STORIA DELLA LINGUISTICA 2014-15

Materiali 6

INIZI DELLA GRAMMATICA GENERATIVA

I. DIFFICOLTÀ DEL MODELLO POST-BLOOMFIELDIANO

1. Crisi del comportamentismo

Sequences of action […] cannot be explained in terms of successions of external stimuli (Karl S., Lashley [1890-1958], *The Problem of Serial Order in Behavior*, in L. A Jeffress et al. (eds.), *Cerebral Mechanisms in Behavior: the Hixon Symposium*, New York, Wiley 1951, p. 113).
It is certain that any theory of grammatical form which ascribes it to direct associative linkage of the words of the sentence overlooks the essential structure of speech" (ibid., p. 116).
[…] the problems raised by the organization of language seem to me to be characteristic of almost all other cerebral activity (ibid. , p. 121).

Karl Lashley gave a brilliant critique of the prevailing framework of ideas in 1948, arguing that underlying language use – and all organized behavior – there must be abstract mechanisms of some sort that are not analyzable in terms of association and that could not have been developed by any such simple means (Chomsky, *Language and Mind*, 3rd ed., Cambridge, C.U.P, 2006, p. 2).

2. Crisi del distribuzionalismo

a) Kenneth L. Pike (1912-2000): contro il "principio della separazione dei livelli"

Grammatical Analysis of an initial kind is prerequisite to phonemic analysis (Pike, *Grammatical Prerequisites to Phonemic Analysis*, "Word", 3, 1947, p. 169).

b) Harris: il concetto di 'trasformazione'

[…] two sentences in a language are equivalent if they both occur in the language. In particular, we will say that sentences of the form *A* are equivalent to sentences of the form *B*, if for each sentence *A* we can find a sentence *B* containing the same morphemes except for differences due to the difference in form between *A* and *B*. For example, N_1VN_2 is equivalent to N_2 *is V-en by* N_1 because for any sentence like *Casals plays the cello* we can find a sentence *The cello is played by Casals* (Harris, *Discourse Analysis*, "Language", 28, 1952, p. 19).

If two or more constructions (or sequences of constructions) which contain the same n classes (whatever else they may contain) occur with the same n-tuples of members of these classes in the same sentence environment […], we say that the constructions are transforms of each other, and that each may be derived from any other of them by a particular transformation. For example, the constructions N V v N (a sentence) and N's V*ing* N (a noun phrase) are satisfied by the same triples of N, V, and N (*he*, *meet*, *we*; *foreman*, *put up*, *list*; etc.); so that any choice of members which we find in the sentence we also find in the noun phrase and vice versa: *He met us, his meeting us ...*; *The foreman put the list up, the foreman's putting the list up ...* (Harris, *Cooccurrence and Transformation in Linguistic Structure*, "Language", 33, 1957, p. 288).

[…] in constructions like *I know whom you by-passed* or *Whom did you by-pass?* the V *by-pass* is never followed by an object N, though elsewhere it is. We can then say that *whom* - or, for other reasons, just the ( )*om* - is itself the object N_2 of *by-pass*, so that ( )*om you by-passed* becomes the well-known construction N_1 v V N_2 with the N_2 moved up. We avoid having unique constructions like *you by-passed* without object N (id., p. 295).

If now we compare *He will paint* with *He will not paint, He will paint, Will he paint?, Only then will he paint, I'll paint and so will he,* we see that under the same conditions the V + auxiliaries (*will*, *can*, etc.) do not change, except that in the subset of conditions mentioned above the auxiliary

changes place with the preceding N. This and other considerations […] suggest that the *-s, -ed* be considered affixes of *paint* even after they move in front of it, and that the *do* which precedes them be considered not a morpheme at all but only a phonemic carrier for the suffixes when they do not have their V before them (id., p. 300).

The kernel is the set of elementary sentences and combiners, such that all sentences of the language are obtained from one or more kernel sentences (with combiners) by means of one or more transformations (id., p. 335).

II. LA PRIMA FORMULAZIONE DELLA TEORIA GENERATIVA

1. Scopi della teoria linguistica

The fundamental aim in the linguistic analysis of a language L is to separate the *grammatical* sequences which are the sentences of L from the *ungrammatical* sequences which are not sentences of L and to study the structure of the grammatical sequences (N. Chomsky [1928---], *Syntactic Structures*, Mouton, The Hague, 1957, p. 13).

2. Il concetto di “grammaticalità”

[…] the notion "grammatical" cannot be identified with "meaningful" or "significant" in any semantic sense. Sentences (1)and (2) are equally nonsensical, but any speaker of English will recognize that only the former is grammatical.
(1) Colorless green ideas sleep furiously.
(2) Furiously sleep ideas green colorless.
Similarly, there is no semantic reason to prefer (3) to (5) or (4)to (6), but only (3) and (4) are grammatical sentences of English.
(3) have you a book on modern music?
(4) the book seems interesting.
(5) read you a book on modern music?
(6) the child seems sleeping. (ibid., p. 15).

