Who's Afraid of Noam Chomsky?

A tutorial review for teachers of English

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1. Introduction.

No matter how hard they try, English teachers who read the professional journals or attend workshops or conferences cannot avoid a confrontation with linguistics, the scientific study of language. On opening almost any book or journal on language learning or teaching from the past couple of decades, the reader will come across the name of Noam Chomsky, the 'father' of modern linguistics. In many cases too, one is faced with terms like *UG (Universal Grammar), LAD (Language Acquisition Device), transformations, parameters,* etc., and often they will not be defined. Who is this person, what are these instruments of torture and what has it all got to do with English teaching?

This paper is an attempt to summarise the state of the art in Chomskyan linguistics, with a view to making the complex concepts involved more accessible to English teachers. As the title suggests, my intention is also to reassure English teachers that Chomsky represents no cause for alarm. Although Chomskyan (or 'generative') linguistics certainly is highly complex, I shall suggest that the English teacher need not concern herself or himself with the technical details of the theory. My goal here is to highlight the general philosophy of language and mind underlying the theory, which I believe will help teachers to have a better 'feel' for what it is that they are trying to accomplish in the classroom.

We must start with the recognition that Chomsky's own writings in linguistics are anything but accessible: Not only are they intrinsically difficult because of their content, but they are also written in a style which does not always lend full transparency to the issues. Consider, for example, the following passage:

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> ...the rules of the LF-component...associate S-structures with representations in "logical form" (LF), where it is understood that the properties of LF are to be determined empirically and not by some extrinsic concern such as the task of determining ontological commitment or formalizing inference. (Chomsky 1981:17)

Two features of Chomsky's linguistic prose are illustrated in this passage: First, his predilection for acronyms (e.g., LF, meaning *logical form*), some of which do not stand for anything (e.g., S-structure, which was called *surface structure* in earlier versions of the theory, but now, we are told, should be read as *S structure*, being more abstract than 'surface' structure); Secondly, the density of assumptions and presuppositions ("...it is understood that...") which cause many trying to follow him for the first time to call out, "Now wait a minute. When did he establish that?" Suffice it to say that reading Chomsky in the original is definitely not for the faint-hearted.[2]

In what follows, I concentrate on 'unpacking' three major issues in Chomsky's research programme. In the next section, I discuss Chomsky's views on the nature of language, asking three fundamental questions: (i) What precisely is the English Language that we teach? (ii) Why is it different from the 'language' of chimpanzees? and (iii) Why is it different from Spanish or Nahuatl (or any other human language.)? In the third section, I address Chomsky's solution to what he has called the *central problem* for a science of language, namely, the problem of first language acquisition: How do children master the mysteries of English grammar before they have even started primary school, whereas some of our students fail English even after years of study? Finally, in the fourth section, I focus the discussion on Chomsky's theory of syntax, asking (i) why it is so important to him, (ii) why it seems so difficult for the non-specialist, even to many competent L2 grammar teachers, and (iii) what, as teachers, we need to know. In the final section, I offer a brief assessment of the importance of Chomsky for teachers of English and conclude that no one need be afraid.

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[2]One of his recent publications (Chomsky 1988) is more accessible than most and has also been translated into Spanish; the first two chapters of Chomsky (1986) are also more 'reader-friendly'. For those who wish to follow up the issues here in more detail, I recommend the following recent textbooks: Cook (1988) on Chomsky's general approach to language and Radford (1988), who concentrates on English syntax. Recent applications in second language research are summarised in Flynn (1988); c.f. also Phinney (1988), an article published in this journal, and Herrera (1992), which is written in Spanish.

