

University of London
Birkbeck College

M.A. Seminar - Philosophy of Psychology 2000-1

Term 2: Classes 6 - 10

Cognition, Language and Computation

Sarah Patterson and Barry C Smith

Birkbeck College

Wk 3

Chomsky's Internalism

Chomsky's mentalist account of knowledge of language

Linguistics is not the study of verbal behaviour. Chomskian alternative is to investigate the psychological states of speakers responsible for their linguistic behaviour. The objects of study are the underlying psychological factors responsible for linguistic competence which give form and character to a speaker's linguistic behaviour. The study of actual language use is only a rough guide to a speaker's knowledge of language which is just one of the many factors affecting linguistic performance. The contribution of the speaker's competence has to be factored out.

For Chomsky, a theory of grammar is a model of the speaker's competence, part of the internal structure of his mind.

...linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behaviour. (Chomsky, 1965 p.4)

...a person who knows a language has mastered a particular way of interpreting expressions... the person has acquired a generative procedure *g* which associates a structural description (SD) with every possible expression. (Chomsky 1987, p179)

...the crucial properties of sentences are not revealed by thinking of them as they are outwardly presented to us, namely as strings of signs, but rather by their unobservable grammatical structure...What it is for something to be a sentence for a person is for it to be a grammatical structure that is apprehended and applied to certain perceptible objects...In language how you represent things is how they are. (Higginbotham, 1991 pp.555-6)

What are we describing when we describe the grammar of a sentence? What are we describing when we describe the meaning of a sentence? Observable properties of the surface strings, or theoretical posits underlying this?

- (i) Person X assigns structure Σ and meaning M to the expression S
- (ii) Theory of Language θ specifies S as having the structure Σ and meaning M
- (iii) X's internalised grammar gives S the structure Σ and meaning M

Can we analyse (i) by means of (iii)? Or is there some other way to do this? If so, then the theory which ensures convergence between (i) and (ii) will be a theory of internalised grammar mentioned in (iii).

According to Chomsky, in studying language we are studying a speaker's knowledge of language.

Knowledge of Language

The person who has acquired knowledge of a language has internalised a system of rules that relate sound and meaning in a particular way. The linguist constructing a grammar of a language is in effect proposing a hypothesis concerning this internalised system. (Language and Mind, p.26)

- (1) A language L cannot be identified apart from its structure.
- (2) The structure of L is the structure assigned to it by its speakers; ie.the structural descriptions they assign to certain strings of sounds or symbols.
- (3) Language 'is a system of represented in the mind/brain of a particular individual' (1988, p36)

Chomsky goes further:

...language has no objective existence apart from its mental representation (1972, p169fn.) [It]...is a system represented in the mind/brain of a particular individual (1988, p36)

We don't just identify someone's language by means of their knowledge of language, we equate their language with their knowledge of language.

The Problem: how can we distinguish between representations in the mind of speakers and what they represent? If we can't is there any objectivity to linguistic judgements, and if not how can we talk of knowledge here?

The Distinction between I-language and E-language

Chomsky's Notion of I-language:

The I-language is what the grammar purports to describe: a system represented in the mind/brain, ultimately in physical mechanisms which are as yet unknown,...which assigns a status to a vast range of physical events...[what they hear of an utterance]. (Chomsky in Martinich, p.513)

Linguistic Theory is the study of I-languages not E-languages.

As Chomsky puts it:

The concept of a language of ordinary usage will not do at all...every attempt to proceed with substantive inquiry has departed from it and devised some technical concept...[The attempt to reconstruct] the unexamined ordinary concept...leads to innumerable problems and is best abandoned... (1987, p179)

Chomsky distinguishes between **I-language**, as is an internal cognitive structure, and **E-language**, the ill-assorted practices usually taken for the ordinary notion of external language. The latter, according to Chomsky, is of dubious coherence and intelligibility, and so not ripe for theoretical reconstruction. He goes as far as to say that the:

formal properties of the E-language, however characterised (if at all) have virtually no empirical import...

E-language, however defined, appears to have no status in the theory of language. (1987, p179-181)

It has come to seem to Chomsky that languages, in the E-sense, are just epiphenomena: the real task for linguistics being the study of mentally represented grammars. More accurately, only the public products that can be theoretically specified are epiphenomenal. These will be in the class of strings of sounds or symbols to which some set of individual speakers assign at least one structural description. But this falls far short of what is intended by the notion of E-language, and may in fact cross classify sentence strings taken to belong to different public languages in the ordinary sense.

Linguistics as a branch of cognitive psychology studies what speakers know about the strings they hear. It studies their grammar. Languages, in the sense of E-languages, are just epiphenomena.

All speakers have an initial state of their language faculty that conforms to the principles of universal grammar (UG). When these are parametrised and the speaker has a lexicon of word-like items, he or she can be said to have arrived at a steady state of the language faculty. This is the speaker's I-language.

What a person represents as sentence to be is what it is for that person. How do speakers represent the sounds they produce and respond to?

"In language, how you represent things is how they are" (Higginbotham, *ibid.*)

Interpreted as a claim about the speaker's competence, responsible for her linguistic acts and judgements, the theory is a claim about how the speaker represents things:

"What it is for something to be a sentence for a person is for it to be a grammatical structure apprehended and applied to certain perceptible objects." (Higgy)

Representationalism:

'The representation of the structure is an instance of what it represents, and the structure itself is the platonic shadow of the representation. Properties of each can be read off

properties of the other, and the difference between them, although real, is only pedantically insisted upon.'

