

THE DEBATE ON CHOMSKY'S
NOTION OF "KNOWLEDGE
OF LANGUAGE"

Giorgio Graffi

OUTLINE

1. Chomsky: “language” and “knowledge of language”
2. Kripke and Dummett vs. Chomsky
3. Chomsky’s answer: the “methodological naturalism”
4. Mental phenomena vs. physical phenomena
5. Some (tentative) conclusions

PART 1

CHOMSKY: “LANGUAGE” AND “KNOWLEDGE OF LANGUAGE”

Chomsky's "three basic questions"

- (i) What constitutes knowledge of language?
- (ii) How is knowledge of language acquired?
- (iii) How is knowledge of language put to use?

(Chomsky 1986: 3)

Chomsky's answers to the three questions

“The answer to the first question is given by a particular generative grammar, a theory concerned with the state of the mind/brain of the person who knows a particular language. The answer to the second is given by a specification of U[niversal] G[rammar] along with an account of the ways in which its principles interact with experience to yield a particular language; UG is a theory of the “initial state” of the language faculty, prior to any linguistic experience. The answer to the third question would be a theory of how the knowledge of language attained enters into the expression of thought and the understanding of presented specimens of language, and, derivatively, into communication and other special uses of language”. (Chomsky 1986: 3-4)

“I-language” vs. “E-language”

- “[...] David Lewis [...] defines a language as a pairing of sentences and meanings [...] over an infinite range [...]. Let us refer to such technical concepts as instances of “externalized language” (E-language), in the sense that the construct is understood independently of the properties of the mind/brain” (Chomsky 1986: 20).
- “The I[n]ternalized language [...] is some element of the mind of the person who knows the language, acquired by the learner, and used by the speaker-hearer” (id.: 22).

More about I-language

- “I” means *internal, individual* and *intensional* (“that is, the actual formulation of the generative principles, not the set it enumerates”; Chomsky 2006: 175).
- “I can understand Jones, within limits, because my I-language is not too different from his” (Chomsky 2000: 72-3).
- “I-language” replaces the notion of “competence” and renders the notion of “homogeneous linguistic community” superfluous.

“Externalist” vs. “internalist” research on language

- “[...] the issue of legitimacy of inquiries that go beyond internalist limits does not arise. [...] As for sociolinguistics, it is a perfectly legitimate inquiry, externalist by definition. It borrows from internalist inquiry into humans, but suggests no alternative to it, to my knowledge. How much its findings illuminate issues of power and status is a separate question”.
(Chomsky 2000: 156)

Chomsky's I-language vs. Saussure's *langue*

- “la langue [...] est un trésor déposé par la pratique de la parole dans les sujets appartenant à la même communauté, un système grammatical existant virtuellement dans chaque cerveau, ou plus exactement dans les cerveaux d’un ensemble d’individus; car la langue n’est complète dans aucun, elle n’existe parfaitement que dans la masse”. (Saussure 1922: 30)

An historical digression

- The question of the social vs. the individual in the analysis of language.
- Two leading scholars:
 1. H. Paul
 2. A. Sechehaye

Hermann Paul

- “In my view, there can only exist an individual psychology”. (Paul 1910: 364).
- “We can set up five problems, whose solution is the task of general linguistics” (id.: 366). 1) The way in which linguistic activity takes place; 2) language learning; 3) language change; 4) the splitting of languages into dialects; 5) language origin.
- “Such problems are not isolated from each other, but they are strictly connected. They all share a common feature: to solve them, one thing is chiefly necessary, i.e. the careful observation of the mutual communication between different individuals”. (ibid.)

Albert Sechehaye

- “L’agent des phénomènes de psychologie collective n’est que la somme des agents qui produisent isolément les phénomènes de psychologie individuelle”. (Sechehaye 1908: 97).
- “Nous ne croyons pas que la conception sociologique de la langue nous oblige à admettre l’existence de cette langue en soi, dont le sujet, en dehors des individus parlants, est inimaginable”. (Sechehaye 1933: 65)

Linguistics as a branch of psychology

- “I think there is more of a healthy ferment in cognitive psychology – and *in the particular branch of cognitive psychology known as linguistics* – than there has been for many years” (Chomsky 2006 [1968], p. 1, my emphasis).
- “Linguistics is simply that part of psychology that is concerned with one specific class of steady states, the cognitive structures employed in speaking and understanding” (Chomsky 1975: 160).

