



ENG423A: Current Issues in Linguistics

GENERATIVE LINGUISTICS III

Verbal behaviour

Language is behaviour and, like all behaviour, it is learnt through Stimulus-Response pairing.

Stimulus – language around us

Response – our reproduction of what we hear

Positive reinforcement leads to the fixing of the pattern.

Negative reinforcement – we abandon a faulty behavioural pattern.

Positively reinforced associations form habits.

Language learning - a habit formation process.

B.F. Skinner – Verbal Behaviour

Rejecting behaviourism

Chomsky's Review of Skinner's Verbal Behaviour

That human behaviour can be explained without reference to mental activity: an oversimplification

- 1) A simple human behaviour such as recognising situations – picking up good apples and leaving out bad ones – involves a conceptual sorting, drawing upon information processing activities which take place inside the mind.
- 2) Memory states – internal representations.
- 3) Feels or qualia – subjective mental states that resist behavioural analysis – feel of pain
- 4) Rapid language acquisition and lexical explosion – linguistic capacities that go beyond our learning histories of S-R pairing – history of reinforcement is too impoverished to determine our verbal behaviour.

Linguistic Creativity



Creative use of language

Underdetermined by external stimuli

- We speak and understand sentences we have never heard before.

Unbounded use

- Length of a sentence: no finite limit to the length of a sentence in NL

The boy whom I met near the gate was going to the City that lies nearly fifteen kms away for the Campus where we live along with nearly eight thousand students that study in our various academic programmes admissions to which are held ...

- Number of sentences: no finite limit to the number of sentences

Recursive combinatorial procedures

Actual vs. potential utterances – the notion of a possible sentence of the language goes against S-R pairing.

Other kinds of creativity

Recursiveness in language: A structural notion of creativity as distinct from another notion of creativity in language – neologisms or the poet's use of language.

A species property – a user's ability to produce and understand ever new sentences, is shared across the species.

- Functional creativity – an individual attribute
 - Rule defying as against rule governed
 - The creativity lies in breaking the conventional mould.

Why analogy won't work

Novel expressions cannot be learnt on the basis of analogy.

Surface similarities and deeper dissimilarities

The picture was painted by a new technique

The picture was painted by a new artist.

Raising of the flowers

Roaring of the lions

Another dimension to the **poverty of stimulus** argument - speed of acquisition and fragmentary nature of the input are the other two.

Logical Positivism

An approach to scientific theory construction which states that only those statements are scientific which are verifiable.

Verifiability is a criterion for evaluation that entails three things:

- Observational Method - Theory is extractable from the data.
- Objectivity - Everything lying within the domain of experience is data – selectivity would imply subjectivity.
- Verification principle – what does it mean to say that a statement is scientific? Scientific statements those that are verifiable through observation.

Delimited observation

Positivism – a canon for social science – even now it remains so for some social sciences while the maturer sciences have already moved on and away from it.

Chomsky: Verifiability is not the criterion for evaluation.

No science demands that the theory be extractable from the data.

Quotes Einstein - The theory decides what is to be observed.

The theory constrains the field of observation – data that will aid the production of a new idea is important.

Delimited observation – theory constrains observation.

Evaluation criteria

Three levels of adequacy for linguistic theory:

Observational Adequacy– weakest requirement on scientific theory

Descriptive Adequacy – going beyond the observable to the potential, the possible (predictive value)

Explanatory Adequacy – the underlying principles governing the phenomena

Explanation in linguistics:

The theory has to be sufficiently restrictive for it to be attributed to the a priori initial state.

Linguistic Theory

DESCRIPTIVIST

Each language is different from the rest and must be studied on its own terms: languages differ in unpredictable ways

Recording the native informants' language and using the tools of analysis available to describe languages

GENERATIVIST

All languages share an invariant core.

Goal of linguistic theory is to capture the core.

Linguistic Theory

DESCRIPTIVIST

1. Descriptive linguistics
2. Corpus bound discovery procedure
3. A segmentation based classificatory grammar
4. Linguistic theory addresses the uniqueness of each language.

GENERATIVIST

1. Generative linguistics
2. A corpus-free generative procedure
3. A transformation based derivational grammar
4. Linguistic theory addresses the invariant core underlying all languages.

Beginnings of Cognitive Science

Chomsky is very rightly credited with the beginnings of cognitive science

This is apart from being known as the voice of dissent in America for his left leaning position on global issues such as environment or the America's political/military intervention in various parts around the world.

We may or may not agree with Chomsky's politics and the position he has taken on issues ranging from Vietnam war in the 60s to the conflict in Iraq in recent years

It would not be wrong to say that his is one of the three or four minds responsible for the emergence of Cognitive Science.

Beginnings of Cognitive Science

September 11, 1956: "Symposium on Information Theory" held in Cambridge at the Massachusetts Institute of Technology

George Miller, Noam Chomsky, Alan Newell and Herbert Simon presented papers in the apparently disparate fields of psychology, linguistics and computer science.

Miller later recalls:

I went away from the Symposium with a strong conviction, more intuitive than rational, that human experimental psychology, theoretical linguistics and computer simulation of rational cognitive processes were all pieces of a larger whole, and that the future would see progressive elaboration and coordination of their shared concerns.

Beginnings of Cognitive Science

Chomsky wrote his PhD thesis in 1955-56 and failed to publish it then.

Mouton agreed to publish an abridged version in 1957 which no one took note of until another celebrated linguist wrote a review of it.

Syntactic Structures

The PhD thesis - Logical Structure of Linguistic Theory - was published in 1976 only after his work had gathered considerable traction in Linguistics and philosophy circles.

Cognitive Science begins with Chomsky but doesn't end with him.

Several reasons for this as we will see soon.