultures which discourage young children from engaging adults in prolonged conversation (for example some of the Native American tribes of Arizona and New Mexico).



Avram Noam
Chomsky (born in
1928) – the author of
the Generative
grammar theory.

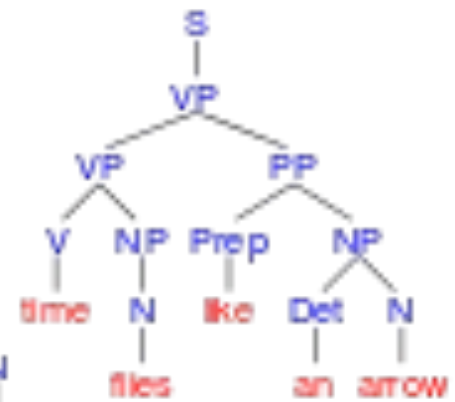
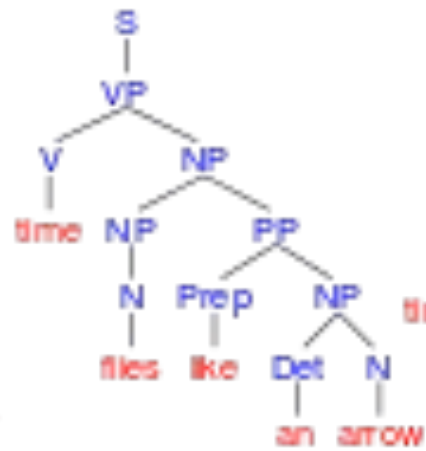
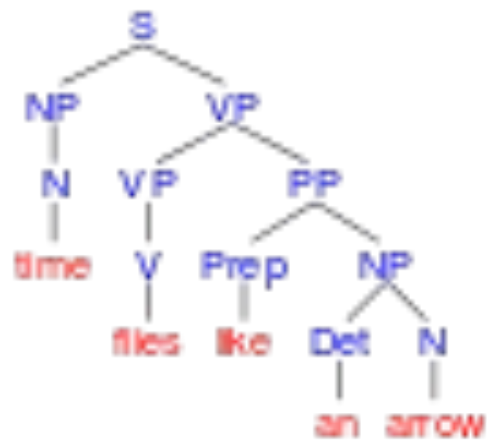
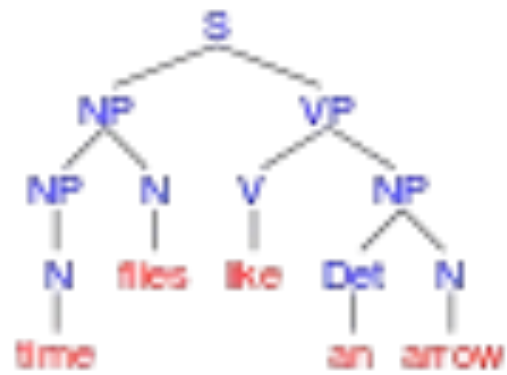
This kind of argument led Noam Chomsky and a whole generation of developmental psycholinguists to claim that a sizable part of early linguistic learning comes from an innately specified language ability in human beings.

In other words, learning your mother tongue is a very different enterprise from learning to swim or learning to play the piano.



The theory of Universal Grammar proposes that if human beings are brought up under normal conditions, then they will always develop language with a certain property X (e.g., distinguishing nouns from verbs, or distinguishing function words from lexical words). As a result, property X is considered to be a property of universal grammar in the most general sense.

"Evidently, development of language in the individual must involve three factors: (1) genetic endowment, which sets limits on the attainable languages, thereby making language acquisition possible; (2) external data, converted to the experience that selects one or another language within a narrow range; (3) principles not specific to factual language".



Childish creativity

Daughter: Somebody's at the door.

Mother: There's nobody at the door.

Daughter: There's *yesbody* at the door.

Daughter: Це трикотажна тканина.

Mother: Мамо, а де *чотирикотажна* тканина?

