Aim of this lecture

- Overview the main features of the structure of language
- Overview the debate concerning language acquisition
- Have some thoughts on animal language
- Overview the principle of linguistic relativity
- Ask good questions

Basis for this lecture

- Passer & Smith (2004) Psychology – Chapter 8
- Teigen (2004) En psykologihistorie – Here and there

What is language?

Psychology is the study and analysis of human thought and behavior

The study of the invisible, as most of our everyday actions and thought are automated and seldom reflected upon explicitly

“Language consists of a system of symbols and rules for combining these symbols in ways that can generate an indefinite number of possible messages and meanings”


Displacement refers to symbolic representation of events and object not physically present
representation parts us from the immediate
Main Features of Language

1. Symbolic representation:
   - Past, present, future
   - Correspondence beyond sensations

2. Rule-based and structured:
   - Orderly arranged and composed
   - Coherent

3. Creative and generative:
   - Adaptive to novelties
   - Incredible flexibility!

Levels in Language

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discourse</td>
<td>The players was talking</td>
</tr>
<tr>
<td>Sentence</td>
<td>(Chains of Strings)</td>
</tr>
<tr>
<td>Phrase</td>
<td>(Strings of Chunks)</td>
</tr>
<tr>
<td>Word</td>
<td>(Chunks of Units)</td>
</tr>
<tr>
<td>Morpheme</td>
<td>(Units of Sound)</td>
</tr>
<tr>
<td>Phoneme</td>
<td>(Sounds)</td>
</tr>
</tbody>
</table>

Surface and Depth

Surface
- Rules of combination of symbols
- Syntax -> rules of grammar

Depth
- Underlying meaning of combined symbols
- Semantics -> making sense

Surface and Depth

1. Different sentences may have the same meaning
2. The same sentence may have several meanings
3. Different sentences have different meanings

Questions & Implications

How do we move from syntax to semantics, and finally to pragmatics?

How do we so easily move from sounds to words to sense? (or perhaps not easy: Foreign languages?)

To study is to go from surface to depth to the surface again (from the books to your heads and finally to sheets of paper during your exam!)

Questions & Implications

It seems that words and sentences are loosely coupled to what they refer to and mean.

This leads to ambiguities ... but also flexibility and creativity.
How will I know (Don’t trust your feelings)
How will I know (Love can be deceiving)
How will I know if he really loves me
I’m asking you what you know about these things
How will I know if he’s thinking of me
I try to phone but I’m too shy (can’t speak).

The Problem of Knowing (Semiotics)

Ferdinand de Saussure (1857-1913)

The Signified  The Signifier
(concept)    (sign)
(world)      (language)

Charles Pierce (1839-1914)

The Signified The Signifier The Context
(Concept)    (Sign)     (Situation)

Questions & Implications

... To infer practical meaning we must share something with our conversational partner, such as knowledge, culture, impressions, and so forth.

... Language is thus not just coherence, but correspondence - Language point to the common life of the speakers of a language.

... Syntax, Reference, Pragmatics

For the pro’s: Wittgenstein (1927 vs. 1953)
Language is the act of producing utterances understandable against the common ground of shared experience between participants.

Important concepts when describing aspects of language:
- Representation
- Surface Structure
- Deep Structure
- Syntax
- Semantics
- Pragmatics
- Phonemes
- Morphemes
- Words
- Phrases
- Sentences
- Discourse

Language Acquisition

How come everybody learn language?

How can children potentially learn any kind of language?

How do children know every phoneme from birth, but select the relevant ones during their development?

The difference between 'language acquisition' and 'language development:

**Acquisition:** Descriptions of linguistic knowledge

**Development:** Descriptions of linguistic abilities at different ages during children's development.

(This is a question of the nature of language, not the process of learning as such)
Language Acquisition

The acquisition of language was the source of a major controversy between two of the giants of psychology:

**Skinner versus Chomsky**

(1957) (1959)
(Environmeet) (Genes)
(Behaviorism) (Cognitiveism)
(S-R relationships) (Innate L-system)

Hint: s.279, Teigen / s.209, Passer / s.230, Passer / s.12, Passer

A classic debate in psychology: Nature vs Nurture

**Phenotype**: The observable traits of an individual organism
**Ontogenesis**: Development of an individual organism

**Genotype**: The genetic constitution of an individual organism.
**Phylogenesis**: Origin of a species apart from other species

The big question is how we relate to these two aspects. Do we see them as close and tightly coupled or do we see them as mediated and influenced by environmental factors?