2. Chomsky's views on the nature of language

2.1 Language as mental knowledge

What is the nature of the subject called *English* that is being taught, day-in, day-out, in second or foreign language classrooms around the world? For a mathematics teacher or a geography teacher, the answer is relatively straightforward and the knowledge they teach is distilled from what university scholars have discovered about maths or geography through their research. We may feel, however, that a language teacher is perhaps closer to the position of an art teacher, who needs no knowledge of chemists' theories of the molecular structure of paint or cognitive psychologists' theories of the human visual system. In the arena of language, however, even this analogy breaks down, for the creative, artistic use of the raw materials of language is the domain of teachers of creative writing and literature, not of language per se. The problem is that, unlike artistic or practical skills, language for native speakers is automatic, effortless, natural and untaught; second language learners come to the task with the untaught knowledge of their own native language already in place. Understanding the nature of that knowledge of L1 is Chomsky's primary goal, and I believe that it can help us to better understand our role as teachers in the classroom, and also to solve the apparent paradox of teaching a subject that we do not really fully understand.

For most people, including many teachers, language is essentially a social skill: a set of learned rules used for communication. It is a skill that, in L1, is taken largely for granted, since we all communicate with great fluency and little conscious effort (although some people know more words than others, and some seem more fluent in certain social situations). For Chomsky, however, language is essentially *mental*, rather than *social* and is used for internal *representation* of information as much as for communication with other people. In order to understand its use in social contexts, Chomsky argues that we must first of all understand the nature of what it is we are using, i.e., what knowledge we need to have stored in our minds in order to produce and comprehend meaningful utterances.

For many people, also, the word *language* means Spanish, English, Nahuatl, Bantu or German: i.e., different languages which are characterised by their differences (hence keeping us in jobs). For Chomsky, however, *language* means just that: *language* not *languages,* i.e., the general concept of language expressed better by the Spanish distinction between *lenguaje* and *lengua*. *Lenguaje* is universal, it is the faculty that all human beings share, whereas particular social groups of human beings (often corresponding to different

nations, but not always) have different *lenguas*, and these need learning or translating to be understood by groups speaking other *lenguas*.

These distinctions between *social* and *mental* on the one hand and *lengua* and *lenguaje* on the other hand, actually go hand in hand; if language is mental, then it is located in the brain, like other mental phenomena such as emotions, logic, imagery, catchy tunes, etc. The brain, just like all the other organs of the human body, is identical for every normal human being (except for minor variations in size, rate of metabolism, etc.) and it does not matter what language they speak, what culture they live in, what socio-economic class or race they belong to. The brain is a biological fact, a *human* fact. We can therefore appreciate how Chomsky can view language as basically *lenguaje*, a universal human phenomenon, located first in human minds and only derivatively in human society.

Given this perspective, it does not matter if we study Bantu or Spanish, Hindi or German; we are finding out something about all humanity. Chomsky says:

> There are a number of questions which might lead one to undertake a study of language. Personally, I am primarily intrigued by the possibility of learning something from the study of language that will bring to light inherent properties of the human mind. (1972:103)

Of course, Chomsky cannot study the mind directly: If one opens up a brain one will not be able to see the mind there, with one section marked syntax, another phonology, etc. Chomsky realised that he was limited to the external manifestation of language, i.e., *lenguas*, like Japanese or French, but he realised that individual languages reflected aspects of the mental *software* that lay behind them. Using this computer analogy, we can say that Chomsky studies the actual printouts of different computers (say, an IBM and a Printaform) in order to find out the nature of the common operating system (e.g., MS-DOS) that they use. In this analogy, the printouts represent data from different languages (say, Spanish and Japanese) and the operating system represents the mental language faculty that is common to all members of our species.