The “psychological reality of linguistics”

- “The proper conclusion to draw about the familiar model of transformational grammar presented in Chomsky’s *Aspects of the Theory of Syntax* may simply be that it is psychologically unrealistic” (Bresnan 1978: 2).
- “The question is: what is ‘psychological reality’, as distinct from ‘truth, in a certain domain’? [...] I am not convinced that there is such a distinction” (Chomsky 1980: 107).

SUMMARY OF PART 1

- According to Chomsky:
 1. Language as object of scientific study is a mental entity (“I-language”).
 2. This mental entity can only be investigated by means of individual psychology.
 3. Linguistics as the study of I-language is a branch of cognitive psychology.

PART 2

KRIPKE AND DUMMETT VS. CHOMSKY

Kripke's Wittgenstein

“The basic structure of Wittgenstein’s approach can be presented briefly as follows: A certain problem, or in Humean terminology, a ‘sceptical paradox’, is presented concerning the notion of a rule. Following this, what Hume would have called a ‘sceptical solution’ is presented. [...] By such a discussion, it is hoped that both mathematics and the mind can be seen rightly: since the temptations to see them wrongly arise from the neglect of the same basic considerations about rules and language, the problems which arise can be expected to be analogous in the two cases”. (Kripke 1982: 4-5)

Kripke's skeptical paradox - 1

“Let me suppose, for example, that ‘ $68 + 57$ ’ is a computation that I never performed before. [...]

I perform the computation, obtaining, of course, the answer ‘125’. I am confident, perhaps after checking my work, that ‘125’ is the correct answer. [...]

Now suppose I encounter a bizarre sceptic. This sceptic questions my certainty about my answer [...]. Perhaps, he suggests, as I used the term ‘plus’ in the past, the answer I have intended for ‘ $68 + 57$ ’ should have been ‘5’! [...] In the past I gave myself only a finite number of examples instantiating this function. All, we have supposed, involved numbers smaller than 57. So perhaps in the past I used ‘plus’ and ‘+’ to denote a function

Kripke's skeptical paradox - 2

which I will call 'quus' and symbolize by ' \oplus '. It is defined by:

$$\begin{aligned}x \oplus y &= x + y, \text{ if } x, y < 57 \\ &= 5 \quad \text{otherwise.}\end{aligned}$$

Who is to say that this is not the function I previously meant by '+ '?

Kripke's skeptical paradox - 3

The sceptic claims (or feigns to claim) that I am now misinterpreting my own previous usage. By 'plus', he says, I *always meant* 'quus'; now, under the influence of some insane frenzy, or a bout of LSD, I have to misinterpret my own previous usage.

Ridiculous and fantastic though it is, the sceptic's hypothesis is not logically impossible."

(Kripke 1982: 9).

Kripke's "skeptical solution" (p. 89)

If our considerations so far are correct, the answer is that, if one person is considered in isolation, the notion of a rule as guiding the person who adopts it can have *no* substantive content. There are, we have seen, no truth conditions or facts in virtue of which it can be the case that he accords with his past intentions or not. As long as we regard him as following a rule 'privately', so that we pay attention to *his* justification conditions alone, all we can say is that he is licensed to follow the rule as it strikes him. This is why Wittgenstein says, "To think one is obeying a rule is not to obey a rule. Hence it is not possible to obey a rule 'privately'; otherwise thinking one was obeying a rule would be the same thing as obeying it." (§202)

Kripke (1982: 97, fn. 77) vs. Chomsky

Modern transformational linguistics, inasmuch as it explains all my specific utterances by my 'grasp' of syntactic and semantic rules generating infinitely many sentences with their interpretation, seems to give an explanation of the type Wittgenstein would not permit. For the explanation is *not* in terms of my actual 'performance' as a finite (and fallible) device. It is not a purely causal (neurophysiological) explanation in the sense explained in the text; see note 22 above. On the other hand, some aspects of Chomsky's views are very congenial to Wittgenstein's conception. In particular, according to Chomsky, highly species-specific constraints – a 'form of life' – lead a child to project, on the basis of exposure to a limited corpus of sentences, a variety of new sentences for new situations. There is no *a priori* inevitability in the child's going on in the way he does, other than that this is what the species does. As was already said in note 22, the matter deserves a more extended discussion.