So a language cannot be identified with a set of sounds (or signs) in the world. Many languages share the same sounds, frustrating us from deciding for any sound sequence which language it belongs to. The decision as to which language(s) it belongs to (i.e. which sentences it realizes) depend on how different speakers perceive those sounds; hence (2). Relative to one structural assignment, the string may be grammatical, relative to another it may not. So there is no set of formed strings, just a set of structures speakers assign to sounds and signs

Support for (1) and thus for (3) comes from fact that a language cannot be identified with a set of sounds (or signs) in the world. As we noted, many languages will share the same sounds, frustrating us from deciding for any sound sequence which language it belongs to. The decision as to which language(s) it belongs to (i.e. which sentences it realizes) will depend on how different speakers perceive those sounds; that is, on their I-languages.

...a person who knows a language has mastered a particular way of interpreting expressions. Restating this fact in terms of a computational-representational theory of mind, the person has acquired a generative procedure g which associates a structural description (SD) with every possible expression (Mind and Language, Vol. 2)

The class of possible structures generated by g is Π : one for each possible expression. (Each SD determines a specific expression but not vice versa.) This class is called the structure of the language, or the structure of g . The generative procedure is also known as the I-language.

This helps to focus on nature of linguistic facts. For Chomsky, they are not mind-independent abstract objects.

(iii) If special rational faculty shapes the judgements we make in accordance with the structures posited by the Platonist, then why not just slough off the external, mind-independent objects and treat all such talk as projections from our cognitive capacities and what they aim at? Call this view representationalism: 'language has no existence apart from its mental representation in the minds of speakers' (Chomsky); 'in language how you represent things is how they are' (Higgy) So instead of a tracking epistemology we have an extension-determining view of linguistic structure: linguistic forms as secondary qualities a la Wright.

Philosophical Problems for the Representationalist:

- (i) Can the representationist still acknowledge some 'harmless' sense in which grammars (= the structure of languages) are abstract, formally described objects?
- (ii) Can there be any subject matter for the theory of linguistic knowledge: is there anything (else) which speaker's linguistic judgements are about? Cf Math. judgements.
- (iii) Does this lead to a hopeless subjectivism?

Answer to (i) is yes, if we take Higginbotham's line:

'The representation of the structure is an instance of what it represents, and the structure itself is the platonic shadow of the representation. Properties of each can be read off properties of the other, and the difference between them, although real, is only pedantically insisted upon.'

So without detailed psychological theorising about the cognitive mechanisms involved, the linguist can formulate hypotheses about the structure of what is known by the speaker: this constitutes an empirical hypothesis about the internal system (body of knowledge) which relates sound and meaning in a particular way for that person:

- (1) Person X assigns structure and meaning M to the expression S
- (2) X's grammar gives S the structure and the meaning M

But how are we to embrace this position without motivating a vehicle/content conflation (ie. our old friend, the use-mention confusion)?

Mental reps *encode* syntactic structure: they feature in *content*-using explanations, they do not immediately qualify for STM any more than any other representation.

Vehicle/Content Conflations:

Kantian distinction: a succession of perceptions *and* a perception of succession.

Motivated conflation: temporal order of experience *and* ordo naturalis

In this case: representation of structure *and* structured representation

But does the ability to encode structure require the cognitive system to do this by employing psychological states (and processes) whose structures are isomorphic to the grammatical structures (and relations) they encode?

Isn't this just the *Strong Competence Hypothesis*: computational rules that govern the

operation of the parser line up one to one with the rules of derivation in the grammar that generates the strings parsed. (This need not be a reductionist claim, though if taken in reductionist spirit it violates the grammar/ parser distinction Chomsky insists upon.) Cf. Strong and Weak Conceptualism of Higginbotham wrt (1) and (2).

But what of questions (ii) and (iii). Can weak conceptualism be reconciled with claims for linguistic knowledge and an objective subject matter for linguistic theory? Are speakers' linguistic intuitions candidates for genuine judgement? Objectivity of judgement is the weakest form of objectivity to be established here; then the objectivity status of a grammar.

Linguistic theory

grammaticality
ambiguity
co-reference

Cognitive Psychology

judgements of grammaticality
judgements of ambiguity
judgements of co-reference

Cannot just treat the right-hand side as replacing the left: this would be reductionism and would leave no room for objectivity of judgement. What can we be aiming at: can anything make us right or wrong here? Is there anything to know, to be right or wrong about? If not, then what seems right is right,...etc. Problems of misrepresentation loom.

Some standards of correctness, getting matters right or wrong, acting in accordance with one judgements or going against them on occasions can be introduced via the competence/performance distinction in the case of the individual's I-language.

N. Chomsky, 'Reply,' *Mind & Language* (1987) 2: 178-197

N. Chomsky, 'Language and nature,' *Mind* (1995) 104:1-61, concentrating on part 2, 'Language from an internalist perspective'

N. Chomsky, New Horizons in the Study of Language and Mind (CUP 2000)

J. Higginbotham, 'Remarks on the metaphysics of linguistics,' Linguistics and Philosophy (1991) 14: 555-566

Principles and Parameters Approach

Universal Principles

X-bar Principles

(Ext) Projection Principle

Parameters

Head direction

Pro-drop

Theta Criterion
Subjacency
Empty Category Principle
Binding Principles
Case Filter/Visibility

Direction of θ -role assignment
Bounding Nodes
Canonical government
Governing category
Direction of Case assignment