Chomsky therefore set about studying English syntax in great depth, using as his evidence speakers' judgments about which sentences were grammatical and which were not. But what did he mean by grammatical? Grammatical sentences are defined as those which form part of some individual's language. *Emphatically*, Chomsky, like all linguists, does not talk about *correct* and *incorrect*, as do traditional school grammars or guides to correct usage. For Chomsky, questions like whether it is correct or not to put a preposition at the end of a sentence ("Who did you talk to?" instead of "To whom did you talk?") or whether

one can split an infinitive ("to boldly go" instead of "to go boldly") are questions of style and social norms, rather than questions of linguistics. We have established that for Chomsky language is mental and therefore what is grammatical is what is in people's minds; *all* people's minds, not just those who speak the 'standard' dialect. The distinction here is one between *prescriptive* grammar and *descriptive* grammar. Chomsky did not invent this distinction, but he emphasised it and added a further dimension: For him grammar is not just descriptive, but also has to be *explanatory*. Grammar cannot be just a list of rules in a book unconnected with anything else; grammar for him is an account of *what we know (subconsciously) about our language*, i.e., part of a theory of mind.

This idea of a mental grammar has caused problems for many non-linguists: What does Chomsky mean that we have a grammar in out heads? I certainly cannot feel mine; I know that when I am working on a problem in syntax I often get a headache, but his meaning is surely a little more subtle. Once one thinks about it, grammar cannot really be anywhere else. "Once one thinks about it" is the key to the problem: People only very rarely think about the essential nature of language--even as language *teachers!* "Once one thinks about it," the only place one can find the real rules of the language is in each speaker's head. Institutions like the *Real Academia* or the *Academie Française (*or books like *Fowler's English Usage* for English) only codify small parts of the grammar and they do it in a very haphazard manner, governed by *social*, rather than *linguistic* criteria; such institutions are prescriptive, rather than descriptive, and do not help us in our quest for the reality of language.

Chomsky starts from the premise that very normal human being has represented in his/her mind a mental grammar and a list of words, the *mental lexicon*. Using these knowledge stores, we can *speak* to ourselves and other people and we can *listen* to ourselves and to other people (in many languages we can also read and write too.) So language for Chomsky is basically knowing the rules and principles which govern our ability to speak and listen. It is this capacity that we are teaching when we teach English (plus a whole host of other non-grammatical factors like vocabulary, appropriate conditions for use, etc.).

As we have seen, Chomsky tries to work out these rules and principles using native speaker intuitions. He could not study actual speech, in the form of surreptitious tape recordings or transcripts of lectures, for examples, since what we actually produce is not the most accurate reflection of what we *know*. Generally, in normal conversation, we do not fully plan what we are going to say beforehand, and even if we do, we are only human and sometimes lose our drift or make errors because we are tired, drunk, excited, etc. This is Chomsky's

distinction between *competence* and *performance*: Competence is what we *know*, internal to the mind, static and permanent; whereas performance is what we *do,* externally, moving in time and impermanent.

2.2 The uniqueness of human language

We now come to the second question: Why is English much more like Bantu (or any other language) than it is like the 'language' of apes or the 'languages' of dolphins or bees? In fact, we have already seen the answer. For Chomsky language is mental, therefore biological: it is a property of the species, a part of our genes. Recall that we are not talking about individual languages like Spanish or English, but rather *lenguaje*, the underlying, shared faculty of language.

Although Chomsky is reluctant to discuss the biological evolution of this genetic capacity, it is instructive to address the issue, especially in order to understand the differences between human and non-human communicative systems. The human species developed the ability to speak around 3.5 to 5 million years ago and yet we diverged from our closest relatives, the chimpanzees, around 5 to 7 million years ago. It is true, of course, that we cannot expect chimpanzees to talk, since they do not have the same vocal apparatus, but they *have* been taught some language-like behaviour (using various types of signs or symbols). Crucially, however, as Chomsky and others have pointed out:

(a) they have to be taught (as we shall see in a moment, children do not);

(b) they lack the function words (like articles, pronouns, question words, etc.) that give us complex grammar;

(c) they lack subordinate clauses -- again implying a lack of complex grammar;

(d) they use 'language' as *a stimulus-response:* They cannot 'talk' about things they have had no experience of or cannot immediately perceive with the senses.