Ex: Language, personality, intelligence, attachment, pathology

B.F. Skinner (1904-1990)

Radical behaviourism
- Observable variables
- Refinement of Watson (1913)
- Focus on ‘functional relationships’

“Language is learned like everything else”
- Verbal Behaviour (1957)
- Language is reinforced, gradually

http://www.bfskinner.org/audio.asp

B.F. Skinner (1904-1990)

Language is learned through the same process as animal learning of simple tasks in laboratories.

Behavior operates in the environment in order to produce consequences: The organism is active.

Functional relationships specify how behaviors are selected by conditions of reinforcement.

Reinforced behaviors are continued, whereas non-reinforced behaviors are extinct.

Hint: s.193 / s.210, Teigen / s.210, Passer / s.210, Passer

B.F. Skinner (1904-1990)

Children producing sounds are reinforced by their parents, thus shaping the verbal activity of the child into language.

Non-reinforced verbal activity ceases.

Language is thus the outcome of conditioning as all other human behavior.

Language is therefore ‘verbal behaviour’

Hint: s.193 / s.210, Teigen / s.210, Passer
Chomsky

Linguist, philosopher.

In opposition to the behaviorist program
Simplistic models of human behavior
Proclaiming a cognitivist approach

“Colorless green ideas sleep furiously” (1957)
Grammatical correct
No meaning!

Grammar is not the fundamental structure in language

1. The mind is cognitive (processing info)
2. The mind has modules (subsystems)
3. The mind is prepared for language (dedicated L-module)

Language is not a behavior, it is a system! Thus, acquiring language cannot be explained by simple reinforcement.

The mind develops hypotheses about rules of language. “parameters” are set accordingly. Exposure triggers adaptation.

Acquisition is the transition of a general grammar model into a specific model.

Criticism:
1) What is the structure of the ‘general grammar’?
2) What rules are learned?
3) What is the role of social interaction?

LAD (Language Acquisition Device) by Chomsky

... yet, this module needs something to be adjusted to

LASS (Language Acquisition Support System) by Jerome Bruner.

... every LAD needs a LASS!

Jerome Bruner ()
Language Acquisition Support System (LASS)

- States the necessity of a context for language

Detailing the Support System:
- Parents as facilitators of language
- Games, participation, activity, doing
- Children know before the use words

Social participation versus Skinnerian conditioning?

In sum:
- Learning by ‘reward’ → Skinner, 1957
- Learning by ‘exposure’ → Chomsky, 1959; 1965
- Learning by ‘participating’ → Bruner, 1983

Active / Passive
Interaction between parent and child
Reference and Context of Acquisition

Animals and language

What were the main features of language? (slide 7)

1. Symbolic representation
2. Rule-based and structured
3. Creative and generative

Expressions of animals: Signals or Symbols?

Koko (1971 -)

- Female gorilla trained in American Sign Language, mastering over 600 (2000?) signs.
- August, 2004: Koko explains she is in pain, and points to her teeth
- April, 1998: Koko chats in the net
  [http://www.koko.org/world/talk_aol.html]
Kanzi (1980 - )

Female bonobo ape, capable of using sign language and producing new words and sentences

Trained by Sue Savage-Rumbaugh at Georgia State University.

Animals and Language

The skill of students of psychology is to ask smart questions.

"Can animals talk?" is at best underspecified.

Chomsky: “Language is the human essence” (then others than human can talk!)

Wittgenstein “Language is sharing lifeworlds” (then animals talk their own language)

If language is not simple behavior, what is it?

If language is thinking, what then is the relationship between Language and other types of thinking?

Principle of linguistic relativity

Individual thoughts are influenced by the language available to express them.

Remember C.Pierce? Interpretation is tied to the context!

How many words for “snow”?

Influence from anthropology (F.Boas)

Think of something that cannot be said. Think of something that has no concept. Think of nothing.
Language

Cato A. Bjerkli
Psychologist