Kripke's fn. 22

Nevertheless, given the sceptical nature of Wittgenstein's solution to his problem (as this solution is explained below), it is clear that if Wittgenstein's standpoint is accepted, the notion of 'competence' will be seen in a light radically different from the way it implicitly is seen in much of the literature of linguistics. For *if* statements attributing rule-following are neither to be regarded as stating facts, nor to be thought of as *explaining* our behavior (see section 3 below), it would seem that the *use* of the ideas of rules and of competence in linguistics needs serious reconsideration, even if these notions are not rendered 'meaningless'.

Dummett (1981): Chomsky's notion of “unconscious knowledge”

“There are two principal issues with which the book [Chomsky 1980] is concerned and to which its author repeatedly returns. [...] We are born with a propensity to speak one out of a restricted range of possible languages. [...] This thesis is of philosophical interest, because of its bearing on the concept of learning: but it is in itself an evidently empirical thesis, with no very great philosophical consequences. As such, it is very much subordinate to the other thesis on which Chomsky lays great stress in this book: namely, that mastery of a language consists of unconscious knowledge. I will concentrate exclusively on this latter thesis”.

Dummett's objections to Chomsky

“There are two distinct positions entailing a denial of explanatory power to Chomsky's theory. One is: there can be no such thing as unconscious knowledge; a speaker does not know the system of rules governing the language, but merely acts as would someone who knew those rules and could apply them sufficiently rapidly. The other is: one may legitimately describe a speaker as unconsciously knowing the rules governing the language, but, in doing so, one is saying no more than that he speaks, and responds to the speech of others, in accordance with those rules: hence no *hypothesis* has been advanced, nor any *explanation* given. The difference between these positions is of little interest to Chomsky. He repudiates both: his theory is an explanatory hypothesis, not a systematisation of facts open to view.”

Dummett: the alleged psychological character of Chomsky's theory

“Chomsky's assumption is that our knowledge of our mother tongue is ‘represented somehow in our minds, ultimately in our brains, in structures that we can hope to characterise abstractly, and in principle quite concretely, in terms of physical mechanisms’. [...] Unconscious knowledge is thus a physiological state, presumably a state of the brain: in locating it ‘in our minds’, we are acknowledging the purely abstract character of the account which is the best we can at present give of it. [...] A characterisation of some physiological system is not, however, qualified as psychological merely by being abstract or schematic: i.e. by omitting to specify the actual mechanisms involved. What gives Chomsky's theory its psychological character is its use of psychological terms like ‘computation’ and ‘knowledge of a rule’.”

Knowledge of language: Dummett vs. Chomsky - 1

“Knowledge of a language does not resemble an ordinary practical skill: one who cannot ski may perfectly well know what it is to ski, whereas one who does not know Spanish does not know what it is to speak Spanish, and would be unable to tell for sure whether others were speaking Spanish or not. A good deal of conscious knowledge is required for the knowledge of a language, as Chomsky himself remarks. [...] It is on the basis of such knowledge that we say what we do: for speech is ordinarily a highly conscious activity, an activity of rational agents with purposes and intentions.

Knowledge of language: Dummett vs. Chomsky - 2

For reasons such as these, Chomsky is almost certainly right in treating knowledge of language as a genuine instance of knowledge, as well as in holding practical knowledge, properly so called, to have a large theoretical component. That does not entitle him, however, to dismiss the problems that then arise by declaring such knowledge inaccessible: for one thing, we need an account of how unconscious knowledge issues in conscious knowledge.”