The set of grammatical sentences cannot be identified with the linguist’s corpus of observed sentences. [...] Thus we must project the class of observed sentences to a larger, in fact, infinite class of grammatical sentences (Chomsky, *The Logical Structure of Linguistic Theory*, The University of Chicago Press, Chicago-London, 1975, p. 129 [la stesura di questo testo risale agli anni 1955-‘56])

2. Tre modelli per la descrizione del linguaggio

a) Il modello “a stati finiti” e la sua inadeguatezza

Suppose that the machine begins in the initial state, runs through a sequence of states (producing a word with each transition), and ends in the final state. Then we call the sequence of words that has been produced a "sentence". […] Any language that can be produced by a machine of this sort we call a *finite state language;* and we can call the machine itself a *finite state grammar* (Chomsky, *Syntactic Structures*, p. 19).

L’esistenza di relazioni a distanza mostra però che il modello a stati finiti non è adeguato per la descrizione delle lingue naturali. Esempi di relazioni a distanza:
L’uomo che disse che aveva visto le balene partì per Rimini
L’uomo che Pietro disse che aveva visto le balene partì per Rimini

b) La “grammatica a struttura sintagmatica” (*phrase structure grammar*); esempi di regole:

(a) S → NP VP
(b) NP → T N
(c) VP → Verb NP
(d) T → *the*

(e) N → *man*, *ball*, etc.
(f) Verb → *hit*, *took*, etc.
(cf. Chomsky, *Syntactic Structures*, p. 26)

c) Limitazioni della grammatica a struttura sintagmatica

As a third example of the inadequacy of the conceptions of phrase structure, consider the case of the active-passive relation. Passive sentences are formed by selecting the element *be* + *en* in rule (28 iii). But there are heavy restrictions on this element that make it unique among the elements of the auxiliary phrase. For one thing, *be* + *en* can be selected only if the following *V* is transitive (e.g., *was* + *eaten* is permitted, but not *was* + *occurred*); but with a few exceptions the other elements of the auxiliary phrase can occur freely with verbs. Furthermore, […]. Finally, note that […] we will have to place many restrictions on the choice of *V* in terms of subject and object in order to permit such sentences as: "John admires sincerity," "sincerity frightens John," "John plays golf," "John drinks wine," while excluding the 'inverse' non-sentences "sincerity admires John," "John frightens sincerity," "golf plays John," "wine drinks John". But this whole network of restrictions fails completely when we choose *be* + *en* as part of the auxiliary verb. In fact, in this case the same selectional dependencies hold, but in the opposite order. That is, for every sentence NP_1 — *V*— NP_2 we can have a corresponding sentence NP_2 — *is*+ *Ven*— *by* + NP_1. If we try to include passives directly in the grammar […], we shall have to restate all of these restrictions in the opposite order for the case in which *be* + *en* is chosen as part of the auxiliary verb. This inelegant duplication, as well as the special restrictions involving the element *be* + *en*, can be avoided only if we deliberately exclude passives from the grammar of phrase structure […] (Chomsky, *Syntactic Structures*, p. 42).

d) Il terzo modello: la "grammatica trasformazionale": trasformazione di "salto d'affisso" (*Affix Hopping*)

(28) (i) $Verb \rightarrow Aux + V$

(ii) $V \rightarrow hit, take, walk, read,$ etc.

(iii) $Aux \rightarrow C(M)\ (have + en)\ (be + ing)\ (be + en)$

(iv) $M \rightarrow will, can, may, shall, must$

(29) (i) $C \rightarrow \begin{cases} S \text{ in the context } NP_{sing}- \\ \emptyset \text{ in the context } NP_{pl}- \\ past \end{cases}$ [4]

(ii) Let *Af* stand for any of the affixes *past*, *S*, *Ø*, *en*, *ing*. Let *v* stand for any *M* or *V*, or *have* or *be* (i.e., for any non-affix in the phrase *Verb*). Then:

$$Af + v \rightarrow v + Af\ \#,$$

where # is interpreted as word boundary.[5]

(iii) Replace + by # except in the context $v - Af$. Insert # initially and finally.

(Chomsky, *Syntactic Structures*, p. 39).

