Cognitive Psychology

PSYC230

Lecture # 17

Language

We love to talk

What is language?

5 Properties of Language

Clark & Clark, 1977

Communicative – transmits information between individuals; possesses semanticity

Arbitrary – relationship between surface form and referent is not obvious from its sound/gesture

Structured – units must be arranged in specific ways to convey meaning (rules & grammar)

Generative – infinite number of possible utterances. We produce and understand sentences/utterances that have never been said before (productivity)

Dynamic – language is constantly changing
Change comes from the younger speakers
A language that is static is a language with no speakers

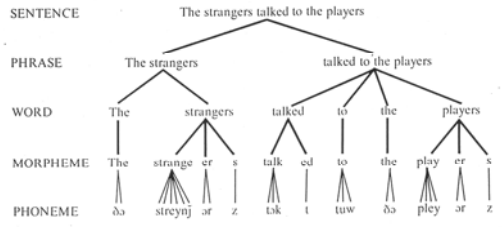
5 Properties of Language +1

Communicative
Arbitrary
Structured
Generative
Dynamic

Displacement – language can refer to things/events removed in time and/or space

the only way can share our thoughts, memories, & internal lives (cognitive events) with other people

Units of Language



Units of Language

Phonemes – individual speech sounds, different sets for different languages

E.g., Aspirated/unaspirated /b/

Tone languages

Phonemes are <u>not</u> letters of the alphabet

46 phonemes in "standard" English but only 26 letters

E.g., <u>C</u>igarette=/s/ <u>C</u>at=/k/

Mo<u>ti</u>on, <u>s</u>hoot = /š/

<u>Ch</u>arlton = /č/

Units of Language

But, no such thing as "standard" English

National and regional differences

E.g, NZ, Aus, US, UK

Dialect --syntax, vocabulary & pronunciation

E.g. *different to* **vs** *different from*

*The company are…***vs** *the company is*…

Togs, bach, chook

Accent – pronunciation only

Voucha (voucher), Shore (Shaw)

Units of Language

other languages have other phonemes

avañyo/avanyo/abanyo

taniwha/tanifa

Latin has 21 phonemes

Spanish has 25 phonemes

Maori approx. 14 phonemes

Italian has 29 phonemes

cross linguistic average of 25

some languages (Mandarin) use tones ("tonemes")

some languages (Hungarian) use duration ("chronemes")

some languages use all three

Navajo > 45 phonemes * tonemes * chronemes = ?

Speech Perception

We can perceive about 50 phonemes per sec

(if we're fluent in the language)

We perceive meaningful words, not a string of phonemes

How do we segment the "speech stream" into morphemes & words?

Examples:

Answer: we use knowledge of the language, rules, & context

Speech Perception

Phonemic Restoration Effect

(Warren & Warren, 1970)

Presented sentences containing a word with the initial phoneme removed or obscured

Units of Language: Meaning

Morphemes – smallest part of speech with meaning (types: content & function)

Morpheme is abstract concept; not ≠ syllable or word

cat – 1 morpheme, 1 word

cats – 2 morphemes, 1 word, 1 syllable

help – 1 morpheme, 1 word

helped – 2 morphemes, 1 word

unhelpful – 3 morphemes, 1 word

mice – 2 morphemes (mouse + plural)

Levels of Language

Psycholinguists study 4 levels

(examples of research)

Phonetics & Phonology: sounds (& signs)

Speech perception: phoneme restoration effect

Semantics: representation of meaning

lexical access & priming; ambiguity

Syntax: sentence structure, grammar

Syntactic ambiguity; acquisition of past tense

Pragmatics: language in context, discourse

Conversational analysis; memory for conversation

Slips of the tongue

When Speech Goes Wrong

"an unintended, non-habitual, deviation from a speech plan"

Can provide insights about how we process and produce language

Slips can occur at many linguistic levels:
Sound (phoneme, syllable, intonation/stress)
Meaning (morpheme, word)

Slips of the tongue

Slips do not violate grammatical rules of the language
e.g., don't result in sequences of sounds that can't occur in that language

Slips typically occur between the same parts of speech
e.g., noun with noun, verb with verb
or in the same location in a word
initial sounds in adjacent words often change places

Slips typically do not cross clause or sentence boundaries

Slips of the tongue

Anticipation
Perseveration
Transposition
Substitution
Blend

Anticipation

Speech unit is produced earlier in speech stream than planned

the speech from the throne → *the theech from the throne*
an early period → *a pearly period*
Give Plum some hay → *Give hay some*….