The most we can say is that some highly evolved animals can be taught to manipulate signs in order to obtain food, warmth, etc. Generally, animals are born with a fixed set, a finite list, of expressions like "Watch out, there's a predator about!" or "There's a good spot for a picnic just down the track" or "I'm in the mood for love!" -- they are born with no capacity to communicate messages which are not already encoded in their genes.

Humans, on the other hand, have an infinite capacity--what Chomsky has called the *creativity* of human language. On the basis of a finite grammar (the rules of our language) and a finite vocabulary, we can construct an infinite number of sentences. I am quite confident that almost no reader of this article has read any of the sentences in it before, except maybe the quotes from Chomsky and the sentence "I'm in the mood for love." Most of them were certainly new to me, too, when I began to write.

2.3 The difference between languages

We have now established that English is much closer to Japanese than it is to chimpanzean, but how so? For Chomsky, the basic difference is one of *vocabulary* rather than grammar. Different human communities developing in different parts of the planet are obviously going to label the world around them in different ways. The actual words we choose to give things are arbitrary sequences of sounds and cannot be part of the genetic code.

The grammars of different languages, on the other hand, are for Chomsky basically the same, derived from a genetic blueprint he calls *Universal Grammar (UG),* which constitutes a small set of principles which we are all born with, along with some *parameters* of variation. These parameters of variation are, according to Chomsky, very few. Humans are born knowing UG: All they have to do is work out which parts of it apply to the language they are exposed to, and which patterns of sounds they use to refer to the world around them. How this is done leads us to the second major area of Chomsky's interests: language acquisition.

3. Chomsky's views on language acquisition

It is impossible to talk about Chomsky's view of language without mentioning language acquisition. It has been very difficult to avoid the issue so far in this discussion, especially as it is an aspect of his work which has been of great interest to English teachers and L2 researchers. The reason why it is difficult to ignore is that it provides the single most important justification for the Chomskyan paradigm, especially the view of the language faculty as innate Universal Grammar. Chomsky (1986) claims that his theory must be "rich, detailed and specific enough to account for the fact of language acquisition." And it is this feature which distinguishes the theory as explanatory, rather than merely descriptive.

Chomsky has argued that the essential difference between particular languages is basically one of vocabulary. For him syntax varies minimally across languages. The implication for language acquisition is that *there is not much to be learnt.* Only words and some slight grammatical fine-tuning. This assumption, unlikely as it seems, does help us to explain the facts of language acquisition, which seems something of a miracle. As teachers, we invest hours, days, weeks and years teaching intelligent adults to speak English, and yet very few of them emerge from the process with anything like a native command of the language. Children, on the other hand, have by the age of 4 achieved all but adult grammatical competence, without any classes, Berlitz tapes or suggestopedia.

In fact, and this is a fact that is central to Chomsky's argument, children do not even get all the help they need from the language they hear around them daily, from parents, baby sitters, siblings and kindergarten colleagues. This is the problem that Chomsky has called the "deficiencies in the input" or the "poverty of the stimulus." Children, first of all, are not corrected by their mothers, guardians, older siblings, etc. in any consistent manner. Even if they *are* corrected, such corrections usually refer to the truth conditions of the utterance, and the few grammatical corrections are in any case inconsistent and generally ignored. This point is an empirical one, that has been established not by theoretical syntacticians like Chomsky, but by psycholinguists, many of whom do not even agree with Chomsky's ideas, who have observed the acquisition process first-hand.

Another problem is that children do not hear all the structures that they end up being able to produce: So not only is there a lack of explicit instruction, but also they do not get all the information they need in order to fix the rules of the grammar. Finally, what they *do* get is not pristine input reflecting *competence* (which they are acquiring), but, as we have seen, an imperfect reflection of competence through *performance*, which is full of ungrammatical and incomplete sentences.