La regola (29ii) è la cosiddetta "trasformazione di salto d'affisso" (*Affix Hopping*) (questo termine è in realtà successivo a Chomsky 1957, dove si parla invece di "trasformazione dell'ausiliare"). La regola di salto d'affisso non è una regola SS, in quanto non rispetta una condizione su queste regole, ossia quella che non si può riscrivere più di un simbolo alla volta: essa è dunque una regola di tipo diverso, *trasformazionale*.

e) Esempio di applicazione della trasformazione di salto d'affisso: derivazione della frase inglese *the man has been reading the book*

1. Sequenza degli elementi *prima* della trasformazione di salto d'affisso:

the + man + *s* + have + en + be + ing + read + the + book

2. Stringa di elementi dopo la trasformazione di salto d'affisso:

#the # man # have +*s* # be +en # read +ing # the # book

3. L'applicazione delle regole morfofonemiche fornisce la rappresentazione "concreta" della frase:

the man has been reading the book

3. Proprietà delle trasformazioni

b) Rappresentazione adeguata delle relazioni tra frasi.

If *S1* is a grammatical sentence of the form
NP1 — Aux — V — NP2,
then the corresponding string of the form
NP2 — Aux + be + en — V — by + N,
is also a grammatical sentence.

For example, if *John — C — admire — sincerity* is a sentence, the *sincerity — C + be + en — admire — by + John* (which by (29) and(19) becomes "sincerity is admired by John") is also a sentence (Chomsky, *Syntactic Structures*, p. 43).

4. Tipologia delle trasformazioni e "nucleo"

a) Trasformazioni "obbligatorie" e "facoltative"

[…] note that certain transformations are *obligatory*, whereas others are only *optional*. For example, (29) must be applied to every derivation, or the result will simply not be a sentence. But (34), the passive transformation, may or may not be applied in any particular case. Either way the result is a sentence. Hence (29) is an obligatory transformation and (34) is an optional transformation (Chomsky, *Syntactic Structures*, p. 45).

b) Frasi nucleari e nucleo

When we apply only obligatory transformations in the generationof a given sentence, we call the resulting sentence a kernel sentence (Chomsky 1957, p. 46).

[…] we find that the kernel consist of simple, declarative, active sentences (in fact, probably a finite number of these), and that all other sentences can be described more simply as transforms (id., p. 80).

c) Trasformazioni "singolari" e "generalizzate"; ricorsività

Le trasformazioni che inseriscono frasi in altre frasi sono chiamate in Chomsky (*Syntactic Structures*) trasformazioni 'generalizzate', mentre quelle che si limitano alle frasi semplici (come la passiva, o il salto d'affisso) sono chiamate 'singolari'. Dato che tutte le frasi nucleari sono frasi semplici, ne deriva che tutte le trasformazioni generalizzate sono facoltative. La 'ricorsività', ossia la possibilità di includere un numero illimitato di frasi dipendenti in una frase principale è dunque prodotta dalle trasformazioni generalizzate, nel modello di Chomsky (*Syntactic Structures*).

5. La grammatica generativa vs. il distribuzionalismo post-bloomfieldiano

a) Il problema dei morfi e dei costituenti discontinui: diversi "livelli di rappresentazione"

Many problems of morphemic analysis also receive quite simple solutions if we adopt the general framework outlined above. […] in such well-known cases as English "took" /tuk/ […] it is difficult without artificiality to associate any part of this word with the past tense morpheme which appears as /t/ in "walked" /wɔkt/, as /d/ in "framed" /freymd/, etc. We can avoid all such problems by

regarding morphology and phonology as two distinct but interdependent levels of representation, related in the grammar by morphophonemic rules […]. Thus "took" is represented on the morphological level as *take + past* just as "walked" is represented as *walk + past.* The morphophonemic rules […] carry these strings of morphemes into /tuk/, /wɔkt/. […] If we give up the idea that higher levels are literally constructed out of lower level elements, as I think we must, then it becomes much more natural to consider even such abstract systems of representation as transformational structure (where each utterance is represented by the sequence of transformations by which it is derived from a terminal string of the phrase structure grammar) as constituting a linguistic level (Chomsky, *Syntactic Structures*, pp. 58-59).

b) La nozione di ‘trasformazione’ in Harris e in Chomsky

In Harris il termine ‘trasformazione’ indica un rapporto tra *frasi*, in Chomsky indica un rapporto tra *livelli di rappresentazione,* ossia un rapporto tra *strutture.*

6. La “generazione” di una frase non si identifica con la sua “produzione” da parte del parlante

One further point […] deserves mention, since it has apparently led to some misunderstanding. We have described these grammars as devices for generating sentences. This formulation has occasionally led to the idea that there is a certain asymmetry in grammatical theory in the sense that grammar is taking the point of view of the speaker rather than the hearer; that it is concerned with the process of producing utterances rather than the 'inverse' process of analyzing and reconstructing the structure of given utterances. Actually, grammars of the form that we have been discussing are quite neutral as between speaker and hearer […] . Each such grammar is simply a description of a certain set of utterances, namely, those which it generates (Chomsky, *Syntactic Structures*, p. 48).