SUMMARY OF PART 2

1. Kripke's criticism: an approach to language in terms of individual psychology is impossible in principle.
2. Dummett's criticism: Chomsky's notions of "knowledge of language" and of "linguistics as a branch of psychology" are essentially groundless.

PART 3

CHOMSKY'S ANSWER: THE “METHODODOLOGICAL NATURALISM”

Answer to Kripke: two cases of “following a rule”

“How can I tell whether you are following R or R’? [...] Here we may distinguish two cases: my doing as a person in ordinary life, and my doing so as a scientist seeking to discover the truth about language faculty. [...]

Consider the first case: ascription of rule following in ordinary life. [...] Because attribution of rule following requires reference to the practices of a community, there can be no «private language». There is no substance or sense to the idea of a person following a rule privately. It seems that the «individual psychology» framework of generative grammar is undermined.”
(Chomsky 1986: 226)

Case 1: the “person in ordinary life”

“Returning to the statement that «if one person is considered in isolation, the notion of a rule as guiding the person who adopts it can have *no* substantive content» ([Kripke] p. 89) – the conclusion that seemed to undermine the individual psychology framework of generative grammar- we see that this must be understood as referring not to an individual whose behavior is unique but to someone «considered in isolation» in the sense that he is not considered as a person, like us. But now the argument against private language is defanged. We consider Robinson Crusoe to be a person, like us.” (Chomsky 1986: 232-3)

Case 2: the “scientist”

“What about our conclusions, as scientists, that Jones is following the rule R? [...] We then try (in principle) to construct a complete theory, the best one we can, of relevant aspects of how Jones is constructed – of the kind of «machine» he is, if one likes. [...]

This theory is about Jones’s capacities and how they are realized, these being facts about Jones: At the same time it is a theory about persons, the category to which we take Jones to belong as an empirical assumption. [...]

This approach is not immune to general skeptical arguments – inductive uncertainty, Hilary Putnam’s antirealist arguments, and others. But these are not relevant here, because they bear on science more generally.” (Chomsky 1986: 236-7)

Hermann Paul again

- “Everything that we believe to know about the representation of another individual only rests on conclusions which have been drawn about our own. We further presuppose that the mind of the other is in the same relationship with the external world as our own mind, that the same physical impressions bring about in it the same representations as in our own, and that such representations connect with each other in the same way.” (Paul 1920: 15)

Answer to Dummett: what is knowledge of language

“Knowledge of language involves (perhaps entails) standard examples of propositional knowledge: knowledge that in the word *pin*, /p/ is aspirated, while in *spin* it is not; that the pronoun may be referentially dependent on *the men* in (9i), but not in the identical phrase in (9ii), and so forth:

(9i) I wonder who [the men expected to see them]

(9ii) [the men expected to see them]”

(Chomsky 1986: 265-6)

On knowledge of rules

“Suppose our best theory asserts that speakers know the facts of referential dependence in these cases because their language provides the representations (10i) and (10ii) for (9i) and (9ii) [...]

(9i) I wonder who [the men expected to see them]

(9ii) [the men expected to see them]

(10i) I wonder who [the men expected [*e* to see them]]

(10ii) the men expected [PRO to see them]

Should we then say that the person who «has» this language «knows the binding theory principles» and so forth? [...] a positive answer seems consistent with normal usage.” (Chomsky 1986: 267)

Some technical details

- (10i) I wonder who [_{S1} the men expected [_{S2} *e* to see them]

(10ii) the men expected [_{S1} PRO to see them]

- In (10i), *the men* and *them* can refer to the same set of individuals; in (10ii), they cannot.
- In (10i), the symbol *e* (“empty”) indicates the position from which the pronoun *who* has been moved by the transformation of “*wh*-movement”.
- In (10ii), the symbol PRO indicates the understood subject of the infinitival clause. It has the same reference of the subject of the main clause, *the men*.