How, then, does the child always succeed when the typical student generally fails? The answer is *UG (*coupled with a set of learning procedures known as the Language Acquisition Device [LAD]). Children must *already know* an awful lot about language, using the input only to fix the variable parts of the grammar which are specific to the particular language to which they are exposed. These variations in UG are called parameters. UG constitutes a set of general principles which govern the structure of all languages; for example, the rules of phrase structure, which determine the hierarchical organisation of phrases and sentences (usually diagrammed in the form of syntactic *trees*). Word order, however, is

something that varies across languages, but it turns out that much of the basic structure is the same, and that particular languages vary systematically in this regard. The fundamental structure of any phrase consists of an obligatory *major category* (noun, verb, adjective or adposition) and then optional modifiers or complements (such as relative clauses or adjectives for nouns, direct objects or clausal complements for verbs, etc.) and languages are more or less consistent about which side of the head they place their complements and modifiers. In Chomsky's model, this left or right positioning of heads of phrases is determined by the *value* of the *head direction parameter* associated with the principle of phrase structure. The child only has to hear some relevant input which allows the LAD to *set* the parameter: for the head direction parameter, only prepositions or postpositions perhaps, or relative clauses before or after the noun.

Let us consider, as an example, the difference between Spanish and Japanese in this regard. Spanish (unlike English) is consistently head-initial in its phrase structure, as the following example shows:

(1) Spanish: Head-Initial

El estudiante descontento con la vida entregó la tarea a la profesora.

(The student unhappy with (the) life handed in the homework to the professor.)

Noun Phrase: [el [**estudiante** descontento con la vida]]

Adjective Phrase: [**descontento** con la vida]

Verb Phrase: [**entregó** la tarea a la profesora]

Prepositional Phrase: [**a** la profesora]

Japanese is an example of a consistently head-final language, as we see with the following example (a translation of the sentence in 1):

(2) Japanese: Head-Final

Jinsei ni fushiawasena gakusei-wa sensei ni shukudai-o teishutshita.

(Jinsei ni fushiawasena gakusei-wa sensei ni.

(Life with unhappy student (subject) professor (indirect object)

shukudai -o teishutshita)

homework (direct object) handed in.)

Noun Phrase: [Jinsei ni fushiawasena **gakusei-wa**]

Adjective Phrase: [Jinsei ni **fushiawasena**]

Verb Phrase: [sensei ni shukudai-o **teishutshita**]

Postpositional Phrase: [sensei **ni**]

In order to learn this aspect of the grammar, the child exposed to Spanish need only hear, say, a certain number of prepositions or object noun phrases after the verb, in order to be able to set the head-direction parameter to head-initial, and the child exposed to Japanese need only hear postpositions, or objects after the verb, to know that it is acquiring a head-final language.

4. Chomsky's theory of syntax

We now turn to Chomsky's concentration on syntax and begin by trying to appreciate why he has spent so much energy on this, maybe the most esoteric aspect of language. Syntax is important to Chomsky because, of all the levels of structure in language (traditionally: phonetics, phonology, morphology, syntax, semantics, pragmatics), it is the only one to be *uniquely* linguistic. Phonetic and phonology are intimately tied to the production and reception of linguistic sounds, as is morphology ion part (e.g., why the past tense -ed has three different pronunciations in *thanked, pleased waited*), but we can also produce and comprehend *non-linguistic* sounds using some of the same mental resources. Semantics is the study of linguistic meaning, but there are also meanings that are *non-linguistic* (for example, the meaning of hate, the meaning of road signs, the meaning of a painting by Monet, etc.). In its turn, pragmatics is by definition the *interface* between the linguistic code and its *non-linguistic* context. Only syntax can be discussed purely in its own terms, without recourse to knowledge from other fields; it is therefore, for Chomsky, the key to the nature of the human language faculty.