Perseveration

A speech unit previously produced persists and interferes with current unit

I think I've seen → *theen*

A stewed sow's…. → *stow's*

Transposition

(a.k.a. "reversal" or "exchange")
Two speech units exchange places

(1) How far is it as the crow flies? → *flow cries*
(2) Shallow Hal → *Hallow shall*
(3) One sack of chaff → *One chack of saff*
(4) Spoon and bowl → *Bone and spool*
(Note that vowel moves as well. Results in real words)

(5) How would you like your bacon, Gordon? →
How would you like your Gordon, bacon?
(Note: words transpose. Stress stays put)

Substitution

A linguistic element, not in the surrounding speech stream, replaces the intended unit

The second Hungarian rhapsody → *restaurant*

Keep off the weight → *Stay off the weight*

May show influence of thought ("Freudian slips")

"Freudian slips" in the laboratory
goxy furl /foxy girl
vinny molts /many volts

Blend

Elements from two potential units combine to make a new, unplanned, speech unit (often a non-word)

One load of laush [laundry/wash]

We'll say a tearful goodwell [goodbye/farewell]

Let's hail a tab [taxi/cab]

Frequently the result of indecision between synonyms

What can speech errors tell us about speech production in general?

Slips of the tongue are planning errors, not articulation problems, which allows the study of planning in speech production generally

The patterns of errors are rule-governed and demonstrate that languages operate at a number of levels simultaneously

The best model of speech errors is a connectionist one that simulates slips in a computer programme by using spreading activation between and within linguistic levels

Pragmatics & Discourse

Conversation:
The most frequent form of discourse

We have *tacit knowledge* of how conversations work

We can't state the rules, but we are aware when the rules are being violated

Conversation is a *"joint activity"*
we jointly construct the "floor" and topic

Variables affecting conversation

Speaker characteristics
(e.g., gender, age, SES, ethnicity, bilingualism)

Genre
(type of text, e.g., novel, play, etc)

Register
(socially defined type of language, e.g., legal, academic, etc)

Setting/Context

including social variables, physical setting, & prior information

Participants in a conversation need to agree to co-operate
Co-operative principle summarises the assumptions of co-operation in conversation

Conversational maxims (Grice)

Quality
Quantity
Manner
Relevance (Relation)

What makes a conversation "coherent"?

Reliance on relevance

Turn-taking

How do we know when to speak?

Speakers are "orderly"

Speakers contribute to the conversational "floor" by means of "turns"

Cues for taking a turn:

Grammatical cues (sentence/clause boundary; question)

Pausing (pauses within grammatical unit are judged longer than after grammatical unit)

Pitch direction (rise or fall)

Eye contact (maintaining or returning gaze can signal end of turn)

Variations in "Conversational Style"

Individuals vary in their "conversational style"

High-involvement style (especially young women) includes latching & duetting

Different regions (e.g., US West coast vs East coast) vary in style

Different social groups vary in style

Need to get it right to be understood as you intended

"Communicative Competence"

Knowing how to interact is part of "communicative competence"

Starting a conversation
Taking your turn
Being polite (e.g., indirect speech acts)
The baby is wet, The dogs need feeding
Ending a conversation

Pre-sequences (e.g., pre-closing)
Some people refuse to accept pre-closing offers and won't end the conversation

Closings

The Development of Discourse Skills

Infants and mothers engage in "turn-taking" very early

infant vocalises (not crying)
mother waits for the end, then talks
infant waits, then vocalises

One can hear "conversation" and "turns" in the babbling of a young child at play

However, mastery of "pragmatics" takes time to develop *e.g., children interrupting conversations failing to provide enough information*

Language Acquisition

The Big Question: *How did we do it?*

How did we go from no language to competence in approximately 6 years?

Language acquisition is an *amazing* cognitive feat

Relatively rapid (mostly complete by age 6)

Mastery of a very complex system

First language is not explicitly taught

Two views on child language

Organism/Nativist (Nature)
a. "hardware": biology
b. "software": cognition

Environment/Learning (Nurture)
a. social interaction
b. environmental events

Nativist view
LAD and the innateness hypothesis
(Chomsky)
Universal Grammar & "parameter setting"
a current version of the nativist view
(Pinker, The Language Instinct)

Learning view
Language development follows general principles of learning & reinforcement
(Skinner, Verbal Behavior)

Compromise: Social Interactionism
Emphasis on social interaction but acknowledges role of biology & stresses importance of child directed speech *Caretakerese*
(Bruner; Berko-Gleason)