Daughter: Петро – твій двоюрідний брат.

Mother: А хто мій *одноюрідній* брат?

Чотирискучий мороз < (тріскучий мороз).

Children can decompose words, dividing them into morphemes and recompose them in accordance with the rules of the word patterns of the mother tongue.

In some cases children correct or improve the syntax of the adult's language removing irregular verbs, suppletion and other "incorrect" (from their point of view) forms:

Yesterday we *wented* to Gransma's.

There Carlos is!

Child: Ben's hicking up. He's hicking up.

Adult: What?

Child: He's got the hiccups.

Father: Don't interrupt.

Child: Daddy, you are interrering up!



Stages of linguistic development

There is a glaring differences in the rate of language learning among children (in the experiment of Roger Brown one of the three children studied was linguistically already a year ahead of the other two), but *all kids proceed systematically through the same learning stages* for any particular linguistic structure.

Edward Klima and Ursula Bellugi distinguish three stages:

Stage I (use of WH word but no auxiliary verb employed)

What Daddy doing?

Why you laughing?

Where Mummy go?

Stage II (use of WH word but no auxiliary verb after subject)

Where she will go?

Why you don't know?

Stage III (use of WH word and auxiliary verb before subject)

Where will she go?

Why can't Doggy see?

Why don't you know?

The distance between Stage I and Stage II – several months. No matter how precocious the children are – they do not skip over any of these stages; no children goes from Stage I to Stage III without Stages II. Rates vary, stages don't.



Roger Brown's experience with 3-years-old children

R. Brown divided children's grammatical development into periods of **Mean Length of Utterances (MLUs)**, showing that as the children progressed in the acquisition of their mother tongue, their MLUs from a minimum of about two words to about four.

Stage I (use of NO at the start of the sentence)

No the sun shining.

No Mary do it.

Stage II (use of NO inside the sentence but no auxiliary or BE verb)


There no rabbits.

I no taste it.

Stage III (use of NOT with appropriate abbreviation of auxiliary or BE)

Penny didn't laugh.

It's not raining.



Research pursued by applied linguists for several decades demonstrates that, like little children, adolescent and adult foreign language learners also differ a great deal in their rate of language acquisition but not in the stages through which they progress.

When it comes to the human mind, age differences tend to evaporate, and we witness one common cognitive process when minds of either youngsters or their older counterparts are confronted with similar tasks – learning a language.

Helen Adams Keller (1880 – 1968)



Helen Adams Keller was an American author, political activist and lecturer. She became deaf-blind at the age of 19 months because of illness (scarlet fever or meningitis).

At the age of 7 years old she was able to communicate with the members of her family using about 60 signs which she had invented.

Michael Anagnos, the school's director, asked 20-year-old former student Anne Sullivan, herself visually impaired, to become Keller's instructor. It was the beginning of a 49-year-long relationship during which Sullivan evolved into Keller's governess and eventually her companion.



Anne Sullivan arrived at Keller's house in March 1887, and immediately began to teach Helen to communicate by spelling words into her hand, beginning with "d-o-l-l" for the doll that she had brought Keller as a present. Keller was frustrated, at first, because she did not understand that every object had a word uniquely identifying it. In fact, when Sullivan was trying to teach Keller the word for "mug", Keller became so frustrated she broke the mug.

Keller's big breakthrough in communication came the next month, when she realized that the motions her teacher was making on the palm of her hand, while running cool water over her other hand, symbolized the idea of "water"; she then nearly exhausted Sullivan demanding the names of all the other familiar objects in her world.





In 1904, at the age of 24, Keller graduated from Radcliffe, becoming the first deaf blind person to earn a Bachelor of Arts degree.

Determined to communicate with others as conventionally as possible, Keller learned to speak, and spent much of her life giving speeches and lectures. She learned to "hear" people's speech by reading their lips with her hands—her sense of touch had become extremely subtle.



She became proficient at using braille and reading sign language with her hands as well.



