Psycholinguistics and Neurolinguistics
Unit 5

NAMS

2025-09-07

Linguistics and cognitive science

- Linguistics as a part of cognitive science
- All linguistic elements (e.g., phonemes, morphemes, phrase structures) are how language is represented in the human mind
- A classical view of cognitive science- the mind has symbolic representations and operations that transform these representations
- Psycholinguistics and neurolinguistics study language in the humand mind and brain

Psycholinguistics

- Interdisciplinary study of linguistic representations and processes in the human mind
  - unconscious processes that underlie our language abilities
- Generally use behavioral methods in their study
  - for example, how quickly and accurately someone can respond if the word on a computer screen is of their native language or their second language
  - use response time (RT) and accuracy measures, eye-tracking and mouse-tracking measures, Voice onset time (VOT), etc.
- Propose, study, and evaluate theories of language comprehension and production in L1, L2, and adverse listening conditions, by normal and special population, etc.
  - may also be interested in linguistic theories

Neurolinguistics

- Similar to psycholinguistics, but the focus is on figuring out how language as a cognitive system is organized and implemented in the biology of the human brain
- May use experimental methods from cognitive neuroscience and neuropsychology
  - use fMRI, EEG, PET, etc. as well as examining disorders of language that arise from problems in the brain, like stroke.
  - may also be interested in linguistic theories

What topics do we study?

Some key topics in the field:

- Sentence processing- How do we understand sentences.
- Morphological processing- How do we recognize morphologically complex words and how do we represent relations between related words.
- Spoken word recognition- How do we parse an acoustic stream into discrete units and then how do we recognize those discrete units as words of our language.
- Language Acquisition- How do we learn language; what are the stages of acquisition, what are the challenges the child faces.
- Speech Production- How do we find the words to express our thoughts; how do we assemble words into sentences; why do we make the errors that we do and not others.
- Bilingualism- How do I manage/organize the information that I know for my two languages. Do these systems interact or are they strictly separate

Competence vs Performance

- Traditionally, theoretical linguistics deals with human language *Competence*
- What we know about language that allows us to speak and comprehend.
    - Implicit Knowledge - knowing what is 'right'
    - Explicit knowledge - explain in terms of formal rules

Chomsky made a distinction between Competence and Performance in generative grammar.

- Competence: Abstract and idealized conception of the knowledge of the language
  - Native speakers' knowledge of linguistic rules and intuition about their langauge
  - Speakers' knowledge in production and comprehension both
  - Knowledge about grammar, contextually appropriate cohesive utterances

Performance

- Performance: Specific utterances (written, spoken) produced by the native speakers of a language
  - Shows the "output" of the linguistic-cognitive system
  - May contain features not directly relevant to linguistic competence, e.g., hesitation, unfinished sentences, pauses, etc.
    - due to memory lapses, social factors (anxiety), personality (introversion), biological limitations (need to breathe) etc.
- Linguistic competence is measured through linguistic performance in clinical setup.

Competence vs Performance

- Psycholinguistics deals additionally with linguistic *Performance*.
    - What one does; how knowledge is used.
    - Many of the issues that linguists want to avoid because they muddy up theoretical issues that are of interest to the psycholinguist:
- Many of the questions you may have asked about language out of curiosity.
    - Why we sometimes make errors,
    - Why we make some errors not others,
    - Why we sometimes misunderstand some words or sentences,
    - How we learn a language,
    - How we accommodate speakers with thick accents,
    - How we deal with ambiguous words,
    - How we deal with ambiguous sentences,
    - What makes a word and sentence 'hard' to understand.