Explaining the contrast (10i) vs. (10ii)

- (10i) I wonder who [_{S1} the men expected [_{S2} e to see them]

(10ii) the men expected [_{S1} PRO to see them]

- “Binding Principle” (B):
“Pronominals are free in a local domain”.
- “Free” means “not been referentially dependent”; a “local domain” is (roughly) the simple clause.
- In (10i), the pronominal *them* is free in its local domain (S2): therefore it may be referentially dependent on *the men*, which is outside S2.
- In (10ii), *the men* co-refers with the understood subject PRO. PRO is in the same local domain as *them* (S1). Therefore, *them* may not be referentially dependent on *the men*.

From unconscious to conscious knowledge

“Thus, according to the theory that Dummett finds problematic or unintelligible, a person has unconscious knowledge of the principles of binding theory, and from these and others discussed, it follows by comparisons similar to straight deduction that in (9i) the pronoun *them* may be referentially dependent on *the men* whereas in (9ii) it may not [...]. That this is so is conscious knowledge, among the numerous consequences of principles of UG, which are surely not accessible to consciousness. [...]

We do not, of course, have a clear account, or any account at all, of why certain elements of our knowledge are accessible to consciousness whereas others are not, or of how knowledge, conscious or unconscious, is manifested in actual behavior.”
(Chomsky 1986: 270)

Chomsky's “methodological naturalism”

- “A «naturalistic approach» to the mind investigates mental aspects of the world as we do any others, seeking to construct intelligible explanatory theories, with the hope of eventual integration with the «core» natural sciences. [...] Naturalism, so understood, should be uncontroversial [...]. I think that the opposite has been true, a curious feature of recent intellectual history. Explanatory theories of mind have been proposed, notably in the study of language. They have been seriously challenged, not for violating the canons of methodological naturalism (which they seem to observe, reasonably well), but on other grounds: «philosophical grounds», which are alleged to show that they are dubious, perhaps outrageous, irrespective of success by the normal criteria of science; or perhaps that they are successful, but do not deal with «the mind» and «the mental».”
(Chomsky 2000: 76-7)

SUMMARY OF PART 3

1. Chomsky's answer to Kripke: the investigation of I-language is legitimate since we assume that all humans are essentially like us.
2. Chomsky's answer to Dummett: "unconscious knowledge" of rules and principles can be shown to exist.
3. The two answers share the same feature. I-language can (and must) be investigated as any natural object: "methodological naturalism".

PART 4

MENTAL PHENOMENA VS. PHYSICAL PHENOMENA

Chomsky: the boundaries of “causal” explanation

- “Is behavior governed or guided by these «rules», as we call them? Do the rules we postulate play what some call «a causal rule» in behavior? Do the principles formulated in UG concerning the initial state S_0 have «causal efficacy» in bringing about the attained state S_L ?

[...] if R is a constituent element of the initial state determined by our best theory, and invoking R is part of our best account of why the attained state has such-and-such properties that then enter into behavior, we are entitled to propose that R has «causal efficacy» in producing these consequences.” (Chomsky 1986: 244)

- “Our behavior is not «caused» by our knowledge, or by the rules and principles that constitute it.” (id.: 260).

The problem of intentionality

- “[...] intentional phenomena relate to people and what they do as viewed from the standpoint of human interests and unreflective thought, and thus will not (so viewed) fall within naturalistic theory, which seeks to set such factors aside.” (Chomsky 2000: 22)
- “We assume, essentially on faith, that there is some kind of description in terms of atoms and molecules, though without expecting operative principles and structures of language and thought to be discernible at these levels. With a larger leap of faith, we tend to assume that there is an account in neurological terms [...]” (id.: 25)
- “Naturalistic inquiry will always fall short of intentionality.” (id.: 45).

The notion of “representation” in cognitive science

“While we do not assume that planets have a symbolic representation of their orbits (or of the laws governing their trajectory), we *do* claim that the appropriate explanation of cognitive processes must appeal to the organism’s use of rules and explicit symbolic representations. The distinction between behavior being governed by symbolic representations and behavior being merely exhibited by a device in virtue of the causal structure of that device is one of the most fundamental distinctions in cognitive science”.