For theoretical syntacticians like Chomsky, the notion of syntax comes easily, but for many others (including many linguists working on other aspects of language) the notion of syntax is rather more impenetrable. One reason is its very isolation from non-linguistic phenomena, its *autonomy*, in Chomsky's terms. For

Chomsky, syntax is almost entirely separate from function and meaning. Terms used in traditional approaches to grammar, such as subject, object, etc. suggest the *function* of nouns in a sentence and therefore are only derivative notions in Chomsky's syntactic theory. Stripped of any relation with meaning, it is the very abstractness of his grammar, its intangible, inaccessible nature, which makes it so difficult for the non-generativist to grasp: It is precisely terms like subject and object which *anchor* traditional syntax to the real world of events; without such concrete notions, and with, instead, notions like *empty categories* and *abstract case* (which in English at least is rarely overtly marked), syntax seems for many people an unreal world, requiring an act of faith.

For example, Chomsky has proposed an abstract level of structure called D-structure (originally *deep structure*), to which movement rules apply to give different *surface* structures. From the D-structure

(3) John made dinner for David.

we can apply rules to get more complex sentences like

(4) (a) Who did John make dinner for?

(b) What did John make for David?

(c) Dinner was made for David by John.

(d) It was dinner that David made for John.

Within the theory, rules which change basic (*deep*) sentences into often more complicated (*surface*) ones are called *transformations*. But they are not really mental *movements*, as psycholinguists have been able to prove. Using such metaphors as *movements* and *derivations* has, I think, made it harder for people to grasp the reality that Chomsky is trying to describe, namely that represented in every human mind there are permanent, static principles which govern the perception and production of language. These principles are very abstract and complicated, making them difficult for us to grasp at a conscious level, but Chomsky has demonstrated very convincingly that all speakers *know* them at a level below consciousness.

The major question for English teachers is whether, as teachers, we need to know these rules and principles *above* the level of consciousness, and whether they can provide tools for us in the classroom, in the same way that biology teachers need to know theories of biology. A number of years ago Chomsky himself answered this question, when he stated:

> I am, frankly, rather skeptical about the significance, for the teaching of languages, of such insights and understanding as have been attained in linguistics [...] It is difficult to believe that [...] linguistics [...] has achieved a level of theoretical understanding that might enable it to support a 'technology' of language teaching. (1966: 37)

Although the theory has developed a lot since 1966, I am sure that Chomsky has not changed his mind on this point. As we have seen, his theory is a theory of a static, abstract knowledge, a knowledge that is acquired by children with no explicit teaching. It is not a dynamic theory, which would be likely to help in the dynamic, *conscious* process of explicit second or foreign language teaching.

What language teachers should learn from Chomsky's work is not the details of his theory of syntax, but rather the general framework he has provided for understanding the nature of *lenguaje*: The fact that language is possessed by all of us, that all of us have a remarkable creative capacity, richer and more complex than any man-made computer's, and that we have acquired it unconsciously, without teachers.

The question of whether students can use this genetic capacity for language (i.e., the LAD and UG) in their attempts to learn a second language, is still unresolved. It is the linchpin of approaches such as that advocated by Krashen (e.g., 1981), who argues that if we can provide a learning environment which 'mimics' that of a child acquiring its native language, then conscious *learning* will give way to unconscious *acquisition*, and the result will be near-native competence. Unfortunately, creating the right environment is not the only, or even then most important, element of the puzzle: We also need to know whether the LAD and UG are still accessible to the adult learner, and this is not at all clear. Some L2 researchers fervently believe that it is (cf. Flynn, 1988) whereas others strongly disagree (cf. Bley-Vroman, 1989); the debate is healthy and continues to grow.

5. Conclusion

Although familiarity with Chomsky's syntactic theory will help English teachers to follow this exciting debate, it will not greatly enhance our effectiveness as teachers. A sensitivity to the nature of language should, however, help us to reflect on what it is that we are teaching, and thus, with reflection, help us to understand our role in the classroom and to have greater respect for the cognitive tasks which our students face. Chomsky has provided the most integrated, comprehensive and scientifically rigorous framework for this reflection and can thus help us understand that a large part of our students' task is effectively out of our

hands: Unlike teachers of geography, mathematics or biology, we can only hope to *facilitate*, rather than direct, the learning of large parts of the subject matter entrusted to us.

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