(Pylyshyn 1980: 120)

Representation and intentionality

- “If there is any validity to the view that at least some human behavior is rational, then the systematicity of people’s behavior in those cases will be stateable only when their actions are described in what I refer to as *cognitive or intentional terms*”. (Pylyshyn 1986: 10)
- “[...] I do examine one aspect of intentionality because it is closely related to the notion of *representation*, a notion which plays a fundamental role in cognitive explanation”. (id.: 21)

“Functional architecture” and “cognitive penetrability”

- “By «functional architecture» I mean those basic information-processing mechanisms of a system for which a nonrepresentational or nonsemantic account is sufficient. The operation of the functional architecture might be explained in physical or biological terms, or it might simply be characterized in functional terms when the relevant biological mechanisms are not known-” (Pylyshyn 1986: xvi)
- “Consequently, the input-output behavior of the hypothesized, primitive operations of the functional architecture must not depend in certain and specific ways on goals and beliefs, hence, on conditions which, there is independent reason to think, change the organism’s goals and beliefs; the behavior must be what I refer to be *cognitively impenetrable*.” (id.: 113-114)

Chomsky vs. Pylyshyn - 1

- “[...] the cognitive system involved in the use of language is «cognitively penetrable» in the sense of Pylyshyn (1984) and other current work; that is our goals, beliefs, expectations, and so forth clearly enter into our decision to use the rules in one way or another, and principles of rational inference and the like may also play a role in these decisions [...]”. (id. : 261)
- “But while the system of language use is cognitive penetrable in this sense, the system of principles of S_0 presumably is not; it merely functions as a kind of automatism.” [...] (id.: 262)
- “There is a distinction to be made between cognitive impenetrable systems that constitute what Pylyshyn (1984) calls «functional architecture» and systems that involve reference to goals, beliefs, and so forth, and perhaps inference of one sort or another.” (ibid.)

Chomsky vs. Pylyshyn - 2

- “In Pylyshyn’s terms, the distinction is between the «symbolic (or syntactic) level» and the «semantic (or intentional) level», each to be distinguished from a third level at which description and explanation are in terms of laws of physics, biochemistry, and so forth.” (Chomsky 1986: 262)
- “In these terms, most of our discussion so far has been at the «symbolic level», not the «semantic intentional level» [...] it seems that at each level we are entitled to postulate rules and representations, and to hold that these are involved in language use, when «best theory» considerations of the sort discussed lead to this conclusion.” (id.: 262-3)
- “Pylyshyn argues in contrast that we can speak of rules and representations only at the semantic-intentional level. The conclusion seems to me unsound, in fact hardly more than a dubious terminological proposal”. (id.: 274, fn. 21)

SUMMARY OF PART 4

- The “causal” explanation of “methodological naturalism” only applies to language acquisition and to what Pylyshyn calls the “functional architecture”; it cannot apply to language use and to the “semantic-intentional level”.
- Cognitive science restricts the notion of “representation” to semantic-intentional phenomena.
- However, Chomsky insists on speaking of “representations” also with respect to elements of the “functional architecture”.

PART 5

SOME (TENTATIVE) CONCLUSIONS

“Knowledge of language” and “methodological naturalism”

- Speakers seem to “know” several linguistic phenomena.
- The exact nature of this “knowledge”, however, remains uncertain, especially as far as the “functional architecture” (in Pylyshyn’s sense) is concerned.
- Explicitly, “methodological naturalism” does not aim at accounting for intentional phenomena; however, intentional terms (“representations”) are also used to speak about elements of the “functional architecture”.
- Then, it does not seem that “methodological naturalism” can apply in exactly the same way to mental and to physical phenomena.

Philosophy of language vs. linguistics

- Kripke's skepticism vs. Chomsky's approach to language: the former raises a fundamental issue (the legitimacy of the individual analysis of a social phenomenon), but does not invalidate the latter.
- Dummett's criticism of the notion "knowledge of language": it can be answered (partially) by means of "methodological naturalism". Some problems remain, however.
- Conclusion: philosophy of language asks questions about language; linguistics attempts to solve them.

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